



**The Republic of Uganda**



## **MINISTRY OF WATER AND ENVIRONMENT**

### **CIVIL WORKS FOR OFF-FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

# **Volume 3: Bills of Quantities**

**Proc. Ref. No.: MWE/WRKS/24-25/...../1**

**LOT 1 NORTHERN AND CENTRAL UPPER REGIONS**

**Issued on: .....January 2025**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 1- NORTHERN &  
CENTRAL UPPER REGIONS**

**GRAND SUMMARY**

| Bill/<br>Scheme<br>ID. | Description                     | Amount (UGx.)   |
|------------------------|---------------------------------|-----------------|
|                        |                                 |                 |
|                        | <b>GENERAL</b>                  |                 |
| PG                     | Preliminaries and General Items |                 |
| GI.1                   | Method Related Charges          |                 |
| DW                     | Dayworks                        |                 |
|                        |                                 |                 |
| <b>SUB TOTAL 1</b>     |                                 |                 |
|                        | <b>WORK ITEMS</b>               |                 |
|                        | <b>Scheme Name</b>              | <b>District</b> |
|                        |                                 | <b>Region</b>   |
| 1.1                    | Teatoke                         | Amolatar        |
| 1.2                    | Adak B                          | Apac            |
| 1.3                    | Alake                           | Dokolo          |
| 1.4                    | Lwala                           | Kwania          |
| 1.5                    | Abeibuti                        | Oyam            |
| 1.6                    | Bung Iponga                     | Oyam            |
| 1.7                    | Odyebo                          | Oyam            |
| 2.1                    | Koro Angaba                     | Omoro           |
| 2.2                    | Ocaga                           | Omoro           |
| 2.3                    | Opukomony                       | Omoro           |
| 2.4                    | Kikaito                         | Kiryandongo     |
| 2.5                    | Nyakagweng                      | Kiryandongo     |
| 2.6                    | Kikungura                       | Masindi         |
| 2.7                    | Ntooma                          | Masindi         |
| 2.8                    | Kinoni                          | Nakasongola     |
| 3.1                    | Meeru                           | Buvuma          |
| 3.2                    | Bwamulamira                     | Kayunga         |
| 3.3                    | Buwungiro                       | Kayunga         |
| 3.4                    | Mpangati                        | Luwero          |
| 3.5                    | Mawundwe                        | Mityana         |
| 3.6                    | Nvunanwa                        | Nakaseke        |
| 3.7                    | Masulita                        | Wakiso          |
| 4.1                    | Bedimwolo                       | Alebtong        |
| 4.2                    | Odokomit                        | Agago           |
| 4.3                    | Oget                            | Kitgum          |
| 4.4                    | Lagot Opuk                      | Lamwo           |
| 4.5                    | Tekullu                         | Lira            |
| 4.6                    | Omeny Ki Mac                    | Pader           |
| 4.7                    | Opore                           | Otuke           |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 1- NORTHERN &  
CENTRAL UPPER REGIONS**

**GRAND SUMMARY**

| <b>Bill/<br/>Scheme<br/>ID.</b>        | <b>Description</b> |               |       | <b>Amount (UGx.)</b> |
|--|--------------------|---------------|-------|----------------------|
| 5.1                                    | Elegu              | Adjumani      | North |                      |
| 5.2                                    | Panyua             | Madi - Okollo | North |                      |
| 5.3                                    | Abaa               | Maracha       | North |                      |
| 5.4                                    | Paubo              | Moyo          | North |                      |
| 5.5                                    | Ceke               | Nwoya         | North |                      |
| 5.6                                    | Ongai              | Nwoya         | North |                      |
| 5.7                                    | Onyom Til          | Nwoya         | North |                      |
| <b>SUB TOTAL 2</b>                     |                    |               |       |                      |
| SUB TOTAL 1 + 2                        |                    |               |       |                      |
| Add 10% Contigencies                   |                    |               |       |                      |
| <b>SUB TOTAL 3</b>                     |                    |               |       |                      |
| Add 18% VAT                            |                    |               |       |                      |
| <b>GRAND TOTAL Carried to Bid Form</b> |                    |               |       |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 1- NORTHERN & CENTRAL UPPER REGIONS**

**BILL No. PG : PRELIMINARIES AND GENERAL ITEMS**

| ITEM NO.                                    | DESCRIPTION   | UNIT  | QTY | RATE (UGX) | AMOUNT (UGX) |
|---|---|-------|-----|------------|--------------|
| <b>1.0</b>                                  | <b>Contractual Requirement</b>  |       |     |            |              |
| 1.1   | Performance Security. - PCC 49.1  | Sum   | 1   |            |              |
| 1.2   | Advance Payment Guarantee - PCC 48.1  | Sum   | 1   |            |              |
| 1.3   | Insurance of the Works - GCC 13   | Sum   | 1   |            |              |
| <b>2.0</b>                                  | <b>Testing of Materials and Works</b>   |       |     |            |              |
| 2.1   | Concrete cube tests as ordered by the Engineer; 4 No. per Scheme .  | Nr    | 144 |            |              |
| 2.2   | Pressure testing & sterilisation of main lines  | km    | 36  |            |              |
| 2.3   | Witness testing for Solar power systems   | P.S   | 1   | 90,000,000 |              |
| 2.4   | Contractor's handling charge on all provisional sums under 2.3 above.   | %     | 10  |            |              |
| <b>3.0</b>                                  | <b>Temporary works</b>  |       |     |            |              |
| 3.1   | Provide, erect and maintain during the construction period 2No. sign boards per scheme at locations shown by the Engineer and in accordance with the Drawings and Specifications.   | Nr    | 72  |            |              |
| 3.2   | De-watering; Allow for work in water affected areas, including all temporary works, pumping, protection, access, etc to ensure the works are completed as specified; include removal of facilities.   | Sum   | 1   |            |              |
| 3.3   | Control and diversion of water from site and work areas to ensure the works are completed as specified. Rate to include removal of all temporary facilities and construction.   | Sum   | 1   |            |              |
| 3.4   | Set up container converted to temprary office (20ft long by 8ft wide by 8ft 6 inch high) and with windows and doors, well maintained communication systems i.e. mobile, wireless internet etc. as directed and to the satisfaction of the Engineer. | Sum   | 1   |            |              |
| <b>4.0</b>                                  | <b>Provisional Sums</b>   |       |     |            |              |
| 4.1   | Provision Sum for Client's administration and Supervision expenses  |       |     |            |              |
|   | a) Western Region   | month | 24  | 8,500,000  |              |
|   | b) Central Lower Region   | month | 24  | 4,200,000  |              |
| 4.2   | Allow for Site Handover / Project Launch.   | P.S   | 36  | 2,100,000  |              |
| 4.3   | Allow for Technical Commissioning at Completion.  | P.S   | 36  | 2,100,000  |              |
| 4.4   | Resident Supervision vehicle running costs  |       |     |            |              |
|   | a) Western Region   | P.S   | 24  | 4,200,000  |              |
|   | b) Central Lower Region   | P.S   | 24  | 2,100,000  |              |
| 4.5   | Contractor's handling charge on all provisional sums under 4.1a, 4.1b, 4.2, 4.3, 4.4a, & 4.4b above   | %     | 10  |            |              |
| <b>Total Carried to Collection</b>          |   |       |     |            |              |
| <b>Total Bill No. PG Carried to Summary</b> |   |       |     |            |              |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 1- NORTHERN & CENTRAL  
UPPER REGIONS**

**BILL No. GI.2 : METHOD RELATED CHARGES**

| ITEM NO.                                       | DESCRIPTION   | UNIT  | QTY | RATE (UGX) | AMOUNT<br>(UGX) |
|--|---|-------|-----|------------|-----------------|
|  | <b>Method-Related Charges</b><br><i>Other applicable Method-related Charges, if any, may be inserted by the Bidder.</i>         |       |     |            |                 |
|  | <b><u>Fixed charge items</u></b>  |       |     |            |                 |
| 1.1  | Mobilisation on site  | sum   | 1   |            |                 |
| 1.2  | Demobilise on completion of the Works   | sum   | 1   |            |                 |
| 1.3  | Supply and/or erect Contractor's site offices.  | sum   | 1   |            |                 |
| 1.4  | Remove Contractor's site offices on completion of the Works   | sum   | 1   |            |                 |
|  | <b><u>Time related charge items</u></b><br><i>Other applicable Time-Related Charges, if any, may be inserted by the Bidder.</i> |       |     |            |                 |
| 2.1  | Maintain Contractor's site offices, including all services  | month | 24  |            |                 |
| 2.2  | Contractors Superintendence of Works  | month | 24  |            |                 |
| <b>Total Bill No. GI. 1 Carried to Summary</b> |   |       |     |            |                 |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 1- NORTHERN & CENTRAL UPPER REGIONS**

**BILL No. DW : DAY WORKS**

| ITEM NO.                           | DESCRIPTION   | UNIT           | QTY   | RATE (UGX) | AMOUNT (UGX) |
|------------------------------------|---|----------------|-------|------------|--------------|
|                                    | <b>Personnel</b>  |                |       |            |              |
| DW-.1                              | Working ganger  | hr             | 10    |            |              |
| DW-.2                              | Artisan   | hr             | 10    |            |              |
| DW-.3                              | Semi-skilled  | hr             | 10    |            |              |
| DW-.4                              | Unskilled   | hr             | 100   |            |              |
| DW-.5                              | Driver for light vehicle  | hr             | 7     |            |              |
| DW-.6                              | Driver for heavy vehicle  | hr             | 10    |            |              |
| DW-.7                              | Operator for heavy equipment                                    | hr             | 10    |            |              |
|                                    | <b>Materials</b>  |                |       |            |              |
| DW-.8                              | Ordinary Portland Cement in 50 kg bags                          | t              | 1     |            |              |
| DW-.9                              | Coarse aggregate for concrete.                                  | m <sup>3</sup> | 1     |            |              |
| DW-.10                             | Fine aggregate for concrete.                                    | m <sup>3</sup> | 0.5   |            |              |
| DW-.11                             | Water for concrete  | liters         | 10    |            |              |
| DW-.12                             | Sand for building   | m <sup>3</sup> | 0.5   |            |              |
| DW-.13                             | Sand for plaster  | m <sup>3</sup> | 0.5   |            |              |
| DW-.14                             | Fired Clay bricks for building.                                 | nr             | 5,000 |            |              |
| DW-.15                             | Concrete blocks for building, 225mm for building, 150mm thick   | m <sup>2</sup> | 0.5   |            |              |
| DW-.16                             | Concrete blocks for building, 225mm for building, 200 mm thick. | m <sup>2</sup> | 0.5   |            |              |
| DW-.17                             | Hydrated lime for building 150 mm thick.                        | kg             | 1     |            |              |
| DW-.18                             | Timber, sawn.   | m <sup>3</sup> | 0.5   |            |              |
| DW-.19                             | Timber wrot.  | m <sup>3</sup> | 0.5   |            |              |
|                                    | <b>High yield steel reinforcement:-</b>                         |                |       |            |              |
| DW-.20                             | 8-10 mm Dia.  | kg             | 2,000 |            |              |
| DW-.21                             | 12-16 mm dia.   | kg             | 1,000 |            |              |
| DW-.22                             | Steel reinforcement fabric reference: A252                      | m <sup>2</sup> | 5     |            |              |
| DW-.23                             | Hardcore filling  | m <sup>3</sup> | 10    |            |              |
| DW-.24                             | Topsoil delivered to site and spread                            | m <sup>3</sup> | 50    |            |              |
| <b>Total Carried to Collection</b> |   |                |       |            |              |
|                                    | <b>CONTRACTOR'S EQUIPMENT</b>                                   |                |       |            |              |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 1- NORTHERN & CENTRAL UPPER REGIONS**

**BILL No. DW : DAY WORKS**

| ITEM NO.                           | DESCRIPTION   | UNIT | QTY | RATE (UGX) | AMOUNT (UGX) |
|------------------------------------|---|------|-----|------------|--------------|
| DW-.25                             | Road vehicles:Pick-up,1 1/2t.                       | hr   | 5   |            |              |
|                                    | <b><u>Road vehicles: Lorries:</u></b>               |      |     |            |              |
| DW-.26                             | Flat-5t capacity                                    | hr   | 4   |            |              |
| DW-.27                             | Flat-10t capacity                                   | hr   | 4   |            |              |
|                                    | <b><u>Tipping :</u></b>                             |      |     |            |              |
| G-1.21.28                          | 5t capacity   | hr   | 5   |            |              |
| G-1.21.29                          | 10t capacity  | hr   | 5   |            |              |
|                                    | <b><u>Water tankers with pump and hoses:</u></b>    |      |     |            |              |
| DW-.30                             | 5,000 Litre capacity.                               | hr   | 10  |            |              |
|                                    | <b><u>Excavator, face shovel or dragline:</u></b>   |      |     |            |              |
| DW-.31                             | 0.25 m <sup>3</sup> bucket.                         | hr   | 10  |            |              |
| DW-.32                             | 0.5m <sup>3</sup> bucket.                           | hr   | 10  |            |              |
| DW-.33                             | 1.0m <sup>3</sup> bucket.                           | hr   | 10  |            |              |
|                                    | <b><u>Super long reach boom Excavator:</u></b>      |      |     |            |              |
| DW-.34                             | 0.25 m <sup>3</sup> bucket.                         | hr   | 10  |            |              |
| DW-.35                             | 0.5m <sup>3</sup> bucket.                           | hr   | 10  |            |              |
| DW-.36                             | 1.0m <sup>3</sup> bucket.                           | hr   | 10  |            |              |
|                                    | <b><u>Tractors:</u></b>                             |      |     |            |              |
| DW-.37                             | Rubber tyred with trailer, 75 kw.                   | hr   | 10  |            |              |
|                                    | Tracked including bull and angle dozer with ripper: |      |     |            |              |
|                                    | (i) 150 kw.   | hr   | 10  |            |              |
|                                    | (ii) 200 kw   | hr   | 10  |            |              |
|                                    | (iii) 250 kw.                                       | hr   | 10  |            |              |
|                                    | <b><u>Rollers:</u></b>                              |      |     |            |              |
| DW-.38                             | Manual, 250 kg                                      | hr   | 10  |            |              |
| DW-.39                             | vibratory, self, propelled, 1500 kg.                | hr   | 10  |            |              |
| <b>Total Carried to Collection</b> |   |      |     |            |              |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 1- NORTHERN & CENTRAL UPPER REGIONS**

**BILL No. DW : DAY WORKS**

| ITEM NO.                              | DESCRIPTION   | UNIT | QTY | RATE (UGX) | AMOUNT (UGX) |
|---------------------------------------|---|------|-----|------------|--------------|
|                                       | <u>Concrete mixers with weigh batchers and loading hoppers:</u>     |      |     |            |              |
| DW-.40                                | 300 litre capacity.   | hr   | 20  |            |              |
| DW-.41                                | 400 litre capacity.   | hr   | 20  |            |              |
|                                       | <u>Concrete vibrator, pneumatic with hoses:</u>                     |      |     |            |              |
| DW-.42                                | poker type, 50 mm   | hr   | 10  |            |              |
|                                       | <u>Air compressor, mobile with 5m of hose and steels with:</u>      |      |     |            |              |
| DW-.43                                | 1 breaker.  | hr   | 10  |            |              |
| DW-.44                                | 2 breakers.   | hr   | 10  |            |              |
|                                       | <u>Mobile electricity generating sets, 240v, 1 ph, 50 Hz:</u>       |      |     |            |              |
| DW-.45                                | 5 kVA   | hr   | 2   |            |              |
| DW-.46                                | 10 kVA  | hr   | 2   |            |              |
|                                       | <u>Dewatering Pumps with motor and 5m suction, 3m delivery hose</u> |      |     |            |              |
| DW-.47                                | Nominal size 50mm.  | hr   | 20  |            |              |
| DW-.48                                | Nominal size 100mm.   | hr   | 20  |            |              |
|                                       | <u>Mobile Cranes: including slings chains, dogs and nips</u>        |      |     |            |              |
| DW-.49                                | 5t capacity   | hr   | 5   |            |              |
| <b>Total Carried to Collection</b>    |   |      |     |            |              |
|                                       | <b>COLLECTION</b>   |      |     |            |              |
|                                       | Page 1  |      |     |            |              |
|                                       | Page 2  |      |     |            |              |
|                                       | Page 3  |      |     |            |              |
| <b>Total Carried to Grand Summary</b> |   |      |     |            |              |



# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.1: TEATOKE IN AMOLATAR DISTRICT

Region: North

## BILL SUMMARY

| Bill No.                              | Description                             | Amount (UGx.) |
|---------------------------------------|---|---------------|
|                                       | <b>WORK ITEMS</b>                       |               |
| 1                                     | Abstraction and Electromechanical Works |               |
| 2                                     | Transmission Mains                      |               |
| 3                                     | Storage Reservoir Works                 |               |
| 4                                     | Distribution Network                    |               |
| <b>Total Carried to Grand Summary</b> |   |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.1: TEATOKE IN AMOLATAR DISTRICT

Region: North

| BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS |  |                |      |             |               |
|---|--|----------------|------|-------------|---------------|
| Item No.  | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|   | <b>General Site Clearance</b>  |                |      |             |               |
| 1   | General site clearance, felling trees, grabbing tree stumps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer.   | Item           | 1    |             |               |
|   | <b>Earthworks</b>  |                |      |             |               |
|   | Excavation to form trapezoidal prism reservoir in material other than topsoil, rock or other artificial hard material, depth not exceeding 6.0m including forming earth bands along the channel of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings. |                |      |             |               |
| 2.1   | Marshy soils   | m <sup>3</sup> | 52   |             |               |
| 2.2   | Soft / decomposed rock soils   | m <sup>3</sup> | 26   |             |               |
|   | Excavation to form trapezoidal channel in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                        |                |      |             |               |
| 2.4   | Marshy soils   | m <sup>3</sup> | 72   |             |               |
| 2.5   | Soft / decomposed rock soils   | m <sup>3</sup> | 18   |             |               |
|   | Excavation to form cylindrical sump well in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                      |                |      |             |               |
| 2.6   | Marshy soils   | m <sup>3</sup> | 16   |             |               |
| 2.7   | Soft / decomposed rock soils   | m <sup>3</sup> | 8    |             |               |
|   | <b>Filling Structures</b>  |                |      |             |               |
|   | <u>Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -</u>  |                |      |             |               |
| 3   | Selected excavated material including topping with a 200mm thick layer of top/ vegetable soil.   | m <sup>3</sup> | 10   |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.1: TEATOKE IN AMOLATAR DISTRICT**

**Region: North**

| Total Carried to Collection                         |  |                |      |             |               |
|---|--|----------------|------|-------------|---------------|
| BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS |  |                |      |             |               |
| Item No.  | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
| 4   | <b>Landscaping</b><br>Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.  | m <sup>2</sup> | 40   |             |               |
|   | <b>IN-SITU CONCRETE</b><br><b>Provision and Placing of Concrete</b><br><b>Ordinary Design Mix Concrete</b><br><u>Designed mix , concrete to BS 8500 and BS EN 206-1, with ordinary portland cement to BS 12, aggregate to BS 882 , maximum aggregate size ; 20mm for the following structures: -</u> |                |      |             |               |
| 5   | <b>In situ Concrete</b><br>75mm thick Grade C15 concrete blinding to pump sump base  | m <sup>3</sup> | 0.25 |             |               |
| 6.1   | 2200mm Diameter x 150mm thick Grade C25 concrete base slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float.  | Item           | 1    |             |               |
| 6.2   | 2200mm Diameter x 150mm thick Grade C25 concrete top slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float and forming a 600 x 600mm opening for the inspection cover (MS).   | Item           | 1    |             |               |
|   | <b>Pre-cast Concrete</b><br><b>Pump Well/ Sump</b><br>Supply and install 100mm thick precast reinforced concrete vertical culverts on concrete base slab (MS) ; complete with water tight jointing and finishing works to approval.  |                |      |             |               |
| 7   | 1200mm diameter ; height n.e 8m  | Item           | 1    |             |               |
|   | <b>Concrete Inserts</b><br><b>Cast or Spum Iron Pipe Fittings.</b><br>Flanged, puddled and plain end pipe insert projecting from one face of the concrete, all to PN6 and of the following sizes and lengths, including supply of the pipe and as shown in the drawings.                             |                |      |             |               |
| 8   | 200mm ND and not exceeding 0.5m length   | No.            | 2    |             |               |
| Total Carried to Collection                         |  |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.1: TEATOKE IN AMOLATAR DISTRICT

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b>Adaptors</b><br>Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:-  |      |           |             |               |
| 9                                  | 200 mm ND  | No.  | 2         |             |               |
| 10                                 | OD225mm PN10 plain end uPVC pipe connection between Silt Trap Basin and Pump Sump.   | m    | 8         |             |               |
|                                    | <b>Bellmouths</b>  |      |           |             |               |
| 11                                 | Flanged bellmouth to ISO 2531, flanges to ISO 2441, of the following sizes all to PN 6<br>200 mm ND  | No.  | 1         |             |               |
|                                    | <b>PIPEWORK - FITTINGS AND VALVES</b>  |      |           |             |               |
|                                    | <b>Gate Valves: Hand Operated</b>  |      |           |             |               |
| 12                                 | DN 200 mm all flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 6 for operation by tee key, with extension spindle not exceeding 4.5 metres long, and of the following sizes                       |      |           |             |               |
|                                    | <b>MISCELLANEOUS WORK</b>  |      |           |             |               |
|                                    | <b>Ladders</b>   |      |           |             |               |
| 13                                 | Internal galvanized mild steel ladder to BS 4211, galvanized to BS 729, complete and as shown in the drawings including fixing to precast concrete units..   | m    | 8         |             |               |
|                                    | <b>Steel grating</b>   |      |           |             |               |
| 14.1                               | Galvanized iron Coarse Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
| 14.2                               | Galvanized iron Fine Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
|                                    | <b>Pump Well/ Sump</b>   |      |           |             |               |
|                                    | Supply and install 8.0m long HDPE vertical culverts on concrete base slab (MS) ; complete with a Single ND200mm flanged branch to receive a ND200 gate valve. Branch height/ positioning to be determined on site. | Item | Rate Only |             |               |
| 15                                 | Internal diameter ; 1200x200mm   |      |           |             |               |
|                                    | <b>Stone pitched Channel.</b>  |      |           |             |               |
| 16                                 | 3.0 x 1.5 top x bottom width x 1.5m deep maximum trapezoidal lined drain as detailed in the drawing.   | m    | 5         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.1: TEATOKE IN AMOLATAR DISTRICT**

**Region: North**

## **BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>  |      |      |             |               |
| ME1                                | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)<br>7.5kW Submersible Pump Set with 11.0kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 55m total head; set to not more than <u>5m</u> below ground including Dry- run protection, Motor and Pump End. | No.  | 1    |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.  | Item | 1    |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Aarray in Item 2 above as per drawings, including foundations, vandal proofing mounting to the Engineer's approval  | Sum  | 1    |             |               |
| ME4                                | PV Disconnect 1000-40-2   | No.  | 1    |             |               |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.   | No.  | 1    |             |               |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.   | Item | 1    |             |               |
| ME7                                | PV Combiner   | No.  | 1    |             |               |
| ME7a                               | Pressure Switch and Gauge - P5/8  | No.  | 1    |             |               |
| ME8                                | Sinewave filter - SWAP0017D.  | No.  | 1    |             |               |
| ME9                                | 16mm <sup>2</sup> Borehole drop cable,  | m    | 5    |             |               |
| ME10                               | 16mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.   | m    | 200  |             |               |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.   | m    | 60   |             |               |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors   | No.  | 2    |             |               |
| ME11a                              | Adapter box   | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.1: TEATOKE IN AMOLATAR DISTRICT**

**Region: North**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| <b>Item No.</b>                    | <b>Description</b>   | <b>Unit</b>    | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
|------------------------------------|--|----------------|-------------|--------------------|----------------------|
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item           | 1           |                    |                      |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm               | Sum            | 1           |                    |                      |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                                 | Sum            | 1           |                    |                      |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.            | 5           |                    |                      |
|                                    | <b>Alarm System</b>  |                |             |                    |                      |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item           | 1           |                    |                      |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item           | 1           |                    |                      |
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>  |                |             |                    |                      |
|                                    | <b><u>Pump Protection System</u></b>   |                |             |                    |                      |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base. | No.            | 1           |                    |                      |
|                                    | <b><u>Kerbs</u></b>  |                |             |                    |                      |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>   |                |             |                    |                      |
| X2                                 | Straight or curved to a radius exceeding 12 m  | m              | 70          |                    |                      |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a guage 500 polythene sheet.  | m <sup>2</sup> | 220         |                    |                      |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert   | m              | 0           |                    |                      |
| <b>Total Carried to Collection</b> |  |                |             |                    |                      |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.1: TEATOKE IN AMOLATAR DISTRICT

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
|   | <b><u>Pump House</u></b>  |      |           |             |               |
| X5  | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.   | Sum  | 1         |             |               |
|   | <b><u>Fences</u></b>  |      |           |             |               |
| X6a   | Galvanised wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m    | 50        |             |               |
| X6b   | Galvanised wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m    | 120       |             |               |
|   | <b><u>Gates</u></b>   |      |           |             |               |
| X7  | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.  | 2         |             |               |
|   | <b><u>Training of Operator's staff</u></b>  |      |           |             |               |
| X8  | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval  | Sum  | 1         |             |               |
|   | <b><u>Operation and Maintenance Manuals</u></b>   |      |           |             |               |
| X9  | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum  | 1         |             |               |
| XX  | Horizontal pump installation option out of flanged/ sealed end HDPE culvert pipe mounted on fabricated GI support structure including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/005.       | Item | Rate Only |             |               |
| <b>Total Carried to Collection</b>              |   |      |           |             |               |
|   | <b>Bill No. 1 Collection</b>  |      |           |             |               |
|   | Page 2  |      |           |             |               |
|   | Page 3  |      |           |             |               |
|   | Page 4  |      |           |             |               |
|   | Page 5  |      |           |             |               |
|   | Page 6  |      |           |             |               |
|   | Page 7  |      |           |             |               |
| <b>Total Bill No. 1 Carried to Bill Summary</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.1: TEATOKE IN AMOLATAR DISTRICT

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials. | Item | 1         |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>  |      |           |             |               |
| 2                                  | <b><u>Steel Pipes</u></b>  |      |           |             |               |
|                                    | <u>Galvanised iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes;</u>                                 |      |           |             |               |
| 2.1                                | DN75mm, not in trenches;   | m    | 12        |             |               |
| 3                                  | <b><u>HDPE Pipes</u></b>   |      |           |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>   |      |           |             |               |
| 3.1                                | OD90mm HDPE PN10   | m    | 430       |             |               |
| 4                                  | <b><u>uPVC Pipes</u></b>   |      |           |             |               |
|                                    | <u>uPVC pressure pipes to UNBS US 264: 2000 and DIN 8062 with integral rubber ring socket joints laid in trenches</u>  |      |           |             |               |
|                                    | <u>OD110 to PN 16</u>  |      |           |             |               |
| 4.1                                | Depth not exceeding 1.5m   | m    | Rate Only |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>  |      |           |             |               |
| 5                                  | <b><u>Bends</u></b>  |      |           |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, toBS EN 10242:1995, and of the following sizes</u>   |      |           |             |               |
| 5.4                                | DN75mm   | No.  | 4         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.1: TEATOKE IN AMOLATAR DISTRICT

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                               | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|--|--|------|------|-------------|---------------|
| 6                                      | <b>Bulk Flow Meters</b><br><u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u>  |      |      |             |               |
| 6.3                                    | DN65mm PN10  | No.  | 1    |             |               |
|  | <b>PN16 HDPE Compression fitting to DIN 8074/BS 5114</b>   |      |      |             |               |
| 7                                      | <b>Equal Adapters</b>  |      |      |             |               |
| 7.1                                    | OD90 female adapter  | No.  | 2    |             |               |
| 8                                      | <b>Valves and Penstocks</b>  |      |      |             |               |
|  | <b>Air Valves</b><br><u>Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                       |      |      |             |               |
| 8.4                                    | DN75mm   | No.  | 1    |             |               |
| 9                                      | <b>Washouts</b><br><u>Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |      |             |               |
| 9.2                                    | DN75mm   | No.  | 1    |             |               |
|  | <b>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</b>  |      |      |             |               |
|  | <b>Other Chambers</b><br><u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>  |      |      |             |               |
| 10a                                    | Depth not exceeding 1.5m   | No.  | 1    |             |               |
| <b>Total Carried to Collection</b>     |  |      |      |             |               |
| <b>BILL No. 2 : TRANSMISSION MAINS</b> |  |      |      |             |               |
| Item No.                               | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|  | <b>Valve Surface Boxes</b>   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.1: TEATOKE IN AMOLATAR DISTRICT**

**Region: North**

|                                    |   |     |           |  |  |
|------------------------------------|---|-----|-----------|--|--|
|                                    | <u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u> |     |           |  |  |
| 10b                                | Depth not exceeding 1.5m  | No. | Rate Only |  |  |
|                                    | <b><u>Reinstatement Roads</u></b>   |     |           |  |  |
|                                    | <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>  |     |           |  |  |
| 11                                 | Not exceeding DN300mm   | m   | 12        |  |  |
|                                    | <b><u>Surrounds</u></b>   |     |           |  |  |
|                                    | <u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u>  |     |           |  |  |
| 12.1                               | Not exceeding DN200mm   | m   | 14        |  |  |
|                                    | <u>Pipe surrounds, of imported granular material, for the following pipe sizes</u>  |     |           |  |  |
| 12.2                               | Not exceeding DN200mm   | m   | 30        |  |  |
|                                    | <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u>   |     |           |  |  |
| 12.3                               | Not exceeding DN200mm   | m   | 2         |  |  |
| 13                                 | <b><u>Concrete Stools and Thrust Blocks</u></b>   |     |           |  |  |
|                                    | <b><u>Thrust Blocks</u></b>   |     |           |  |  |
|                                    | <u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes</u>  |     |           |  |  |
| 13.1                               | Diameter not exceeding DN200mm  | No. | 2         |  |  |
|                                    | <b><u>Other Pipework Ancillaries</u></b>  |     |           |  |  |
|                                    | <b><u>Marker Posts</u></b>  |     |           |  |  |
| 14                                 | Marker posts for pipes, gate valves, air valves, washouts   | nr  | 20        |  |  |
| <b>Total Carried to Collection</b> |   |     |           |  |  |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.1: TEATOKE IN AMOLATAR DISTRICT

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.  | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|---|------------------------------|------|------|-------------|---------------|
|   | <b>Bill No. 2 Collection</b> |      |      |             |               |
|   | Page 8                       |      |      |             |               |
|   | Page 9                       |      |      |             |               |
|   | Page 10                      |      |      |             |               |
| <b>Total Bill No. 2 Carried to Bill Summary</b> |                              |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.1: TEATOKE IN AMOLATAR DISTRICT

Region: North

**BILL No. 4.3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b>DEMOLITION AND SITE CLEARANCE</b>   |      |      |             |               |
|                                    | <b>General Site Clearance</b>  |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.  | Item | 1    |             |               |
| 2                                  | <b>Reservoir Tower</b>   |      |      |             |               |
|                                    | Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc, painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.   |      |      |             |               |
| 2.1                                | Height; 6.0m for 30m <sup>3</sup> Tank.  | No.  | 1    |             |               |
| 3                                  | <b>Tanks</b>   |      |      |             |               |
|                                    | Supply and Install a fabricated 6.0mm thick mild steel plate horizontal cylindrical tank with 1No. 0.6m wide access man way, water level indicator (scale in cubic metres), with inlet, outlet, washout and overflow connection complete with access points, ventilators (2 nr), and internal access ladders, inclusive of anti-rust painting internally, finishes and all necessary accessories to installation complete as specified and detailed in the drawings; to the Engineer's satisfaction. All tank accessories shall be of hot dipped galvanised steel. |      |      |             |               |
| 3.1                                | Reservoir: 30m <sup>3</sup> nominal capacity erected on a 6m high tower  | No.  | 1    |             |               |
| 3.1                                | 10m <sup>3</sup>   | No.  | 4    |             |               |
| 4                                  | <u>150-200 micron union/ compresion type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>   |      |      |             |               |
| 4.1                                | DN75mm, PN10   | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.1: TEATOKE IN AMOLATAR DISTRICT**

**Region: North**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.  | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|--|----------------|-----------|-------------|---------------|
| <b>5</b>  | <u>150-200 micron union/ compresion type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u><br>[OPTIONAL] |                |           |             |               |
| 5.1   | DN75mm, PN10   | No.            | 1         |             |               |
| <b>6</b>  | <b><u>Landscaping and Walkways</u></b>   |                |           |             |               |
| 6.1   | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.  | m <sup>2</sup> | 150       |             |               |
| 6.2   | 500 x 500 x 50mm precast concrete paving slabs laid "Space out Stone method" between the gate, pump house and solar array in one raw, laid onto and including 200mm thick murram fill.   | No.            | Rate Only |             |               |
| <b>7</b>  | <b><u>Fences</u></b>   |                |           |             |               |
| 7.1   | Galvarnised wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|   | <b><u>Gates</u></b>  |                |           |             |               |
| 7.2   | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.   | No.            | 1         |             |               |
|   | <b><u>Provision and Placing of Concrete</u></b><br><b><u>Ordinary Designed Mix Concrete</u></b>  |                |           |             |               |
| <b>8</b>  | <u>Designed mix concrete, to BS 5328, with ordinary portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u>   |                |           |             |               |
| 8.1   | Grade C15  | m <sup>3</sup> | 2         |             |               |
| <b>Total Carried to Collection</b>              |  |                |           |             |               |
|   | <b>Bill No. 3 Collection</b>   |                |           |             |               |
|   | Page 12  |                |           |             |               |
|   | Page 13  |                |           |             |               |
| <b>Total Bill No. 3 Carried to Bill Summary</b> |  |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.1: TEATOKE IN AMOLATAR DISTRICT

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                     | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m |      |           |             |               |
| 2.2                                | OD75mm PN16  | m    | 380       |             |               |
| 2.3                                | OD90mm PN16  | m    | 285       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>   |      |           |             |               |
| 3.2                                | OD90mm   | No.  | 1         |             |               |
| 3.3                                | OD75mm   | No.  | 1         |             |               |
|                                    | <b><u>Unequal tees</u></b>   |      |           |             |               |
| 3.6                                | OD90 x 75mm  | No.  | 2         |             |               |
| 3.7                                | OD90 x 63mm  | No.  | 1         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>   |      |           |             |               |
| 4.2                                | OD90mm   | No.  | Rate Only |             |               |
| 4.3                                | OD75mm   | No.  | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.1: TEATOKE IN AMOLATAR DISTRICT

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
| <b>5</b>                           | <b><u>End caps</u></b>  |      |           |             |               |
| 5.2                                | OD90mm  | No.  | Rate Only |             |               |
| 5.3                                | OD75mm  | No.  | Rate Only |             |               |
| 5.4                                | OD63mm  | No.  | 3         |             |               |
| <b>6</b>                           | <b><u>Valves and Penstocks</u></b>  |      |           |             |               |
|                                    | <b><u>Air Vaves</u></b>   |      |           |             |               |
|                                    | Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.  |      |           |             |               |
| 6.2                                | OD90mm  | No.  | Rate Only |             |               |
| 6.3                                | OD75mm  | No.  | 1         |             |               |
| <b>7</b>                           | <b><u>Washouts</u></b>  |      |           |             |               |
|                                    | Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |           |             |               |
| 7.2                                | DN75mm  | No.  | Rate Only |             |               |
| 7.3                                | DN65mm  | No.  | Rate Only |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.1: TEATOKE IN AMOLATAR DISTRICT

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No. | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|--|------|-----------|-------------|---------------|
| 8        | <b>Farm Gate Connections</b><br>Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and locakable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: - |      |           |             |               |
| 8.3      | DN65mm   | No.  | Rate Only |             |               |
| 8.4      | DN50mm   | No.  | 12        |             |               |
|          | <b>Other Pipework Ancillaries</b>  |      |           |             |               |
|          | <b>Marker Posts</b>  |      |           |             |               |
| 9        | Marker posts for pipes, gate valves, air valves, washouts  | nr   | 26        |             |               |

**Total Carried to Collection**

**BILL No. 4 : DISTRIBUTION NETWORK**

| Item No. | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|------------------------------|------|------|-------------|---------------|
|          | <b>Bill No. 4 Collection</b> |      |      |             |               |
|          | Page 14                      |      |      |             |               |
|          | Page 15                      |      |      |             |               |
|          | Page 16                      |      |      |             |               |

**Total Bill No. 4 Carried to Bill Summary**

**0**



# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.2: ADAK B IN APAC DISTRICT**

**Region: North**

## **BILL SUMMARY**

| Bill No.                              | Description                             | Amount (UGx.) |
|---------------------------------------|---|---------------|
|                                       | <b>WORK ITEMS</b>                       |               |
| 1                                     | Abstraction and Electromechanical Works |               |
| 2                                     | Transmission Mains                      |               |
| 3                                     | Storage Reservoir Works                 |               |
| 4                                     | Distribution Network                    |               |
| <b>Total Carried to Grand Summary</b> |   |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.2: ADAK B IN APAC DISTRICT**

**Region: North**

## **BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|----------------|-----------|-------------|---------------|
|                                    | <b><u>General Site Clearance</u></b>  |                |           |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer.                              | Item           | 1         |             |               |
|                                    | <b><u>Earthworks</u></b>  |                |           |             |               |
| 2.1                                | Excavation to form trapezoidal prism reservoir in material other than topsoil, rock or other artificial hard material, depth not exceeding 6.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings. | m <sup>3</sup> | 520       |             |               |
| 2.2                                | Ditto but in marshy soils   | m <sup>3</sup> | 296       |             |               |
| 2.3                                | Ditto but in soft / decomposed rock soils   | m <sup>3</sup> | 136       |             |               |
| 2.4                                | Excavation to form trapezoidal drain in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.           | m <sup>3</sup> | 175       |             |               |
| 2.5                                | Ditto but in marshy soils   | m <sup>3</sup> | 130       |             |               |
| 2.6                                | Ditto but in soft / decomposed rock soils   | m <sup>3</sup> | 85        |             |               |
|                                    | <b><u>Filling Structures</u></b>  |                |           |             |               |
|                                    | <u>Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -</u>   |                |           |             |               |
| 3.1                                | Imported rock/ hardcore fill, size 75 to 300mm hand packed or compacted by the arm of an excavator.   | m <sup>3</sup> | Rate Only |             |               |
| 3.2                                | Selected excavated material including topping with a 200mm thick layer of top/ vegetable soil.  | m <sup>3</sup> | Rate Only |             |               |
|                                    | <b><u>Landscaping</u></b>   |                |           |             |               |
| 4                                  | Turfing for lawns inside fenced off compound, including filling with excavated topsoil and the preparation of surfaces; 40m <sup>2</sup> at Intake Site and 800m <sup>2</sup> at Pump Station.  | m <sup>2</sup> | 840       |             |               |
| <b>Total Carried to Collection</b> |   |                |           |             |               |

**Scheme ID. 1.2: ADAK B IN APAC DISTRICT**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

Scheme No. 1.2 Pg 26 of 511

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.2: ADAK B IN APAC DISTRICT**

**Region: North**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
| 8.1                                | <b>Reinforcement</b><br><b>Deformed High Yield Steel</b><br><u>High yield square twisted bars to BS 4449 and of the following sizes</u><br>Nominal size, 12mm   | t    | 1.2       |             |               |
| 8.2                                | <b>Inserts</b><br>DN 250 CI / ST flanged, puddled pipe insert pipe inserts projecting from two faces of the concrete wall and of the following sizes,excluding supply of pipe.  | No.  | Rate Only |             |               |
| 9.1                                | <b>PIPEWORK - FITTINGS AND VALVES</b><br><b>Cast or Spum Iron Pipe Fittings.</b><br><br><b>Flanged Reducers</b><br>DN250 x 150mm  | No.  | Rate Only |             |               |
| 9.2                                | <b>Flange Adaptors</b><br>DN 150mm Maxi Type or similar wide range adaptor to fit pipe spigots, flanges to BS 4505, all to PN6.   | No.  | Rate Only |             |               |
| 9.3                                | <b>Strainers</b><br><u>Flanged outlet pipe strainer, to BS 4772, flanges to BS 4504, all to PN 10, cement mortar lined, and of the following sizes:-</u><br>DN 250 mm   | No.  | Rate Only |             |               |
| 9.4                                | <b>End Caps</b><br>DN250mm flanged end cap.   | No.  | Rate Only |             |               |
| 9.5                                | <b>Valves and Penstocks</b><br><b>Gate Valves: Hand Operated</b><br><br><u>All flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 10 for operation by tee key, with extension spindle not exceeding 1.5 metres long, and of the following sizes:-</u><br>150 mm ND | No.  | Rate Only |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.2: ADAK B IN APAC DISTRICT**

**Region: North**

## **BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
| 9.6                                | <u>Penstocks: hand operated including head stock and distance spindle, as specified in drawings of the following size: -</u><br>300mm wide x 1000mm high, Stainless steel.  | No.  | 1         |             |               |
|                                    | <b>MISCELLANEOUS METAL WORK</b>   |      |           |             |               |
|                                    | <b>Ladders</b>  |      |           |             |               |
| 10.1                               | External galvanized mild steel ladder to BS 4211, galvanized to BS 729, complete and as shown in the drawings including fixing to precast concrete units..  | m    | 8         |             |               |
|                                    | <b>Access Manhole Cover</b>   |      |           |             |               |
| 10.2                               | 600 x 600mm clear opening painted mild steel cover and frame include fixing and locking arrangement.  | No.  | 2         |             |               |
|                                    | <b>Pump Protection System</b>   |      |           |             |               |
| 10.3                               | Vertical pipe pump stilling tube/ anti-vandal protection sleeve structure to detail as per Drawing No. OIS/NUC/SD/010, including 1.5x1.5x0.3m support base.   | No.  | 0         |             |               |
|                                    | <b>Valve Surface Boxes</b>  |      |           |             |               |
| 10.4                               | Valve surface box with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to a depth not exceeding 4.5 m.  | No.  | Rate Only |             |               |
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>  |      |           |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)   |      |           |             |               |
| ME1                                | 11.0kW Submersible Pump Set with 15kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H =100m total head; set to not more than <u>5m</u> below ground including Dry- run protection, Motor and Pump End. | No.  | 1         |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.  | Item | 1         |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings, including foundations, vandal proofing mounting to the Engineer's approval   | Sum  | 1         |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.2: ADAK B IN APAC DISTRICT**

**Region: North**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
| ME4                                | PV Disconnect 1000-40-2  | No.  | 1    |             |               |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.  | 1    |             |               |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item | 1    |             |               |
| ME7                                | PV Combiner  | No.  | 1    |             |               |
| ME7a                               | Pressure Switch and Gauge - P6/12  | No.  | 1    |             |               |
| ME8                                | Sinewave filter - SWAP0022D.   | No.  | 1    |             |               |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,   | m    | 5    |             |               |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m    | 100  |             |               |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m    | 60   |             |               |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.  | 2    |             |               |
| ME11a                              | Adapter box  | No.  | 1    |             |               |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item | 1    |             |               |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm | Sum  | 1    |             |               |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                   | Sum  | 1    |             |               |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.  | 5    |             |               |
|                                    | <b>Alarm System</b>  |      |      |             |               |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item | 1    |             |               |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item | 1    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.2: ADAK B IN APAC DISTRICT

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>  |                |      |             |               |
|                                    | <b><u>Pump Protection System</u></b>   |                |      |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base.               | No.            | 1    |             |               |
|                                    | <b><u>Kerbs</u></b>  |                |      |             |               |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>   |                |      |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m  | m              | 70   |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a guage 500 polythene sheet.  | m <sup>2</sup> | 220  |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert   | m              | 2    |             |               |
|                                    | <b><u>Pump House</u></b>   |                |      |             |               |
| X5                                 | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.  | Sum            | 1    |             |               |
|                                    | <b><u>Fences</u></b>   |                |      |             |               |
| X6a                                | Galvarnised wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds" to the Engineer's approval.</u> | m              | 30   |             |               |
| X6b                                | Galvarnised wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m              | 120  |             |               |
|                                    | <b><u>Gates</u></b>  |                |      |             |               |
| X7                                 | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.   | No.            | 2    |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.2: ADAK B IN APAC DISTRICT

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No. | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|------|-----------|-------------|---------------|
|          | <u><b>Training of Operator's staff</b></u>  |      |           |             |               |
| X8       | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval                                    | Sum  | 1         |             |               |
|          | <u><b>Operation and Maintenance Manuals</b></u>   |      |           |             |               |
| X9       | Provide Operation and Maintenance Manuals as specified and to the Project   | Sum  | 1         |             |               |
| XX       | Horizontal pump installation option out of flanged/ sealed end HDPE culvert pipe mounted on fabricated GI support structure including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/005. | Item | Rate Only |             |               |

**Total Carried to Collection**

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No. | Description                  |  |  |  | Amount (UGx.) |
|----------|------------------------------|--|--|--|---------------|
|          | <b>Bill No. 1 Collection</b> |  |  |  |               |
|          | Page 2                       |  |  |  |               |
|          | Page 3                       |  |  |  |               |
|          | Page 4                       |  |  |  |               |
|          | Page 5                       |  |  |  |               |
|          | Page 6                       |  |  |  |               |
|          | Page 7                       |  |  |  |               |
|          | Page 8                       |  |  |  |               |

**Total Bill No. 1 Carried to Bill Summary**



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.2: ADAK B IN APAC DISTRICT

Region: North

| BILL No. 2 : TRANSMISSION MAINS    |   |      |           |             |               |
|------------------------------------|---|------|-----------|-------------|---------------|
| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.  | Item | 1         |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Steel Pipes</u></b>   |      |           |             |               |
|                                    | Galvanised iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes:   |      |           |             |               |
| 2.1                                | DN75mm, in trenches; depths not exceeding 1.5m  | m    | 12        |             |               |
| 3                                  | <b><u>HDPE Pipes</u></b>  |      |           |             |               |
|                                    | HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m   |      |           |             |               |
| 3.1                                | OD90mm HDPE PN16  | m    | 370       |             |               |
| 4                                  | <b><u>uPVC Pipes</u></b>  |      |           |             |               |
|                                    | uPVC pressure pipes to UNBS US 264: 2000 and DIN 8062 with integral rubber ring socket joints laid in trenches  |      |           |             |               |
|                                    | OD110 to PN 16  |      |           |             |               |
| 4.1                                | Depth not exceeding 1.5m  | m    | Rate Only |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>   |      |           |             |               |
| 5                                  | <b><u>Bends</u></b>   |      |           |             |               |
|                                    | Galvanized iron threaded socket 45° bends, to BS EN 10242:1995, all to PN 10, and of the following sizes  |      |           |             |               |
| 5.1                                | DN75mm  | No.  | 4         |             |               |
| 6                                  | <b><u>Bulk Flow Meters</u></b>  |      |           |             |               |
|                                    | Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes |      |           |             |               |
| 6.1                                | DN75mm PN10   | No.  | 1         |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.2: ADAK B IN APAC DISTRICT

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
| <b>7</b>                           | <b>Equal Adapters</b>  |      |           |             |               |
| 7.1                                | OD90 female adapter  | No.  | 2         |             |               |
| <b>8</b>                           | <b><u>Valves and Penstocks</u></b>   |      |           |             |               |
|                                    | <b><u>Air Valves</u></b>   |      |           |             |               |
|                                    | <u>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                          |      |           |             |               |
| 8.1                                | DN65mm   | No.  | Rate Only |             |               |
| 8.2                                | DN75mm   | No.  | 1         |             |               |
| <b>9</b>                           | <b><u>Washouts</u></b>   |      |           |             |               |
|                                    | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |           |             |               |
| 9.1                                | DN75mm PN16  | No.  | 1         |             |               |
| 9.2                                | DN65mm   | No.  | Rate Only |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b>   |      |           |             |               |
|                                    | <b><u>Other Chambers</u></b>   |      |           |             |               |
|                                    | <u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>   |      |           |             |               |
| 10.1                               | Depth not exceeding 1.5m   | No.  | 2         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.2: ADAK B IN APAC DISTRICT

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| 10.2                               | <b><u>Valve Surface Boxes</u></b><br><u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u><br>Depth not exceeding 1.5m | No.  | Rate Only |             |               |
| 11                                 | <b><u>Reinstatement Roads</u></b><br><u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u><br>Not exceeding DN300mm   | m    | Rate Only |             |               |
| 12.1                               | <b><u>Surrounds</u></b><br><u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u><br>Not exceeding DN200mm<br><u>Pipe surrounds, of imported granular material, for the following pipe sizes</u>                                       | m    | Rate Only |             |               |
| 12.3                               | <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u><br>Not exceeding DN200mm   | m    | Rate Only |             |               |
| 13.1                               | <b><u>Concrete Stools and Thrust Blocks</u></b><br><b><u>Thrust Blocks</u></b><br><u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes</u><br>Diameter not exceeding DN200mm                                     | No.  | Rate Only |             |               |
| 14                                 | <b><u>Other Pipework Ancillaries</u></b><br><b><u>Marker Posts</u></b><br>Marker posts for pipes, gate valves, air valves, washouts  | nr   | 15        |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.2: ADAK B IN APAC DISTRICT

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.  | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|---|--|------|------|-------------|---------------|
|   | <p align="center">Page 9</p> <p align="center">Page 10</p> <p align="center">Page 11</p> |      |      |             |               |
| <b>Total Bill No. 2 Carried to Bill Summary</b> |  |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.2: ADAK B IN APAC DISTRICT

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.   | Item | 1         |             |               |
| 2                                  | <b><u>Reservoir Tower</u></b>   |      |           |             |               |
|                                    | <u>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc. painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.</u>   |      |           |             |               |
| 2.1                                | Height; 6.0m for 30m <sup>3</sup> Tank.   | No.  | 1         |             |               |
| 3                                  | <b><u>Tanks</u></b>   |      |           |             |               |
|                                    | <u>Supply and Install a fabricated 6.0mm thick mild steel plate horizontal cylindrical tank with 1No. 0.6m wide access man way, water level indicator (scale in cubic metres), with inlet, outlet, washout and overflow connection complete with access points, ventilators (2 nr), and internal access ladders, inclusive of anti-rust painting internally, finishes and all necessary accessories to installation complete as specified and detailed in the drawings; to the Engineer's satisfaction. All tank accessories shall be of hot dipped galvanised steel.</u> |      |           |             |               |
| 3.1                                | Reservoir: 30m <sup>3</sup> nominal capacity erected on a 6m high tower   | No.  | 1         |             |               |
| 3.1                                | 10m <sup>3</sup>  | No.  | 4         |             |               |
| 4                                  | <u>150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>   |      |           |             |               |
| 4.1                                | DN100mm, PN10   | No.  | Rate Only |             |               |
| 4.2                                | DN75mm, PN10  | No.  | 1         |             |               |
| 4.3                                | DN65mm, PN10  | No.  | Rate Only |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.2: ADAK B IN APAC DISTRICT**

**Region: North**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|-----------|-------------|---------------|
| <b>5</b>                           | <u>150-200 micron union/ compresion type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u><br>[OPTIONAL] |                |           |             |               |
| 5.1                                | DN100mm, PN10  | No.            | Rate Only |             |               |
| 5.2                                | DN75mm, PN10   | No.            | 1         |             |               |
| 5.3                                | DN65mm, PN10   | No.            | Rate Only |             |               |
| <b>6</b>                           | <b><u>Landscaping and Walkways</u></b>   |                |           |             |               |
| 6.1                                | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.  | m <sup>2</sup> | 60        |             |               |
| 6.2                                | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murrum fill.  | No.            | Rate Only |             |               |
| <b>7</b>                           | <b><u>Fences</u></b>   |                |           |             |               |
| 7.1                                | Galvarnised wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|                                    | <b><u>Gates</u></b>  |                |           |             |               |
| 7.2                                | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.   | No.            | 1         |             |               |
|                                    | <b><u>Provision and Placing of Concrete</u></b><br><b><u>Ordinary Designed Mix Concrete</u></b>  |                |           |             |               |
| <b>8</b>                           | <u>Designed mix concrete, to BS 5328, with ordinary portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u>   |                |           |             |               |
| 8.1                                | Grade C15  | m <sup>3</sup> | 2         |             |               |
| 8.2                                | Grade C20  | m <sup>3</sup> | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.2: ADAK B IN APAC DISTRICT

Region: North

**BILL No. 5.3 : STORAGE RESERVOIR WORKS**

| Item No.  | Description                 | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|---|-----------------------------|------|------|-------------|---------------|
|   | <b>Bill No.3 Collection</b> |      |      |             |               |
|   | Page 13                     |      |      |             |               |
|   | Page 14                     |      |      |             |               |
| <b>Total Bill No. 3 Carried to Bill Summary</b> |                             |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.2: ADAK B IN APAC DISTRICT

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                     | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m |      |           |             |               |
| 2.1                                | OD63mm PN6   | m    | 260       |             |               |
| 2.2                                | OD75mm PN6   | m    | 140       |             |               |
| 2.3                                | OD90mm PN6   | m    | 406       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>   |      |           |             |               |
| 3.1                                | OD90mm   | No.  | 4         |             |               |
|                                    | <b><u>Unequal tees</u></b>   |      |           |             |               |
| 3.2                                | OD90 x 63mm  | No.  | 1         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>   |      |           |             |               |
| 4.1                                | OD90mm   | No.  | Rate Only |             |               |
| 4.2                                | OD75mm   | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>   |      |           |             |               |
| 5.1                                | OD63mm   | No.  | 5         |             |               |
| 5.2                                | OD50mm   | No.  | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.2: ADAK B IN APAC DISTRICT

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| <b>6</b>                           | <b><u>Valves and Penstocks</u></b><br><b><u>Air Valves</u></b><br><u>Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                          |      |           |             |               |
| 6.1                                | OD90mm   | No.  | Rate Only |             |               |
| 6.2                                | OD75mm   | No.  | Rate Only |             |               |
| 6.3                                | OD63mm   | No.  | Rate Only |             |               |
| <b>7</b>                           | <b><u>Washouts</u></b><br><u>Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004.</u> |      |           |             |               |
| 7.1                                | DN75mm   | No.  | Rate Only |             |               |
| 7.2                                | DN65mm   | No.  | Rate Only |             |               |
| 7.3                                | DN50mm   | No.  | Rate Only |             |               |
| <b>8</b>                           | <b><u>Farm Gate Connections</u></b><br>Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and locakable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -  |      |           |             |               |
| 8.1                                | DN65mm   | No.  | Rate Only |             |               |
| 8.2                                | DN50mm   | No.  | 5         |             |               |
|                                    | <b><u>Other Pipework Ancillaries</u></b><br><b><u>Marker Posts</u></b>   |      |           |             |               |
| 9                                  | Marker posts for pipes, gate valves, air valves, washouts  | nr   | 24        |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.2: ADAK B IN APAC DISTRICT

Region: North

**BILL No. 4 : DISTRIBUTION NETWORK**

| Item No.  | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|---|--|------|------|-------------|---------------|
|   | <b>Bill No. 4 Collection</b><br><br>Page 16<br><br>Page 17 |      |      |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |  |      |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.3: ALAKE IN DOKOLO DISTRICT

Region: North

## BILL SUMMARY

| Bill No.                              | Description                             | Amount (UGx.) |
|---------------------------------------|---|---------------|
|                                       | <b>WORK ITEMS</b>                       |               |
| 1                                     | Abstraction and Electromechanical Works |               |
| 2                                     | Transmission Mains                      |               |
| 3                                     | Storage Reservoir Works                 |               |
| 4                                     | Distribution Network                    |               |
| <b>Total Carried to Grand Summary</b> |   |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.3: ALAKE IN DOKOLO DISTRICT

Region: North

## BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description   | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|----------------|------|-------------|---------------|
| 1                                  | <b>General Site Clearance</b><br>General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer.                                 | Item           | 1.00 |             |               |
|                                    | <b>Earthworks</b><br>Excavation to form trapezoidal prism reservoir in material other than topsoil, rock or other artificial hard material, depth not exceeding 6.0m including forming earth bands along the channel of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings. |                |      |             |               |
| 2.1                                | Marshy soils  | m <sup>3</sup> | 52   |             |               |
| 2.2                                | Soft / decomposed rock soils  | m <sup>3</sup> | 26   |             |               |
|                                    | Excavation to form trapezoidal channel in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.   |                |      |             |               |
| 2.4                                | Marshy soils  | m <sup>3</sup> | 68   |             |               |
| 2.5                                | Soft / decomposed rock soils  | m <sup>3</sup> | 17   |             |               |
|                                    | Excavation to form cylindrical sump well in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.   |                |      |             |               |
| 2.6                                | Marshy soils  | m <sup>3</sup> | 16   |             |               |
| 2.7                                | Soft / decomposed rock soils  | m <sup>3</sup> | 8    |             |               |
|                                    | <b>Filling Structures</b><br>Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -   |                |      |             |               |
| 3                                  | Selected excavated material including topping with a 200mm thick layer of top/ vegetable soil.  | m <sup>3</sup> | 10   |             |               |
| <b>Total Carried to Collection</b> |   |                |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.3: ALAKE IN DOKOLO DISTRICT

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
| 4                                  | <b>Landscaping</b><br>Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.  | m <sup>2</sup> | 40   |             |               |
|                                    | <b>IN-SITU CONCRETE</b><br><b>Provision and Placing of Concrete</b><br><b>Ordinary Design Mix Concrete</b><br><u>Designed mix , concrete to BS 8500 and BS EN 206-1, with ordinary portland cement to BS 12, aggregate to BS 882 , maximum aggregate size ; 20mm for the following structures: -</u> |                |      |             |               |
| 5                                  | <b>Insitu Concrete</b><br>75mm thick Grade C15 concrete blinding to pump sump base   | m <sup>3</sup> | 0.25 |             |               |
| 6.1                                | 2200mm Diameter x 150mm thick Grade C25 concrete base slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float.  | Item           | 1    |             |               |
| 6.2                                | 2200mm Diameter x 150mm thick Grade C25 concrete top slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float and forming a 600 x 600mm opening for the inspection cover (MS).   | Item           | 1    |             |               |
|                                    | <b>Pre-cast Concrete</b><br><b>Pump Well/ Sump</b><br>Supply and install 100mm thick precast reinforced concrete vertical culverts on concrete base slab (MS) ; complete with water tight jointing and finishing works to approval.  |                |      |             |               |
| 7                                  | 1200mm diameter; length n.e 8.0m   | Item           | 1    |             |               |
|                                    | <b>Concrete Inserts</b><br><b>Cast or Spum Iron Pipe Fittings.</b><br>Flanged, puddled and plain end pipe insert projecting from one face of the concrete, all to PN6 and of the following sizes and lengths, including supply of the pipe and as shown in the drawings.                             |                |      |             |               |
| 8                                  | 200mm ND and not exceeding 0.5m length   | No.            | 2    |             |               |
|                                    | <b>Adaptors</b><br>Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:-  |                |      |             |               |
| 9                                  | 200 mm ND  | No.            | 2    |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.3: ALAKE IN DOKOLO DISTRICT

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| 10                                 | OD225mm PN10 plain end uPVC pipe connection between Silt Trap Basin and Pump Sump.   | m    | 8         |             |               |
|                                    | <b>Bellmouths</b>  |      |           |             |               |
| 11                                 | Flanged bellmouth to ISO 2531, flanges to ISO 2441, of the following sizes all to PN 6<br>200 mm ND  | No.  | 1         |             |               |
|                                    | <b>PIPEWORK - FITTINGS AND VALVES</b>  |      |           |             |               |
|                                    | <b>Gate Valves: Hand Operated</b>  |      |           |             |               |
| 12                                 | DN 200 mm all flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 6 for operation by tee key, with extension spindle not exceeding 4.5 metres long, and of the following sizes                       |      |           |             |               |
|                                    | <b>MISCELLANEOUS WORK</b>  |      |           |             |               |
|                                    | <b>Ladders</b>   |      |           |             |               |
| 13                                 | Internal galvanized mild steel ladder to BS 4211, galvanized to BS 729, complete and as shown in the drawings including fixing to precast concrete units..   | m    | 8         |             |               |
|                                    | <b>Steel grating</b>   |      |           |             |               |
| 14.1                               | Galvanized iron Coarse Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
| 14.2                               | Galvanized iron Fine Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
|                                    | <b>Pump Well/ Sump</b>   |      |           |             |               |
|                                    | Supply and install 8.0m long HDPE vertical culverts on concrete base slab (MS) ; complete with a Single ND200mm flanged branch to receive a ND200 gate valve. Branch height/ positioning to be determined on site. | Item | Rate Only |             |               |
| 15                                 | Internal diameter ; 1200x200mm   |      |           |             |               |
|                                    | <b>Stone pitched Channel.</b>  |      |           |             |               |
| 16                                 | 3.0 x 1.5 top x bottom width x 1.5m deep maximum trapezoidal lined drain as detailed in the drawing.   | m    | 5         |             |               |
|                                    | <b>Gabion boxes</b>  |      |           |             |               |
| 17                                 | PVC coated gabion boxes ; size 1m x 1m x 1m; including rockfill of size 100 - 250mm; as instructed by the Engineer   | nr   | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.3: ALAKE IN DOKOLO DISTRICT

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>   |      |      |             |               |
|                                    | <b>Solar Pumping System</b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)   |      |      |             |               |
| ME1                                | 7.5kW Submersible Pump Set with 11.0kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 70m total head; set to not more than <b>5m</b> below ground including Dry- run protection, Motor and Pump End. | No.  | 1    |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item | 1    |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Aarray in Item 2 above as per drawings including foundations, vandal proofing mounting to the Engineer's approval    | Sum  | 1    |             |               |
| ME4                                | PV Disconnect 1000-40-2  | No.  | 1    |             |               |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.  | 1    |             |               |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item | 1    |             |               |
| ME7                                | PV Combiner  | No.  | 1    |             |               |
| ME7a                               | Pressure Switch and Gauge - P5/8   | No.  | 1    |             |               |
| ME8                                | Sinewave filter - SWAP0017D.   | No.  | 1    |             |               |
| ME9                                | 16mm <sup>2</sup> Borehole drop cable,   | m    | 5    |             |               |
| ME10                               | 16mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m    | 125  |             |               |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m    | 60   |             |               |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.  | 2    |             |               |
| ME11a                              | Adapter box  | No.  | 1    |             |               |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item | 1    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.3: ALAKE IN DOKOLO DISTRICT

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|-----------|-------------|---------------|
|                                    | <b><u>Earthing and Lightening Protection</u></b>   |                |           |             |               |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm               | Sum            | 1         |             |               |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                                 | Sum            | 1         |             |               |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.            | 5         |             |               |
|                                    | <b><u>Alarm System</u></b>   |                |           |             |               |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item           | 1         |             |               |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item           | 1         |             |               |
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>  |                |           |             |               |
|                                    | <b><u>Pump Protection System</u></b>   |                |           |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base. | No.            | 1         |             |               |
|                                    | <b><u>Kerbs</u></b>  |                |           |             |               |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>   |                |           |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m  | m              | 70        |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a guage 500 polythene sheet.  | m <sup>2</sup> | 220       |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert   | m              | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |                |           |             |               |



# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.3: ALAKE IN DOKOLO DISTRICT

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No. | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|--|------|-----------|-------------|---------------|
| X5       | <b><u>Pump House</u></b><br>Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.  | Sum  | 1         |             |               |
| X6a      | <b><u>Fences</u></b><br>Galvarnised wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m    | 50        |             |               |
| X6b      | Galvarnised wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m    | 120       |             |               |
| X7       | <b><u>Gates</u></b><br>Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.  | 1         |             |               |
| X8       | <b><u>Training of Operator's staff</u></b><br>Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval                     | Sum  | 1         |             |               |
| X9       | <b><u>Operation and Maintenance Manuals</u></b><br>Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum  | 1         |             |               |
| XX       | Horizontal pump installation option out of flanged/ sealed end HDPE culvert pipe mounted on fabricated GI support structure including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/005.                                | Item | Rate Only |             |               |

### Total Carried to Collection

## BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.  | Description                  |  |  |  | Amount (UGx.) |
|---|------------------------------|--|--|--|---------------|
|   | <b>Bill No. 1 Collection</b> |  |  |  |               |
|   | Page 2                       |  |  |  |               |
|   | Page 3                       |  |  |  |               |
|   | Page 4                       |  |  |  |               |
|   | Page 5                       |  |  |  |               |
|   | Page 6                       |  |  |  |               |
|   | Page 7                       |  |  |  |               |
| <b>Total Bill No. 1 Carried to Bill Summary</b> |                              |  |  |  |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.3: ALAKE IN DOKOLO DISTRICT

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials. | Item | 1         |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>  |      |           |             |               |
| 2                                  | <b><u>Steel Pipes</u></b>  |      |           |             |               |
|                                    | <u>Galvanised iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes;</u>                                 |      |           |             |               |
| 2.1                                | DN75mm, not in trenches;   | m    | Rate Only |             |               |
| 2.2                                | Galvanised steel pipes with threaded joints, include unions/sockets, all to ISO 2531 and to PN10, laid in trench of the following sizes and depths           | m    | 12        |             |               |
| 3                                  | <b><u>HDPE Pipes</u></b>   |      |           |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>   |      |           |             |               |
| 3.1                                | OD75mm HDPE PN16   | m    | 325       |             |               |
| 4                                  | <b><u>uPVC Pipes</u></b>   |      |           |             |               |
|                                    | <u>uPVC pressure pipes to UNBS US 264: 2000 and DIN 8062 with integral rubber ring socket joints laid in trenches</u>  |      |           |             |               |
|                                    | <u>OD110 to PN 16</u>  |      |           |             |               |
| 4.1                                | Depth not exceeding 1.5m   | m    | Rate Only |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>  |      |           |             |               |
| 5                                  | <b><u>Bends</u></b>  |      |           |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, toBS EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |           |             |               |
| 5.1                                | DN75mm   | No.  | 4         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.3: ALAKE IN DOKOLO DISTRICT

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                               | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|--|---|------|-----------|-------------|---------------|
| 6                                      | <b>Bulk Flow Meters</b><br><u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u>   |      |           |             |               |
| 6.1                                    | DN100mm PN10  | No.  | Rate Only |             |               |
|  | <b>PN16 HDPE Compression fitting to DIN 8074/BS 5114</b>  |      |           |             |               |
| 7                                      | <b>Equal Adapters</b>   |      |           |             |               |
| 7.1                                    | OD90 female adapter   | No.  | 2         |             |               |
| 8                                      | <b>Valves and Penstocks</b>   |      |           |             |               |
|  | <b>Air Valves</b><br><u>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                        |      |           |             |               |
| 8.1                                    | DN65mm  | No.  | 1         |             |               |
| 9                                      | <b>Washouts</b><br><u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |           |             |               |
| 9.1                                    | DN65mm  | No.  | 1         |             |               |
| <b>Total Carried to Collection</b>     |   |      |           |             |               |
| <b>BILL No. 2 : TRANSMISSION MAINS</b> |   |      |           |             |               |
| Item No.                               | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.3: ALAKE IN DOKOLO DISTRICT

Region: North

| <b>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</b>   |   |     |           |  |  |
|---|---|-----|-----------|--|--|
| <b><u>Other Chambers</u></b>  |   |     |           |  |  |
| <u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>  |   |     |           |  |  |
| 10a   | Depth not exceeding 1.5m                                  | No. | 1         |  |  |
| <b><u>Valve Surface Boxes</u></b>   |   |     |           |  |  |
| <u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u> |   |     |           |  |  |
| 10b   | Depth not exceeding 1.5m                                  | No. | 1         |  |  |
| <u>Pipe surrounds, of imported granular material, for the following pipe sizes</u>  |   |     |           |  |  |
| 12.2  | Not exceeding DN200mm                                     | m   | 50        |  |  |
| <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u>   |   |     |           |  |  |
| 12.3  | Not exceeding DN200mm                                     | m   | Rate Only |  |  |
| 13  | <b><u>Concrete Stools and Thrust Blocks</u></b>           |     |           |  |  |
| <b><u>Thrust Blocks</u></b>   |   |     |           |  |  |
| <u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes</u>  |   |     |           |  |  |
| 13.1  | Diameter not exceeding DN200mm                            | No. | Rate Only |  |  |
| <b><u>Other Pipework Ancillaries</u></b>  |   |     |           |  |  |
| <b><u>Marker Posts</u></b>  |   |     |           |  |  |
| 14  | Marker posts for pipes, gate valves, air valves, washouts | nr  | 15        |  |  |
| <b>Total Carried to Collection</b>  |   |     |           |  |  |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.3: ALAKE IN DOKOLO DISTRICT**

**Region: North**

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.  | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|---|--|------|------|-------------|---------------|
|   | <p align="center"><b>Bill No. 2 Collection</b></p> <p align="center">Page 8</p> <p align="center">Page 9</p> <p align="center">Page 10</p> |      |      |             |               |
| <b>Total Bill No. 2 Carried to Bill Summary</b> |  |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.3: ALAKE IN DOKOLO DISTRICT

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b>DEMOLITION AND SITE CLEARANCE</b>  |      |           |             |               |
|                                    | <b>General Site Clearance</b>   |      |           |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.   | Item | 1         |             |               |
| 2                                  | <b>Reservoir Tower</b>  |      |           |             |               |
|                                    | <u>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc, painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.</u>   |      |           |             |               |
| 2.1                                | Height; 6.0m for 30m <sup>3</sup> Tank.   | No.  | 1         |             |               |
| 3                                  | <b>Tanks</b>  |      |           |             |               |
|                                    | <u>Supply and Install a fabricated 6.0mm thick mild steel plate horizontal cylindrical tank with 1No. 0.6m wide access man way, water level indicator (scale in cubic metres), with inlet, outlet, washout and overflow connection complete with access points, ventilators (2 nr), and internal access ladders, inclusive of anti-rust painting internally, finishes and all necessary accessories to installation complete as specified and detailed in the drawings; to the Engineer's satisfaction. All tank accessories shall be of hot dipped galvanised steel.</u> |      |           |             |               |
| 3.1                                | Reservoir: 30m <sup>3</sup> nominal capacity erected on a 6m high tower   | No.  | 1         |             |               |
| 4                                  | <u>150-200 micron union/ compresion type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>  |      |           |             |               |
| 4.2                                | DN75mm, PN10  | No.  | Rate Only |             |               |
| 4.3                                | DN65mm, PN10  | No.  | 1         |             |               |
| 4.4                                | DN50mm, PN10  | No.  | Rate Only |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.3: ALAKE IN DOKOLO DISTRICT

Region: North

## BILL No. 3 : STORAGE RESERVOIR WORKS

| Item No.                                       | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|--|---|----------------|-----------|-------------|---------------|
| 5  | 150-200 micron union/ compresion type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-<br>[OPTIONAL] |                |           |             |               |
| 5.3  | DN65mm, PN10  | No.            | 1         |             |               |
| 6  | <b>Landscaping and Walkways</b>   |                |           |             |               |
| 6.1  | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2  | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill.   | No.            | Rate Only |             |               |
| 7  | <b>Fences</b>   |                |           |             |               |
| 7.1  | Galvarnised wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.  | m              | 60        |             |               |
|  | <b>Gates</b>  |                |           |             |               |
| 7.2  | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|  | <b>Provision and Placing of Concrete</b><br><b>Ordinary Designed Mix Concrete</b>   |                |           |             |               |
| 8  | Designed mix concrete, to BS 5328, with ordinary portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:   |                |           |             |               |
| 8.1  | Grade C15   | m <sup>3</sup> | 2         |             |               |
| <b>Total Carried to Collection</b>             |   |                |           |             |               |
|  | <b>Bill No. 3 Collection</b>  |                |           |             |               |
|  | Page 11   |                |           |             |               |
|  | Page 12   |                |           |             |               |
|  | Page 13   |                |           |             |               |
| <b>Total Bill No.3 Carried to Bill Summary</b> |   |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.3: ALAKE IN DOKOLO DISTRICT

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                     | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m |      |           |             |               |
| 2.1                                | OD63mm PN6   | m    | 170       |             |               |
| 2.3                                | OD90mm PN6   | m    | 364       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>   |      |           |             |               |
| 3.1                                | OD90mm   | No.  | 1         |             |               |
| 3.2                                | OD75mm   | No.  | 1         |             |               |
|                                    | <b><u>Unequal tees</u></b>   |      |           |             |               |
| 3.4                                | OD90 x 75mm  | No.  | 1         |             |               |
| 3.5                                | OD90 x 63mm  | No.  | 4         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>   |      |           |             |               |
| 4.1                                | OD90mm   | No.  | Rate Only |             |               |
| 4.2                                | OD75mm   | No.  | Rate Only |             |               |
| 4.3                                | OD63mm   | No.  | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.3: ALAKE IN DOKOLO DISTRICT**

**Region: North**

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                                 | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|--|--|------|-----------|-------------|---------------|
| <b>5</b>                                 | <b><u>End caps</u></b>   |      |           |             |               |
| 5.1                                      | OD63mm   | No.  | Rate Only |             |               |
| 5.2                                      | OD50mm   | No.  | 5         |             |               |
| <b>6</b>                                 | <b><u>Valves and Penstocks</u></b>   |      |           |             |               |
|  | <b><u>Air Valves</u></b>   |      |           |             |               |
|  | <u>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>  |      |           |             |               |
| 6.1                                      | OD90mm   | No.  | Rate Only |             |               |
| 6.2                                      | OD75mm   | No.  | Rate Only |             |               |
| <b>7</b>                                 | <b><u>Washouts</u></b>   |      |           |             |               |
|  | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004.</u> |      |           |             |               |
| 7.1                                      | DN75mm   | No.  | Rate Only |             |               |
| 7.2                                      | DN65mm   | No.  | Rate Only |             |               |
| 7.3                                      | DN50mm   | No.  | Rate Only |             |               |
| <b>8</b>                                 | <b><u>Farm Gate Connections</u></b>  |      |           |             |               |
|  | Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and locakable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -   |      |           |             |               |
| 8.1                                      | DN65mm   | No.  | Rate Only |             |               |
| 8.2                                      | DN50mm   | No.  | 5         |             |               |
|  | <b><u>Other Pipework Ancillaries</u></b>   |      |           |             |               |
|  | <b><u>Marker Posts</u></b>   |      |           |             |               |
| 9  | Marker posts for pipes, gate valves, air valves, washouts  | nr   | 20        |             |               |
| <b>Total Carried to Collection</b>       |  |      |           |             |               |
| <b>BILL No. 4 : DISTRIBUTION NETWORK</b> |  |      |           |             |               |
| Item No.                                 | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|  |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.3: ALAKE IN DOKOLO DISTRICT**

**Region: North**

**Bill No. 4 Collection**

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**Total Bill No. 4 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.4: LWALA IN KWANIA DISTRICT

Region: North

**BILL SUMMARY**

| Bill No.                              | Description                             | Amount (UGx.) |
|---------------------------------------|---|---------------|
|                                       | <b>WORK ITEMS</b>                       |               |
| 1.0                                   | Abstraction and Electromechanical Works |               |
| 2.0                                   | Transmission Mains                      |               |
| 3.0                                   | Storage Reservoir Works                 |               |
| 4.0                                   | Distribution Network                    |               |
| <b>Total Carried to Grand Summary</b> |   |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.4: LWALA IN KWANIA DISTRICT

Region: North

## BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
|                                    | <b>General Site Clearance</b>  |                |      |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stumps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer.   | Item           | 1.00 |             |               |
|                                    | <b>Earthworks</b>  |                |      |             |               |
|                                    | Excavation to form trapezoidal prism reservoir in material other than topsoil, rock or other artificial hard material, depth not exceeding 6.0m including forming earth bands along the channel of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings. |                |      |             |               |
| 2.1                                | Marshy soils   | m <sup>3</sup> | 52   |             |               |
| 2.2                                | Soft / decomposed rock soils   | m <sup>3</sup> | 26   |             |               |
|                                    | Excavation to form trapezoidal channel in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                        |                |      |             |               |
| 2.4                                | Marshy soils   | m <sup>3</sup> | 60   |             |               |
| 2.5                                | Soft / decomposed rock soils   | m <sup>3</sup> | 15   |             |               |
|                                    | Excavation to form cylindrical sump well in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                      |                |      |             |               |
| 2.6                                | Marshy soils   | m <sup>3</sup> | 16   |             |               |
| 2.7                                | Soft / decomposed rock soils   | m <sup>3</sup> | 8    |             |               |
|                                    | <b>Filling Structures</b>  |                |      |             |               |
|                                    | <u>Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -</u>  |                |      |             |               |
| 3                                  | Selected excavated material including topping with a 200mm thick layer of top/vegetable soil.  | m <sup>3</sup> | 10   |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.4: LWALA IN KWANIA DISTRICT

Region: North

## **BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.   | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|--|--|----------------|------|-------------|---------------|
| 4  | <b>Landscaping</b><br>Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.<br><b>IN-SITU CONCRETE</b><br><b>Provision and Placing of Concrete</b><br><b>Ordinary Design Mix Concrete</b><br>Designed mix , concrete to BS 8500 and BS EN 206-1, with ordinary portland cement to BS 12, aggregate to BS 882 , maximum aggregate size ; 20mm for the following structures: - | m <sup>2</sup> | 40   |             |               |
| 5  | <b>In situ Concrete</b><br>75mm thick Grade C15 concrete blinding to pump sump base  | m <sup>3</sup> | 0.25 |             |               |
| 6.1  | 2200mm Diameter x 150mm thick Grade C25 concrete base slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float.  | Item           | 1    |             |               |
| 6.2  | 2200mm Diameter x 150mm thick Grade C25 concrete top slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float and forming a 600 x 600mm opening for the inspection cover (MS).   | Item           | 1    |             |               |
| 7  | <b>Pre-cast Concrete</b><br><b>Pump Well/ Sump</b><br>Supply and install 100mm thick precast reinforced concrete vertical culverts on concrete base slab (MS) ; complete with water tight jointing and finishing works to approval.<br>1200mm diameter ; height n.e 8m   | Item           | 1    |             |               |
| 8  | <b>Concrete Inserts</b><br><b>Cast or Spum Iron Pipe Fittings.</b><br>Flanged, puddled and plain end pipe insert projecting from one face of the concrete, all to PN6 and of the following sizes and lengths, including supply of the pipe and as shown in the drawings.<br>200mm ND and not exceeding 0.5m length   | No.            | 2    |             |               |
| 9  | <b>Adaptors</b><br>Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:-<br>200 mm ND   | No.            | 2    |             |               |
| 10   | OD225mm PN10 plain end uPVC pipe connection between Silt Trap Basin and Pump Sump.   | m              | 8    |             |               |
| <b>Total Carried to Collection</b>                         |  |                |      |             |               |
| <b>BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b> |  |                |      |             |               |
| Item No.   | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
| 11   | <b>Bellmouths</b><br>Flanged bellmouth to ISO 2531, flanges to ISO 2441, of the following sizes all to PN 6  |                |      |             |               |

## CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

### Scheme ID. 1.4: LWALA IN KWANIA DISTRICT

Region: North

|                                    |  |      |           |  |  |
|------------------------------------|--|------|-----------|--|--|
|                                    | 200 mm ND  | No.  | 1         |  |  |
|                                    | <b>PIPEWORK - FITTINGS AND VALVES</b><br><i>Gate Valves: Hand Operated</i>   |      |           |  |  |
| 12                                 | DN 200 mm all flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 6 for operation by tee key, with extension spindle not exceeding 4.5 metres long, and of the following sizes                       |      |           |  |  |
|                                    | <b>MISCELLANEOUS WORK</b>  |      |           |  |  |
|                                    | <b>Ladders</b>   |      |           |  |  |
| 13                                 | Internal galvanized mild steel ladder to BS 4211, galvanized to BS 729, complete and as shown in the drawings including fixing to precast concrete units..   | m    | 8         |  |  |
|                                    | <b>Steel grating</b>   |      |           |  |  |
| 14.1                               | Galvanized iron Coarse Trash Screen as detailed in the drawings.   | No.  | 1         |  |  |
| 14.2                               | Galvanized iron Fine Trash Screen as detailed in the drawings.   | No.  | 1         |  |  |
|                                    | <b>Pump Well/ Sump</b>   |      |           |  |  |
|                                    | Supply and install 8.0m long HDPE vertical culverts on concrete base slab (MS) ; complete with a Single ND200mm flanged branch to receive a ND200 gate valve. Branch height/ positioning to be determined on site. | Item | Rate Only |  |  |
| 15                                 | Internal diameter ; 1200x200mm   |      |           |  |  |
|                                    | <b>Stone pitched Channel.</b>  |      |           |  |  |
| 16                                 | 3.0 x 1.5 top x bottom width x 1.5m deep maximum trapezoidal lined drain as detailed in the drawing.   | m    | 5         |  |  |
|                                    | <b>Gabion boxes</b>  |      |           |  |  |
| 17                                 | PVC coated gabion boxes ; size 1m x 1m x 1m; including rockfill of size 100 - 250mm; as instructed by the Engineer   | nr   | Rate Only |  |  |
| <b>Total Carried to Collection</b> |  |      |           |  |  |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.4: LWALA IN KWANIA DISTRICT

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>   |      |      |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)  |      |      |             |               |
| ME1                                | 11.0kW Submersible Pump Set with 15kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 100m total head; set to not more than <b>5m</b> below ground including Dry- run protection, Motor and Pump End. | No.  | 1    |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item | 1    |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Aarray in Item 2 above as per drawings including foundations, vandal proofing mounting to the Engineer's approval    | Sum  | 1    |             |               |
| ME4                                | PV Disconnect 1000-40-2  | No.  | 1    |             |               |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.  | 1    |             |               |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item | 1    |             |               |
| ME7                                | PV Combiner  | No.  | 1    |             |               |
| ME7a                               | Pressure Switch and Gauge - P6/12  | No.  | 1    |             |               |
| ME8                                | Sinewave filter - SWAP0022D.   | No.  | 1    |             |               |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,   | m    | 5    |             |               |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m    | 175  |             |               |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m    | 60   |             |               |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.  | 2    |             |               |
| ME11a                              | Adapter box  | No.  | 1    |             |               |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item | 1    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.4: LWALA IN KWANIA DISTRICT

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
|                                    | <b><u>Earthing and Lightening Protection</u></b>   |                |      |             |               |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm               | Sum            | 1    |             |               |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                                 | Sum            | 1    |             |               |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.            | 5    |             |               |
|                                    | <b><u>Alarm System</u></b>   |                |      |             |               |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item           | 1    |             |               |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item           | 1    |             |               |
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>  |                |      |             |               |
|                                    | <b><u>Pump Protection System</u></b>   |                |      |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base. | No.            | 1    |             |               |
|                                    | <b><u>Kerbs</u></b>  |                |      |             |               |
|                                    | Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m <sup>2</sup> to the following alignment: -   |                |      |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m  | m              | 70   |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the   | m <sup>2</sup> | 220  |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert   | m              | 0    |             |               |
|                                    | <b><u>Pump House</u></b>   |                |      |             |               |
| X5                                 | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.  | Sum            | 1    |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |



# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.4: LWALA IN KWANIA DISTRICT**

**Region: North**

## **BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No. | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|--|------|-----------|-------------|---------------|
|          | <b><u>Fences</u></b>   |      |           |             |               |
| X6a      | Galvarnised wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m    | 50        |             |               |
| X6b      | Galvarnised wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m    | 10        |             |               |
|          | <b><u>Gates</u></b>  |      |           |             |               |
| X7       | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.   | No.  | 2         |             |               |
|          | <b><u>Training of Operator's staff</u></b>   |      |           |             |               |
| X8       | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval   | Sum  | 1         |             |               |
|          | <b><u>Operation and Maintenance Manuals</u></b>  |      |           |             |               |
| X9       | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval   | Sum  | 1         |             |               |
| XX       | Horizontal pump installation option out of flanged/ sealed end HDPE culvert pipe mounted on fabricated GI support structure including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/005.        | Item | Rate Only |             |               |

### **Total Carried to Collection**

## **BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No. | Description                  |  |  |  | Amount (UGx.) |
|----------|------------------------------|--|--|--|---------------|
|          | <b>Bill No. 1 Collection</b> |  |  |  |               |
|          | Page 2                       |  |  |  |               |
|          | Page 3                       |  |  |  |               |
|          | Page 4                       |  |  |  |               |
|          | Page 5                       |  |  |  |               |
|          | Page 6                       |  |  |  |               |
|          | Page 7                       |  |  |  |               |

### **Total Bill No. 1 Carried to Bill Summary**

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.4: LWALA IN KWANIA DISTRICT

Region: North

## BILL No. 2 : TRANSMISSION MAINS

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials. | Item | 1         |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>  |      |           |             |               |
|                                    | <b><u>Steel Pipes</u></b>  |      |           |             |               |
|                                    | <u>Galvanised iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes:</u>                                 |      |           |             |               |
| 2.1                                | DN75mm, in trenches; depths not exceeding 1.5m   | m    | 12        |             |               |
|                                    | <b><u>HDPE Pipes</u></b>   |      |           |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>   |      |           |             |               |
| 3.1                                | OD90mm HDPE PN16   | m    | 332       |             |               |
|                                    | <b><u>uPVC Pipes</u></b>   |      |           |             |               |
|                                    | <u>uPVC pressure pipes to UNBS US 264: 2000 and DIN 8062 with integral rubber ring socket joints laid in trenches</u>  |      |           |             |               |
|                                    | <u>OD110 to PN 10</u>  |      |           |             |               |
| 4.1                                | Depth not exceeding 1.5m   | m    | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.4: LWALA IN KWANIA DISTRICT

Region: North

## BILL No.2 : TRANSMISSION MAINS

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b>PIPEWORK - FITTINGS AND VALVES</b>  |      |      |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>  |      |      |             |               |
| 5                                  | <b><u>Bends</u></b><br><u>Galvanized iron threaded socket 45° bends, toBS EN 10242:1995, all to PN 16, and of the following sizes</u>  |      |      |             |               |
| 5.1                                | DN75mm   | No.  | 4    |             |               |
| 6                                  | <b><u>Bulk Flow Meters</u></b><br><u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u>   |      |      |             |               |
| 6.1                                | DN75mm PN16  | No.  | 1    |             |               |
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |      |             |               |
| 7                                  | <b><u>Equal Adapters</u></b>   |      |      |             |               |
| 7.1                                | OD90 female adapter  | No.  | 2    |             |               |
| 8                                  | <b><u>Valves and Penstocks</u></b>   |      |      |             |               |
|                                    | <b><u>Air Valves</u></b><br><u>Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                        |      |      |             |               |
| 8.1                                | DN75mm, PN16   | No.  | 1    |             |               |
| 9                                  | <b><u>Washouts</u></b><br><u>Washout as specified in the drawings, complete with plastic compression pipe fittings : tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |      |             |               |
| 9.1                                | DN75mm, PN16   | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.4: LWALA IN KWANIA DISTRICT

Region: North

## **BILL No. 2 : TRANSMISSION MAINS**

| Item No.  | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|--|------|-----------|-------------|---------------|
| <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b>  |  |      |           |             |               |
| <b><u>Other Chambers</u></b>  |  |      |           |             |               |
| <u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>  |  |      |           |             |               |
| 10.1  | Depth not exceeding 1.5m                                   | No.  | 2         |             |               |
| <b><u>Valve Surface Boxes</u></b>   |  |      |           |             |               |
| <u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u> |  |      |           |             |               |
| 10.2  | Depth not exceeding 1.5m                                   | No.  | Rate Only |             |               |
| <b><u>Reinstatement</u></b>   |  |      |           |             |               |
| <b><u>Roads</u></b>   |  |      |           |             |               |
| <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>  |  |      |           |             |               |
| 11.1  | Not exceeding DN300mm                                      | m    | Rate Only |             |               |
| <b><u>Surrounds</u></b>   |  |      |           |             |               |
| <u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u>  |  |      |           |             |               |
| 12.1  | Not exceeding DN200mm                                      | m    | Rate Only |             |               |
| <u>Pipe surrounds, of imported granular material, for the following pipe sizes</u>  |  |      |           |             |               |
| 12.2  | Not exceeding DN200mm                                      | m    | 120       |             |               |
| <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u>   |  |      |           |             |               |
| 12.3  | Not exceeding DN200mm                                      | m    | Rate Only |             |               |
| <b><u>Concrete Stools and Thrust Blocks</u></b>   |  |      |           |             |               |
| <b><u>Thrust Blocks</u></b>   |  |      |           |             |               |
| <u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes</u>  |  |      |           |             |               |
| 13  | Diameter not exceeding DN200mm                             | No.  | Rate Only |             |               |
| <b><u>Other Pipework Ancillaries</u></b>  |  |      |           |             |               |
| <b><u>Marker Posts</u></b>  |  |      |           |             |               |
| 14  | Marker posts for pipes, gate valves, air valves, washouts. | nr   | 15        |             |               |
| <b>Total Carried to Collection</b>  |  |      |           |             |               |
| <b>BILL No. 2 : TRANSMISSION MAINS</b>  |  |      |           |             |               |
| Item No.  | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |

CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.4: LWALA IN KWANIA DISTRICT

Region: North

|  |   |  |  |  |  |
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| Total Bill No. 2 Carried to Bill Summary |   |  |  |  |  |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.4: LWALA IN KWANIA DISTRICT

Region: North

## BILL No. 3 : STORAGE RESERVOIR WORKS

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.  | Item | 1         |             |               |
|                                    | <b><u>Reservoir Tower</u></b>  |      |           |             |               |
|                                    | Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc, painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.   |      |           |             |               |
| 2.1                                | Height; 6.0m for 30m <sup>3</sup> Tank.  | No.  | 1         |             |               |
|                                    | <b><u>Tanks</u></b>  |      |           |             |               |
|                                    | Supply and Install a fabricated 6.0mm thick mild steel plate horizontal cylindrical tank with 1No. 0.6m wide access man way, water level indicator (scale in cubic metres), with inlet, outlet, washout and overflow connection complete with access points, ventilators (2 nr), and internal access ladders, inclusive of anti-rust painting internally, finishes and all necessary accessories to installation complete as specified and detailed in the drawings; to the Engineer's satisfaction. All tank accessories shall be of hot dipped galvanised steel. |      |           |             |               |
| 3.1                                | Reservoir: 30m <sup>3</sup> nominal capacity erected on a 6m high tower  | No.  | 1         |             |               |
|                                    | <b><u>150-200 micron union/ compresion type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u></b>  |      |           |             |               |
| 4                                  |  |      |           |             |               |
| 4.1                                | DN100mm, PN10  | No.  | Rate Only |             |               |
| 4.2                                | DN75mm, PN10   | No.  | 1         |             |               |
| 4.3                                | DN65mm, PN10   | No.  | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.4: LWALA IN KWANIA DISTRICT**

**Region: North**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|--|----------------|-----------|-------------|---------------|
| 5        | <u>150-200 micron union/ compresion type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u><br>[OPTIONAL] |                |           |             |               |
| 5.1      | DN100mm, PN10  | No.            | Rate Only |             |               |
| 5.2      | DN75mm, PN10   | No.            | 1         |             |               |
| 5.3      | DN65mm, PN10   | No.            | Rate Only |             |               |
| 6        | <b><u>Landscaping and Walkways</u></b>   |                |           |             |               |
| 6.1      | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.  | m <sup>2</sup> | 150       |             |               |
| 6.2      | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill.  | No.            | Rate Only |             |               |
| 7        | <b><u>Fences</u></b>   |                |           |             |               |
| 7.1      | Galvarnised wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|          | <b><u>Gates</u></b>  |                |           |             |               |
| 7.2      | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.   | No.            | 1         |             |               |
|          | <b><u>Provision and Placing of Concrete</u></b><br><b><u>Ordinary Designed Mix Concrete</u></b>  |                |           |             |               |
| 8        | <u>Designed mix concrete, to BS 5328, with ordinary portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u>   |                |           |             |               |
| 8.1      | Grade C15  | m <sup>3</sup> | 2         |             |               |

**Total Carried to Collection**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|------------------------------|------|------|-------------|---------------|
|          | <b>Bill No. 3 Collection</b> |      |      |             |               |
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|          | Page 13                      |      |      |             |               |

**Total Bill No. 3 Carried to Bill Summary**

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.4: LWALA IN KWANIA DISTRICT

Region: North

## BILL No.4 : DISTRIBUTION NETWORK

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                     | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m |      |           |             |               |
| 2.1                                | OD63mm PN6   | m    | 285       |             |               |
| 2.2                                | OD75mm PN6   | m    | 288       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>   |      |           |             |               |
| 3.1                                | OD75mm   | No.  | 2         |             |               |
| 3.2                                | OD63mm   | No.  | 1         |             |               |
|                                    | <b><u>Unequal tees</u></b>   |      |           |             |               |
| 3.8                                | OD75 x 63mm  | No.  | 4         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>   |      |           |             |               |
| 4.1                                | OD90mm   | No.  | Rate Only |             |               |
| 4.2                                | OD75mm   | No.  | Rate Only |             |               |
| 4.3                                | OD63mm   | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>   |      |           |             |               |
| 5.1                                | OD50mm   | No.  | 5         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |



# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.4: LWALA IN KWANIA DISTRICT

Region: North

## BILL No.4 : DISTRIBUTION NETWORK

| Item No.  | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|--|------|-----------|-------------|---------------|
| 6   | <b>Valves and Penstocks</b><br><b>Air Valves</b><br>Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.                                 |      |           |             |               |
| 6.2   | OD90mm   | No.  | Rate Only |             |               |
| 6.3   | OD75mm   | No.  | Rate Only |             |               |
| 7   | <b>Washouts</b><br>Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |           |             |               |
| 7.2   | DN75mm   | No.  | 1         |             |               |
| 7.3   | DN65mm   | No.  | Rate Only |             |               |
| 8   | <b>Farm Gate Connections</b><br>Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and locakable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -   |      |           |             |               |
| 8.4   | DN50mm   | No.  | 5         |             |               |
|   | <b>Other Pipework Ancillaries</b><br><b>Marker Posts</b>   |      |           |             |               |
| 9   | Marker posts for pipes, gate valves, air valves, washouts  | nr   | 18        |             |               |
| <b>Total Carried to Collection</b>              |  |      |           |             |               |
|   | <b>Bill No. 4 Collection</b>   |      |           |             |               |
|   | Page 14  |      |           |             |               |
|   | Page 15  |      |           |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.5: ABEIBUTI IN OYAM DISTRICT**

**Region: North**

**BILL SUMMARY**

| <b>Bill No.</b>                       | <b>Description</b>                      | <b>Amount (UGx.)</b> |
|---------------------------------------|---|----------------------|
|                                       | <b>WORK ITEMS</b>                       |                      |
| 1                                     | Abstraction and Electromechanical Works |                      |
| 2                                     | Transmission Mains                      |                      |
| 3                                     | Storage Reservoir Works                 |                      |
| 4                                     | Distribution Network                    |                      |
| <b>Total Carried to Grand Summary</b> |   |                      |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.5: ABEIBUTI IN OYAM DISTRICT**

**Region: North**

## **BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
| 1                                  | <p><b>General Site Clearance</b></p> <p>General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer.</p> <p><b>Earthworks</b></p> <p>Excavation to form trapezoidal prism reservior in material other than topsoil, rock or other artificial hard material, depth not exceeding 6.0m including forming earth bands along the channel of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.</p> <p>2.1 Marshy soils</p> <p>2.2 Soft / decomposed rock soils</p> <p>Excavation to form trapezoidal channel in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.</p> <p>2.4 Marshy soils</p> <p>2.5 Soft / decomposed rock soils</p> <p>Excavation to form cylindrical sump well in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.</p> <p>2.6 Marshy soils</p> <p>2.7 Soft / decomposed rock soils</p> <p><b>Filling Structures</b></p> <p>Filling to precast concrete sump structure by methods specified and to depths Selected excavated material including topping with a 200mm thick layer of top/ vegetable soil.</p> | Item           | 1    |             |               |
|                                    |  | m <sup>3</sup> | 52   |             |               |
|                                    |  | m <sup>3</sup> | 26   |             |               |
|                                    |  | m <sup>3</sup> | 60   |             |               |
|                                    |  | m <sup>3</sup> | 15   |             |               |
|                                    |  | m <sup>3</sup> | 16   |             |               |
|                                    |  | m <sup>3</sup> | 8    |             |               |
| 3                                  |  | m <sup>3</sup> | 10   |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.5: ABEIBUTI IN OYAM DISTRICT

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
| 4                                  | <b>Landscaping</b><br>Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.  | m <sup>2</sup> | 40   |             |               |
|                                    | <b>IN-SITU CONCRETE</b><br><b>Provision and Placing of Concrete</b><br><b>Ordinary Design Mix Concrete</b><br><u>Designed mix , concrete to BS 8500 and BS EN 206-1, with ordinary portland cement to BS 12, aggregate to BS 882 , maximum aggregate size ; 20mm for the following structures: -</u> |                |      |             |               |
| 5                                  | <b>Insitu Concrete</b><br>75mm thick Grade C15 concrete blinding to pump sump base   | m <sup>3</sup> | 0.25 |             |               |
| 6.1                                | 2200mm Diameter x 150mm thick Grade C25 concrete base slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float.  | Item           | 1    |             |               |
| 6.2                                | 2200mm Diameter x 150mm thick Grade C25 concrete top slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float and forming a 600 x 600mm opening for the inspection cover (MS).   | Item           | 1    |             |               |
|                                    | <b>Pre-cast Concrete</b><br><b>Pump Well/ Sump</b><br>Supply and install 100mm thick precast reinforced concrete vertical culverts on concrete base slab (MS) ; complete with water tight jointing and finishing works to approval.  |                |      |             |               |
| 7                                  | 1200mm diameter ; height n.e 8m  | Item           | 1    |             |               |
|                                    | <b>Concrete Inserts</b><br><b>Cast or Spum Iron Pipe Fittings.</b><br>Flanged, puddled and plain end pipe insert projecting from one face of the concrete, all to PN6 and of the following sizes and lengths, including supply of the pipe and as shown in the drawings.                             |                |      |             |               |
| 8                                  | 200mm ND and not exceeding 0.5m length   | No.            | 2    |             |               |
|                                    | <b>Adaptors</b><br>Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:-  |                |      |             |               |
| 9                                  | 200 mm ND  | No.            | 2    |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.5: ABEIBUTI IN OYAM DISTRICT

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| 10                                 | OD225mm PN10 plain end uPVC pipe connection between Silt Trap Basin and Pump Sump.   | m    | 8         |             |               |
|                                    | <b>Bellmouths</b>  |      |           |             |               |
| 11                                 | Flanged bellmouth to ISO 2531, flanges to ISO 2441, of the following sizes all to PN 6<br>200 mm ND  | No.  | 1         |             |               |
|                                    | <b>PIPEWORK - FITTINGS AND VALVES</b>  |      |           |             |               |
|                                    | <b>Gate Valves: Hand Operated</b>  |      |           |             |               |
| 12                                 | DN 200 mm all flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 6 for operation by tee key, with extension spindle not exceeding 4.5 metres long, and of the following sizes                       |      |           |             |               |
|                                    | <b>MISCELLANEOUS WORK</b>  |      |           |             |               |
|                                    | <b>Ladders</b>   |      |           |             |               |
| 13                                 | Internal galvanized mild steel ladder to BS 4211, galvanized to BS 729, complete and as shown in the drawings including fixing to precast concrete units..   | m    | 8         |             |               |
|                                    | <b>Steel grating</b>   |      |           |             |               |
| 14.1                               | Galvanized iron Coarse Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
| 14.2                               | Galvanized iron Fine Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
|                                    | <b>Pump Well/ Sump</b>   |      |           |             |               |
|                                    | Supply and install 8.0m long HDPE vertical culverts on concrete base slab (MS) ; complete with a Single ND200mm flanged branch to receive a ND200 gate valve. Branch height/ positioning to be determined on site. | Item | Rate Only |             |               |
| 15                                 | Internal diameter ; 1200x200mm   |      |           |             |               |
|                                    | <b>Stone pitched Channel.</b>  |      |           |             |               |
| 16                                 | 3.0 x 1.5 top x bottom width x 1.5m deep maximum trapezoidal lined drain as detailed in the drawing.   | m    | 5         |             |               |
|                                    | <b>Gabion boxes</b>  |      |           |             |               |
| 17                                 | PVC coated gabion boxes ; size 1m x 1m x 1m; including rockfill of size 100 - 250mm; as instructed by the Engineer   | nr   | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.5: ABEIBUTI IN OYAM DISTRICT

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>   |      |      |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)  |      |      |             |               |
| ME1                                | 7.5kW Submersible Pump Set with 11.0kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 70m total head; set to not more than <b>5m</b> below ground including Dry- run protection, Motor and Pump End. | No.  | 1    |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item | 1    |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Aarray in Item 2 above as per drawings including foundations, vandal proofing mounting to the Engineer's approval    | Sum  | 1    |             |               |
| ME4                                | PV Disconnect 1000-40-2  | No.  | 1    |             |               |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.  | 1    |             |               |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item | 1    |             |               |
| ME7                                | PV Combiner  | No.  | 1    |             |               |
| ME7a                               | Pressure Switch and Gauge - P5/8   | No.  | 1    |             |               |
| ME8                                | Sinewave filter - SWAP0017D.   | No.  | 1    |             |               |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,   | m    | 5    |             |               |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m    | 125  |             |               |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m    | 60   |             |               |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.  | 2    |             |               |
| ME11a                              | Adapter box  | No.  | 1    |             |               |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item | 1    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.5: ABEIBUTI IN OYAM DISTRICT**

**Region: North**

## **BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
|                                    | <b><u>Earthing and Lightening Protection</u></b>   |                |      |             |               |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm               | Sum            | 1    |             |               |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                                 | Sum            | 1    |             |               |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.            | 5    |             |               |
|                                    | <b><u>Alarm System</u></b>   |                |      |             |               |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item           | 1    |             |               |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item           | 1    |             |               |
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>  |                |      |             |               |
|                                    | <b><u>Pump Protection System</u></b>   |                |      |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base. | No.            | 1    |             |               |
|                                    | <b><u>Kerbs</u></b>  |                |      |             |               |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>   |                |      |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m  | m              | 70   |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a guage 500 polythene sheet.  | m <sup>2</sup> | 220  |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert   | m              | 0    |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.5: ABEIBUTI IN OYAM DISTRICT

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No. | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|--|------|------|-------------|---------------|
| X5       | <b><u>Pump House</u></b><br>Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.  | Sum  | 1    |             |               |
| X6a      | <b><u>Fences</u></b><br>Galvarnised wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m    | 80   |             |               |
| X6b      | Galvarnised wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m    | 120  |             |               |
| X7       | <b><u>Gates</u></b><br>Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.  | 2    |             |               |
| X8       | <b><u>Training of Operator's staff</u></b><br>Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval                     | Sum  | 1    |             |               |
| X9       | <b><u>Operation and Maintenance Manuals</u></b><br>Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum  | 1    |             |               |

**Total Carried to Collection**

## BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No. | Description                  |  |  |  | Amount (UGx.) |
|----------|------------------------------|--|--|--|---------------|
|          | <b>Bill No. 1 Collection</b> |  |  |  |               |
|          | Page 2                       |  |  |  |               |
|          | Page 3                       |  |  |  |               |
|          | Page 4                       |  |  |  |               |
|          | Page 5                       |  |  |  |               |
|          | Page 6                       |  |  |  |               |
|          | Page 7                       |  |  |  |               |

**Total Bill No. 1 Carried to Bill Summary**



# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.5: ABEIBUTI IN OYAM DISTRICT

Region: North

## BILL No. 2 : TRANSMISSION MAINS

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b>DEMOLITION AND SITE CLEARANCE</b>   |      |           |             |               |
|                                    | <b>General Site Clearance</b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.   | Item | 1         |             |               |
|                                    | <b>PIPEWORKS - PIPES</b>   |      |           |             |               |
| 2                                  | <b>Steel Pipes</b>   |      |           |             |               |
|                                    | <u>Galvanised iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes;</u>   |      |           |             |               |
| 2.1                                | DN75mm, not in trenches;   | m    | Rate Only |             |               |
| 2.2                                | DN75mm, in trenches; depths not exceeding 1.5m   | m    | 12        |             |               |
| 3                                  | <b>HDPE Pipes</b>  |      |           |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>   |      |           |             |               |
| 3.1                                | OD75mm HDPE PN16   | m    | 420       |             |               |
|                                    | <b>PIPEWORK - FITTINGS AND VALVES</b>  |      |           |             |               |
|                                    | <b>Cast or Spun Iron Pipe Fittings</b>   |      |           |             |               |
| 5                                  | <b>Bends</b>   |      |           |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, toBS EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |           |             |               |
| 5.1                                | DN65mm   | No.  | 4         |             |               |
| 6                                  | <b>Bulk Flow Meters</b>  |      |           |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |           |             |               |
| 6.1                                | DN65mm PN10  | No.  | 1         |             |               |
| 7                                  | <b>PN16 HDPE Compression fitting to DIN 8074/BS 5114</b>   |      |           |             |               |
|                                    | <b>Equal Adapters</b>  |      |           |             |               |
| 7.1                                | OD90 female adapter  | No.  | 2         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.5: ABEIBUTI IN OYAM DISTRICT

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| <b>8</b>                           | <b><u>Valves and Penstocks</u></b>   |      |           |             |               |
|                                    | <b><u>Air Valves</u></b>   |      |           |             |               |
|                                    | <u>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                          |      |           |             |               |
| 8.1                                | DN65mm   | No.  | 1         |             |               |
| <b>9</b>                           | <b><u>Washouts</u></b>   |      |           |             |               |
|                                    | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |           |             |               |
| 9.1                                | DN65mm   | No.  | 1         |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b>   |      |           |             |               |
|                                    | <b><u>Other Chambers</u></b>   |      |           |             |               |
|                                    | <u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>   |      |           |             |               |
| 10.1                               | Depth not exceeding 1.5m   | No.  | 2         |             |               |
|                                    | <b><u>Valve Surface Boxes</u></b>  |      |           |             |               |
|                                    | <u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u>  |      |           |             |               |
| 10.2                               | Depth not exceeding 1.5m   | No.  | 2         |             |               |
| <b>11</b>                          | <b><u>Reinstatement</u></b>  |      |           |             |               |
|                                    | <b><u>Roads</u></b>  |      |           |             |               |
|                                    | <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>   |      |           |             |               |
| 11.1                               | Not exceeding DN300mm  | m    | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.5: ABEIBUTI IN OYAM DISTRICT**

**Region: North**

**BILL No.2 : TRANSMISSION MAINS**

| Item No. | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|--|------|-----------|-------------|---------------|
| 12       | <b>Surrounds</b><br><u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u>                             |      |           |             |               |
| 12.1     | Not exceeding DN200mm  | m    | Rate Only |             |               |
|          | <u>Pipe surrounds, of imported granular material, for the following pipe sizes</u>   |      |           |             |               |
| 12.2     | Not exceeding DN200mm  | m    | 40        |             |               |
|          | <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u>  |      |           |             |               |
| 12.3     | Not exceeding DN200mm  | m    | 12        |             |               |
| 13       | <b>Concrete Stools and Thrust Blocks</b>   |      |           |             |               |
|          | <b>Thrust Blocks</b><br><u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes</u> |      |           |             |               |
| 13.1     | Diameter not exceeding DN200mm   | No.  | Rate Only |             |               |

**Total Carried to Collection**

**BILL No.2 : TRANSMISSION MAINS**

| Item No. | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|------------------------------|------|------|-------------|---------------|
|          | <b>Bill No. 2 Collection</b> |      |      |             |               |
|          | Page 8                       |      |      |             |               |
|          | Page 9                       |      |      |             |               |
|          | Page 10                      |      |      |             |               |

**Total Bill No. 2 Carried to Bill Summary**

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.5: ABEIBUTI IN OYAM DISTRICT

Region: North

## BILL No. 3 : STORAGE RESERVOIR WORKS

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b>DEMOLITION AND SITE CLEARANCE</b>   |      |      |             |               |
|                                    | <b>General Site Clearance</b>  |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.  | Item | 1    |             |               |
| 2                                  | <b>Reservoir Tower</b>   |      |      |             |               |
|                                    | Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc, painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.   |      |      |             |               |
| 2.1                                | Height; 6.0m for 30m <sup>3</sup> Tank.  | No.  | 1    |             |               |
| 3                                  | <b>Tanks</b>   |      |      |             |               |
|                                    | Supply and Install a fabricated 6.0mm thick mild steel plate horizontal cylindrical tank with 1No. 0.6m wide access man way, water level indicator (scale in cubic metres), with inlet, outlet, washout and overflow connection complete with access points, ventilators (2 nr), and internal access ladders, inclusive of anti-rust painting internally, finishes and all necessary accessories to installation complete as specified and detailed in the drawings; to the Engineer's satisfaction. All tank accessories shall be of hot dipped galvanised steel. |      |      |             |               |
| 3.1                                | Reservoir: 30m <sup>3</sup> nominal capacity erected on a 6m high tower  | No.  | 1    |             |               |
| 4                                  | 150-200 micron union/ compresion type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-  |      |      |             |               |
| 4.1                                | DN75mm, PN10   | No.  | 1    |             |               |
| 5                                  | 150-200 micron union/ compresion type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-  |      |      |             |               |
|                                    | [OPTIONAL]   |      |      |             |               |
| 5.1                                | DN75mm, PN10   | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.5: ABEIBUTI IN OYAM DISTRICT**

**Region: North**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.                                       | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|--|---|----------------|-----------|-------------|---------------|
| <b>6</b>                                       | <b><u>Landscaping and Walkways</u></b>  |                |           |             |               |
| 6.1  | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2  | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill. | No.            | Rate Only |             |               |
| <b>7</b>                                       | <b><u>Fences</u></b>  |                |           |             |               |
| 7.1  | Galvarnised wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.  | m              | 60        |             |               |
|  | <b><u>Gates</u></b>   |                |           |             |               |
| 7.2  | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|  | <b>Provision and Placing of Concrete</b><br><b>Ordinary Designed Mix Concrete</b>   |                |           |             |               |
| <b>8</b>                                       | <u>Designed mix concrete, to BS 5328, with ordinary portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u>                |                |           |             |               |
| 8.1  | Grade C15   | m <sup>3</sup> | 2         |             |               |
| <b>Total Carried to Collection</b>             |   |                |           |             |               |
| <b>BILL No. 3 : STORAGE RESERVOIR WORKS</b>    |   |                |           |             |               |
| Item No.                                       | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|  | <b>Bill No. 3 Collection</b>  |                |           |             |               |
|  | Page 11   |                |           |             |               |
|  | Page 12   |                |           |             |               |
| <b>Total Bill No.3 Carried to Bill Summary</b> |   |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.5: ABEIBUTI IN OYAM DISTRICT

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                            | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>  |      |           |             |               |
| 2                                  | <b><i>Plastic Pressure Pipes- Distribution</i></b><br><u>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m</u> |      |           |             |               |
| 2.1                                | OD63mm PN10   | m    | 360       |             |               |
| 2.2                                | OD90mm PN10   | m    | 285       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>  |      |           |             |               |
| 3.1                                | OD90mm  | No.  | 3         |             |               |
|                                    | <b><u>Unequal tees</u></b>  |      |           |             |               |
| 3.2                                | OD90 x 75mm   | No.  | 1         |             |               |
| 3.3                                | OD90 x 63mm   | No.  | 3         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>  |      |           |             |               |
| 4.1                                | OD75mm  | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>  |      |           |             |               |
| 5.1                                | OD63mm  | No.  | 5         |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.5: ABEIBUTI IN OYAM DISTRICT

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No. | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|---|------|------|-------------|---------------|
| <b>6</b> | <b><u>Valves and Penstocks</u></b>  |      |      |             |               |
|          | <b><u>Air Valves</u></b>  |      |      |             |               |
|          | Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.  |      |      |             |               |
| 6.1      | OD75mm  | No.  | 1    |             |               |
| <b>7</b> | <b><u>Washouts</u></b>  |      |      |             |               |
|          | Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |      |             |               |
| 7.1      | DN75mm  | No.  | 2    |             |               |
| <b>8</b> | <b><u>Farm Gate Connections</u></b>   |      |      |             |               |
|          | Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and locakable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -  |      |      |             |               |
| 8.1      | DN50mm  | No.  | 5    |             |               |
|          | <b><u>Other Pipework Ancillaries</u></b>  |      |      |             |               |
|          | <b><u>Marker Posts</u></b>  |      |      |             |               |
| 9        | Marker posts for pipes, gate valves, air valves, washouts   | nr   | 20   |             |               |

**Total Carried to Collection**

**BILL No. 4 : DISTRIBUTION NETWORK**

| Item No. | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|------------------------------|------|------|-------------|---------------|
|          | <b>Bill No. 4 Collection</b> |      |      |             |               |
|          | Page 13                      |      |      |             |               |
|          | Page 14                      |      |      |             |               |

**Total Bill No. 4 Carried to Bill Summary**

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.6: BUNG IPONGA IN OYAM DISTRICT

Region: North

## BILL SUMMARY

| Bill No.                              | Description                             | Amount (UGx.) |
|---------------------------------------|---|---------------|
|                                       | <b>WORK ITEMS</b>                       |               |
| 1                                     | Abstraction and Electromechanical Works |               |
| 2                                     | Transmission Mains                      |               |
| 3                                     | Storage Reservoir Works                 |               |
| 4                                     | Distribution Network                    |               |
| <b>Total Carried to Grand Summary</b> |   |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.6: BUNG IPONGA IN OYAM DISTRICT**

**Region: North**

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
|                                    | <b><u>General Site Clearance</u></b>   |                |      |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer.   | Item           | 1    |             |               |
|                                    | <b><u>Earthworks</u></b>   |                |      |             |               |
|                                    | Excavation to form trapezoidal prism reservoir in material other than topsoil, rock or other artificial hard material, depth not exceeding 6.0m including forming earth bands along the channel of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings. |                |      |             |               |
| 2.1                                | Marshy soils   | m <sup>3</sup> | 52   |             |               |
| 2.2                                | Soft / decomposed rock soils   | m <sup>3</sup> | 26   |             |               |
|                                    | Excavation to form trapezoidal channel in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                        |                |      |             |               |
| 2.4                                | Marshy soils   | m <sup>3</sup> | 84   |             |               |
| 2.5                                | Soft / decomposed rock soils   | m <sup>3</sup> | 21   |             |               |
|                                    | Excavation to form cylindrical sump well in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                      |                |      |             |               |
| 2.6                                | Marshy soils   | m <sup>3</sup> | 16   |             |               |
| 2.7                                | Soft / decomposed rock soils   | m <sup>3</sup> | 8    |             |               |
|                                    | <b><u>Filling Structures</u></b>   |                |      |             |               |
|                                    | <u>Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -</u>  |                |      |             |               |
| 3                                  | Selected excavated material including topping with a 200mm thick layer of top/vegetable soil.  | m <sup>3</sup> | 10   |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.6: BUNG IPONGA IN OYAM DISTRICT

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description   | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|----------------|------|-------------|---------------|
| 4                                  | <b>Landscaping</b><br>Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 40   |             |               |
|                                    | <b>IN-SITU CONCRETE</b><br><b>Provision and Placing of Concrete</b><br><b>Ordinary Design Mix Concrete</b><br>Designed mix , concrete to BS 8500 and BS EN 206-1, with ordinary portland cement to BS 12, aggregate to BS 882 , maximum aggregate size ; 20mm for the following structures: - |                |      |             |               |
| 5                                  | <b>In situ Concrete</b><br>75mm thick Grade C15 concrete blinding to pump sump base   | m <sup>3</sup> | 0.25 |             |               |
| 6.1                                | 2200mm Diameter x 150mm thick Grade C25 concrete base slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float.   | Item           | 1    |             |               |
| 6.2                                | 2200mm Diameter x 150mm thick Grade C25 concrete top slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float and forming a 600 x 600mm opening for the inspection cover (MS).  | Item           | 1    |             |               |
|                                    | <b>Pre-cast Concrete</b><br><b>Pump Well/ Sump</b><br>Supply and install 100mm thick precast reinforced concrete vertical culverts on concrete base slab (MS) ; complete with water tight jointing and finishing works to approval.   |                |      |             |               |
| 7                                  | 1200mm diameter ; height n.e 8m   | Item           | 1    |             |               |
|                                    | <b>Concrete Inserts</b><br><b>Cast or Spum Iron Pipe Fittings.</b><br>Flanged, puddled and plain end pipe insert projecting from one face of the concrete, all to PN6 and of the following sizes and lengths, including supply of the pipe and as shown in the drawings.                      |                |      |             |               |
| 8                                  | 200mm ND and not exceeding 0.5m length  | No.            | 2    |             |               |
|                                    | <b>Adaptors</b><br>Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:-   |                |      |             |               |
| 9                                  | 200 mm ND   | No.            | 2    |             |               |
| <b>Total Carried to Collection</b> |   |                |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.6: BUNG IPONGA IN OYAM DISTRICT

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| 10                                 | OD225mm PN10 plain end uPVC pipe connection between Silt Trap Basin and Pump Sump.   | m    | 8         |             |               |
|                                    | <b>Bellmouths</b>  |      |           |             |               |
| 11                                 | Flanged bellmouth to ISO 2531, flanges to ISO 2441, of the following sizes all to PN 6<br>200 mm ND  | No.  | 1         |             |               |
|                                    | <b>PIPEWORK - FITTINGS AND VALVES</b>  |      |           |             |               |
|                                    | <b>Gate Valves: Hand Operated</b>  |      |           |             |               |
| 12                                 | DN 200 mm all flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 6 for operation by tee key, with extension spindle not exceeding 4.5 metres long, and of the following sizes                       |      |           |             |               |
|                                    | <b>MISCELLANEOUS WORK</b>  |      |           |             |               |
|                                    | <b>Ladders</b>   |      |           |             |               |
| 13                                 | Internal galvanized mild steel ladder to BS 4211, galvernized to BS 729, complete and as shown in the drawings including fixing to precast concrete units..  | m    | 8         |             |               |
|                                    | <b>Steel grating</b>   |      |           |             |               |
| 14.1                               | Galvanized iron Coarse Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
| 14.2                               | Galvanized iron Fine Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
|                                    | <b>Pump Well/ Sump</b>   |      |           |             |               |
|                                    | Supply and install 8.0m long HDPE vertical culverts on concrete base slab (MS) ; complete with a Single ND200mm flanged branch to receive a ND200 gate valve. Branch height/ positioning to be determined on site. | Item | Rate Only |             |               |
| 15                                 | Internal diameter ; 1200x200mm   |      |           |             |               |
|                                    | <b>Stone pitched Channel.</b>  |      |           |             |               |
| 16                                 | 3.0 x 1.5 top x bottom width x 1.5m deep maximum trapezoidal lined drain as detailed in the drawing.   | m    | 5         |             |               |
|                                    | <b>Gabion boxes</b>  |      |           |             |               |
| 17                                 | PVC coated gabion boxes ; size 1m x 1m x 1m; including rockfill of size 100 - 250mm; as instructed by the Engineer   | nr   | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.6: BUNG IPONGA IN OYAM DISTRICT**

**Region: North**

## **BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>   |      |      |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)  |      |      |             |               |
| ME1                                | 7.5kW Submersible Pump Set with 11.0kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 70m total head; set to not more than <b>5m</b> below ground including Dry- run protection, Motor and Pump End. | No.  | 1    |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item | 1    |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Aarray in Item 2 above as per drawings including foundations, vandal proofing mounting to the Engineer's approval    | Sum  | 1    |             |               |
| ME4                                | PV Disconnect 1000-40-2  | No.  | 1    |             |               |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.  | 1    |             |               |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item | 1    |             |               |
| ME7                                | PV Combiner  | No.  | 1    |             |               |
| ME7a                               | Pressure Switch and Gauge - P5/8   | No.  | 1    |             |               |
| ME8                                | Sinewave filter - SWAP0017D.   | No.  | 1    |             |               |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,   | m    | 5    |             |               |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m    | 125  |             |               |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m    | 60   |             |               |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.  | 2    |             |               |
| ME11a                              | Adapter box  | No.  | 1    |             |               |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item | 1    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.6: BUNG IPONGA IN OYAM DISTRICT

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|-----------|-------------|---------------|
|                                    | <b><u>Earthing and Lightening Protection</u></b>   |                |           |             |               |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm               | Sum            | 1         |             |               |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                                 | Sum            | 1         |             |               |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.            | 5         |             |               |
|                                    | <b><u>Alarm System</u></b>   |                |           |             |               |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item           | 1         |             |               |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item           | 1         |             |               |
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>  |                |           |             |               |
|                                    | <b><u>Pump Protection System</u></b>   |                |           |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base. | No.            | 1         |             |               |
|                                    | <b><u>Kerbs</u></b>  |                |           |             |               |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>   |                |           |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m  | m              | 70        |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a guage 500 polythene sheet.  | m <sup>2</sup> | 220       |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert   | m              | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |                |           |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.6: BUNG IPONGA IN OYAM DISTRICT

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No. | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|--|------|-----------|-------------|---------------|
|          | <b><u>Pump House</u></b>   |      |           |             |               |
| X5       | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.  | Sum  | 1         |             |               |
|          | <b><u>Fences</u></b>   |      |           |             |               |
| X6a      | Galvarnised wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m    | 80        |             |               |
| X6b      | Galvarnised wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m    | 120       |             |               |
|          | <b><u>Gates</u></b>  |      |           |             |               |
| X7       | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.   | No.  | 2         |             |               |
|          | <b><u>Training of Operator's staff</u></b>   |      |           |             |               |
| X8       | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval   | Sum  | 1         |             |               |
|          | <b><u>Operation and Maintenance Manuals</u></b>  |      |           |             |               |
| X9       | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval   | Sum  | 1         |             |               |
| XX       | Horizontal pump installation option out of flanged/ sealed end HDPE culvert pipe mounted on fabricated GI support structure including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/005.        | Item | Rate Only |             |               |

### Total Carried to Collection

## BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No. | Description                  |  |  |  | Amount (UGx.) |
|----------|------------------------------|--|--|--|---------------|
|          | <b>Bill No. 1 Collection</b> |  |  |  |               |
|          | Page 2                       |  |  |  |               |
|          | Page 3                       |  |  |  |               |
|          | Page 4                       |  |  |  |               |
|          | Page 5                       |  |  |  |               |
|          | Page 6                       |  |  |  |               |
|          | Page 7                       |  |  |  |               |

### Total Bill No. 1 Carried to Bill Summary

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.6: BUNG IPONGA IN OYAM DISTRICT

Region: North

**BILL No. 21.2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |      |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.   | Item | 1    |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>  |      |      |             |               |
|                                    | <b><u>Steel Pipes</u></b>  |      |      |             |               |
|                                    | <u>Galvanised iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes:</u>   |      |      |             |               |
| 2.1                                | DN75mm, in trenches; depths not exceeding 1.5m   | m    | 12   |             |               |
|                                    | <b><u>HDPE Pipes</u></b>   |      |      |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>   |      |      |             |               |
| 3.1                                | OD75mm HDPE PN16   | m    | 340  |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |      |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>  |      |      |             |               |
|                                    | <b><u>Bends</u></b>  |      |      |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, to BS EN 10242:1995, and of the following sizes</u>  |      |      |             |               |
| 5.1                                | DN65mm   | No.  | 4    |             |               |
|                                    | <b><u>Bulk Flow Meters</u></b>   |      |      |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |      |             |               |
| 6.1                                | DN65mm PN16  | No.  | 1    |             |               |
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |      |             |               |
|                                    | <b><u>Equal Adapters</u></b>   |      |      |             |               |
| 7.1                                | OD90 female adapter  | No.  | 2    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.6: BUNG IPONGA IN OYAM DISTRICT

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
| <b>8</b>                           | <b><u>Valves and Penstocks</u></b>   |      |      |             |               |
|                                    | <b><u>Air Valves</u></b>   |      |      |             |               |
|                                    | <u>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                          |      |      |             |               |
| 8.1                                | DN65mm, PN16   | No.  | 1    |             |               |
| <b>9</b>                           | <b><u>Washouts</u></b>   |      |      |             |               |
|                                    | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |      |             |               |
| 9.1                                | DN65mm, PN16   | No.  | 1    |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b>   |      |      |             |               |
|                                    | <b><u>Other Chambers</u></b>   |      |      |             |               |
|                                    | <u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>   |      |      |             |               |
| 10.1                               | Depth not exceeding 1.5m   | No.  | 2    |             |               |
|                                    | <b><u>Valve Surface Boxes</u></b>  |      |      |             |               |
|                                    | <u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u>  |      |      |             |               |
| 10.2                               | Depth not exceeding 1.5m   | No.  | 3    |             |               |
|                                    | <b><u>Reinstatement</u></b>  |      |      |             |               |
|                                    | <b><u>Roads</u></b>  |      |      |             |               |
|                                    | <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>   |      |      |             |               |
| 11                                 | Not exceeding DN300mm  | m    | 16   |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.6: BUNG IPONGA IN OYAM DISTRICT**

**Region: North**

**BILL No. 2 : TRANSMISSION MAINS**

| Item No. | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|--|------|-----------|-------------|---------------|
|          | <b><u>Surrounds</u></b>  |      |           |             |               |
|          | <u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u>                         |      |           |             |               |
| 12.1     | Not exceeding DN200mm  | m    | Rate Only |             |               |
|          | <u>Pipe surrounds, of imported granular material, for the following pipe sizes</u>                                   |      |           |             |               |
| 12.2     | Not exceeding DN200mm  | m    | 60        |             |               |
|          | <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u>  |      |           |             |               |
| 12.3     | Not exceeding DN200mm  | m    | 20        |             |               |
| 13       | <b><u>Concrete Stools and Thrust Blocks</u></b>  |      |           |             |               |
|          | <b><u>Thrust Blocks</u></b>  |      |           |             |               |
|          | <u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes</u> |      |           |             |               |
| 13.1     | Diameter not exceeding DN200mm   | No.  | Rate Only |             |               |
|          | <b><u>Other Pipework Ancillaries</u></b>   |      |           |             |               |
|          | <b><u>Marker Posts</u></b>   |      |           |             |               |
| 14       | Marker posts for pipes, gate valves, air valves, washouts.   | nr   | 15        |             |               |

**Total Carried to Collection**

**BILL No.2 : TRANSMISSION MAINS**

| Item No. | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|------------------------------|------|------|-------------|---------------|
|          | <b>Bill No. 2 Collection</b> |      |      |             |               |
|          | Page 8                       |      |      |             |               |
|          | Page 9                       |      |      |             |               |
|          | Page 10                      |      |      |             |               |

**Total Bill No. 2 Carried to Bill Summary**

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.6: BUNG IPONGA IN OYAM DISTRICT

Region: North

## BILL No. 3 : STORAGE RESERVOIR WORKS

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b>DEMOLITION AND SITE CLEARANCE</b>  |      |      |             |               |
|                                    | <b>General Site Clearance</b>   |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.   | Item | 1    |             |               |
| 2                                  | <b>Reservoir Tower</b>  |      |      |             |               |
|                                    | <u>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc, painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.</u>   |      |      |             |               |
| 2.1                                | Height; 6.0m for 30m <sup>3</sup> Tank.   | No.  | 1    |             |               |
| 3                                  | <b>Tanks</b>  |      |      |             |               |
|                                    | <u>Supply and Install a fabricated 6.0mm thick mild steel plate horizontal cylindrical tank with 1No. 0.6m wide access man way, water level indicator (scale in cubic metres), with inlet, outlet, washout and overflow connection complete with access points, ventilators (2 nr), and internal access ladders, inclusive of anti-rust painting internally, finishes and all necessary accessories to installation complete as specified and detailed in the drawings; to the Engineer's satisfaction. All tank accessories shall be of hot dipped galvanised steel.</u> |      |      |             |               |
| 3.1                                | Reservoir: 30m <sup>3</sup> nominal capacity erected on a 6m high tower   | No.  | 1    |             |               |
| 4                                  | <u>150-200 micron union/ compresion type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>  |      |      |             |               |
| 4.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| 5                                  | <u>150-200 micron union/ compresion type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u>  |      |      |             |               |
|                                    | [OPTIONAL]  |      |      |             |               |
| 5.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.6: BUNG IPONGA IN OYAM DISTRICT**

**Region: North**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|----------------|-----------|-------------|---------------|
| <b>6</b> | <b><u>Landscaping and Walkways</u></b>  |                |           |             |               |
| 6.1      | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2      | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill. | No.            | Rate Only |             |               |
| <b>7</b> | <b><u>Fences</u></b>  |                |           |             |               |
| 7.1      | Galvarnised wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.  | m              | 60        |             |               |
|          | <b><u>Gates</u></b>   |                |           |             |               |
| 7.2      | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|          | <b><u>Provision and Placing of Concrete</u></b><br><b><u>Ordinary Designed Mix Concrete</u></b>   |                |           |             |               |
| <b>8</b> | <u>Designed mix concrete, to BS 5328, with ordinary portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u>                |                |           |             |               |
| 8.1      | Grade C15   | m <sup>3</sup> | 2         |             |               |
| 8.2      | Grade C20   | m <sup>3</sup> | Rate Only |             |               |

**Total Carried to Collection**

**BILL No.3 : STORAGE RESERVOIR WORKS**

| Item No. | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|------------------------------|------|------|-------------|---------------|
|          | <b>Bill No. 3 Collection</b> |      |      |             |               |
|          | Page 11                      |      |      |             |               |
|          | Page 12                      |      |      |             |               |

**Total Bill No. 3 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.6: BUNG IPONGA IN OYAM DISTRICT

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b>DEMOLITION AND SITE CLEARANCE</b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                        | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>  |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br>HDPE pressure pipes to BS 3505, include unions / sockets, all to be laid in trench to the following depths not exceeding 1.5m |      |           |             |               |
| 2.1                                | OD63mm PN6  | m    | 462       |             |               |
| 2.2                                | OD75mm PN6  | m    | 192       |             |               |
| 2.3                                | OD90mm PN6  | m    | 235       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>  |      |           |             |               |
| 3.1                                | OD90mm  | No.  | Rate Only |             |               |
| 3.2                                | OD75mm  | No.  | Rate Only |             |               |
| 3.3                                | OD63mm  | No.  | Rate Only |             |               |
|                                    | <b><u>Unequal tees</u></b>  |      |           |             |               |
| 3.4                                | OD90 x 63mm   | No.  | 1         |             |               |
| 3.5                                | OD75 x 63mm   | No.  | 4         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>  |      |           |             |               |
| 4.1                                | OD90mm  | No.  | Rate Only |             |               |
| 4.2                                | OD75mm  | No.  | Rate Only |             |               |
| 4.3                                | OD63mm  | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>  |      |           |             |               |
| 5.1                                | OD63mm  | No.  | 5         |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.6: BUNG IPONGA IN OYAM DISTRICT

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.  | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|---|---|------|------|-------------|---------------|
| <b>6</b>  | <b><u>Valves and Penstocks</u></b>  |      |      |             |               |
|   | <b><u>Air Valves</u></b>  |      |      |             |               |
|   | Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.  |      |      |             |               |
| 6.1   | OD90mm  | No.  | 1    |             |               |
| <b>7</b>  | <b><u>Washouts</u></b>  |      |      |             |               |
|   | Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |      |             |               |
| 7.3   | DN65mm  | No.  | 2    |             |               |
| <b>8</b>  | <b><u>Farm Gate Connections</u></b>   |      |      |             |               |
|   | Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and locakable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -  |      |      |             |               |
| 8.4   | DN50mm  | No.  | 5    |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>  |      |      |             |               |
|   | <b><u>Marker Posts</u></b>  |      |      |             |               |
| 9   | Marker posts for pipes, gate valves, air valves, washouts   | nr   | 28   |             |               |
| <b>Total Carried to Collection</b>              |   |      |      |             |               |
|   | <b>Bill No. 4 Collection</b>  |      |      |             |               |
|   | Page 13   |      |      |             |               |
|   | Page 14   |      |      |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |   |      |      |             | <b>0</b>      |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.7: ODYEBO IN OYAM DISTRICT

Region: North

## BILL SUMMARY

| Bill No.                              | Description                             | Amount (UGx.) |
|---------------------------------------|---|---------------|
|                                       | <b>WORK ITEMS</b>                       |               |
| 1                                     | Abstraction and Electromechanical Works |               |
| 2                                     | Transmission Mains                      |               |
| 3                                     | Storage Reservoir Works                 |               |
| 4.0                                   | Distribution Network                    |               |
| <b>Total Carried to Grand Summary</b> |   |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.7: ODYEBO IN OYAM DISTRICT

Region: North

## BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
|                                    | <b><u>General Site Clearance</u></b>   |                |      |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer.   | Item           | 1    |             |               |
|                                    | <b><u>Earthworks</u></b>   |                |      |             |               |
|                                    | Excavation to form trapezoidal prism reservior in material other than topsoil, rock or other artificial hard material, depth not exceeding 6.0m including forming earth bands along the channel of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings. |                |      |             |               |
| 2.1                                | Marshy soils   | m <sup>3</sup> | 52   |             |               |
| 2.2                                | Soft / decomposed rock soils   | m <sup>3</sup> | 26   |             |               |
|                                    | Excavation to form trapezoidal channel in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                        |                |      |             |               |
| 2.4                                | Marshy soils   | m <sup>3</sup> | 72   |             |               |
| 2.5                                | Soft / decomposed rock soils   | m <sup>3</sup> | 18   |             |               |
|                                    | Excavation to form cylindrical sump well in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                      |                |      |             |               |
| 2.6                                | Marshy soils   | m <sup>3</sup> | 16   |             |               |
| 2.7                                | Soft / decomposed rock soils   | m <sup>3</sup> | 8    |             |               |
|                                    | <b><u>Filling Structures</u></b>   |                |      |             |               |
|                                    | <u>Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -</u>  |                |      |             |               |
| 3                                  | Selected excavated material including topping with a 200mm thick layer of top/ vegetable soil.   | m <sup>3</sup> | 10   |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.7: ODYEBO IN OYAM DISTRICT

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
| 4                                  | <b>Landscaping</b><br>Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.  | m <sup>2</sup> | 40   |             |               |
|                                    | <b>IN-SITU CONCRETE</b><br><b>Provision and Placing of Concrete</b><br><b>Ordinary Design Mix Concrete</b><br><u>Designed mix , concrete to BS 8500 and BS EN 206-1, with ordinary portland cement to BS 12, aggregate to BS 882 , maximum aggregate size ; 20mm for the following structures: -</u> |                |      |             |               |
| 5                                  | <b>Insitu Concrete</b><br>75mm thick Grade C15 concrete blinding to pump sump base   | m <sup>3</sup> | 0.25 |             |               |
| 6.1                                | 2200mm Diameter x 150mm thick Grade C25 concrete base slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float.  | Item           | 1    |             |               |
| 6.2                                | 2200mm Diameter x 150mm thick Grade C25 concrete top slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float and forming a 600 x 600mm opening for the inspection cover (MS).   | Item           | 1    |             |               |
|                                    | <b>Pre-cast Concrete</b><br><b>Pump Well/ Sump</b><br>Supply and install 100mm thick precast reinforced concrete vertical culverts on concrete base slab (MS) ; complete with water tight jointing and finishing works to approval.  |                |      |             |               |
| 7                                  | 1200mm diameter ; height n.e 8m  | Item           | 1    |             |               |
|                                    | <b>Concrete Inserts</b><br><b>Cast or Spum Iron Pipe Fittings.</b><br>Flanged, puddled and plain end pipe insert projecting from one face of the concrete, all to PN6 and of the following sizes and lengths, including supply of the pipe and as shown in the drawings.                             |                |      |             |               |
| 8                                  | 200mm ND and not exceeding 0.5m length   | No.            | 2    |             |               |
|                                    | <b>Adaptors</b><br>Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:-  |                |      |             |               |
| 9                                  | 200 mm ND  | No.            | 2    |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |



# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.7: ODYEBO IN OYAM DISTRICT**

**Region: North**

## **BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| 10                                 | OD225mm PN10 plain end uPVC pipe connection between Silt Trap Basin and Pump Sump.   | m    | 8         |             |               |
| 11                                 | <b>Bellmouths</b><br>Flanged bellmouth to ISO 2531, flanges to ISO 2441, of the following sizes all to PN 6<br>200 mm ND   | No.  | 1         |             |               |
|                                    | <b>PIPEWORK - FITTINGS AND VALVES</b><br><b>Gate Valves: Hand Operated</b>   |      |           |             |               |
| 12                                 | DN 200 mm all flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 6 for operation by tee key, with extension spindle not exceeding 4.5 metres long, and of the following sizes                       |      |           |             |               |
|                                    | <b>MISCELLANEOUS WORK</b>  |      |           |             |               |
|                                    | <b>Ladders</b>   |      |           |             |               |
| 13                                 | Internal galvanized mild steel ladder to BS 4211, galvanized to BS 729, complete and as shown in the drawings including fixing to precast concrete units..   | m    | 8         |             |               |
|                                    | <b>Steel grating</b>   |      |           |             |               |
| 14.1                               | Galvanized iron Coarse Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
| 14.2                               | Galvanized iron Fine Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
|                                    | <b>Pump Well/ Sump</b>   |      |           |             |               |
|                                    | Supply and install 8.0m long HDPE vertical culverts on concrete base slab (MS) ; complete with a Single ND200mm flanged branch to receive a ND200 gate valve. Branch height/ positioning to be determined on site. | Item | Rate Only |             |               |
| 15                                 | Internal diameter ; 1200x200mm   |      |           |             |               |
|                                    | <b>Stone pitched Channel.</b>  |      |           |             |               |
| 16                                 | 3.0 x 1.5 top x bottom width x 1.5m deep maximum trapezoidal lined drain as detailed in the drawing.   | m    | 5         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.7: ODYEBO IN OYAM DISTRICT

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>   |      |      |             |               |
|                                    | <b>Solar Pumping System</b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)   |      |      |             |               |
| ME1                                | 11.0kW Submersible Pump Set with 15kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 100m total head; set to not more than <b>5m</b> below ground including Dry- run protection, Motor and Pump End. | No.  | 1    |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item | 1    |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Aarray in Item 2 above as per drawings including foundations, vandal proofing mounting to the Engineer's approval    | Sum  | 1    |             |               |
| ME4                                | PV Disconnect 1000-40-2  | No.  | 1    |             |               |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.  | 1    |             |               |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item | 1    |             |               |
| ME7                                | PV Combiner  | No.  | 1    |             |               |
| ME7a                               | Pressure Switch and Gauge - P6/12  | No.  | 1    |             |               |
| ME8                                | Sinewave filter - SWAP0022D.   | No.  | 1    |             |               |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,   | m    | 5    |             |               |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m    | 175  |             |               |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m    | 60   |             |               |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.  | 2    |             |               |
| ME11a                              | Adapter box  | No.  | 1    |             |               |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item | 1    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.7: ODYEBO IN OYAM DISTRICT

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|-----------|-------------|---------------|
|                                    | <b><u>Earthing and Lightening Protection</u></b>   |                |           |             |               |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm               | Sum            | 1         |             |               |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                                 | Sum            | 1         |             |               |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.            | 5         |             |               |
|                                    | <b><u>Alarm System</u></b>   |                |           |             |               |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item           | 1         |             |               |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item           | 1         |             |               |
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>  |                |           |             |               |
|                                    | <b><u>Pump Protection System</u></b>   |                |           |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base. | No.            | 1         |             |               |
|                                    | <b><u>Kerbs</u></b>  |                |           |             |               |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>   |                |           |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m  | m              | 70        |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a guage 500 polythene sheet.  | m <sup>2</sup> | 220       |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert   | m              | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |                |           |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.7: ODYEBO IN OYAM DISTRICT

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No. | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|--|------|------|-------------|---------------|
| X5       | <b><u>Pump House</u></b><br>Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.  | Sum  | 1    |             |               |
| X6a      | <b><u>Fences</u></b><br>Galvarnised wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m    | 80   |             |               |
| X6b      | Galvarnised wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m    | 120  |             |               |
| X7       | <b><u>Gates</u></b><br>Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.  | 2    |             |               |
| X8       | <b><u>Training of Operator's staff</u></b><br>Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval                     | Sum  | 1    |             |               |
| X9       | <b><u>Operation and Maintenance Manuals</u></b><br>Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum  | 1    |             |               |

**Total Carried to Collection**

## BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.  | Description                  |  |  |  | Amount (UGx.) |
|---|------------------------------|--|--|--|---------------|
|   | <b>Bill No. 1 Collection</b> |  |  |  |               |
|   | Page 2                       |  |  |  |               |
|   | Page 3                       |  |  |  |               |
|   | Page 4                       |  |  |  |               |
|   | Page 5                       |  |  |  |               |
|   | Page 6                       |  |  |  |               |
|   | Page 7                       |  |  |  |               |
| <b>Total Bill No. 1 Carried to Bill Summary</b> |                              |  |  |  |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.7: ODYEBO IN OYAM DISTRICT

Region: North

## BILL No. 2 : TRANSMISSION MAINS

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b>DEMOLITION AND SITE CLEARANCE</b>   |      |           |             |               |
|                                    | <b>General Site Clearance</b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.   | Item | 1         |             |               |
|                                    | <b>PIPEWORKS - PIPES</b>   |      |           |             |               |
|                                    | <b>Steel Pipes</b>   |      |           |             |               |
|                                    | <u>Galvanised iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes;</u>   |      |           |             |               |
| 2.1                                | DN75mm, in trenches; depths not exceeding 1.5m   | m    | 12        |             |               |
|                                    | <b>HDPE Pipes</b>  |      |           |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>   |      |           |             |               |
| 3.1                                | OD90mm HDPE PN16   | m    | 330       |             |               |
|                                    | <b>uPVC Pipes</b>  |      |           |             |               |
|                                    | <u>uPVC pressure pipes to UNBS US 264: 2000 and DIN 8062 with integral rubber ring socket joints laid in trenches</u>  |      |           |             |               |
|                                    | <u>OD110 to PN 16</u>  |      |           |             |               |
| 4.1                                | Depth not exceeding 1.5m   | m    | Rate Only |             |               |
|                                    | <b>PIPEWORK - FITTINGS AND VALVES</b>  |      |           |             |               |
|                                    | <b>Cast or Spun Iron Pipe Fittings</b>   |      |           |             |               |
|                                    | <b>Bends</b>   |      |           |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, toBS EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |           |             |               |
| 5.1                                | DN75mm   | No.  | 4         |             |               |
|                                    | <b>Bulk Flow Meters</b>  |      |           |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |           |             |               |
| 6.1                                | DN75mm PN16  | No.  | 1         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.7: ODYEBO IN OYAM DISTRICT

Region: North

## BILL No. 2 : TRANSMISSION MAINS

| Item No.                               | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|--|--|------|------|-------------|---------------|
| 7                                      | <b>PN16 HDPE Compression fitting to DIN 8074/BS 5114</b>   |      |      |             |               |
| 7.1                                    | <b>Equal Adapters</b><br>OD90 female adapter   | No.  | 2    |             |               |
| 8                                      | <b>Valves and Penstocks</b>  |      |      |             |               |
|  | <b>Air Valves</b><br>Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.                        |      |      |             |               |
| 8.1                                    | DN75mm   | No.  | 1    |             |               |
| 9                                      | <b>Washouts</b><br>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail. |      |      |             |               |
| 9.1                                    | DN75mm   | No.  | 1    |             |               |
|  | <b>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</b>  |      |      |             |               |
|  | <b>Other Chambers</b><br>Masonry air valve chamber, complete as specified in the drawings, and of the following depths   |      |      |             |               |
| 10.1                                   | Depth not exceeding 1.5m   | No.  | 2    |             |               |
| 10.2                                   | <b>Valve Surface Boxes</b><br>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths<br>Depth not exceeding 1.5m   | No.  | 2    |             |               |
| 11                                     | <b>Reinstatement</b><br><b>Roads</b><br>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes  |      |      |             |               |
| 11.1                                   | Not exceeding DN300mm  | m    | 12   |             |               |
| <b>Total Carried to Collection</b>     |  |      |      |             |               |
| <b>BILL No. 2 : TRANSMISSION MAINS</b> |  |      |      |             |               |
| Item No.                               | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
| 12                                     | <b>Surrounds</b>   |      |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

## Scheme ID. 1.7: ODYEBO IN OYAM DISTRICT

Region: North

| 12.1                                    | <u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u><br>Not exceeding DN200mm   | m    | Rate Only |             |               |
|---|---|------|-----------|-------------|---------------|
| 12.2                                    | <u>Pipe surrounds, of imported granular material, for the following pipe sizes</u><br>Not exceeding DN200mm   | m    | Rate Only |             |               |
| 12.3                                    | <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u><br>Not exceeding DN200mm  | m    | 15        |             |               |
| 13                                      | <b><u>Concrete Stools and Thrust Blocks</u></b><br><br><b><u>Thrust Blocks</u></b><br>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes |      |           |             |               |
| 13.1                                    | Diameter not exceeding DN200mm  | No.  | Rate Only |             |               |
| 14                                      | <b><u>Other Pipework Ancillaries</u></b><br><b><u>Marker Posts</u></b><br>Marker posts for pipes, gate valves, air valves, washouts.  | nr   | 16        |             |               |
| Total Carried to Collection             |   |      |           |             |               |
| BILL No. 2 : TRANSMISSION MAINS         |   |      |           |             |               |
| Item No.                                | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|   | Bill No. 2 Collection<br><br>Page 8<br><br>Page 9<br><br>Page 10  |      |           |             |               |
| Total Bill No.2 Carried to Bill Summary |   |      |           |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.7: ODYEBO IN OYAM DISTRICT

Region: North

## BILL No. 3 : STORAGE RESERVOIR WORKS

| Item No.                    | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|-----------------------------|--|------|------|-------------|---------------|
|                             | <b>DEMOLITION AND SITE CLEARANCE</b>   |      |      |             |               |
|                             | <b>General Site Clearance</b>  |      |      |             |               |
| 1                           | General site clearance including trees, stumps and disposal of arising materials.  | Item | 1    |             |               |
| 2                           | <b>Reservoir Tower</b>   |      |      |             |               |
|                             | Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc, painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.   |      |      |             |               |
| 2.1                         | Height; 6.0m for 30m <sup>3</sup> Tank.  | No.  | 1    |             |               |
| 3                           | <b>Tanks</b>   |      |      |             |               |
|                             | Supply and Install a fabricated 6.0mm thick mild steel plate horizontal cylindrical tank with 1No. 0.6m wide access man way, water level indicator (scale in cubic metres), with inlet, outlet, washout and overflow connection complete with access points, ventilators (2 nr), and internal access ladders, inclusive of anti-rust painting internally, finishes and all necessary accessories to installation complete as specified and detailed in the drawings; to the Engineer's satisfaction. All tank accessories shall be of hot dipped galvanised steel. |      |      |             |               |
| 3.1                         | Reservoir: 30m <sup>3</sup> nominal capacity erected on a 6m high tower  | No.  | 1    |             |               |
| 4                           | 150-200 micron union/ compresion type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-  |      |      |             |               |
| 4.1                         | DN75mm, PN10   | No.  | 1    |             |               |
| 5                           | 150-200 micron union/ compresion type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-  |      |      |             |               |
|                             | [OPTIONAL]   |      |      |             |               |
| 5.1                         | DN75mm, PN10   | No.  | 1    |             |               |
| Total Carried to Collection |  |      |      |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 1.7: ODYEBO IN OYAM DISTRICT**

**Region: North**

**BILL No.3 : STORAGE RESERVOIR WORKS**

| Item No.  | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|----------------|-----------|-------------|---------------|
| <b>6</b>  | <b><u>Landscaping and Walkways</u></b>  |                |           |             |               |
| 6.1   | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2   | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill. | No.            | Rate Only |             |               |
| <b>7</b>  | <b><u>Fences</u></b>  |                |           |             |               |
| 7.1   | Galvarnised wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.  | m              | 60        |             |               |
|   | <b><u>Gates</u></b>   |                |           |             |               |
| 7.2   | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|   | <b>Provision and Placing of Concrete</b><br><b><i>Ordinary Designed Mix Concrete</i></b>  |                |           |             |               |
| <b>8</b>  | <u>Designed mix concrete, to BS 5328, with ordinary portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u>                |                |           |             |               |
| 8.1   | Grade C15   | m <sup>3</sup> | 2         |             |               |
| <b>Total Carried to Collection</b>              |   |                |           |             |               |
| <b>BILL No.3 : STORAGE RESERVOIR WORKS</b>      |   |                |           |             |               |
| Item No.  | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|   | <b>Bill No. 3 Collection</b>  |                |           |             |               |
|   | Page 11   |                |           |             |               |
|   | Page 12   |                |           |             |               |
| <b>Total Bill No. 3 Carried to Bill Summary</b> |   |                |           |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 1.7: ODYEBO IN OYAM DISTRICT

Region: North

## BILL No.4 : DISTRIBUTION NETWORK

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                     | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m |      |           |             |               |
| 2.1                                | OD75mm PN6   | m    | 120       |             |               |
| 2.2                                | OD90mm PN6   | m    | 389       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>   |      |           |             |               |
| 3.1                                | OD90mm   | No.  | 1         |             |               |
| 3.2                                | OD75mm   | No.  | 3         |             |               |
|                                    | <b><u>Unequal tees</u></b>   |      |           |             |               |
| 3.3                                | OD75 x 63mm  | No.  | 5         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>   |      |           |             |               |
| 4.1                                | OD75mm   | No.  | Rate Only |             |               |
| 4.2                                | OD63mm   | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>   |      |           |             |               |
| 5.1                                | OD50mm   | No.  | 5         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 1.7: ODYEBO IN OYAM DISTRICT

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
| <b>6</b>  | <b><u>Valves and Penstocks</u></b><br><b><u>Air Valves</u></b><br>Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.                          |      |           |             |               |
| 6.1   | OD90mm  | No.  | 1         |             |               |
| 6.2   | OD75mm  | No.  | 1         |             |               |
| <b>7</b>  | <b><u>Washouts</u></b><br>Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |           |             |               |
| 7.1   | DN75mm  | No.  | 1         |             |               |
| 7.2   | DN65mm  | No.  | 1         |             |               |
| <b>8</b>  | <b><u>Farm Gate Connections</u></b><br>Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and locakable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -   |      |           |             |               |
| 8.1   | DN65mm  | No.  | Rate Only |             |               |
| 8.2   | DN50mm  | No.  | 5         |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b><br><b><u>Marker Posts</u></b>  |      |           |             |               |
| 9   | Marker posts for pipes, gate valves, air valves, washouts   | nr   | 18        |             |               |
| <b>Total Carried to Collection</b>              |   |      |           |             |               |
|   | <b>Bill No. 4 Collection</b>  |      |           |             |               |
|   | Page 13   |      |           |             |               |
|   | Page 14   |      |           |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.1: KORO ANGALA IN OMORO DISTRICT**

**Region: North**

**BILL SUMMARY**

| <b>Bill No.</b>                       | <b>Description</b>                      | <b>Amount (UGx.)</b> |
|---------------------------------------|---|----------------------|
|                                       | <b>WORK ITEMS</b>                       |                      |
| 1                                     | Abstraction and Electromechanical Works |                      |
| 2                                     | Transmission Mains                      |                      |
| 3                                     | Storage Reservoir Works                 |                      |
| 4                                     | Distribution Network                    |                      |
| <b>Total Carried to Grand Summary</b> |   |                      |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 2.1: KORO ANGALA IN OMORO DISTRICT

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|-----------|-------------|---------------|
|                                    | <b>General Site Clearance</b>  |                |           |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stumps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer. | Item           | 1         |             |               |
|                                    | <b>Earthworks</b>  |                |           |             |               |
| 2.1                                | Excavation to form river/ stream diversion towards the intake / abstraction structure in normal ground, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to receive hardcore fill. | m <sup>3</sup> | 57        |             |               |
| 2.2                                | Ditto but for the Intake Structure   | m <sup>3</sup> | 34        |             |               |
| 2.3                                | Excavation to form trapezoidal drain in marshy soils, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                                     | m <sup>3</sup> | 175       |             |               |
|                                    | <b>Filling Structures</b>  |                |           |             |               |
|                                    | Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -   |                |           |             |               |
| 3.1                                | Imported rock/ hardcore fill, size 75 to 300mm hand packed or compacted by the arm of an excavator.  | m <sup>3</sup> | 12        |             |               |
| 3.2                                | Imported murrum.   | m <sup>3</sup> | 10        |             |               |
| 4                                  | Single layer of geotextile laid to manufacturer's specifications   | m <sup>2</sup> | Rate Only |             |               |
|                                    | <b>Landscaping</b>   |                |           |             |               |
| 5                                  | Turfing for lawns inside fenced off compound, including filling with excavated topsoil and the preparation of surfaces; 40m <sup>2</sup> at Intake Site and 800m <sup>2</sup> at Pump Station.   | m <sup>2</sup> | 840       |             |               |
| <b>Total Carried to Collection</b> |  |                |           |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 2.1: KORO ANGALA IN OMORO DISTRICT

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
|                                    | <b>IN-SITU CONCRETE</b><br><b>Provision and Placing of Concrete</b><br><b>Ordinary Design Mix Concrete</b><br><u>Designed mix , concrete to BS 8500 and BS EN 206-1, with ordinary portland cement to BS 12, aggregate to BS 882 for the following structures: -</u> |                |      |             |               |
|                                    | <b>Grade C15/10</b><br><b>Blinding</b>   |                |      |             |               |
| 6.1                                | 50mm thick blinding concrete, for base slabs, toes, key and heel; grade C15, of the following thickness  | m <sup>3</sup> | 1.1  |             |               |
|                                    | <b>Grade C25/10</b><br><b>Reinforced Concrete Base Slabs, Toe and Heel</b>   |                |      |             |               |
| 6.2                                | 200mm thick toe.   | m <sup>3</sup> | 0.3  |             |               |
| 6.3                                | 200mm thick base slab.   | m <sup>3</sup> | 2.4  |             |               |
| 6.4                                | 350/ 200mm thick reaining wall/ weir stem.   | m <sup>3</sup> | 0    |             |               |
| 6.5                                | 200mm thick sump walls.  | m <sup>3</sup> | 13.5 |             |               |
| 6.6                                | 200mm thick top slab.  | m <sup>3</sup> | 1.2  |             |               |
|                                    | <b>Formwork</b><br><b>Formwork-Fair Finish</b>   |                |      |             |               |
| 7.1                                | <b>Fair Finish Plane Horizontal</b><br>Plane fair finish horizontal formwork to the tops slab including charmfering and / or filleting of all exposed concrete corners.  | m <sup>2</sup> | 4.0  |             |               |
| 7.2                                | <b>Fair Finish Plane Vertical</b><br>Plane fair finish vertical and / or slightly slping formwork to walls including charmfering and / or filleting of all exposed concrete corners.   | m <sup>2</sup> | 140  |             |               |
| 7.3                                | <b>Finishing of top surfaces</b><br>Steel trowel finishing of top surfaces.  | m <sup>2</sup> | 11   |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.1: KORO ANGALA IN OMORO DISTRICT

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
| 8.1                                | <b>Reinforcement</b><br><b>Deformed High Yield Steel</b><br><u>High yield square twisted bars to BS 4449 and of the following sizes</u><br>Nominal size, 12mm   | t    | 1.2       |             |               |
| 8.2                                | <b>Inserts</b><br>DN 250 CI / ST flanged, puddled pipe insert pipe inserts projecting from two faces of the concrete wall and of the following sizes,excluding supply of pipe.  | No.  | Rate Only |             |               |
| 9.1                                | <b>PIPEWORK - FITTINGS AND VALVES</b><br><b>Cast or Spum Iron Pipe Fittings.</b><br><br><b>Flanged Reducers</b><br>DN250 x 150mm  | No.  | Rate Only |             |               |
| 9.2                                | <b>Flange Adaptors</b><br>DN 150mm Maxi Type or similar wide range adaptor to fit pipe spigots, flanges to BS 4505, all to PN6.   | No.  | Rate Only |             |               |
| 9.3                                | <b>Strainers</b><br><u>Flanged outlet pipe strainer, to BS 4772, flanges to BS 4504, all to PN 10, cement mortar lined, and of the following sizes: -</u><br>DN 250 mm  | No.  | Rate Only |             |               |
| 9.4                                | <b>End Caps</b><br>DN250mm flanged end cap.   | No.  | Rate Only |             |               |
| 9.5                                | <b>Valves and Penstocks</b><br><b>Gate Valves: Hand Operated</b><br><br><u>All flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 10 for operation by tee key, with extension spindle not exceeding 1.5 metres long, and of the following sizes:-</u><br>150 mm ND | No.  | Rate Only |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.1: KORO ANGALA IN OMORO DISTRICT**

**Region: North**

## **BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| 9.6                                | <u>Penstocks; hand operated including head stock and distance spindle, as specified in drawings of the following size: -</u><br>300mm wide x 1000mm high, Stainless steel.   | No.  | 1         |             |               |
|                                    | <b>MISCELLANEOUS METAL WORK</b>  |      |           |             |               |
|                                    | <b>Ladders</b>   |      |           |             |               |
| 10.1                               | External galvanized mild steel ladder to BS 4211, galvanized to BS 729, complete and as shown in the drawings including fixing to precast concrete units..   | m    | 8         |             |               |
|                                    | <b>Access Manhole Cover</b>  |      |           |             |               |
| 10.2                               | 600 x 600mm clear opening painted mild steel cover and frame include fixing and locking arrangement.   | No.  | 2         |             |               |
|                                    | <b>Pump Protection System</b>  |      |           |             |               |
| 10.3                               | Vertical pipe pump stilling tube/ anti-vandal protection sleeve structure to detail as per Drawing No. OIS/NUC/SD/010, including 1.5x1.5x0.3m support base.  | No.  | 0         |             |               |
|                                    | <b>Valve Surface Boxes</b>   |      |           |             |               |
| 10.4                               | Valve surface box with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to a depth not exceeding 4.5 m.   | No.  | Rate Only |             |               |
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>   |      |           |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)  |      |           |             |               |
| ME1                                | 11.0kW Submersible Pump Set with 15kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 100m total head; set to not more than <u>5m</u> below ground including Dry- run protection, Motor and Pump End. | No.  | 1         |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item | 1         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |



# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.1: KORO ANGALA IN OMORO DISTRICT**

**Region: North**

## **BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No                            | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Aarray in Item 2 above as per drawings including foundations, vandal proofing mounting to the Engineer's approval | Sum  | 1    |             |               |
| ME4                                | PV Disconnect 1000-40-2   | No.  | 1    |             |               |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.   | No.  | 1    |             |               |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.   | Item | 1    |             |               |
| ME7                                | PV Combiner   | No.  | 1    |             |               |
| ME7a                               | Pressure Switch and Gauge - P6/12   | No.  | 1    |             |               |
| ME8                                | Sinewave filter - SWAP0022D.  | No.  | 1    |             |               |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,  | m    | 5    |             |               |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.   | m    | 125  |             |               |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.   | m    | 60   |             |               |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors   | No.  | 2    |             |               |
| ME11a                              | Adapter box   | No.  | 1    |             |               |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.   | Item | 1    |             |               |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm  | Sum  | 1    |             |               |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.  | Sum  | 1    |             |               |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box   | No.  | 5    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.1: KORO ANGALA IN OMORO DISTRICT**

**Region: North**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
|                                    | <b>Alarm System</b>  |                |      |             |               |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item           | 1    |             |               |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item           | 1    |             |               |
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>  |                |      |             |               |
|                                    | <b><u>Pump Protection System</u></b>   |                |      |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base.               | No.            | 1    |             |               |
|                                    | <b><u>Kerbs</u></b>  |                |      |             |               |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>   |                |      |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m  | m              | 70   |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a guage 500 polythene sheet.  | m <sup>2</sup> | 220  |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert   | m              | 2    |             |               |
|                                    | <b><u>Pump House</u></b>   |                |      |             |               |
| X5                                 | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.  | Sum            | 1    |             |               |
|                                    | <b><u>Fences</u></b>   |                |      |             |               |
| X6a                                | Galvarnised wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m              | 30   |             |               |
| X6b                                | Galvarnised wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m              | 120  |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.1: KORO ANGALA IN OMORO DISTRICT**

**Region: North**

| <b>BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b> |  |      |           |  |                      |
|---|--|------|-----------|--|----------------------|
| <b>Item No.</b>   | <b>Description</b>   |      |           |  | <b>Amount (UGx.)</b> |
| X7  | <u><b>Gates</b></u><br>Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.  | 2         |  |                      |
| X8  | <u><b>Training of Operator's staff</b></u><br>Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval | Sum  | 1         |  |                      |
| X9  | <u><b>Operation and Maintenance Manuals</b></u><br>Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum  | 1         |  |                      |
| XX  | Horizontal pump installation option out of flanged/ sealed end HDPE culvert pipe mounted on fabricated GI support structure including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/005.            | Item | Rate Only |  |                      |
| <b>Total Carried to Collection</b>                          |  |      |           |  |                      |
| <b>BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b> |  |      |           |  |                      |
| <b>Item No.</b>   | <b>Description</b>   |      |           |  | <b>Amount (UGx.)</b> |
|   | <b>Bill No. 1 Collection</b>   |      |           |  |                      |
|   | Page 2   |      |           |  |                      |
|   | Page 3   |      |           |  |                      |
|   | Page 4   |      |           |  |                      |
|   | Page 5   |      |           |  |                      |
|   | Page 6   |      |           |  |                      |
|   | Page 7   |      |           |  |                      |
|   | Page 8   |      |           |  |                      |
| <b>Total Bill No. 1 Carried to Bill Summary</b>             |  |      |           |  |                      |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 2.1: KORO ANGALA IN OMORO DISTRICT

Region: North

## BILL No. .2 : TRANSMISSION MAINS

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |      |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.   | Item | 1    |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>  |      |      |             |               |
| 2                                  | <b><u>Steel Pipes</u></b>  |      |      |             |               |
|                                    | <u>Galvanised iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes;</u>   |      |      |             |               |
| 2.1                                | DN75mm, in trenches; depths not exceeding 1.5m   | m    | 12   |             |               |
| 3                                  | <b><u>HDPE Pipes</u></b>   |      |      |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>   |      |      |             |               |
| 3.1                                | OD90mm HDPE PN16   | m    | 545  |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |      |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>  |      |      |             |               |
| 5                                  | <b><u>Bends</u></b>  |      |      |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, toBS EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |      |             |               |
| 5.1                                | DN75mm   | No.  | 4    |             |               |
| 6                                  | <b><u>Bulk Flow Meters</u></b>   |      |      |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |      |             |               |
| 6.1                                | DN75mm PN16  | No.  | 1    |             |               |
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |      |             |               |
| 7                                  | <b><u>Equal Adapters</u></b>   |      |      |             |               |
| 7.1                                | OD90 female adapter  | No.  | 2    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.1: KORO ANGALA IN OMORO DISTRICT

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| <b>8</b>                           | <b><u>Valves and Penstocks</u></b>   |      |           |             |               |
|                                    | <b><u>Air Valves</u></b>   |      |           |             |               |
|                                    | <u>Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                          |      |           |             |               |
| 8.4                                | DN75mm, PN16   | No.  | 1         |             |               |
| <b>9</b>                           | <b><u>Washouts</u></b>   |      |           |             |               |
|                                    | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |           |             |               |
| 9.2                                | DN75mm   | No.  | 1         |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b>   |      |           |             |               |
|                                    | <b><u>Other Chambers</u></b>   |      |           |             |               |
|                                    | <u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>   |      |           |             |               |
| 10a                                | Depth not exceeding 1.5m   | No.  | 2         |             |               |
|                                    | <b><u>Valve Surface Boxes</u></b>  |      |           |             |               |
|                                    | <u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u>  |      |           |             |               |
| 10b                                | Depth not exceeding 1.5m   | No.  | 3         |             |               |
|                                    | <b><u>Reinstatement</u></b>  |      |           |             |               |
|                                    | <b><u>Roads</u></b>  |      |           |             |               |
|                                    | <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>   |      |           |             |               |
| 11.1                               | Not exceeding DN300mm  | m    | Rate Only |             |               |
|                                    | <b><u>Surrounds</u></b>  |      |           |             |               |
|                                    | <u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u>   |      |           |             |               |
| 12.1                               | Not exceeding DN200mm  | m    | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.1: KORO ANGALA IN OMORO DISTRICT

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| 12.2                               | <u>Pipe surrounds, of imported granular material, for the following pipe sizes</u><br>Not exceeding DN200mm  | m    | 60        |             |               |
| 12.3                               | <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u><br>Not exceeding DN200mm   | m    | 90        |             |               |
| 13                                 | <b><u>Concrete Stools and Thrust Blocks</u></b><br><br><b><i>Thrust Blocks</i></b><br><u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes</u> |      |           |             |               |
| 13.1                               | Diameter not exceeding DN200mm   | No.  | Rate Only |             |               |
| 14                                 | <b><u>Other Pipework Ancillaries</u></b><br><b><i>Marker Posts</i></b><br>Marker posts for pipes, gate valves, air valves, washouts.   | nr   | 22        |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.  | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|---|---|------|------|-------------|---------------|
|   | <b>Bill No. 17.2 Collection</b><br><br>Page 9<br><br>Page 10<br><br>Page 11 |      |      |             |               |
| <b>Total Bill No. 2 Carried to Bill Summary</b> |   |      |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 2.1: KORO ANGALA IN OMORO DISTRICT

Region: North

## BILL No. 3 : STORAGE RESERVOIR WORKS

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.   | Item | 1    |             |               |
| 2                                  | <b><u>Reservoir Tower</u></b>   |      |      |             |               |
|                                    | <u>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc, painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.</u>   |      |      |             |               |
| 2.1                                | Height; 6.0m for 30m <sup>3</sup> Tank.   | No.  | 1    |             |               |
| 3                                  | <b><u>Tanks</u></b>   |      |      |             |               |
|                                    | <u>Supply and Install a fabricated 6.0mm thick mild steel plate horizontal cylindrical tank with 1No. 0.6m wide access man way, water level indicator (scale in cubic metres), with inlet, outlet, washout and overflow connection complete with access points, ventilators (2 nr), and internal access ladders, inclusive of anti-rust painting internally, finishes and all necessary accessories to installation complete as specified and detailed in the drawings; to the Engineer's satisfaction. All tank accessories shall be of hot dipped galvanised steel.</u> |      |      |             |               |
| 3.1                                | Reservoir: 30m <sup>3</sup> nominal capacity erected on a 6m high tower   | No.  | 1    |             |               |
| 4                                  | <u>150-200 micron union/ compresion type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>  |      |      |             |               |
| 4.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.1: KORO ANGALA IN OMORO DISTRICT

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.  | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|--|----------------|-----------|-------------|---------------|
| 5   | <u>150-200 micron union/ compresion type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u><br>[OPTIONAL] |                |           |             |               |
| 5.1   | DN75mm, PN10   | No.            | 1         |             |               |
| 6   | <b><u>Landscaping and Walkways</u></b>   |                |           |             |               |
| 6.1   | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.  | m <sup>2</sup> | 150       |             |               |
| 6.2   | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill.  | No.            | Rate Only |             |               |
| 7   | <b><u>Fences</u></b>   |                |           |             |               |
| 7.1   | Galvarnised wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|   | <b><u>Gates</u></b>  |                |           |             |               |
| 7.2   | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.   | No.            | 1         |             |               |
|   | <b><u>Provision and Placing of Concrete</u></b><br><b><u>Ordinary Designed Mix Concrete</u></b>  |                |           |             |               |
| 8   | <u>Designed mix concrete, to BS 5328, with ordinary portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u>   |                |           |             |               |
| 8.1   | Grade C15  | m <sup>3</sup> | 2         |             |               |
| <b>Total Carried to Collection</b>              |  |                |           |             |               |
| <b>BILL No. 3 : STORAGE RESERVOIR WORKS</b>     |  |                |           |             |               |
| Item No.  | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|   | <b>Bill No. .3 Collection</b>  |                |           |             |               |
|   | Page 14  |                |           |             |               |
|   | Page 15  |                |           |             |               |
| <b>Total Bill No. 3 Carried to Bill Summary</b> |  |                |           |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.1: KORO ANGALA IN OMORO DISTRICT

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                            | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>  |      |           |             |               |
| 2                                  | <b><i>Plastic Pressure Pipes- Distribution</i></b><br><u>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m</u> |      |           |             |               |
| 2.1                                | OD63mm PN6  | m    | 200       |             |               |
| 2.2                                | OD75mm PN6  | m    | 335       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>  |      |           |             |               |
| 3.1                                | OD75mm  | No.  | 1         |             |               |
| 3.2                                | OD63mm  | No.  | 2         |             |               |
|                                    | <b><u>Unequal tees</u></b>  |      |           |             |               |
| 3.4                                | OD75 x 63mm   | No.  | 5         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>  |      |           |             |               |
| 4.3                                | OD75mm  | No.  | Rate Only |             |               |
| 4.4                                | OD63mm  | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>  |      |           |             |               |
| 5.4                                | OD63mm  | No.  | 6         |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.1: KORO ANGALA IN OMORO DISTRICT

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No. | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|------|-----------|-------------|---------------|
| 6        | <b>Valves and Penstocks</b><br><b>Air Valves</b><br><u>Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                                 | No.  | 1         |             |               |
| 6.3      | OD75mm  |      |           |             |               |
| 7        | <b>Washouts</b><br><u>Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004.</u> | No.  | Rate Only |             |               |
| 7.3      | DN65mm  |      |           |             |               |
| 8        | <b>Farm Gate Connections</b><br>Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and locakable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -  | No.  | 5         |             |               |
| 8.4      | DN50mm  |      |           |             |               |
|          | <b>Other Pipework Ancillaries</b><br><b>Marker Posts</b>  | nr   | 16        |             |               |
| 14       | Marker posts for pipes, gate valves, air valves, washouts.  |      |           |             |               |

**Total Carried to Collection**

**BILL No. 4 : DISTRIBUTION NETWORK**

| Item No.  | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|---|------------------------------|------|------|-------------|---------------|
|   | <b>Bill No. 4 Collection</b> |      |      |             |               |
|   | Page 14                      |      |      |             |               |
|   | Page 15                      |      |      |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |                              |      |      |             |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.2: OCAGA IN OMORO DISTRICT**

**Region: North**

## **BILL SUMMARY**

| Bill No.                              | Description                             | Amount (UGx.) |
|---------------------------------------|---|---------------|
|                                       | <b>WORK ITEMS</b>                       |               |
| 18.1                                  | Abstraction and Electromechanical Works |               |
| 18.2                                  | Transmission Mains                      |               |
| 18.3                                  | Storage Reservoir Works                 |               |
| 18.4                                  | Distribution Network                    |               |
| <b>Total Carried to Grand Summary</b> |   |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.2: OCAGA IN OMORO DISTRICT**

**Region: North**

## **BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
|                                    | <b><u>General Site Clearance</u></b>   |                |      |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer. | Item           | 1    |             |               |
|                                    | <b><u>Landscaping</u></b>  |                |      |             |               |
| 2                                  | Turfing for lawns inside fenced off compound, including filling with excavated topsoil and the preparation of surfaces; 12m <sup>2</sup> at Intake Site and 800m <sup>2</sup> at Pump Station.   | m <sup>2</sup> | 920  |             |               |
| 3                                  | Reinforced concrete pipe support/ pedestal to detail as per Drawing No. OIS/NUC/SD/010   | No.            | 2    |             |               |
|                                    | <b><u>MISCELLANEOUS METAL WORK</u></b>   |                |      |             |               |
|                                    | <b><u>Pump Protection System</u></b>   |                |      |             |               |
| 4.1                                | Diagonal pipe sleeve pump anti-vandal protection structure to detail as per Drawing No. OIS/NUC/SD/010.  | Item           | 1    |             |               |
| 4.2                                | Purpose -made pipe support structure made of welded GI pipes to detail as per Drawing No. OIS/NUC/SD/010   | Item           | 1    |             |               |
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>   |                |      |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)  |                |      |             |               |
| ME1                                | 7.5kW Submersible Pump Set with 11.0kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 70m total head; set to not more than <u>5m</u> below ground including Dry- run protection, Motor and Pump End.   | No.            | 1    |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item           | 1    |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings including foundations, vandal proofing mounting to the Engineer's approval   | Sum            | 1    |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.2: OCAGA IN OMORO DISTRICT**

**Region: North**

## **BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
| ME4                                | PV Disconnect 1000-40-2  | No.  | 1    |             |               |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.  | 1    |             |               |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item | 1    |             |               |
| ME7                                | PV Combiner  | No.  | 1    |             |               |
| ME7a                               | Pressure Switch and Gauge - P5/8   | No.  | 1    |             |               |
| ME8                                | Sinewave filter - SWAP0017D.   | No.  | 1    |             |               |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,   | m    | 5    |             |               |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m    | 225  |             |               |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m    | 60   |             |               |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.  | 2    |             |               |
| ME11a                              | Adapter box  | No.  | 1    |             |               |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item | 1    |             |               |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm | Sum  | 1    |             |               |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                   | Sum  | 1    |             |               |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.  | 5    |             |               |
|                                    | <b>Alarm System</b>  |      |      |             |               |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item | 1    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 2.2: OCAGA IN OMORO DISTRICT

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|-----------|-------------|---------------|
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item           | 1         |             |               |
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>  |                |           |             |               |
|                                    | <b><u>Pump Protection System</u></b>   |                |           |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base.               | No.            | 0         |             |               |
|                                    | <b><u>Kerbs</u></b>  |                |           |             |               |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>   |                |           |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m  | m              | 70        |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a guage 500 polythene sheet.  | m <sup>2</sup> | 220       |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert   | m              | Rate Only |             |               |
|                                    | <b><u>Pump House</u></b>   |                |           |             |               |
| X5                                 | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.  | Sum            | 1         |             |               |
|                                    | <b><u>Fences</u></b>   |                |           |             |               |
| X6a                                | Galvarnised wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m              | 40        |             |               |
| X6b                                | Galvarnised wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m              | 120       |             |               |
|                                    | <b><u>Gates</u></b>  |                |           |             |               |
| X7                                 | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.   | No.            | 2         |             |               |
| <b>Total Carried to Collection</b> |  |                |           |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 2.2: OCAGA IN OMORO DISTRICT

Region: North

| BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS |   |      |           |  |               |
|--|---|------|-----------|--|---------------|
| Item No.   | Description   |      |           |  | Amount (UGx.) |
| X8   | <u>Training of Operator's staff</u><br>Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval | Sum  | 1         |  |               |
| X9   | <u>Operation and Maintenance Manuals</u><br>Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum  | 1         |  |               |
| XX   | Horizontal pump installation option out of flanged/ sealed end HDPE culvert pipe mounted on fabricated GI support structure including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/005.     | Item | Rate Only |  |               |
| Total Carried to Collection                          |   |      |           |  |               |
| BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS |   |      |           |  |               |
| Item No.   | Description   |      |           |  | Amount (UGx.) |
|  | <p align="center"><b>Bill No. 1 Collection</b></p> <p align="center">Page 2</p> <p align="center">Page 3</p> <p align="center">Page 4</p> <p align="center">Page 5</p>  |      |           |  |               |
| Total Bill No. 1 Carried to Bill Summary             |   |      |           |  |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 2.2: OCAGA IN OMORO DISTRICT

Region: North

## BILL No. 2 : TRANSMISSION MAINS

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |      |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.   | Item | 1    |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>  |      |      |             |               |
|                                    | <b><u>Steel Pipes</u></b>  |      |      |             |               |
|                                    | <u>Galvanised iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes;</u>   |      |      |             |               |
| 2.1                                | DN75mm, in trenches; depths not exceeding 1.5m   | m    | 12   |             |               |
|                                    | <b><u>Galvanised steel pipes with threaded joints, include unions/sockets, all to ISO 2531 and to PN10, laid in trench of the following sizes and depths</u></b>   |      |      |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>   |      |      |             |               |
| 3.1                                | OD90mm HDPE PN16   | m    | 496  |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |      |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>  |      |      |             |               |
|                                    | <b><u>Bends</u></b>  |      |      |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, toBS EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |      |             |               |
| 5.1                                | DN75mm   | No.  | 4    |             |               |
|                                    | <b><u>Bulk Flow Meters</u></b>   |      |      |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |      |             |               |
| 6.1                                | DN75mm PN16  | No.  | 1    |             |               |
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |      |             |               |
|                                    | <b><u>Equal Adapters</u></b>   |      |      |             |               |
| 7.1                                | OD90 female adapter  | No.  | 2    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |



# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 2.2: OCAGA IN OMORO DISTRICT

Region: North

## BILL No. 2 : TRANSMISSION MAINS

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| 8                                  | <b><u>Valves and Penstocks</u></b><br><b><u>Air Valves</u></b><br>Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified. |      |           |             |               |
| 8.1                                | DN75mm   | No.  | 1         |             |               |
| 9                                  | <b><u>Washouts</u></b><br>Washout as specified in the drawings, complete with plastic compression pipe fittings : tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.                |      |           |             |               |
| 9.1                                | DN75mm   | No.  | 1         |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b><br><b><u>Other Chambers</u></b><br><br>Masonry air valve chamber, complete as specified in the drawings, and of the following depths  |      |           |             |               |
| 10.1                               | Depth not exceeding 1.5m   | No.  | 2         |             |               |
|                                    | <b><u>Valve Surface Boxes</u></b><br>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths  |      |           |             |               |
| 10.2                               | Depth not exceeding 1.5m   | No.  | 2         |             |               |
|                                    | <b><u>Reinstatement</u></b><br><b><u>Roads</u></b><br>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes  |      |           |             |               |
| 11                                 | Not exceeding DN300mm  | m    | Rate Only |             |               |
|                                    | <b><u>Surrounds</u></b><br>Pipe surrounds, of selected excavated granular material, for the following pipe sizes   |      |           |             |               |
| 12.1                               | Not exceeding DN200mm  | m    | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 2.2: OCAGA IN OMORO DISTRICT

Region: North

## BILL No.2 : TRANSMISSION MAINS

| Item No. | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|--|------|-----------|-------------|---------------|
| 12.2     | <u>Pipe surrounds, of imported granular material, for the following pipe sizes</u><br>Not exceeding DN200mm  | m    | 20        |             |               |
| 12.3     | <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u><br>Not exceeding DN200mm   | m    | 30        |             |               |
| 13       | <b><u>Concrete Stools and Thrust Blocks</u></b><br><br><b><i>Thrust Blocks</i></b><br><u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes</u> |      |           |             |               |
| 13.1     | Diameter not exceeding DN200mm   | No.  | Rate Only |             |               |
| 14       | <b><u>Other Pipework Ancillaries</u></b><br><b><i>Marker Posts</i></b><br>Marker posts for pipes, gate valves, air valves, washouts.   | nr   | 16        |             |               |

**Total Carried to Collection**

## BILL No. 8.2 : TRANSMISSION MAINS

| Item No.  | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|---|--|------|------|-------------|---------------|
|   | <b>Bill No. 2 Collection</b><br><br>Page 6<br><br>Page 7<br><br>Page 8 |      |      |             |               |
| <b>Total Bill No. 2 Carried to Bill Summary</b> |  |      |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 2.2: OCAGA IN OMORO DISTRICT

Region: North

## BILL No. 3 : STORAGE RESERVOIR WORKS

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.   | Item | 1    |             |               |
|                                    | <b><u>Reservoir Tower</u></b>   |      |      |             |               |
|                                    | <u>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc, painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.</u>   |      |      |             |               |
| 2.1                                | Height; 6.0m for 30m <sup>3</sup> Tank.   | No.  | 1    |             |               |
|                                    | <b><u>Tanks</u></b>   |      |      |             |               |
|                                    | <u>Supply and Install a fabricated 6.0mm thick mild steel plate horizontal cylindrical tank with 1No. 0.6m wide access man way, water level indicator (scale in cubic metres), with inlet, outlet, washout and overflow connection complete with access points, ventilators (2 nr), and internal access ladders, inclusive of anti-rust painting internally, finishes and all necessary accessories to installation complete as specified and detailed in the drawings; to the Engineer's satisfaction. All tank accessories shall be of hot dipped galvanised steel.</u> |      |      |             |               |
| 3.1                                | Reservoir: 30m <sup>3</sup> nominal capacity erected on a 6m high tower   | No.  | 1    |             |               |
|                                    | <u>150-200 micron union/ compresion type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>  |      |      |             |               |
| 4                                  |   |      |      |             |               |
| 4.1                                | DN75mm, PN10  | No.  | 1    |             |               |
|                                    | <u>150-200 micron union/ compresion type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u>  |      |      |             |               |
| 5                                  | [OPTIONAL]  |      |      |             |               |
| 5.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 2.2: OCAGA IN OMORO DISTRICT

Region: North

## BILL No. 3 : STORAGE RESERVOIR WORKS

| Item No. | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|----------------|-----------|-------------|---------------|
| <b>6</b> | <b><u>Landscaping and Walkways</u></b>  |                |           |             |               |
| 6.1      | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2      | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill. | No.            | Rate Only |             |               |
| <b>7</b> | <b><u>Fences</u></b>  |                |           |             |               |
| 7.1      | Galvarnised wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.  | m              | 60        |             |               |
|          | <b><u>Gates</u></b>   |                |           |             |               |
| 7.1      | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|          | <b>Provision and Placing of Concrete</b><br><b><i>Ordinary Designed Mix Concrete</i></b>  |                |           |             |               |
| <b>8</b> | <u>Designed mix concrete, to BS 5328, with ordinary portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u>                |                |           |             |               |
| 8.1      | Grade C15   | m <sup>3</sup> | 2         |             |               |

Total Carried to Collection

## BILL No. 3 : STORAGE RESERVOIR WORKS

| Item No. | Description                     | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|---------------------------------|------|------|-------------|---------------|
|          | <b>Bill No. 18.3 Collection</b> |      |      |             |               |
|          | Page 9                          |      |      |             |               |
|          | Page 10                         |      |      |             |               |

Total Bill No. 3 Carried to Bill Summary

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 2.2: OCAGA IN OMORO DISTRICT

Region: North

## BILL No.4 : DISTRIBUTION NETWORK

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                     | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m |      |           |             |               |
| 2.1                                | OD63mm PN6   | m    | 225       |             |               |
| 2.2                                | OD75mm PN6   | m    | 298       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>   |      |           |             |               |
| 3.1                                | OD75mm   | No.  | 1         |             |               |
|                                    | <b><u>Unequal tees</u></b>   |      |           |             |               |
| 3.2                                | OD90 x 63mm  | No.  | 2         |             |               |
| 3.3                                | OD75 x 63mm  | No.  | 2         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>   |      |           |             |               |
| 4.2                                | OD90mm   | No.  | Rate Only |             |               |
| 4.3                                | OD75mm   | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>   |      |           |             |               |
| 5.4                                | OD63mm   | No.  | 4         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.2: OCAGA IN OMORO DISTRICT

Region: North

## **BILL No.4 : DISTRIBUTION NETWORK**

| Item No. | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|------|-----------|-------------|---------------|
| <b>6</b> | <b><u>Valves and Penstocks</u></b><br><b><u>Air Valves</u></b><br>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.                          |      |           |             |               |
| 6.1      | OD75mm  | No.  | 1         |             |               |
| 6.2      | OD63mm  | No.  | 1         |             |               |
| <b>7</b> | <b><u>Washouts</u></b><br>Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |           |             |               |
| 7.1      | DN65mm  | No.  | Rate Only |             |               |
| 7.2      | DN50mm  | No.  | Rate Only |             |               |
| <b>8</b> | <b><u>Farm Gate Connections</u></b><br>Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and locakable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -   |      |           |             |               |
| 8.1      | DN50mm  | No.  | 4         |             |               |
|          | <b><u>Other Pipework Ancillaries</u></b><br><b><u>Marker Posts</u></b>  |      |           |             |               |
| 9        | Marker posts for pipes, gate valves, air valves, washouts.  | nr   | 21        |             |               |

**Total Carried to Collection**

## **BILL No. 4 : DISTRIBUTION NETWORK**

| Item No. | Description                                     | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|---|------|------|-------------|---------------|
|          | <b>Bill No. 4 Collection</b>                    |      |      |             |               |
|          | Page 11   |      |      |             |               |
|          | Page 12   |      |      |             |               |
|          | <b>Total Bill No. 4 Carried to Bill Summary</b> |      |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 2.3: OPUKOMONY IN OMORO DISTRICT

Region: North

## BILL SUMMARY

| Bill No.                              | Description                             | Amount (UGx.) |
|---------------------------------------|---|---------------|
|                                       | <b>WORK ITEMS</b>                       |               |
| 18.1                                  | Abstraction and Electromechanical Works |               |
| 18.2                                  | Transmission Mains                      |               |
| 18.3                                  | Storage Reservoir Works                 |               |
| 18.4                                  | Distribution Network                    |               |
| <b>Total Carried to Grand Summary</b> |   |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 2.3: OPUKOMONY IN OMORO DISTRICT

Region: North

## BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
|                                    | <b><u>General Site Clearance</u></b>   |                |      |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer. | Item           | 1    |             |               |
|                                    | <b><u>Landscaping</u></b>  |                |      |             |               |
| 2                                  | Turfing for lawns inside fenced off compound, including filling with excavated topsoil and the preparation of surfaces; 12m <sup>2</sup> at Intake Site and 800m <sup>2</sup> at Pump Station.   | m <sup>2</sup> | 920  |             |               |
| 3                                  | Reinforced concrete pipe support/ pedestal to detail as per Drawing No. OIS/NUC/SD/010   | No.            | 2    |             |               |
|                                    | <b><u>MISCELLANEOUS METAL WORK</u></b>   |                |      |             |               |
|                                    | <b><u>Pump Protection System</u></b>   |                |      |             |               |
| 4.1                                | Diagonal pipe sleeve pump anti-vandal protection structure to detail as per Drawing No. OIS/NUC/SD/010.  | Item           | 1    |             |               |
| 4.2                                | Purpose -made pipe support structure made of welded GI pipes to detail as per Drawing No. OIS/NUC/SD/010   | Item           | 1    |             |               |
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>   |                |      |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)  |                |      |             |               |
| ME1                                | 11.0kW Submersible Pump Set with 15.0kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 70m total head; set to not more than <u>5m</u> below ground including Dry- run protection, Motor and Pump End.  | No.            | 1    |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item           | 1    |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings including foundations, vandal proofing mounting to the Engineer's approval   | Sum            | 1    |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |



# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.3: OPUKOMONY IN OMORO DISTRICT**

**Region: North**

## **BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| <b>Item No.</b>                    | <b>Description</b>   | <b>Unit</b> | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
|------------------------------------|--|-------------|-------------|--------------------|----------------------|
| ME4                                | PV Disconnect 1000-40-2  | No.         | 1           |                    |                      |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.         | 1           |                    |                      |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item        | 1           |                    |                      |
| ME7                                | PV Combiner  | No.         | 1           |                    |                      |
| ME7a                               | Pressure Switch and Gauge - P5/8   | No.         | 1           |                    |                      |
| ME8                                | Sinewave filter - SWAP0017D.   | No.         | 1           |                    |                      |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,   | m           | 5           |                    |                      |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m           | 225         |                    |                      |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m           | 60          |                    |                      |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.         | 2           |                    |                      |
| ME11a                              | Adapter box  | No.         | 1           |                    |                      |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item        | 1           |                    |                      |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm | Sum         | 1           |                    |                      |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                   | Sum         | 1           |                    |                      |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.         | 5           |                    |                      |
| <b>Total Carried to Collection</b> |  |             |             |                    |                      |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.3: OPUKOMONY IN OMORO DISTRICT**

**Region: North**

## **BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|-----------|-------------|---------------|
| ME16                               | <b>Alarm System</b><br>GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.   | Item           | 1         |             |               |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item           | 1         |             |               |
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>  |                |           |             |               |
|                                    | <b><u>Pump Protection System</u></b>   |                |           |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base.               | No.            | 0         |             |               |
|                                    | <b><u>Kerbs</u></b><br><u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>  |                |           |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m  | m              | 70        |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a guage 500 polythene sheet.  | m <sup>2</sup> | 220       |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert   | m              | Rate Only |             |               |
|                                    | <b><u>Pump House</u></b>   |                |           |             |               |
| X5                                 | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.  | Sum            | 1         |             |               |
|                                    | <b><u>Fences</u></b>   |                |           |             |               |
| X6a                                | Galvarnised wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m              | 40        |             |               |
| X6b                                | Galvarnised wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m              | 120       |             |               |
| <b>Total Carried to Collection</b> |  |                |           |             |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.3: OPUKOMONY IN OMORO DISTRICT**

**Region: North**

| <b>BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b> |   |      |           |  |                      |
|---|---|------|-----------|--|----------------------|
| <b>Item No.</b>   | <b>Description</b>  |      |           |  | <b>Amount (UGx.)</b> |
|   | <u><b>Gates</b></u>   |      |           |  |                      |
| X7  | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.  | 2         |  |                      |
|   | <u><b>Training of Operator's staff</b></u>  |      |           |  |                      |
| X8  | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval                                    | Sum  | 1         |  |                      |
|   | <u><b>Operation and Maintenance Manuals</b></u>   |      |           |  |                      |
| X9  | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum  | 1         |  |                      |
| XX  | Horizontal pump installation option out of flanged/ sealed end HDPE culvert pipe mounted on fabricated GI support structure including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/005. | Item | Rate Only |  |                      |
| <b>Total Carried to Collection</b>                          |   |      |           |  |                      |
|   | <b>Bill No. 1 Collection</b><br><br>Page 2<br><br>Page 3<br><br>Page 4<br><br>Page 5  |      |           |  |                      |
| <b>Total Bill No. 1 Carried to Bill Summary</b>             |   |      |           |  |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.3: OPUKOMONY IN OMORO DISTRICT

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |      |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.   | Item | 1    |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>  |      |      |             |               |
|                                    | <b><u>Steel Pipes</u></b>  |      |      |             |               |
|                                    | <u>Galvanised iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes;</u>   |      |      |             |               |
| 2.1                                | DN75mm, in trenches; depths not exceeding 1.5m   | m    | 12   |             |               |
|                                    | <b><u>Galvanised steel pipes with threaded joints, include unions/sockets, all to ISO 2531 and to PN10, laid in trench of the following sizes and depths</u></b>   |      |      |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>   |      |      |             |               |
| 3.1                                | OD90mm HDPE PN16   | m    | 490  |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |      |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>  |      |      |             |               |
|                                    | <b><u>Bends</u></b>  |      |      |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, toBS EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |      |             |               |
| 5.1                                | DN75mm   | No.  | 4    |             |               |
|                                    | <b><u>Bulk Flow Meters</u></b>   |      |      |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |      |             |               |
| 6.1                                | DN75mm PN16  | No.  | 1    |             |               |
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |      |             |               |
|                                    | <b><u>Equal Adapters</u></b>   |      |      |             |               |
| 7.1                                | OD90 female adapter  | No.  | 2    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.3: OPUKOMONY IN OMORO DISTRICT

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
| <b>8</b>                           | <b><u>Valves and Penstocks</u></b><br><b><u>Air Valves</u></b><br><u>Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u> |      |           |             |               |
| 8.1                                | DN75mm  | No.  | 1         |             |               |
| <b>9</b>                           | <b><u>Washouts</u></b><br><u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u>                |      |           |             |               |
| 9.1                                | DN75mm  | No.  | 1         |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b><br><b><u>Other Chambers</u></b><br><br><u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>  |      |           |             |               |
| 10.1                               | Depth not exceeding 1.5m  | No.  | 2         |             |               |
|                                    | <b><u>Valve Surface Boxes</u></b><br><u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u>  |      |           |             |               |
| 10.2                               | Depth not exceeding 1.5m  | No.  | 2         |             |               |
|                                    | <b><u>Reinstatement</u></b><br><b><u>Roads</u></b><br><br><u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>  |      |           |             |               |
| 11                                 | Not exceeding DN300mm   | m    | Rate Only |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.3: OPUKOMONY IN OMORO DISTRICT

Region: North

**BILL No.2 : TRANSMISSION MAINS**

| Item No. | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|------|-----------|-------------|---------------|
| 12.1     | <b><u>Surrounds</u></b><br>Pipe surrounds, of selected excavated granular material, for the following pipe sizes<br>Not exceeding DN200mm   | m    | Rate Only |             |               |
| 12.2     | <b><u>Pipe surrounds, of imported granular material, for the following pipe sizes</u></b><br>Not exceeding DN200mm  | m    | 20        |             |               |
| 12.3     | <b><u>Pipe surrounds, of mass concrete, for the following pipe sizes</u></b><br>Not exceeding DN200mm   | m    | 30        |             |               |
| 13       | <b><u>Concrete Stools and Thrust Blocks</u></b><br><br><b><u>Thrust Blocks</u></b><br>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes<br>Diameter not exceeding DN200mm | No.  | Rate Only |             |               |
| 14       | <b><u>Other Pipework Ancillaries</u></b><br><b><u>Marker Posts</u></b><br>Marker posts for pipes, gate valves, air valves, washouts.  | nr   | 16        |             |               |

**Total Carried to Collection**

**BILL No. 8.2 : TRANSMISSION MAINS**

| Item No.  | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|---|--|------|------|-------------|---------------|
|   | <b>Bill No. 2 Collection</b><br><br>Page 6<br><br>Page 7<br><br>Page 8 |      |      |             |               |
| <b>Total Bill No. 2 Carried to Bill Summary</b> |  |      |      |             |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.3: OPUKOMONY IN OMORO DISTRICT

Region: North

## **BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.  | Item | 1    |             |               |
| 2                                  | <b><u>Reservoir Tower</u></b><br><u>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc. painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.</u>   |      |      |             |               |
| 2.1                                | Height; 6.0m for 30m <sup>3</sup> Tank.  | No.  | 1    |             |               |
| 3                                  | <b><u>Tanks</u></b><br><u>Supply and Install a fabricated 6.0mm thick mild steel plate horizontal cylindrical tank with 1No. 0.6m wide access man way, water level indicator (scale in cubic metres), with inlet, outlet, washout and overflow connection complete with access points, ventilators (2 nr), and internal access ladders, inclusive of anti-rust painting internally, finishes and all necessary accessories to installation complete as specified and detailed in the drawings; to the Engineer's satisfaction. All tank accessories shall be of hot dipped galvanised steel.</u> |      |      |             |               |
| 3.1                                | Reservoir: 30m <sup>3</sup> nominal capacity erected on a 6m high tower  | No.  | 1    |             |               |
| 4                                  | <u>150-200 micron union/ compresion type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>   |      |      |             |               |
| 4.1                                | DN75mm, PN10   | No.  | 1    |             |               |
| 5                                  | <u>150-200 micron union/ compresion type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u><br>[OPTIONAL]   |      |      |             |               |
| 5.1                                | DN75mm, PN10   | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.3: OPUKOMONY IN OMORO DISTRICT

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.  | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|----------------|-----------|-------------|---------------|
| <b>6</b>  | <b><u>Landscaping and Walkways</u></b>  |                |           |             |               |
| 6.1   | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2   | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill. | No.            | Rate Only |             |               |
| <b>7</b>  | <b><u>Fences</u></b>  |                |           |             |               |
| 7.1   | Galvarnised wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.  | m              | 60        |             |               |
|   | <b><u>Gates</u></b>   |                |           |             |               |
| 7.2   | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|   | <b>Provision and Placing of Concrete</b><br><b><i>Ordinary Designed Mix Concrete</i></b>  |                |           |             |               |
| <b>8</b>  | <b><u>Designed mix concrete, to BS 5328, with ordinary portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u></b>         |                |           |             |               |
| 8.1   | Grade C15   | m <sup>3</sup> | 2         |             |               |
| <b>Total Carried to Collection</b>              |   |                |           |             |               |
|   | <b>Bill No. 3 Collection</b><br><br>Page 9<br><br>Page 10   |                |           |             |               |
| <b>Total Bill No. 3 Carried to Bill Summary</b> |   |                |           |             | <b>0</b>      |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.3: OPUKOMONY IN OMORO DISTRICT

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |      |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                     | Item |      |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>   |      |      |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m |      |      |             |               |
| 2.1                                | OD63mm PN6   | m    |      |             |               |
| 2.2                                | OD75mm PN6   | m    |      |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |      |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |      |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |      |             |               |
| 3                                  | <b><u>Equal tees</u></b>   |      |      |             |               |
| 3.1                                | OD75mm   | No.  |      |             |               |
|                                    | <b><u>Unequal tees</u></b>   |      |      |             |               |
| 3.2                                | OD90 x 63mm  | No.  |      |             |               |
| 3.3                                | OD75 x 63mm  | No.  |      |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |      |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |      |             |               |
| 4                                  | <b><u>Couplers</u></b>   |      |      |             |               |
| 4.1                                | OD90mm   | No.  |      |             |               |
| 4.2                                | OD75mm   | No.  |      |             |               |
| 4.3                                | OD63mm   | No.  |      |             |               |
| 5                                  | <b><u>End caps</u></b>   |      |      |             |               |
| 5.1                                | OD90mm   | No.  |      |             |               |
| 5.2                                | OD75mm   | No.  |      |             |               |
| 5.3                                | OD63mm   | No.  |      |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.3: OPUKOMONY IN OMORO DISTRICT

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
| <b>6</b>  | <b><u>Valves and Penstocks</u></b>  |      |           |             |               |
|   | <b><u>Air Valves</u></b>  |      |           |             |               |
|   | Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.  |      |           |             |               |
| 6.3   | OD75mm  | No.  | 1         |             |               |
| 6.4   | OD63mm  | No.  | 1         |             |               |
| <b>7</b>  | <b><u>Washouts</u></b>  |      |           |             |               |
|   | Washout as specified in the drawings, complete with plastic compression pipe fittings: tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |           |             |               |
| 7.1   | DN75mm  | No.  | Rate Only |             |               |
| <b>8</b>  | <b><u>Farm Gate Connections</u></b>   |      |           |             |               |
|   | Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and locakable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -  |      |           |             |               |
| 8.1   | DN50mm  | No.  | 5         |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>  |      |           |             |               |
|   | <b><u>Marker Posts</u></b>  |      |           |             |               |
| 14  | Marker posts for pipes, gate valves, air valves, washouts.  | nr   | 21        |             |               |
| <b>Total Carried to Collection</b>              |   |      |           |             |               |
|   | <b>Bill No. 4 Collection</b>  |      |           |             |               |
|   | Page 11   |      |           |             |               |
|   | Page 12   |      |           |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |   |      |           |             | <b>0</b>      |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.4:KIKAITO IN KIRYANDONGO DISTRICT**

**Region: Central**

## **BILL SUMMARY**

| Bill No.                              | Description                             | Amount (UGx.) |
|---------------------------------------|---|---------------|
|                                       | <b>WORK ITEMS</b>                       |               |
| 1                                     | Abstraction and Electromechanical Works |               |
| 2                                     | Transmission Mains                      |               |
| 3                                     | Storage Reservoir Works                 |               |
| 4                                     | Distribution Network                    |               |
| <b>Total Carried to Grand Summary</b> |   |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.4:KIKAITO IN KIRYANDONGO DISTRICT**

**Region: Central**

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
|                                    | <b><u>General Site Clearance</u></b>   |                |      |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer.   | Item           | 1    |             |               |
|                                    | <b><u>Earthworks</u></b>   |                |      |             |               |
|                                    | Excavation to form trapezoidal prism reservoir in material other than topsoil, rock or other artificial hard material, depth not exceeding 6.0m including forming earth bands along the channel of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings. |                |      |             |               |
| 2.1                                | Marshy soils   | m <sup>3</sup> | 52   |             |               |
| 2.2                                | Soft / decomposed rock soils   | m <sup>3</sup> | 26   |             |               |
|                                    | Excavation to form trapezoidal channel in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                        |                |      |             |               |
| 2.4                                | Marshy soils   | m <sup>3</sup> | 80   |             |               |
| 2.5                                | Soft / decomposed rock soils   | m <sup>3</sup> | 20   |             |               |
|                                    | Excavation to form cylindrical sump well in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                      |                |      |             |               |
| 2.6                                | Marshy soils   | m <sup>3</sup> | 16   |             |               |
| 2.7                                | Soft / decomposed rock soils   | m <sup>3</sup> | 8    |             |               |
|                                    | <b><u>Filling Structures</u></b>   |                |      |             |               |
|                                    | <u>Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -</u>  |                |      |             |               |
| 3                                  | Selected excavated material including topping with a 200mm thick layer of top/vegetable soil.  | m <sup>3</sup> | 10   |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.4:KIKAITO IN KIRYANDONGO DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
| 4                                  | <b>Landscaping</b><br>Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.  | m <sup>2</sup> | 40   |             |               |
|                                    | <b>IN-SITU CONCRETE</b><br><b>Provision and Placing of Concrete</b><br><b>Ordinary Design Mix Concrete</b><br><u>Designed mix , concrete to BS 8500 and BS EN 206-1, with ordinary portland cement to BS 12, aggregate to BS 882 , maximum aggregate size : 20mm for the following structures: -</u> |                |      |             |               |
| 5                                  | <b>In situ Concrete</b><br>75mm thick Grade C15 concrete blinding to pump sump base  | m <sup>3</sup> | 0.25 |             |               |
| 6.1                                | 2200mm Diameter x 150mm thick Grade C25 concrete base slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float.  | Item           | 1    |             |               |
| 6.2                                | 2200mm Diameter x 150mm thick Grade C25 concrete top slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float and forming a 600 x 600mm opening for the inspection cover (MS).   | Item           | 1    |             |               |
|                                    | <b>Pre-cast Concrete</b><br><b>Pump Well/ Sump</b><br>Supply and install 100mm thick precast reinforced concrete vertical culverts on concrete base slab (MS) ; complete with water tight jointing and finishing works to approval.  |                |      |             |               |
| 7                                  | 1200mm diameter ; height n.e 8m  | Item           | 1    |             |               |
|                                    | <b>Concrete Inserts</b><br><b>Cast or Spun Iron Pipe Fittings.</b><br>Flanged, puddled and plain end pipe insert projecting from one face of the concrete, all to PN6 and of the following sizes and lengths, including supply of the pipe and as shown in the drawings.                             |                |      |             |               |
| 8                                  | 200mm ND and not exceeding 0.5m length   | No.            | 2    |             |               |
|                                    | <b>Adaptors</b><br>Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:-  |                |      |             |               |
| 9                                  | 200 mm ND  | No.            | 2    |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.4:KIKAITO IN KIRYANDONGO DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No. | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|--|------|-----------|-------------|---------------|
| 10       | OD225mm PN10 plain end uPVC pipe connection between Silt Trap Basin and Pump Sump.   | m    | 8         |             |               |
|          | <b>Bellmouths</b>  |      |           |             |               |
| 11       | Flanged bellmouth to ISO 2531, flanges to ISO 2441, of the following sizes all to PN 6<br>200 mm ND  | No.  | 1         |             |               |
|          | <b>PIPEWORK - FITTINGS AND VALVES</b><br><b>Gate Valves: Hand Operated</b>   |      |           |             |               |
| 12       | DN 200 mm all flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 6 for operation by tee key, with extension spindle not exceeding 4.5 metres long, and of the following sizes   |      |           |             |               |
|          | <b>MISCELLANEOUS WORK</b>  |      |           |             |               |
|          | <b>Ladders</b>   |      |           |             |               |
| 13       | Internal galvanized mild steel ladder to BS 4211, galvanized to BS 729, complete and as shown in the drawings including fixing to precast concrete units..   | m    | 8         |             |               |
|          | <b>Steel grating</b>   |      |           |             |               |
| 14.1     | Galvanized iron Coarse Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
| 14.2     | Galvanized iron Fine Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
|          | <b>Pump Well/ Sump</b><br>Supply and install 8.0m long HDPE vertical culverts on concrete base slab (MS) ; complete with a Single ND200mm flanged branch to receive a ND200 gate valve. Branch height/ positioning to be determined on site. | Item | Rate Only |             |               |
| 15       | Internal diameter ; 1200x200mm   |      |           |             |               |
|          | <b>Stone pitched Channel.</b>  |      |           |             |               |
| 16       | 3.0 x 1.5 top x bottom width x 1.5m deep maximum trapezoidal lined drain as detailed in the drawing.   | m    | 5         |             |               |
|          | <b>Gabion boxes</b>  |      |           |             |               |
| 17       | PVC coated gabion boxes ; size 1m x 1m x 1m; including rockfill of size 100 - 250mm; as instructed by the Engineer   | nr   | Rate Only |             |               |

**Total Carried to Collection**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No. | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|---|------|------|-------------|---------------|
|          | <b><u>ELECTRO-MECHANICAL WORKS</u></b>  |      |      |             |               |
|          | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)   |      |      |             |               |
| ME1      | 11.0kW Submersible Pump Set with 15kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 55m total head; set to not more than <b>5m</b> below ground including Dry- run protection, Motor and Pump End. | No.  | 1    |             |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

## **Scheme ID. 2.4:KIKAITO IN KIRYANDONGO DISTRICT**

**Region: Central**

|                                    |   |      |     |  |  |
|------------------------------------|---|------|-----|--|--|
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.  | Item | 1   |  |  |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings, including foundations, vandal proofing mounting to the Engineer's approval | Sum  | 1   |  |  |
| ME4                                | PV Disconnect 1000-40-2   | No.  | 1   |  |  |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.   | No.  | 1   |  |  |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.   | Item | 1   |  |  |
| ME7                                | PV Combiner   | No.  | 1   |  |  |
| ME7a                               | Pressure Switch and Gauge - P5/8  | No.  | 1   |  |  |
| ME8                                | Sinewave filter - SWAP0017D.  | No.  | 1   |  |  |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,  | m    | 5   |  |  |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.   | m    | 225 |  |  |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.   | m    | 60  |  |  |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors   | No.  | 2   |  |  |
| ME11a                              | Adapter box   | No.  | 1   |  |  |
| <b>Total Carried to Collection</b> |   |      |     |  |  |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.4:KIKAITO IN KIRYANDONGO DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|-----------|-------------|---------------|
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item           | 1         |             |               |
|                                    | <b><u>Earthing and Lightening Protection</u></b>   |                |           |             |               |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm               | Sum            | 1         |             |               |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                                 | Sum            | 1         |             |               |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.            | 5         |             |               |
|                                    | <b><u>Alarm System</u></b>   |                |           |             |               |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item           | 1         |             |               |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item           | 1         |             |               |
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>  |                |           |             |               |
|                                    | <b><u>Pump Protection System</u></b>   |                |           |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base. | No.            | 1         |             |               |
|                                    | <b><u>Kerbs</u></b>  |                |           |             |               |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>   |                |           |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m  | m              | 70        |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a gauge 500 polythene sheet.  | m <sup>2</sup> | 220       |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert   | m              | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |                |           |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.4:KIKAITO IN KIRYANDONGO DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No. | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|------|-----------|-------------|---------------|
|          | <b>Pump House</b>   |      |           |             |               |
| X5       | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.   | Sum  | 1         |             |               |
|          | <b>Fences</b>   |      |           |             |               |
| X6a      | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m    | 40        |             |               |
| X6b      | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m    | 120       |             |               |
|          | <b>Gates</b>  |      |           |             |               |
| X7       | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.  | 2         |             |               |
|          | <b>Training of Operator's staff</b>   |      |           |             |               |
| X8       | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval  | Sum  | 1         |             |               |
|          | <b>Operation and Maintenance Manuals</b>  |      |           |             |               |
| X9       | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum  | 1         |             |               |
| XX       | Horizontal pump installation option out of flanged/ sealed end HDPE culvert pipe mounted on fabricated GI support structure including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/005.       | Item | Rate Only |             |               |

**Total Carried to Collection**

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No. | Description                  |  |  |  | Amount (UGx.) |
|----------|------------------------------|--|--|--|---------------|
|          | <b>Bill No. 1 Collection</b> |  |  |  |               |
|          | Page 2                       |  |  |  |               |
|          | Page 3                       |  |  |  |               |
|          | Page 4                       |  |  |  |               |
|          | Page 5                       |  |  |  |               |
|          | Page 6                       |  |  |  |               |
|          | Page 7                       |  |  |  |               |

**Total Bill No. 1 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.4:KIKAITO IN KIRYANDONGO DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |      |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.  | Item | 1    |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>   |      |      |             |               |
| 2                                  | <b><u>Steel Pipes</u></b>   |      |      |             |               |
|                                    | <u>Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes:</u>  |      |      |             |               |
| 2.1                                | Galvanised steel pipes with threaded joints, include unions/sockets, all to ISO 2531 and to PN10, laid in trench of the following sizes and depths  | m    | 12   |             |               |
| 3                                  | <b><u>HDPE Pipes</u></b>  |      |      |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>  |      |      |             |               |
| 3.1                                | OD75mm HDPE PN10  | m    | 330  |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |      |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>   |      |      |             |               |
| 5                                  | <b><u>Bends</u></b>   |      |      |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |      |             |               |
| 5.1                                | DN65mm  | No.  | 4    |             |               |
| 6                                  | <b><u>Bulk Flow Meters</u></b>  |      |      |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |      |             |               |
| 6.1                                | DN65mm PN10   | No.  | 1    |             |               |
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |      |             |               |
| 7                                  | <b><u>Equal Adapters</u></b>  |      |      |             |               |
| 7.1                                | OD90 female adapter   | No.  | 2    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.4:KIKAITO IN KIRYANDONGO DISTRICT**

**Region: Central**

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| <b>8</b>                           | <b><u>Valves and Penstocks</u></b>   |      |           |             |               |
|                                    | <b><u>Air Valves</u></b>   |      |           |             |               |
|                                    | <u>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                          |      |           |             |               |
| 8.1                                | DN65mm   | No.  | 1         |             |               |
| <b>9</b>                           | <b><u>Washouts</u></b>   |      |           |             |               |
|                                    | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |           |             |               |
| 9.1                                | DN65mm   | No.  | Rate Only |             |               |
| 9.2                                | DN50mm   | No.  | Rate Only |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b>   |      |           |             |               |
|                                    | <b><u>Other Chambers</u></b>   |      |           |             |               |
|                                    | <u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>   |      |           |             |               |
| 10.1                               | Depth not exceeding 1.5m   | No.  | 2         |             |               |
|                                    | <b><u>Valve Surface Boxes</u></b>  |      |           |             |               |
|                                    | <u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u>  |      |           |             |               |
| 10.2                               | Depth not exceeding 1.5m   | No.  | 1         |             |               |
|                                    | <b><u>Reinstatement</u></b>  |      |           |             |               |
|                                    | <b><u>Roads</u></b>  |      |           |             |               |
|                                    | <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>   |      |           |             |               |
| 11                                 | Not exceeding DN300mm  | m    | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.4:KIKAITO IN KIRYANDONGO DISTRICT**

**Region: Central**

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
|   | <b><u>Surrounds</u></b>   |      |           |             |               |
| 12.1  | Pipe surrounds, of selected excavated granular material, for the following pipe sizes<br>Not exceeding DN200mm                                  | m    | Rate Only |             |               |
| 12.2  | Pipe surrounds, of imported granular material, for the following pipe sizes<br>Not exceeding DN200mm  | m    | 48        |             |               |
| 12.3  | Pipe surrounds, of mass concrete, for the following pipe sizes<br>Not exceeding DN200mm   | m    | 15        |             |               |
| 13  | <b><u>Concrete Stools and Thrust Blocks</u></b>   |      |           |             |               |
|   | <b><u>Thrust Blocks</u></b>   |      |           |             |               |
| 13.1  | Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes<br>Diameter not exceeding DN200mm | No.  | Rate Only |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>  |      |           |             |               |
|   | <b><u>Marker Posts</u></b>  |      |           |             |               |
| 14  | Marker posts for pipes, gate valves, air valves, washouts.  | nr   | 16        |             |               |
| <b>Total Carried to Collection</b>              |   |      |           |             |               |
| <b>BILL No. 2 : TRANSMISSION MAINS</b>          |   |      |           |             |               |
| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|   | <b>Bill No. 2 Collection</b>  |      |           |             |               |
|   | Page 8  |      |           |             |               |
|   | Page 9  |      |           |             |               |
|   | Page 10   |      |           |             |               |
| <b>Total Bill No. 2 Carried to Bill Summary</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.4:KIKAITO IN KIRYANDONGO DISTRICT**

**Region: Central**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.   | Item | 1         |             |               |
| 2                                  | <b><u>Reservoir</u></b>   |      |           |             |               |
|                                    | <u>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc., painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.</u>  |      |           |             |               |
| 2.1                                | Height; 6.0m for (4No. x 10m <sup>3</sup> Tanks)  | No.  | 1         |             |               |
| 3                                  | <b><u>Plastic Tanks</u></b>   |      |           |             |               |
|                                    | Supply and install a vertical cylindrical Rotational Moulded Polyethylene Water Storage Tank to DUS 1560: 2013 as manufactured by Ms. Gentex Ltd. / Crest Tanks or any other approved complete with a lockable access man ways, inlet/ riser, ball float valve, overflow with insect screen, float type water level indicator and outlet/ down pipe with a strainer, washout and overflow connection, including interconnecting pipe work and fittings, as detailed in the drawings, supply specifications and of the following capacity. |      |           |             |               |
| 3.1                                | 10m <sup>3</sup>  | No.  | 4         |             |               |
| 4                                  | <u>150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>   |      |           |             |               |
| 4.1                                | DN75mm, PN10  | No.  | 1         |             |               |
| 4.2                                | DN40mm, PN10  | No.  | Rate Only |             |               |
| 5                                  | <u>150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u>   |      |           |             |               |
|                                    | [OPTIONAL]  |      |           |             |               |
| 5.1                                | DN75mm, PN10  | No.  | 1         |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.4:KIKAITO IN KIRYANDONGO DISTRICT**

**Region: Central**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|----------------|-----------|-------------|---------------|
| <b>6</b> | <b><u>Landscaping and Walkways</u></b>  |                |           |             |               |
| 6.1      | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2      | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill. | No.            | Rate Only |             |               |
| <b>7</b> | <b><u>Fences</u></b>  |                |           |             |               |
| 7.1      | Galvanized wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|          | <b><u>Gates</u></b>   |                |           |             |               |
| 7.2      | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|          | <b><u>Provision and Placing of Concrete</u></b><br><b><u>Ordinary Designed Mix Concrete</u></b>   |                |           |             |               |
| <b>8</b> | <b><u>Designed mix concrete, to BS 5328, with ordinary Portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u></b>         |                |           |             |               |
| 8.1      | Grade C15   | m <sup>3</sup> | 2         |             |               |

**Total Carried to Collection**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|------------------------------|------|------|-------------|---------------|
|          | <b>Bill No. 3 Collection</b> |      |      |             |               |
|          | Page 11                      |      |      |             |               |
|          | Page 12                      |      |      |             |               |

**Total Bill No. 3 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.4:KIKAITO IN KIRYANDONGO DISTRICT

Region: Central

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                            | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>  |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br><u>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m</u> |      |           |             |               |
| 2.1                                | OD63mm PN10   | m    | 687       |             |               |
| 2.2                                | OD75mm PN10   | m    | 60        |             |               |
| 2.3                                | OD90mm PN10   | m    | 92        |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>  |      |           |             |               |
| 3.1                                | OD90mm  | No.  | 1         |             |               |
| 3.2                                | OD63mm  | No.  | 15        |             |               |
|                                    | <b><u>Unequal tees</u></b>  |      |           |             |               |
| 3.3                                | OD90 x 75mm   | No.  | 1         |             |               |
| 3.4                                | OD90 x 63mm   | No.  | 3         |             |               |
| 3.5                                | OD75 x 63mm   | No.  | 1         |             |               |
|                                    | <b><u>Bends</u></b>   |      |           |             |               |
| 3.6                                | OD63mm  | No.  | 1         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>  |      |           |             |               |
| 4.2                                | OD90mm  | No.  | Rate Only |             |               |
| 4.3                                | OD75mm  | No.  | Rate Only |             |               |
| 4.4                                | OD63mm  | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>  |      |           |             |               |
| 5.1                                | OD63mm  | No.  | 21        |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             | <b>0</b>      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.4:KIKAITO IN KIRYANDONGO DISTRICT

Region: Central

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
| <b>6</b>                           | <b>Valves and Penstocks</b>   |      |      |             |               |
|                                    | <b>Air Valves</b>   |      |      |             |               |
|                                    | Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.  |      |      |             |               |
| 6.1                                | OD75mm  | No.  | 4    |             |               |
| <b>7</b>                           | <b>Washouts</b>   |      |      |             |               |
|                                    | Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |      |             |               |
| 7.1                                | DN75mm  | No.  | 5    |             |               |
| <b>8</b>                           | <b>Farm Gate Connections</b>  |      |      |             |               |
|                                    | Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and lockable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -   |      |      |             |               |
| 8.1                                | DN50mm  | No.  | 21   |             |               |
|                                    | <b>Other Pipework Ancillaries</b>   |      |      |             |               |
|                                    | <b>Marker Posts</b>   |      |      |             |               |
| 9                                  | Marker posts for pipes, gate valves, air valves, washouts.  | nr   | 24   |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             | <b>0</b>      |

**BILL No. 4 : DISTRIBUTION NETWORK**

| Item No.  | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|---|------------------------------|------|------|-------------|---------------|
|   | <b>Bill No. 4 Collection</b> |      |      |             |               |
|   | Page 13                      |      |      |             |               |
|   | Page 14                      |      |      |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |                              |      |      |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.5: NYAKAGWENG IN KIRYANDONGO DISTRICT**

**Region: Central**

**BILL SUMMARY**

| Bill No. | Description  | Amount (UGx.) |
|----------|--|---------------|
|          | <p><b>WORK ITEMS</b></p> <p>1 Abstraction and Electromechanical Works</p> <p>2 Transmission Mains</p> <p>3 Storage Reservoir Works</p> <p>4 Distribution Network</p> |               |
|          | <b>Total Carried to Grand Summary</b>  |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.5: NYAKAGWENG IN KIRYANDONGO DISTRICT**

**Region: Central**

| <b>BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b> |  |                |             |                    |                      |
|--|--|----------------|-------------|--------------------|----------------------|
| <b>Item No.</b>  | <b>Description</b>   | <b>Unit</b>    | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
|  | <b><u>General Site Clearance</u></b>   |                |             |                    |                      |
| 1  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer.   | Item           | 1           |                    |                      |
|  | <b><u>Earthworks</u></b>   |                |             |                    |                      |
|  | Excavation to form trapezoidal prism reservoir in material other than topsoil, rock or other artificial hard material, depth not exceeding 6.0m including forming earth bands along the channel of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings. |                |             |                    |                      |
| 2.1  | Marshy soils   | m <sup>3</sup> | 52          |                    |                      |
| 2.2  | Soft / decomposed rock soils   | m <sup>3</sup> | 26          |                    |                      |
|  | Excavation to form trapezoidal channel in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                        |                |             |                    |                      |
| 2.4  | Marshy soils   | m <sup>3</sup> | 68          |                    |                      |
| 2.5  | Soft / decomposed rock soils   | m <sup>3</sup> | 17          |                    |                      |
|  | Excavation to form cylindrical sump well in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                      |                |             |                    |                      |
| 2.6  | Marshy soils   | m <sup>3</sup> | 16          |                    |                      |
| 2.7  | Soft / decomposed rock soils   | m <sup>3</sup> | 8           |                    |                      |
|  | <b><u>Fillina Structures</u></b>   |                |             |                    |                      |
|  | <u>Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -</u>  |                |             |                    |                      |
| 3  | Selected excavated material including topping with a 200mm thick layer of top/ vegetable soil.   | m <sup>3</sup> | 10          |                    |                      |
| <b>Total Carried to Collection</b>                         |  |                |             |                    |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.5: NYAKAGWENG IN KIRYANDONGO DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
| 4                                  | <b>Landscaping</b><br>Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.  | m <sup>2</sup> | 40   |             |               |
|                                    | <b>IN-SITU CONCRETE</b><br><b>Provision and Placing of Concrete</b><br><b>Ordinary Design Mix Concrete</b><br><u>Designed mix , concrete to BS 8500 and BS EN 206-1, with ordinary portland cement to BS 12, aggregate to BS 882 , maximum aggregate size ; 20mm for the following structures: -</u>               |                |      |             |               |
| 5                                  | <b>In situ Concrete</b><br>75mm thick Grade C15 concrete blinding to pump sump base  | m <sup>3</sup> | 0.25 |             |               |
| 6.1                                | 2200mm Diameter x 150mm thick Grade C25 concrete base slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float.  | Item           | 1    |             |               |
| 6.2                                | 2200mm Diameter x 150mm thick Grade C25 concrete top slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float and forming a 600 x 600mm opening for the inspection cover (MS).   | Item           | 1    |             |               |
| 7                                  | <b>Pre-cast Concrete</b><br><b>Pump Well/ Sump</b><br>Supply and install 100mm thick precast reinforced concrete vertical culverts on 1200mm diameter ; height n.e 8m  | Item           | 1    |             |               |
| 8                                  | <b>Concrete Inserts</b><br><b>Cast or Spum Iron Pipe Fittings.</b><br>Flanged, puddled and plain end pipe insert projecting from one face of the concrete, all to PN6 and of the following sizes and lengths, including supply of the pipe and as shown in the drawings.<br>200mm ND and not exceeding 0.5m length | No.            | 2    |             |               |
| 9                                  | <b>Adaptors</b><br>Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:-<br>200 mm ND   | No.            | 2    |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.5: NYAKAGWENG IN KIRYANDONGO DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| 10                                 | OD225mm PN10 plain end uPVC pipe connection between Silt Trap Basin and Pump Sump.   | m    | 8         |             |               |
|                                    | <b>Bellmouths</b>  |      |           |             |               |
| 11                                 | Flanged bellmouth to ISO 2531, flanges to ISO 2441, of the following sizes all to PN 6<br>200 mm ND  | No.  | 1         |             |               |
|                                    | <b>PIPEWORK - FITTINGS AND VALVES</b>  |      |           |             |               |
|                                    | <b>Gate Valves: Hand Operated</b>  |      |           |             |               |
| 12                                 | DN 200 mm all flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 6 for operation by tee key, with extension spindle not exceeding 4.5 metres long, and of the following sizes                       |      |           |             |               |
|                                    | <b>MISCELLANEOUS WORK</b>  |      |           |             |               |
|                                    | <b>Ladders</b>   |      |           |             |               |
| 13                                 | Internal galvanized mild steel ladder to BS 4211, galvanized to BS 729, complete and as shown in the drawings including fixing to precast concrete units..   | m    | 8         |             |               |
|                                    | <b>Steel grating</b>   |      |           |             |               |
| 14.1                               | Galvanized iron Coarse Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
| 14.2                               | Galvanized iron Fine Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
|                                    | <b>Pump Well/ Sump</b>   |      |           |             |               |
|                                    | Supply and install 8.0m long HDPE vertical culverts on concrete base slab (MS) ; complete with a Single ND200mm flanged branch to receive a ND200 gate valve. Branch height/ positioning to be determined on site. | Item | Rate Only |             |               |
| 15                                 | Internal diameter ; 1200x200mm   |      |           |             |               |
|                                    | <b>Stone pitched Channel.</b>  |      |           |             |               |
| 16                                 | 3.0 x 1.5 top x bottom width x 1.5m deep maximum trapezoidal lined drain as detailed in the drawing.   | m    | 5         |             |               |
|                                    | <b>Gabion boxes</b>  |      |           |             |               |
| 17                                 | PVC coated gabion boxes ; size 1m x 1m x 1m; including rockfill of size 100 - 250mm; as instructed by the Engineer   | nr   | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 2.5: NYAKAGWENG IN KIRYANDONGO DISTRICT

Region: Central

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>  |      |      |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)   |      |      |             |               |
| ME1                                | 7.5kW Submersible Pump Set with 11.05kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 55m total head; set to not more than <b>5m</b> below ground including Dry- run protection, Motor and Pump End. | No.  | 1    |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.  | Item | 1    |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings, including foundations, vandal proofing mounting to the Engineer's approval     | Sum  | 1    |             |               |
| ME4                                | PV Disconnect 1000-40-2   | No.  | 1    |             |               |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.   | No.  | 1    |             |               |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.   | Item | 1    |             |               |
| ME7                                | PV Combiner   | No.  | 1    |             |               |
| ME7a                               | Pressure Switch and Gauge - P5/8  | No.  | 1    |             |               |
| ME8                                | Sinewave filter - SWAP0017D.  | No.  | 1    |             |               |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,  | m    | 5    |             |               |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.   | m    | 125  |             |               |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.   | m    | 60   |             |               |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors   | No.  | 2    |             |               |
| ME11a                              | Adapter box   | No.  | 1    |             |               |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.   | Item | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             | <b>0</b>      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.5: NYAKAGWENG IN KIRYANDONGO DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|-----------|-------------|---------------|
|                                    | <b><u>Earthing and Lightening Protection</u></b>   |                |           |             |               |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm               | Sum            | 1         |             |               |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                                 | Sum            | 1         |             |               |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.            | 5         |             |               |
|                                    | <b><u>Alarm System</u></b>   |                |           |             |               |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item           | 1         |             |               |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item           | 1         |             |               |
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>  |                |           |             |               |
|                                    | <b><u>Pump Protection System</u></b>   |                |           |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base. | No.            | 1         |             |               |
|                                    | <b><u>Kerbs</u></b>  |                |           |             |               |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>   |                |           |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m  | m              | 70        |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a gauge 500 polythene sheet.  | m <sup>2</sup> | 220       |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert   | m              | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.5: NYAKAGWENG IN KIRYANDONGO DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No. | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|------|-----------|-------------|---------------|
|          | <b>Pump House</b>   |      |           |             |               |
| X5       | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.   | Sum  | 1         |             |               |
|          | <b>Fences</b>   |      |           |             |               |
| X6a      | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m    | 80        |             |               |
| X6b      | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m    | 120       |             |               |
|          | <b>Gates</b>  |      |           |             |               |
| X7       | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.  | 2         |             |               |
|          | <b>Training of Operator's staff</b>   |      |           |             |               |
| X8       | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval  | Sum  | 1         |             |               |
|          | <b>Operation and Maintenance Manuals</b>  |      |           |             |               |
| X9       | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum  | 1         |             |               |
| XX       | Horizontal pump installation option out of flanged/ sealed end HDPE culvert pipe mounted on fabricated GI support structure including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/005.       | Item | Rate Only |             |               |

**Total Carried to Collection**

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No. | Description                  |  |  |  | Amount (UGx.) |
|----------|------------------------------|--|--|--|---------------|
|          | <b>Bill No. 1 Collection</b> |  |  |  |               |
|          | Page 2                       |  |  |  |               |
|          | Page 3                       |  |  |  |               |
|          | Page 4                       |  |  |  |               |
|          | Page 5                       |  |  |  |               |
|          | Page 6                       |  |  |  |               |
|          | Page 7                       |  |  |  |               |

**Total Bill No. 1 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.5: NYAKAGWENG IN KIRYANDONGO DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b>DEMOLITION AND SITE CLEARANCE</b>  |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |      |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.  | Item | 1    |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>   |      |      |             |               |
| 2                                  | <b><u>Steel Pipes</u></b>   |      |      |             |               |
|                                    | <u>Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes:</u>  |      |      |             |               |
| 2.1                                | Galvanised steel pipes with threaded joints, include unions/sockets, all to ISO 2531 and to PN10, laid in trench of the following sizes and depths  | m    | 12   |             |               |
| 3                                  | <b><u>HDPE Pipes</u></b>  |      |      |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>  |      |      |             |               |
| 3.1                                | OD90mm HDPE PN16  | m    | 415  |             |               |
|                                    | <b>PIPEWORK - FITTINGS AND VALVES</b>   |      |      |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>   |      |      |             |               |
|                                    | <b><u>Bends</u></b>   |      |      |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |      |             |               |
| 4                                  | DN65mm  | No.  | 4    |             |               |
|                                    | <b><u>Bulk Flow Meters</u></b>  |      |      |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |      |             |               |
| 6                                  | DN65mm PN10   | No.  | 1    |             |               |
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |      |             |               |
|                                    | <b><u>Equal Adapters</u></b>  |      |      |             |               |
| 7                                  | OD90 female adapter   | No.  | 2    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.5: NYAKAGWENG IN KIRYANDONGO DISTRICT**

**Region: Central**

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>Valves and Penstocks</u></b>   |      |           |             |               |
|                                    | <b><u>Air Valves</u></b>   |      |           |             |               |
|                                    | <u>Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                          |      |           |             |               |
| 8                                  | DN65mm   | No.  | 1         |             |               |
|                                    | <b><u>Washouts</u></b>   |      |           |             |               |
|                                    | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |           |             |               |
| 9                                  | DN65mm   | No.  | 1         |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b>   |      |           |             |               |
|                                    | <b><u>Other Chambers</u></b>   |      |           |             |               |
|                                    | <u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>   |      |           |             |               |
| 10                                 | Depth not exceeding 1.5m   | No.  | 2         |             |               |
|                                    | <b><u>Valve Surface Boxes</u></b>  |      |           |             |               |
|                                    | <u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u>  |      |           |             |               |
| 11                                 | Depth not exceeding 1.5m   | No.  | 2         |             |               |
|                                    | <b><u>Reinstatement</u></b>  |      |           |             |               |
|                                    | <b><u>Roads</u></b>  |      |           |             |               |
|                                    | <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>   |      |           |             |               |
| 12                                 | Not exceeding DN300mm  | m    |           |             |               |
|                                    | <b><u>Surrounds</u></b>  |      |           |             |               |
|                                    | <u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u>   |      |           |             |               |
| 13                                 | Not exceeding DN200mm  | m    | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.5: NYAKAGWENG IN KIRYANDONGO DISTRICT**

**Region: Central**

**BILL No. 2 : TRANSMISSION MAINS**

| Item No. | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|--|------|-----------|-------------|---------------|
| 12.2     | <u>Pipe surrounds, of imported granular material, for the following pipe sizes</u><br>Not exceeding DN200mm  | m    | Rate Only |             |               |
| 12.3     | <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u><br>Not exceeding DN200mm   | m    | Rate Only |             |               |
| 13       | <b><u>Concrete Stools and Thrust Blocks</u></b><br><br><b><u>Thrust Blocks</u></b><br><u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes</u><br>Diameter not exceeding DN200mm | No.  | Rate Only |             |               |
| 14       | <b><u>Other Pipework Ancillaries</u></b><br><b><u>Marker Posts</u></b><br>Marker posts for pipes, gate valves, air valves, washouts.   | nr   | 20        |             |               |

**Total Carried to Collection**

**BILL No. 2 : TRANSMISSION MAINS**

| Item No. | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|--|------|------|-------------|---------------|
|          | <b>Bill No. 2 Collection</b><br><br>Page 6<br><br>Page 7<br><br>Page 8 |      |      |             |               |

**Total Bill No. 2 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.5: NYAKAGWENG IN KIRYANDONGO DISTRICT**

**Region: Central**

**BILL No.3 : STORAGE RESERVOIR WORKS**

| Item No.                                    | Description   | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|---|---|----------------|------|-------------|---------------|
| <b>DEMOLITION AND SITE CLEARANCE</b>        |   |                |      |             |               |
| <b>General Site Clearance</b>               |   |                |      |             |               |
| 1   | General site clearance including trees, stumps and disposal of arising materials.   | Item           | 1    |             |               |
| 2   | <b>Reservoir</b><br>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc., painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.   |                |      |             |               |
| 2.1   | Height; 6.0m for (4No. x 10m <sup>3</sup> Tanks)  | No.            | 1    |             |               |
| 3   | <b>Plastic Tanks</b><br>Supply and install a vertical cylindrical Rotational Moulded Polyethylene Water Storage Tank to DUS 1560: 2013 as manufactured by Ms. Gentex Ltd. / Crest Tanks or any other approved complete with a lockable access man ways, inlet/ riser, ball float valve, overflow with insect screen, float type water level indicator and outlet/ down pipe with a strainer, washout and overflow connection, including interconnecting pipe work and fittings, as detailed in the drawings, supply specifications and of the following capacity. |                |      |             |               |
| 3.1   | 10m <sup>3</sup>  | No.            | 4    |             |               |
| 4   | 150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-  |                |      |             |               |
| 4.1   | DN75mm, PN10  | No.            | 1    |             |               |
| 5   | 150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-  |                |      |             |               |
| 5.1   | [OPTIONAL]<br>DN75mm, PN10  | No.            | 1    |             |               |
| <b>Total Carried to Collection</b>          |   |                |      |             |               |
| <b>BILL No. 3 : STORAGE RESERVOIR WORKS</b> |   |                |      |             |               |
| Item No.                                    | Description   | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
| 6   | <b>Landscaping and Walkways</b>   |                |      |             |               |
| 6.1   | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150  |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.5: NYAKAGWENG IN KIRYANDONGO DISTRICT**

**Region: Central**

|          |   |                |           |  |  |
|----------|---|----------------|-----------|--|--|
| 6.2      | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murrum fill. | No.            | Rate Only |  |  |
| <b>7</b> | <b><u>Fences</u></b>  |                |           |  |  |
| 7.1      | Galvanized wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |  |  |
|          | <b><u>Gates</u></b>   |                |           |  |  |
| 7.2      | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |  |  |
|          | <b>Provision and Placing of Concrete</b><br><b>Ordinary Designed Mix Concrete</b>   |                |           |  |  |
| <b>8</b> | <u>Designed mix concrete, to BS 5328, with ordinary Portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u>                |                |           |  |  |
| 8.1      | Grade C15   | m <sup>3</sup> | 2         |  |  |

**Total Carried to Collection**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.  | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|---|---|------|------|-------------|---------------|
|   | <b>Bill No. 3 Collection</b><br><br>Page 9<br><br>Page 10 |      |      |             |               |
| <b>Total Bill No. 3 Carried to Bill Summary</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.5: NYAKAGWENG IN KIRYANDONGO DISTRICT**

**Region: Central**

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                     | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m |      |           |             |               |
| 2.1                                | OD75mm PN10  | m    | 30        |             |               |
| 2.2                                | OD90mm PN10  | m    | 195       |             |               |
| 2.3                                | OD63mm PN6   | m    | 80        |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>   |      |           |             |               |
| 3.1                                | OD90mm   | No.  | 1         |             |               |
| 3.2                                | OD75mm   | No.  | 1         |             |               |
|                                    | <b><u>Unequal tees</u></b>   |      |           |             |               |
| 3.3                                | OD90 x 63mm  | No.  | 3         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>   |      |           |             |               |
| 4.1                                | OD75mm   | No.  | Rate Only |             |               |
| 4.2                                | OD63mm   | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>   |      |           |             |               |
| 5.1                                | OD50mm   | No.  | 3         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.5: NYAKAGWENG IN KIRYANDONGO DISTRICT**

**Region: Central**

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.  | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|---|---|------|------|-------------|---------------|
| <b>6</b>  | <b><u>Valves and Penstocks</u></b>  |      |      |             |               |
|   | <b><u>Air Valves</u></b>  |      |      |             |               |
|   | Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.  |      |      |             |               |
| 6.1.  | OD90mm  | No.  | 3    |             |               |
| 6.2   | OD75mm  | No.  | 1    |             |               |
| <b>7</b>  | <b><u>Washouts</u></b>  |      |      |             |               |
|   | Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |      |             |               |
| 7.1   | DN75mm  | No.  | 3    |             |               |
| 7.2   | DN65mm  | No.  | 2    |             |               |
| <b>8</b>  | <b><u>Farm Gate Connections</u></b>   |      |      |             |               |
|   | Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and lockable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -   |      |      |             |               |
| 8.1   | DN50mm  | No.  | 3    |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>  |      |      |             |               |
|   | <b><u>Marker Posts</u></b>  |      |      |             |               |
| 9   | Marker posts for pipes, gate valves, air valves, washouts.  | nr   | 30   |             |               |
| <b>Total Carried to Collection</b>              |   |      |      |             |               |
| <b>BILL No. 4 : DISTRIBUTION NETWORK</b>        |   |      |      |             |               |
| Item No.  | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|   | <b>Bill No. 4 Collection</b>  |      |      |             |               |
|   | Page 11   |      |      |             |               |
|   | Page 12   |      |      |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |   |      |      |             |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.6: KIKUNGURA IN MASINDI DISTRICT**

**Region: Central**

## **BILL SUMMARY**

| Bill No.                              | Description                             | Amount (UGx.) |
|---------------------------------------|---|---------------|
|                                       | <b>WORK ITEMS</b>                       |               |
| 1                                     | Abstraction and Electromechanical Works |               |
| 2                                     | Transmission Mains                      |               |
| 3                                     | Storage Reservoir Works                 |               |
| 4                                     | Distribution Network                    |               |
| <b>Total Carried to Grand Summary</b> |   |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.6: KIKUNGURA IN MASINDI DISTRICT**

**Region: Central**

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|----------------|------|-------------|---------------|
|                                    | <b><u>General Site Clearance</u></b>  |                |      |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer.  | Item           | 1    |             |               |
|                                    | <b><u>Earthworks</u></b>  |                |      |             |               |
|                                    | Excavation to form trapezoidal prism silt basin and reservoir in material other than topsoil, rock or other artificial hard material, depth not exceeding 4.0m including forming earth bands around the reservoir banks with the excavated material as per the drawings to fair profiles to receive grassing and/ or disposing the excavated material on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings. |                |      |             |               |
| 2.1                                | Marshy soils  | m <sup>3</sup> | 1555 |             |               |
| 2.2                                | Soft / decomposed rock soils  | m <sup>3</sup> | 30   |             |               |
|                                    | Excavation to form trapezoidal channel in material other than topsoil, rock or other artificial hard material, depth not exceeding 3.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.   |                |      |             |               |
| 2.4                                | Marshy soils  | m <sup>3</sup> | 150  |             |               |
| 2.5                                | Soft / decomposed rock soils  | m <sup>3</sup> | 6    |             |               |
|                                    | Excavation to form cylindrical sump well in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.   |                |      |             |               |
| 2.6                                | Marshy soils  | m <sup>3</sup> | 16   |             |               |
| 2.7                                | Soft / decomposed rock soils  | m <sup>3</sup> | 8    |             |               |
|                                    | <b><u>Filling Structures</u></b>  |                |      |             |               |
|                                    | <u>Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -</u>   |                |      |             |               |
| 3                                  | Selected excavated material including topping with a 200mm thick layer of top/ vegetable soil.  | m <sup>3</sup> | 10   |             |               |
| <b>Total Carried to Collection</b> |   |                |      |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.6: KIKUNGURA IN MASINDI DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
| 4                                  | <b>Landscaping</b><br>Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.  | m <sup>2</sup> | 40   |             |               |
|                                    | <b>IN-SITU CONCRETE</b><br><b>Provision and Placing of Concrete</b><br><b>Ordinary Design Mix Concrete</b><br><u>Designed mix , concrete to BS 8500 and BS EN 206-1, with ordinary portland cement to BS 12, aggregate to BS 882 , maximum aggregate size ; 20mm for the following structures: -</u> |                |      |             |               |
| 5                                  | <b>In situ Concrete</b><br>75mm thick Grade C15 concrete blinding to pump sump base  | m <sup>3</sup> | 0.25 |             |               |
| 6.1                                | 1800mm Diameter x 150mm thick Grade C25 concrete base slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float.  | Item           | 1    |             |               |
| 6.2                                | 1800mm Diameter x 150mm thick Grade C25 concrete top slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float and forming a 600 x 600mm opening for the inspection cover (MS).   | Item           | 1    |             |               |
|                                    | <b>Pre-cast Concrete</b><br><b>Pump Well/ Sump</b><br>Supply and install 100mm thick precast reinforced concrete vertical culverts on concrete base slab (MS) ; complete with water tight jointing and finishing works to approval.  |                |      |             |               |
| 7                                  | Internal diameter ; 1200mm   | Item           | 1    |             |               |
|                                    | <b>Concrete Inserts</b><br><b>Cast or Spum Iron Pipe Fittings.</b><br>Flanged, puddled and plain end pipe insert projecting from one face of the concrete, all to PN6 and of the following sizes and lengths, including supply of the pipe and as shown in the drawings.                             |                |      |             |               |
| 8                                  | 200mm ND and not exceeding 0.5m length   | No.            | 2    |             |               |
|                                    | <b>Adaptors</b><br>Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:-  |                |      |             |               |
| 9                                  | 200 mm ND  | No.            | 2    |             |               |
| 10                                 | OD225mm PN10 plain end uPVC pipe connection between Silt Trap Basin and Pump Sump.   | m              | 8    |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.6: KIKUNGURA IN MASINDI DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| 11                                 | <b>Bellmouths</b><br>Flanged bellmouth to ISO 2531, flanges to ISO 2441, of the following sizes all to PN 6<br>200 mm ND   | No.  | 1         |             |               |
|                                    | <b>PIPEWORK - FITTINGS AND VALVES</b><br><b>Gate Valves: Hand Operated</b>   |      |           |             |               |
| 12                                 | DN 200 mm all flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 6 for operation by tee key, with extension spindle not exceeding 4.5 metres long, and of the following sizes   |      |           |             |               |
|                                    | <b>MISCELLANEOUS WORK</b>  |      |           |             |               |
| 13                                 | <b>Ladders</b><br>Internal galvanized mild steel ladder to BS 4211, galvernized to BS 729, complete andas shown in the drawings including fixing to precast concrete units..   | m    | 8         |             |               |
| 14.1                               | <b>Steel grating</b><br>Galvanized iron Coarse Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
| 14.2                               | Galvanized iron Fine Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
| 15                                 | <b>Pump Well/ Sump</b><br>Supply and install 8.0m long HDPE vertical culverts on concrete base slab (MS) ; complete with a Single ND200mm flanged branch to receive a ND200 gate valve. Branch height/ positioning to be determined on site.<br>Internal diameter ; 1200x200mm | Item | Rate Only |             |               |
| 16                                 | <b>Stone pitched Channel.</b><br>3.0 x 1.5 top x bottom width x 1.5m deep maximum trapezoidal lined drain as detailed in the drawing.  | m    | 5         |             |               |
| 17                                 | <b>Gabion boxes</b><br>PVC coated gabion boxes ; size 1m x 1m x 1m; including rockfill of size 100 - 250mm; as instructed by the Engineer  | nr   | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.6: KIKUNGURA IN MASINDI DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>  |      |      |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)   |      |      |             |               |
| ME1                                | 4.0kW Submersible Pump Set with 5.5kW Pumping Inverter with Data Module, rated flow Q = 15 m <sup>3</sup> /hr., rated head H = 55m total head; set to not more than <b>5m</b> below ground including Dry- run protection, Motor and Pump End. | No.  | 1    |             |               |
| ME2                                | 1x17No. x 550Wp panels solar array to provide 19.35kW power to the pump system complete including wiring.   | Item | 1    |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 1x17No. x 550Wp panels Solar Array in Item 2 above as per drawings, including foundations, vandal proofing mounting to the Engineer's approval   | Sum  | 1    |             |               |
| ME4                                | PV Disconnect 1000-40-2   | No.  | 1    |             |               |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.   | No.  | 1    |             |               |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.   | Item | 1    |             |               |
| ME7                                | PV Combiner   | No.  | 1    |             |               |
| ME7a                               | Pressure Switch and Gauge - P5/8  | No.  | 1    |             |               |
| ME8                                | Sinewave filter - SWAP0009D.  | No.  | 1    |             |               |
| ME9                                | 6mm <sup>2</sup> Borehole drop cable,   | m    | 5    |             |               |
| ME10                               | 16mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.   | m    | 200  |             |               |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.   | m    | 60   |             |               |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors   | No.  | 2    |             |               |
| ME11a                              | Adapter box   | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.6: KIKUNGURA IN MASINDI DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| <b>Item No.</b>                    | <b>Description</b>   | <b>Unit</b>    | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
|------------------------------------|--|----------------|-------------|--------------------|----------------------|
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item           | 1           |                    |                      |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm               | Sum            | 1           |                    |                      |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                                 | Sum            | 1           |                    |                      |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box.   | No.            | 5           |                    |                      |
|                                    | <b>Alarm System</b>  |                |             |                    |                      |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item           | 1           |                    |                      |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item           | 1           |                    |                      |
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>  |                |             |                    |                      |
|                                    | <b><u>Pump Protection System</u></b>   |                |             |                    |                      |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base. | No.            | 1           |                    |                      |
|                                    | <b><u>Kerbs</u></b>  |                |             |                    |                      |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>   |                |             |                    |                      |
| X2                                 | Straight or curved to a radius exceeding 12 m  | m              | 60          |                    |                      |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a gauge 500 polythene sheet.  | m <sup>2</sup> | 135         |                    |                      |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert   | m              | Rate Only   |                    |                      |
|                                    | <b><u>Pump House</u></b>   |                |             |                    |                      |
| X5                                 | Construct a 12.0m superficial area Pump House to detail as per Drawing   | Sum            | 1           |                    |                      |
| <b>Total Carried to Collection</b> |  |                |             |                    |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.6: KIKUNGURA IN MASINDI DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.  | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|----------------|-----------|-------------|---------------|
|   | <b><u>Fences</u></b>  |                |           |             |               |
| X6a   | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m              | 80        |             |               |
| X6b   | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m              | 120       |             |               |
|   | <b><u>Gates</u></b>   |                |           |             |               |
| X7  | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 2         |             |               |
|   | <b><u>Training of Operator's staff</u></b>  |                |           |             |               |
| X8  | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval  | Sum            | 1         |             |               |
|   | <b><u>Operation and Maintenance Manuals</u></b>   |                |           |             |               |
| X9  | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum            | 1         |             |               |
| XX  | Horizontal pump installation option out of flanged/ sealed end HDPE culvert pipe mounted on fabricated GI support structure including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/005.       | Item           | Rate Only |             |               |
|   | <b><u>Stone Pitching.</u></b>   |                |           |             |               |
| XXX   | 250mm minimum thick grouted stone masonry jointed in cement : sand (1:4) motar as detailed in the drawing.  | m <sup>2</sup> | 125       |             |               |
| <b>Total Carried to Collection</b>                          |   |                |           |             |               |
| <b>BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b> |   |                |           |             |               |
| Item No.  | Description   |                |           |             | Amount (UGx.) |
|   | <b>Bill No. 1 Collection</b>  |                |           |             |               |
|   | Page 2  |                |           |             |               |
|   | Page 3  |                |           |             |               |
|   | Page 4  |                |           |             |               |
|   | Page 5  |                |           |             |               |
|   | Page 6  |                |           |             |               |
|   | Page 7  |                |           |             |               |
| <b>Total Bill No. 1 Carried to Bill Summary</b>             |   |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.6: KIKUNGURA IN MASINDI DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |      |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.   | Item | 1    |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>  |      |      |             |               |
| 2                                  | <b><u>Steel Pipes</u></b>  |      |      |             |               |
|                                    | Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes;  |      |      |             |               |
| 2.1                                | DN75mm, in trenches; depths not exceeding 1.5m   | m    | 12   |             |               |
| 3                                  | <b><u>HDPE Pipes</u></b>   |      |      |             |               |
|                                    | HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m  |      |      |             |               |
| 3.1                                | OD75mm HDPE PN10   | m    | 415  |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |      |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>  |      |      |             |               |
| 5                                  | <b><u>Bends</u></b>  |      |      |             |               |
|                                    | Galvanized iron threaded socket 45° bends, EN 10242:1995, all to PN 10, and of the following sizes   |      |      |             |               |
| 5.1                                | DN65mm   | No.  | 4    |             |               |
| 6                                  | <b><u>Bulk Flow Meters</u></b>   |      |      |             |               |
|                                    | Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes |      |      |             |               |
| 6.1                                | DN65mm PN10  | No.  | 1    |             |               |
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |      |             |               |
| 7                                  | <b><u>Equal Adapters</u></b>   |      |      |             |               |
| 7.1                                | OD90 female adapter  | No.  | 2    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.6: KIKUNGURA IN MASINDI DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| <b>8</b>                           | <b><u>Valves and Penstocks</u></b>   |      |           |             |               |
|                                    | <b><u>Air Valves</u></b>   |      |           |             |               |
|                                    | <u>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                          |      |           |             |               |
| 8.1                                | DN65mm   | No.  | 1         |             |               |
| <b>9</b>                           | <b><u>Washouts</u></b>   |      |           |             |               |
|                                    | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |           |             |               |
| 9.1                                | DN65mm   | No.  | 1         |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b>   |      |           |             |               |
|                                    | <b><u>Other Chambers</u></b>   |      |           |             |               |
|                                    | <u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>   |      |           |             |               |
| 10.1                               | Depth not exceeding 1.5m   | No.  | 2         |             |               |
|                                    | <b><u>Valve Surface Boxes</u></b>  |      |           |             |               |
|                                    | <u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u>  |      |           |             |               |
| 10.2                               | Depth not exceeding 1.5m   | No.  | 3         |             |               |
|                                    | <b><u>Reinstatement</u></b>  |      |           |             |               |
|                                    | <b><u>Roads</u></b>  |      |           |             |               |
|                                    | <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>   |      |           |             |               |
| 11                                 | Not exceeding DN300mm  | m    | Rate Only |             |               |
| <b>12</b>                          | <b><u>Surrounds</u></b>  |      |           |             |               |
|                                    | <u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u>   |      |           |             |               |
| 12.1                               | Not exceeding DN200mm  | m    | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.6: KIKUNGURA IN MASINDI DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
| 12.2  | <u>Pipe surrounds, of imported granular material, for the following pipe sizes</u><br>Not exceeding DN200mm   | m    | 60        |             |               |
| 12.3  | <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u><br>Not exceeding DN200mm  | m    | 42        |             |               |
| 13  | <b><u>Concrete Stools and Thrust Blocks</u></b><br><br><b><u>Thrust Blocks</u></b><br>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes |      |           |             |               |
| 13.1  | Diameter not exceeding DN200mm  | No.  | Rate Only |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b><br><b><u>Marker Posts</u></b>  |      |           |             |               |
| 14  | Marker posts for pipes, gate valves, air valves, washouts.  | nr   | 20        |             |               |
| <b>Total Carried to Collection</b>              |   |      |           |             |               |
| <b>BILL No. 2 : TRANSMISSION MAINS</b>          |   |      |           |             |               |
| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|   | <b>Bill No. 2 Collection</b><br><br>Page 8<br><br>Page 9<br><br>Page 10   |      |           |             |               |
| <b>Total Bill No. 2 Carried to Bill Summary</b> |   |      |           |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.6: KIKUNGURA IN MASINDI DISTRICT

Region: Central

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description   | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|----------------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |                |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |                |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.   | Item           | 1    |             |               |
| 2                                  | <b><u>Reservoir</u></b>   |                |      |             |               |
|                                    | Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc., painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.   |                |      |             |               |
| 2.1                                | Height; 6.0m for (4No. x 10m <sup>3</sup> Tanks)  | No.            | 1    |             |               |
| 3                                  | <b><u>Plastic Tanks</u></b>   |                |      |             |               |
|                                    | Supply and install a vertical cylindrical Rotational Moulded Polyethylene Water Storage Tank to DUS 1560: 2013 as manufactured by Ms. Gentex Ltd. / Crest Tanks or any other approved complete with a lockable access man ways, inlet/ riser, ball float valve, overflow with insect screen, float type water level indicator and outlet/ down pipe with a strainer, washout and overflow connection, including interconnecting pipe work and fittings, as detailed in the drawings, supply specifications and of the following capacity. |                |      |             |               |
| 3.1                                | 10m <sup>3</sup>  | No.            | 4    |             |               |
| 4                                  | <u>150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>   |                |      |             |               |
| 4.1                                | DN65mm, PN10  | No.            | 1    |             |               |
| 5                                  | <u>150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u>   |                |      |             |               |
|                                    | [OPTIONAL]  |                |      |             |               |
| 5.1                                | DN65mm, PN10  | No.            | 1    |             |               |
| 6                                  | <b><u>Landscaping and Walkways</u></b>  |                |      |             |               |
| 6.1                                | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150  |             |               |
| <b>Total Carried to Collection</b> |   |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.6: KIKUNGURA IN MASINDI DISTRICT

Region: Central

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|----------------|-----------|-------------|---------------|
| 6.2      | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill. | No.            | Rate Only |             |               |
| <b>7</b> | <b>Fences</b>   |                |           |             |               |
| 7.1      | Galvanized wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|          | <b>Gates</b>  |                |           |             |               |
| 7.2      | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|          | <b>Provision and Placing of Concrete</b><br><b>Ordinary Designed Mix Concrete</b>   |                |           |             |               |
| <b>8</b> | <u>Designed mix concrete, to BS 5328, with ordinary Portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u>                |                |           |             |               |
| 8.1      | Grade C15   | m <sup>3</sup> | 2         |             |               |

**Total Carried to Collection**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|------------------------------|------|------|-------------|---------------|
|          | <b>Bill No. 3 Collection</b> |      |      |             |               |
|          | Page 11                      |      |      |             |               |
|          | Page 12                      |      |      |             |               |

**Total Bill No. 3 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.6: KIKUNGURA IN MASINDI DISTRICT

Region: Central

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                            | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>  |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br><u>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m</u> |      |           |             |               |
| 2.1                                | OD75mm PN6  | m    | 582       |             |               |
| 2.2                                | OD63mm PN6  | m    | 100       |             |               |
|                                    | OD110 to PN 6   |      |           |             |               |
| 2.3                                | Depth not exceeding 1.5m  | m    | 120       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>  |      |           |             |               |
| 3.1                                | OD110mm   | No.  | 1         |             |               |
|                                    | <b><u>Unequal tees</u></b>  |      |           |             |               |
| 3.2                                | OD75 x 63mm   | No.  | 5         |             |               |
|                                    | <b><u>Bends</u></b>   |      |           |             |               |
| 3.4                                | OD75 x 63mm   | No.  | 1         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>  |      |           |             |               |
| 4.1                                | OD110mm   | No.  | Rate Only |             |               |
| 4.2                                | OD90mm  | No.  | Rate Only |             |               |
| 4.3                                | OD75mm  | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>  |      |           |             |               |
| 5.1                                | OD110mm   | No.  | Rate Only |             |               |
| 5.2                                | OD90mm  | No.  | Rate Only |             |               |
| 5.3                                | OD75mm  | No.  | Rate Only |             |               |
| 5.4                                | OD63mm  | No.  | Rate Only |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.6: KIKUNGURA IN MASINDI DISTRICT

Region: Central

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
| <b>6</b>  | <b><u>Valves and Penstocks</u></b>  |      |           |             |               |
|   | <b><u>Air Valves</u></b>  |      |           |             |               |
|   | Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.  |      |           |             |               |
| 6.1   | OD110mm   | No.  | 2         |             |               |
| 6.2   | OD90mm  | No.  | Rate Only |             |               |
| 6.3   | OD75mm  | No.  | 1         |             |               |
| 6.4   | OD63mm  | No.  | Rate Only |             |               |
| <b>7</b>  | <b><u>Washouts</u></b>  |      |           |             |               |
|   | Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |           |             |               |
| 7.1   | DN100mm   | No.  | 1         |             |               |
| 7.2   | DN75mm  | No.  | 1         |             |               |
| <b>8</b>  | <b><u>Farm Gate Connections</u></b>   |      |           |             |               |
|   | Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and lockable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -   |      |           |             |               |
| 8.1   | DN50mm  | No.  | 6         |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>  |      |           |             |               |
|   | <b><u>Marker Posts</u></b>  |      |           |             |               |
| 9   | Marker posts for pipes, gate valves, air valves, washouts.  | nr   | 45        |             |               |
| <b>Total Carried to Collection</b>              |   |      |           |             |               |
| <b>BILL No. 4 : DISTRIBUTION NETWORK</b>        |   |      |           |             |               |
| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|   | <b>Bill No. 4 Collection</b>  |      |           |             |               |
|   | Page 13   |      |           |             |               |
|   | Page14  |      |           |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.7: NTOOMA IN MASINDI DISTRICT**

**Region: Central**

**BILL SUMMARY**

| <b>Bill No.</b>                       | <b>Description</b>                      | <b>Amount (UGx.)</b> |
|---------------------------------------|---|----------------------|
|                                       | <b>WORK ITEMS</b>                       |                      |
| 1                                     | Abstraction and Electromechanical Works |                      |
| 2                                     | Transmission Mains                      |                      |
| 3                                     | Storage Reservoir Works                 |                      |
| 4                                     | Distribution Network                    |                      |
| <b>Total Carried to Grand Summary</b> |   |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.7: NTOOMA IN MASINDI DISTRICT**

**Region: Central**

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
|                                    | <b><u>General Site Clearance</u></b>   |                |      |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer.   | Item           | 1    |             |               |
|                                    | <b>Earthworks</b>  |                |      |             |               |
|                                    | Excavation to form trapezoidal prism reservoir in material other than topsoil, rock or other artificial hard material, depth not exceeding 6.0m including forming earth bands along the channel of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings. |                |      |             |               |
| 2.1                                | Marshy soils   | m <sup>3</sup> | 52   |             |               |
| 2.2                                | Soft / decomposed rock soils   | m <sup>3</sup> | 26   |             |               |
|                                    | Excavation to form trapezoidal channel in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                        |                |      |             |               |
| 2.4                                | Marshy soils   | m <sup>3</sup> | 48   |             |               |
| 2.5                                | Soft / decomposed rock soils   | m <sup>3</sup> | 12   |             |               |
|                                    | Excavation to form cylindrical sump well in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                      |                |      |             |               |
| 2.6                                | Marshy soils   | m <sup>3</sup> | 16   |             |               |
| 2.7                                | Soft / decomposed rock soils   | m <sup>3</sup> | 8    |             |               |
|                                    | <b>Filling Structures</b>  |                |      |             |               |
|                                    | <u>Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -</u>  |                |      |             |               |
| 3                                  | Selected excavated material including topping with a 200mm thick layer of top/ vegetable soil.   | m <sup>3</sup> | 10   |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.7: NTOOMA IN MASINDI DISTRICT

Region: Central

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
| 4                                  | <b>Landscaping</b><br>Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.  | m <sup>2</sup> | 40   |             |               |
|                                    | <b>IN-SITU CONCRETE</b><br><b>Provision and Placing of Concrete</b><br><b>Ordinary Design Mix Concrete</b><br><u>Designed mix , concrete to BS 8500 and BS EN 206-1, with ordinary portland cement to BS 12, aggregate to BS 882 , maximum aggregate size ; 20mm for the following structures: -</u> |                |      |             |               |
| 5                                  | <b>In situ Concrete</b><br>75mm thick Grade C15 concrete blinding to pump sump base  | m <sup>3</sup> | 0.25 |             |               |
| 6.1                                | 2200mm Diameter x 150mm thick Grade C25 concrete base slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float.  | Item           | 1    |             |               |
| 6.2                                | 2200mm Diameter x 150mm thick Grade C25 concrete top slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float and forming a 600 x 600mm opening for the inspection cover (MS).   | Item           | 1    |             |               |
|                                    | <b>Pre-cast Concrete</b><br><b>Pump Well/ Sump</b><br>Supply and install 100mm thick precast reinforced concrete vertical culverts on concrete base slab (MS) ; complete with water tight jointing and finishing works to approval.  |                |      |             |               |
| 7                                  | 1200mm diameter ; height n.e 8m  | Item           | 1    |             |               |
|                                    | <b>Concrete Inserts</b><br><b>Cast or Spun Iron Pipe Fittings.</b><br>Flanged, puddled and plain end pipe insert projecting from one face of the concrete, all to PN6 and of the following sizes and lengths, including supply of the pipe and as shown in the drawings.                             |                |      |             |               |
| 8                                  | 200mm ND and not exceeding 0.5m length   | No.            | 2    |             |               |
|                                    | <b>Adaptors</b><br>Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:-  |                |      |             |               |
| 9                                  | 200 mm ND  | No.            | 2    |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 2.7: NTOOMA IN MASINDI DISTRICT

Region: Central

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| 10                                 | OD225mm PN10 plain end uPVC pipe connection between Silt Trap Basin and Pump Sump.   | m    | 8         |             |               |
|                                    | <b>Bellmouths</b>  |      |           |             |               |
| 11                                 | Flanged bellmouth to ISO 2531, flanges to ISO 2441, of the following sizes all to PN 6<br>200 mm ND  | No.  | 1         |             |               |
|                                    | <b>PIPEWORK - FITTINGS AND VALVES</b>  |      |           |             |               |
|                                    | <b>Gate Valves: Hand Operated</b>  |      |           |             |               |
| 12                                 | DN 200 mm all flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 6 for operation by tee key, with extension spindle not exceeding 4.5 metres long, and of the following sizes                       |      |           |             |               |
|                                    | <b>MISCELLANEOUS WORK</b>  |      |           |             |               |
|                                    | <b>Ladders</b>   |      |           |             |               |
| 13                                 | Internal galvanized mild steel ladder to BS 4211, galvanized to BS 729, complete and as shown in the drawings including fixing to precast concrete units..   | m    | 8         |             |               |
|                                    | <b>Steel grating</b>   |      |           |             |               |
| 14.1                               | Galvanized iron Coarse Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
| 14.2                               | Galvanized iron Fine Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
|                                    | <b>Pump Well/ Sump</b>   |      |           |             |               |
|                                    | Supply and install 8.0m long HDPE vertical culverts on concrete base slab (MS) ; complete with a Single ND200mm flanged branch to receive a ND200 gate valve. Branch height/ positioning to be determined on site. | Item | Rate Only |             |               |
| 15                                 | Internal diameter ; 1200x200mm   |      |           |             |               |
|                                    | <b>Stone pitched Channel.</b>  |      |           |             |               |
| 16                                 | 3.0 x 1.5 top x bottom width x 1.5m deep maximum trapezoidal lined drain as detailed in the drawing.   | m    | 5         |             |               |
|                                    | <b>Gabion boxes</b>  |      |           |             |               |
| 17                                 | PVC coated gabion boxes ; size 1m x 1m x 1m; including rockfill of size 100 - 250mm; as instructed by the Engineer   | nr   | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.7: NTOOMA IN MASINDI DISTRICT

Region: Central

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>   |      |      |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)  |      |      |             |               |
| ME1                                | 7.5kW Submersible Pump Set with 11.0kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 55m total head; set to not more than <b>5m</b> below ground including Dry- run protection, Motor and Pump End. | No.  | 1    |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item | 1    |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings, including foundations, vandal proofing mounting to the Engineer's approval    | Sum  | 1    |             |               |
| ME4                                | PV Disconnect 1000-40-2  | No.  | 1    |             |               |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.  | 1    |             |               |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item | 1    |             |               |
| ME7                                | PV Combiner  | No.  | 1    |             |               |
| ME7a                               | Pressure Switch and Gauge - P5/8   | No.  | 1    |             |               |
| ME8                                | Sinewave filter - SWAP0017D.   | No.  | 1    |             |               |
| ME9                                | 35mm <sup>2</sup> Borehole drop cable,   | m    | 5    |             |               |
| ME10                               | 35mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m    | 525  |             |               |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m    | 60   |             |               |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.  | 2    |             |               |
| ME11a                              | Adapter box  | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.7: NTOOMA IN MASINDI DISTRICT

Region: Central

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|-----------|-------------|---------------|
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item           | 1         |             |               |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm               | Sum            | 1         |             |               |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                                 | Sum            | 1         |             |               |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.            | 5         |             |               |
|                                    | <b>Alarm System</b>  |                |           |             |               |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item           | 1         |             |               |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item           | 1         |             |               |
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>  |                |           |             |               |
|                                    | <b><u>Pump Protection System</u></b>   |                |           |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base. | No.            | 1         |             |               |
|                                    | <b><u>Kerbs</u></b><br><u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>  |                |           |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m  | m              | Rate Only |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the   | m <sup>2</sup> | 220       |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert   | m              | 0         |             |               |
| <b>Total Carried to Collection</b> |  |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.7: NTOOMA IN MASINDI DISTRICT

Region: Central

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No. | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|------|-----------|-------------|---------------|
| X5       | <b><u>Pump House</u></b><br>Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.   | Sum  | 1         |             |               |
| X6a      | <b><u>Fences</u></b><br>Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m    | 80        |             |               |
| X6b      | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m    | 120       |             |               |
| X7       | <b><u>Gates</u></b><br>Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.   | No.  | 2         |             |               |
| X8       | <b><u>Training of Operator's staff</u></b><br>Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval                    | Sum  | 1         |             |               |
| X9       | <b><u>Operation and Maintenance Manuals</u></b><br>Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval   | Sum  | 1         |             |               |
| XX       | Horizontal pump installation option out of flanged/ sealed end HDPE culvert pipe mounted on fabricated GI support structure including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/005.                               | Item | Rate Only |             |               |

**Total Carried to Collection**

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.  | Description                  |  |  |  | Amount (UGx.) |
|---|------------------------------|--|--|--|---------------|
|   | <b>Bill No. 1 Collection</b> |  |  |  |               |
|   | Page 2                       |  |  |  |               |
|   | Page 3                       |  |  |  |               |
|   | Page 4                       |  |  |  |               |
|   | Page 5                       |  |  |  |               |
|   | Page 6                       |  |  |  |               |
|   | Page 7                       |  |  |  |               |
| <b>Total Bill No. 1 Carried to Bill Summary</b> |                              |  |  |  |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.7: NTOOMA IN MASINDI DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.   | Item | 1         |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>  |      |           |             |               |
|                                    | <b><u>Steel Pipes</u></b>  |      |           |             |               |
|                                    | Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes;  |      |           |             |               |
| 2.1                                | DN75mm, in trenches; depths not exceeding 1.5m   | m    | 12        |             |               |
|                                    | <b><u>HDPE Pipes</u></b>   |      |           |             |               |
|                                    | HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m  |      |           |             |               |
| 3.1                                | OD75mm HDPE PN10   | m    | 475       |             |               |
|                                    | <b><u>uPVC Pipes</u></b>   |      |           |             |               |
|                                    | uPVC pressure pipes to UNBS US 264: 2000 and DIN 8062 with integral rubber ring socket joints laid in trenches   |      |           |             |               |
|                                    | OD110 to PN 10   |      |           |             |               |
| 4.1                                | Depth not exceeding 1.5m   | m    | Rate Only |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>  |      |           |             |               |
|                                    | <b><u>Bends</u></b>  |      |           |             |               |
|                                    | Galvanized iron threaded socket 45° bends, EN 10242:1995, all to PN 10, and of the following sizes   |      |           |             |               |
| 5.1                                | DN65mm   | No.  | 4         |             |               |
|                                    | <b><u>Bulk Flow Meters</u></b>   |      |           |             |               |
|                                    | Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes |      |           |             |               |
| 6.1                                | DN65mm PN10  | No.  | 1         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.7: NTOOMA IN MASINDI DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |      |             |               |
| 7                                  | <b>Equal Adapters</b>   |      |      |             |               |
| 7.1                                | OD90 female adapter   | No.  | 2    |             |               |
| 8                                  | <b><u>Valves and Penstocks</u></b>  |      |      |             |               |
|                                    | <b><u>Air Valves</u></b>  |      |      |             |               |
|                                    | Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adapters, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.                          |      |      |             |               |
| 8.1                                | DN65mm  | No.  | 1    |             |               |
| 9                                  | <b><u>Washouts</u></b>  |      |      |             |               |
|                                    | Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail. |      |      |             |               |
| 9.1                                | DN75mm  | No.  | 2    |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b>  |      |      |             |               |
|                                    | <b><u>Other Chambers</u></b>  |      |      |             |               |
|                                    | Masonry air valve chamber, complete as specified in the drawings, and of the following depths   |      |      |             |               |
| 10                                 | Depth not exceeding 1.5m  | No.  | 2    |             |               |
| 11                                 | <b><u>Valve Surface Boxes</u></b>   |      |      |             |               |
|                                    | Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths  |      |      |             |               |
| 11.1                               | Depth not exceeding 1.5m  | No.  | 4    |             |               |
| 12                                 | <b><u>Reinstatement</u></b>   |      |      |             |               |
|                                    | <b><u>Roads</u></b>   |      |      |             |               |
|                                    | Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes   |      |      |             |               |
| 12.1                               | Not exceeding DN300mm   | m    | 12   |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**BILL No. 2 : TRANSMISSION MAINS**

| Item No. | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|------|-----------|-------------|---------------|
| 12       | <b><u>Surrounds</u></b>   |      |           |             |               |
|          | Pipe surrounds, of selected excavated granular material, for the following pipe sizes |      |           |             |               |
| 12.1     | Not exceeding DN200mm   | m    | Rate Only |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.7: NTOOMA IN MASINDI DISTRICT**

**Region: Central**

| 12.2  | <u>Pipe surrounds, of imported granular material, for the following pipe sizes</u><br>Not exceeding DN200mm  | m    | Rate Only |             |               |
|---|--|------|-----------|-------------|---------------|
| 12.3  | <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u><br>Not exceeding DN200mm   | m    | 425       |             |               |
| 13  | <b><u>Concrete Stools and Thrust Blocks</u></b><br><br><b><u>Thrust Blocks</u></b><br><u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes</u><br>Diameter not exceeding DN200mm | No.  | Rate Only |             |               |
| 14  | <b><u>Other Pipework Ancillaries</u></b><br><b><u>Marker Posts</u></b><br>Marker posts for pipes, gate valves, air valves, washouts.   | nr   | 30        |             |               |
| 15.1  | <u>Reinforced concrete pipe supports, complete including foundation bases, straps and bolting, for DN100 - 150 mm pipe to the following heights</u><br>Height not exceeding 1 m  |      | 68        |             |               |
| 15.2  | Height 1 - 1.5 m   |      | 12        |             |               |
| <b>Total Carried to Collection</b>              |  |      |           |             |               |
| <b>BILL No. 2 : TRANSMISSION MAINS</b>          |  |      |           |             |               |
| Item No.  | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|   | <b>Bill No. 2 Collection</b><br><br>Page 8<br><br>Page 9<br><br>Page 10  |      |           |             |               |
| <b>Total Bill No. 2 Carried to Bill Summary</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.7: NTOOMA IN MASINDI DISTRICT

Region: Central

**BILL No. .3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.   | Item | 1    |             |               |
| 2                                  | <b><u>Reservoir</u></b>   |      |      |             |               |
|                                    | Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc., painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.   |      |      |             |               |
| 2.1                                | Height; 6.0m for (4No. x 10m <sup>3</sup> Tanks)  | No.  | 1    |             |               |
| 3                                  | <b><u>Plastic Tanks</u></b>   |      |      |             |               |
|                                    | Supply and install a vertical cylindrical Rotational Moulded Polyethylene Water Storage Tank to DUS 1560: 2013 as manufactured by Ms. Gentex Ltd. / Crest Tanks or any other approved complete with a lockable access man ways, inlet/ riser, ball float valve, overflow with insect screen, float type water level indicator and outlet/ down pipe with a strainer, washout and overflow connection, including interconnecting pipe work and fittings, as detailed in the drawings, supply specifications and of the following capacity. |      |      |             |               |
| 3.1                                | 10m <sup>3</sup>  | No.  | 4    |             |               |
| 4                                  | <u>150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>   |      |      |             |               |
| 4.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| 5                                  | <u>150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u>   |      |      |             |               |
|                                    | [OPTIONAL]  |      |      |             |               |
| 5.2                                | DN75mm, PN10  | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.7: NTOOMA IN MASINDI DISTRICT

Region: Central

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|----------------|-----------|-------------|---------------|
| <b>6</b> | <b><u>Landscaping and Walkways</u></b>  |                |           |             |               |
| 6.1      | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2      | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill. | No.            | Rate Only |             |               |
| <b>7</b> | <b><u>Fences</u></b>  |                |           |             |               |
| 7.1      | Galvanized wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|          | <b><u>Gates</u></b>   |                |           |             |               |
| 7.2      | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|          | <b>Provision and Placing of Concrete</b><br><b><i>Ordinary Designed Mix Concrete</i></b>  |                |           |             |               |
| <b>8</b> | <u>Designed mix concrete, to BS 5328, with ordinary Portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u>                |                |           |             |               |
| 8.1      | Grade C15   | m <sup>3</sup> | 2         |             |               |

**Total Carried to Collection**

**BILL No.3 : STORAGE RESERVOIR WORKS**

| Item No. | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|------------------------------|------|------|-------------|---------------|
|          | <b>Bill No. 3 Collection</b> |      |      |             |               |
|          | Page 11                      |      |      |             |               |
|          | Page 12                      |      |      |             |               |

**Total Bill No. 3 Carried to Bill Summary**



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.7: NTOOMA IN MASINDI DISTRICT

Region: Central

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                            | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>  |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br><u>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m</u> |      |           |             |               |
| 2.1                                | OD63mm PN10   | m    | 198       |             |               |
| 2.2                                | OD90mm PN10   | m    | 230       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>  |      |           |             |               |
| 3.2                                | OD90mm  | No.  | 3         |             |               |
|                                    | <b><u>Unequal tees</u></b>  |      |           |             |               |
| 3.6                                | OD90 x 75mm   | No.  | 1         |             |               |
|                                    | <b><u>Bends</u></b>   |      |           |             |               |
| 3.5                                | OD90mm  | No.  | 1         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>  |      |           |             |               |
| 4.2                                | OD90mm  | No.  | Rate Only |             |               |
| 4.3                                | OD75mm  | No.  | Rate Only |             |               |
| 4.4                                | OD63mm  | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>  |      |           |             |               |
| 5.4                                | OD63mm  | No.  | 5         |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.7: NTOOMA IN MASINDI DISTRICT

Region: Central

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
| <b>6</b>  | <b><u>Valves and Penstocks</u></b>  |      |           |             |               |
|   | <b><u>Air Valves</u></b>  |      |           |             |               |
|   | Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.  |      |           |             |               |
| 6.1   | OD75mm  | No.  | Rate Only |             |               |
| 6.2   | OD63mm  | No.  | Rate Only |             |               |
| <b>7</b>  | <b><u>Washouts</u></b>  |      |           |             |               |
|   | Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |           |             |               |
| 7.2   | DN75mm  | No.  | 2         |             |               |
| 7.3   | DN65mm  | No.  | 1         |             |               |
| <b>8</b>  | <b><u>Farm Gate Connections</u></b>   |      |           |             |               |
|   | Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and lockable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -   |      |           |             |               |
| 8.4   | DN50mm  | No.  | 5         |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>  |      |           |             |               |
|   | <b><u>Marker Posts</u></b>  |      |           |             |               |
| 9   | Marker posts for pipes, gate valves, air valves, washouts.  | nr   | 25        |             |               |
| <b>Total Carried to Collection</b>              |   |      |           |             |               |
| <b>Bill No. 4 Collection</b>                    |   |      |           |             |               |
| Page 13   |   |      |           |             |               |
| Page 14   |   |      |           |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.8: KINONI IN NAKASONGOLA DISTRICT**

**Region: Central**

**BILL SUMMARY**

| <b>Bill No.</b>                       | <b>Description</b>                      | <b>Amount (UGx.)</b> |
|---------------------------------------|---|----------------------|
|                                       | <b>WORK ITEMS</b>                       |                      |
| 1                                     | Abstraction and Electromechanical Works |                      |
| 2                                     | Transmission Mains                      |                      |
| 3                                     | Storage Reservoir Works                 |                      |
| 4                                     | Distribution Network                    |                      |
| <b>Total Carried to Grand Summary</b> |   |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.8: KINONI IN NAKASONGOLA DISTRICT**

**Region: Central**

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|----------------|------|-------------|---------------|
| 1                                  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer.                        | Item           | 1    |             |               |
|                                    | <b>Earthworks</b>   |                |      |             |               |
| 2.1                                | Excavation to form trapezoidal prism reservior in material other than topsoil. Marshy soils   | m <sup>3</sup> | 52   |             |               |
| 2.2                                | Soft / decomposed rock soils  | m <sup>3</sup> | 26   |             |               |
|                                    | Excavation to form trapezoidal channel in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.   |                |      |             |               |
| 2.4                                | Marshy soils  | m <sup>3</sup> | 48   |             |               |
| 2.5                                | Soft / decomposed rock soils  | m <sup>3</sup> | 12   |             |               |
|                                    | Excavation to form cylindrical sump well in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings. |                |      |             |               |
| 2.6                                | Marshy soils  | m <sup>3</sup> | 16   |             |               |
| 2.7                                | Soft / decomposed rock soils  | m <sup>3</sup> | 8    |             |               |
|                                    | <b>Filling Structures</b>   |                |      |             |               |
|                                    | <u>Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -</u>   |                |      |             |               |
| 3                                  | Selected excavated material including topping with a 200mm thick layer of top/ vegetable soil.  | m <sup>3</sup> | 10   |             |               |
| <b>Total Carried to Collection</b> |   |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.8: KINONI IN NAKASONGOLA DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| <b>Item No.</b>                    | <b>Description</b>   | <b>Unit</b>    | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
|------------------------------------|--|----------------|-------------|--------------------|----------------------|
| 4                                  | <b>Landscaping</b><br>Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.  | m <sup>2</sup> | 40          |                    |                      |
|                                    | <b>IN-SITU CONCRETE</b><br><b>Provision and Placing of Concrete</b><br><b>Ordinary Design Mix Concrete</b><br><u>Designed mix , concrete to BS 8500 and BS EN 206-1, with ordinary portland cement to BS 12, aggregate to BS 882 , maximum aggregate size ; 20mm for the following structures: -</u> |                |             |                    |                      |
| 5                                  | <b>In situ Concrete</b><br>75mm thick Grade C15 concrete blinding to pump sump base  | m <sup>3</sup> | 0.25        |                    |                      |
| 6.1                                | 2200mm Diameter x 150mm thick Grade C25 concrete base slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float.  | Item           | 1           |                    |                      |
| 6.2                                | 2200mm Diameter x 150mm thick Grade C25 concrete top slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float and forming a 600 x 600mm opening for the inspection cover (MS).   | Item           | 1           |                    |                      |
|                                    | <b>Pre-cast Concrete</b><br><b>Pump Well/ Sump</b><br>Supply and install 100mm thick precast reinforced concrete vertical culverts on concrete base slab (MS) ; complete with water tight jointing and finishing works to approval.  |                |             |                    |                      |
| 7                                  | 1200mm diameter ; height n.e 8m  | Item           | 1           |                    |                      |
|                                    | <b>Concrete Inserts</b><br><b>Cast or Spum Iron Pipe Fittings.</b><br>Flanged, puddled and plain end pipe insert projecting from one face of the concrete, all to PN6 and of the following sizes and lengths, including supply of the pipe and as shown in the drawings.                             |                |             |                    |                      |
| 8                                  | 200mm ND and not exceeding 0.5m length   | No.            | 2           |                    |                      |
|                                    | <b>Adaptors</b><br>Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:-  |                |             |                    |                      |
| 9                                  | 200 mm ND  | No.            | 2           |                    |                      |
| <b>Total Carried to Collection</b> |  |                |             |                    |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.8: KINONI IN NAKASONGOLA DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| <b>Item No.</b>                    | <b>Description</b>   | <b>Unit</b> | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
|------------------------------------|--|-------------|-------------|--------------------|----------------------|
| 10                                 | OD225mm PN10 plain end uPVC pipe connection between Silt Trap Basin and Pump Sump.   | m           | 8           |                    |                      |
|                                    | <b>Bellmouths</b>  |             |             |                    |                      |
| 11                                 | Flanged bellmouth to ISO 2531, flanges to ISO 2441, of the following sizes all to PN 6<br>200 mm ND  | No.         | 1           |                    |                      |
|                                    | <b>PIPEWORK - FITTINGS AND VALVES</b>  |             |             |                    |                      |
|                                    | <b>Gate Valves: Hand Operated</b>  |             |             |                    |                      |
| 12                                 | DN 200 mm all flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 6 for operation by tee key, with extension spindle not exceeding 4.5 metres long, and of the following sizes                       |             |             |                    |                      |
|                                    | <b>MISCELLANEOUS WORK</b>  |             |             |                    |                      |
|                                    | <b>Ladders</b>   |             |             |                    |                      |
| 13                                 | Internal galvanized mild steel ladder to BS 4211, galvernized to BS 729, complete andas shown in the drawings including fixing to precast concrete units..   | m           | 8           |                    |                      |
|                                    | <b>Steel grating</b>   |             |             |                    |                      |
| 14.1                               | Galvanized iron Coarse Trash Screen as detailed in the drawings.   | No.         | 1           |                    |                      |
| 14.2                               | Galvanized iron Fine Trash Screen as detailed in the drawings.   | No.         | 1           |                    |                      |
|                                    | <b>Pump Well/ Sump</b>   |             |             |                    |                      |
|                                    | Supply and install 8.0m long HDPE vertical culverts on concrete base slab (MS) ; complete with a Single ND200mm flanged branch to receive a ND200 gate valve. Branch height/ positioning to be determined on site. | Item        | Rate Only   |                    |                      |
| 15                                 | Internal diameter ; 1200x200mm   |             |             |                    |                      |
|                                    | <b>Stone pitched Channel.</b>  |             |             |                    |                      |
| 16                                 | 3.0 x 1.5 top x bottom width x 1.5m deep maximum trapezoidal lined drain as detailed in the drawing.   | m           | 5           |                    |                      |
|                                    | <b>Gabion boxes</b>  |             |             |                    |                      |
| 17                                 | PVC coated gabion boxes ; size 1m x 1m x 1m; including rockfill of size 100 - 250mm; as instructed by the Engineer   | nr          | Rate Only   |                    |                      |
| <b>Total Carried to Collection</b> |  |             |             |                    |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.8: KINONI IN NAKASONGOLA DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>   |      |      |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)  |      |      |             |               |
| ME1                                | 7.5kW Submersible Pump Set with 11.0kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 55m total head; set to not more than <b>5m</b> below ground including Dry- run protection, Motor and Pump End. | No.  | 1    |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item | 1    |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings, including foundations, vandal proofing mounting to the Engineer's approval    | Sum  | 1    |             |               |
| ME4                                | PV Disconnect 1000-40-2  | No.  | 1    |             |               |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.  | 1    |             |               |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item | 1    |             |               |
| ME7                                | PV Combiner  | No.  | 1    |             |               |
| ME7a                               | Pressure Switch and Gauge - P5/8   | No.  | 1    |             |               |
| ME8                                | Sinewave filter - SWAP0017D.   | No.  | 1    |             |               |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,   | m    | 5    |             |               |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m    | 200  |             |               |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m    | 60   |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.8: KINONI IN NAKASONGOLA DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| <b>Item No.</b>                    | <b>Description</b>   | <b>Unit</b> | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
|------------------------------------|--|-------------|-------------|--------------------|----------------------|
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.         | 2           |                    |                      |
| ME11a                              | Adapter box  | No.         | 1           |                    |                      |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item        | 1           |                    |                      |
|                                    | <b><u>Earthing and Lightening Protection</u></b>   |             |             |                    |                      |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm               | Sum         | 1           |                    |                      |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                                 | Sum         | 1           |                    |                      |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.         | 5           |                    |                      |
|                                    | <b><u>Alarm System</u></b>   |             |             |                    |                      |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item        | 1           |                    |                      |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item        | 1           |                    |                      |
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>  |             |             |                    |                      |
|                                    | <b><u>Pump Protection System</u></b>   |             |             |                    |                      |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base. | No.         | 1           |                    |                      |
|                                    | <b><u>Kerbs</u></b>  |             |             |                    |                      |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>   |             |             |                    |                      |
| X2                                 | Straight or curved to a radius exceeding 12 m  | m           | 70          |                    |                      |
| <b>Total Carried to Collection</b> |  |             |             |                    |                      |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.8: KINONI IN NAKASONGOLA DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| <b>Item No.</b>                                 | <b>Description</b>  | <b>Unit</b>    | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
|---|---|----------------|-------------|--------------------|----------------------|
| X3  | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a gauge 500 polythene sheet.   | m <sup>2</sup> | Rate Only   |                    |                      |
| X4  | 450mm diameter reinforced concrete pipe/ culvert  | m              | Rate Only   |                    |                      |
|   | <b><u>Pump House</u></b>  |                |             |                    |                      |
| X5  | Construct a 12.0m superficial area Pump House to detail as per Drawing  | Sum            | 1           |                    |                      |
|   | <b><u>Fences</u></b>  |                |             |                    |                      |
| X6a   | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m              | 80          |                    |                      |
| X6b   | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m              | 120         |                    |                      |
|   | <b><u>Gates</u></b>   |                |             |                    |                      |
| X7  | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 2           |                    |                      |
|   | <b><u>Training of Operator's staff</u></b>  |                |             |                    |                      |
| X8  | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval  | Sum            | 1           |                    |                      |
|   | <b><u>Operation and Maintenance Manuals</u></b>   |                |             |                    |                      |
| X9  | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum            | 1           |                    |                      |
| <b>Total Carried to Collection</b>              |   |                |             |                    |                      |
|   | <b>Bill No. 1 Collection</b>  |                |             |                    |                      |
|   | Page 2  |                |             |                    |                      |
|   | Page 3  |                |             |                    |                      |
|   | Page 4  |                |             |                    |                      |
|   | Page 5  |                |             |                    |                      |
|   | Page 6  |                |             |                    |                      |
|   | Page 7  |                |             |                    |                      |
| <b>Total Bill No. 1 Carried to Bill Summary</b> |   |                |             |                    |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.8: KINONI IN NAKASONGOLA DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.  | Item | 1         |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Steel Pipes</u></b>   |      |           |             |               |
|                                    | <u>Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes;</u>  |      |           |             |               |
| 2.1                                | DN75mm, not in trenches;  | m    | Rate Only |             |               |
| 2.2                                | DN75mm, in trenches; depths not exceeding 1.5m  | m    | 12        |             |               |
| 3                                  | <b><u>HDPE Pipes</u></b>  |      |           |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>  |      |           |             |               |
| 3.1                                | OD90mm HDPE PN10  | m    | 680       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>   |      |           |             |               |
| 5                                  | <b><u>Bends</u></b>   |      |           |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |           |             |               |
| 5.1                                | DN75mm  | No.  | 4         |             |               |
| 6                                  | <b><u>Bulk Flow Meters</u></b>  |      |           |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |           |             |               |
| 6.1                                | DN75mm PN10   | No.  | 1         |             |               |
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
| 7                                  | <b><u>Equal Adapters</u></b>  |      |           |             |               |
| 7.1                                | OD90 female adapter   | No.  | 2         |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.8: KINONI IN NAKASONGOLA DISTRICT**

**Region: Central**

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
| <b>8</b>                           | <b><u>Valves and Penstocks</u></b>   |      |      |             |               |
|                                    | <b><u>Air Valves</u></b>   |      |      |             |               |
|                                    | <u>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                          |      |      |             |               |
| 8.4                                | DN75mm   | No.  | 1    |             |               |
| <b>9</b>                           | <b><u>Washouts</u></b>   |      |      |             |               |
|                                    | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |      |             |               |
| 9.3                                | DN65mm   | No.  | 2    |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b>   |      |      |             |               |
|                                    | <b><u>Other Chambers</u></b>   |      |      |             |               |
|                                    | <u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>   |      |      |             |               |
| 10a                                | Depth not exceeding 1.5m   | No.  | 2    |             |               |
|                                    | <b><u>Valve Surface Boxes</u></b>  |      |      |             |               |
|                                    | <u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u>  |      |      |             |               |
| 10b                                | Depth not exceeding 1.5m   | No.  | 4    |             |               |
|                                    | <b><u>Reinstatement</u></b>  |      |      |             |               |
|                                    | <b><u>Roads</u></b>  |      |      |             |               |
|                                    | <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>   |      |      |             |               |
| 11                                 | Not exceeding DN300mm  | m    | 12   |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.8: KINONI IN NAKASONGOLA DISTRICT

Region: Central

**BILL No.2 : TRANSMISSION MAINS**

| Item No. | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|--|------|-----------|-------------|---------------|
|          | <b><u>Surrounds</u></b>  |      |           |             |               |
| 12.1     | Pipe surrounds, of selected excavated granular material, for the following pipe sizes<br>Not exceeding DN200mm | m    | Rate Only |             |               |
| 12.2     | Pipe surrounds, of imported granular material, for the following pipe sizes<br>Not exceeding DN200mm           | m    | 25        |             |               |
| 12.3     | Pipe surrounds, of mass concrete, for the following pipe sizes<br>Not exceeding DN200mm                        | m    | 40        |             |               |
| 13       | <b><u>Concrete Stools and Thrust Blocks</u></b>  |      |           |             |               |
|          | <b><u>Thrust Blocks</u></b>  |      |           |             |               |
|          | Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes  |      |           |             |               |
| 13.1     | Diameter not exceeding DN200mm   | No.  | Rate Only |             |               |
|          | <b><u>Other Pipework Ancillaries</u></b>   |      |           |             |               |
|          | <b><u>Marker Posts</u></b>   |      |           |             |               |
| 14       | Marker posts for pipes, gate valves, air valves, washouts.   | nr   | 30        |             |               |

**Total Carried to Collection**

**BILL No.2 : TRANSMISSION MAINS**

| Item No. | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|------------------------------|------|------|-------------|---------------|
|          | <b>Bill No. 2 Collection</b> |      |      |             |               |
|          | Page 8                       |      |      |             |               |
|          | Page 9                       |      |      |             |               |
|          | Page 10                      |      |      |             |               |

**Total Bill No. 21.2 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 2.8: KINONI IN NAKASONGOLA DISTRICT**

**Region: Central**

**BILL No.3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.  | Item | 1    |             |               |
| 2                                  | <b><u>Reservoir</u></b><br><u>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc.. painting and finishes, complete as specified and detailed in the drawings , of the following height and reservoir capacities.</u>  |      |      |             |               |
| 2.1                                | Height; 6.0m for (4No. x 10m <sup>3</sup> Tanks)   | No.  | 1    |             |               |
| 3                                  | <b><u>Plastic Tanks</u></b><br>Supply and install a vertical cylindrical Rotational Moulded Polyethylene Water Storage Tank to DUS 1560: 2013 as manufactured by Ms. Gentex Ltd. / Crest Tanks or any other approved complete with a lockable access man ways, inlet/ riser, ball float valve, overflow with insect screen, float type water level indicator and outlet/ down pipe with a strainer, washout and overflow connection, including interconnecting pipe work and fittings, as detailed in the drawings, supply specifications and of the following capacity. |      |      |             |               |
| 3.1                                | 10m <sup>3</sup>   | No.  | 4    |             |               |
| 4                                  | <u>150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>  |      |      |             |               |
| 4.1                                | DN75mm, PN10   | No.  | 1    |             |               |
| 5                                  | <u>150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u><br>[OPTIONAL]  |      |      |             |               |
| 5.2                                | DN75mm, PN10   | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.8: KINONI IN NAKASONGOLA DISTRICT

Region: Central

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|----------------|-----------|-------------|---------------|
| <b>6</b> | <b><u>Landscaping and Walkways</u></b>  |                |           |             |               |
| 6.1      | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2      | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill. | No.            | Rate Only |             |               |
| <b>7</b> | <b><u>Fences</u></b>  |                |           |             |               |
| 7.1      | Galvanized wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|          | <b><u>Gates</u></b>   |                |           |             |               |
| 7.2      | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|          | <b><u>Provision and Placing of Concrete</u></b><br><b><u>Ordinary Designed Mix Concrete</u></b>   |                |           |             |               |
| <b>8</b> | <b><u>Designed mix concrete, to BS 5328, with ordinary Portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u></b>         |                |           |             |               |
| 8.1      | Grade C15   | m <sup>3</sup> | 2         |             |               |

**Total Carried to Collection**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description                | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|----------------------------|------|------|-------------|---------------|
|          | <b>Bill No. Collection</b> |      |      |             |               |
|          | Page 11                    |      |      |             |               |
|          | Page 12                    |      |      |             |               |

**Total Bill No.3 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.8: KINONI IN NAKASONGOLA DISTRICT

Region: Central

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                            | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>  |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br><u>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m</u> |      |           |             |               |
| 2.1                                | OD63mm PN6  | m    | 525       |             |               |
| 2.3                                | OD90mm PN6  | m    | 470       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>  |      |           |             |               |
| 3.1                                | OD90mm  | No.  | 1         |             |               |
| 3.2                                | OD63mm  | No.  | 5         |             |               |
|                                    | <b><u>Unequal tees</u></b>  |      |           |             |               |
| 3.3                                | OD90 x 63mm   | No.  | 3         |             |               |
| 3.4                                | OD75 x 63mm   | No.  | 1         |             |               |
|                                    | <b><u>Bends</u></b>   |      |           |             |               |
| 3.5                                | OD63mm  | No.  | 1         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>  |      |           |             |               |
| 4.1                                | OD90mm  | No.  | Rate Only |             |               |
| 4.2                                | OD75mm  | No.  | Rate Only |             |               |
| 4.3                                | OD63mm  | No.  | Rate Only |             |               |
| 4                                  |   |      |           |             |               |
| 3                                  | <b><u>End caps</u></b>  |      |           |             |               |
| 5.1                                | OD63mm  | No.  | 13        |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 2.8: KINONI IN NAKASONGOLA DISTRICT

Region: Central

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
| <b>6</b>  | <b><u>Valves and Penstocks</u></b>  |      |           |             |               |
|   | <b><u>Air Valves</u></b>  |      |           |             |               |
|   | Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.  |      |           |             |               |
| 6.1   | OD90mm  | No.  | Rate Only |             |               |
| 6.2   | OD75mm  | No.  | Rate Only |             |               |
| 6.3   | OD63mm  | No.  | Rate Only |             |               |
| <b>7</b>  | <b><u>Washouts</u></b>  |      |           |             |               |
|   | Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |           |             |               |
| 7.1   | DN75mm  | No.  | 2         |             |               |
| <b>8</b>  | <b><u>Farm Gate Connections</u></b>   |      |           |             |               |
|   | Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and lockable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -   |      |           |             |               |
| 8.1   | DN50mm  | No.  | 13        |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>  |      |           |             |               |
|   | <b><u>Marker Posts</u></b>  |      |           |             |               |
| 9   | Marker posts for pipes, gate valves, air valves, washouts.  | nr   | 21        |             |               |
| <b>Total Carried to Collection</b>              |   |      |           |             |               |
|   | <b>Bill No. 4 Collection</b>  |      |           |             |               |
|   | Page 13   |      |           |             |               |
|   | Page 14   |      |           |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |   |      |           |             | <b>0</b>      |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.1: MERU IN BUVUMA DISTRICT**

**Region: Central**

**BILL SUMMARY**

| <b>Bill No.</b>                       | <b>Description</b>                      | <b>Amount (UGx.)</b> |
|---------------------------------------|---|----------------------|
|                                       | <b>WORK ITEMS</b>                       |                      |
| 1                                     | Abstraction and Electromechanical Works |                      |
| 2                                     | Transmission Mains                      |                      |
| 3                                     | Storage Reservoir Works                 |                      |
| 4                                     | Distribution Network                    |                      |
| <b>Total Carried to Grand Summary</b> |   |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.1: MERU IN BUVUMA DISTRICT**

**Region: Central**

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|----------------|-----------|-------------|---------------|
|                                    | <b><u>General Site Clearance</u></b>  |                |           |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stumps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer.                              | Item           | 1         |             |               |
|                                    | <b><u>Earthworks</u></b>  |                |           |             |               |
| 2.1                                | Excavation to form trapezoidal prism reservoir in material other than topsoil, rock or other artificial hard material, depth not exceeding 6.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings. | m <sup>3</sup> | 520       |             |               |
| 2.2                                | Ditto but in marshy soils   | m <sup>3</sup> | 296       |             |               |
| 2.3                                | Ditto but in soft / decomposed rock soils   | m <sup>3</sup> | 136       |             |               |
| 2.4                                | Excavation to form trapezoidal drain in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.           | m <sup>3</sup> | 90        |             |               |
| 2.5                                | Ditto but in marshy soils   | m <sup>3</sup> | 65        |             |               |
| 2.6                                | Ditto but in soft / decomposed rock soils   | m <sup>3</sup> | 45        |             |               |
|                                    | <b><u>Filling Structures</u></b>  |                |           |             |               |
|                                    | <u>Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -</u>   |                |           |             |               |
| 3.1                                | Imported rock/ hardcore fill, size 75 to 300mm hand packed or compacted by the arm of an excavator.   | m <sup>3</sup> | Rate Only |             |               |
| 3.2                                | Selected excavated material including topping with a 200mm thick layer of top/ vegetable soil.  | m <sup>3</sup> | Rate Only |             |               |
| 4                                  | Single layer of geotextile laid to manufacturer's specifications  | m <sup>2</sup> | Rate Only |             |               |
|                                    | <b><u>Landscaping</u></b>   |                |           |             |               |
| 5                                  | Turfing for lawns inside fenced off compound, including filling with excavated topsoil and the preparation of surfaces; 40m <sup>2</sup> at Intake Site and 800m <sup>2</sup> at Pump Station.  | m <sup>2</sup> | 850       |             |               |
| <b>Total Carried to Collection</b> |   |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.1: MERU IN BUVUMA DISTRICT

Region: Central

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
|                                    | <b>IN-SITU CONCRETE</b><br><b>Provision and Placing of Concrete</b><br><b>Ordinary Design Mix Concrete</b><br><u>Designed mix , concrete to BS 8500 and BS EN 206-1, with ordinary</u><br><u>Portland cement to BS 12, aggregate to BS 882 for the following structures: -</u> |                |      |             |               |
|                                    | <b>Grade C15/10</b><br><b>Blinding</b><br>6.1 50mm thick blinding concrete, for base slabs, toes, key and heel; grade C15, of the following thickness  | m <sup>3</sup> | 1.1  |             |               |
|                                    | <b>Grade C25/10</b><br><b>Reinforced Concrete Base Slabs, Toe and Heel</b><br>6.2 200mm thick toe.   | m <sup>3</sup> | 0.3  |             |               |
|                                    | 6.3 200mm thick base slab.   | m <sup>3</sup> | 2.4  |             |               |
|                                    | 6.4 350/ 200mm thick retaining wall/ weir stem.  | m <sup>3</sup> | 0    |             |               |
|                                    | 6.5 200mm thick sump walls.  | m <sup>3</sup> | 13.5 |             |               |
|                                    | 6.6 200mm thick top slab.  | m <sup>3</sup> | 1.2  |             |               |
|                                    | <b>Formwork</b><br><b>Formwork-Fair Finish</b><br>7.1 <b>Fair Finish Plane Horizontal</b><br>Plane fair finish horizontal formwork to the tops slab including chamfering and / or filleting of all exposed concrete corners.   | m <sup>2</sup> | 4.0  |             |               |
|                                    | 7.2 <b>Fair Finish Plane Vertical</b><br>Plane fair finish vertical and / or slightly sloping formwork to walls including chamfering and / or filleting of all exposed concrete corners.   | m <sup>2</sup> | 140  |             |               |
|                                    | <b>Finishing of top surfaces</b><br>7.3 Steel trowel finishing of top surfaces.  | m <sup>2</sup> | 11   |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.1: MERU IN BUVUMA DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| 8.1                                | <b>Reinforcement</b><br><b>Deformed High Yield Steel</b><br><u>High yield square twisted bars to BS 4449 and of the following sizes</u><br>Nominal size, 12mm  | t    | 1.2       |             |               |
| 8.2                                | <b>Inserts</b><br>DN 250 CI / ST flanged, puddled pipe insert pipe inserts projecting from two faces of the concrete wall and of the following sizes, excluding supply of pipe.  | No.  | Rate Only |             |               |
|                                    | <b>PIPEWORK - FITTINGS AND VALVES</b><br><b>Cast or Spun Iron Pipe Fittings.</b>   |      |           |             |               |
| 9.1                                | <b>Flanged Reducers</b><br>DN250 x 150mm   | No.  | Rate Only |             |               |
| 9.2                                | <b>Flange Adaptors</b><br>DN 150mm Maxi Type or similar wide range adaptor to fit pipe spigots, flanges to BS 4505, all to PN6.  | No.  | Rate Only |             |               |
| 9.3                                | <b>Strainers</b><br><u>Flanged outlet pipe strainer, to BS 4772, flanges to BS 4504, all to PN 10, cement mortar lined, and of the following sizes: -</u><br>DN 250 mm   | No.  | Rate Only |             |               |
| 9.4                                | <b>End Caps</b><br>DN250mm flanged end cap.  | No.  | Rate Only |             |               |
| 9.5                                | <b>Valves and Penstocks</b><br><b>Gate Valves: Hand Operated</b><br><u>All flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 10 for operation by tee key, with extension spindle not exceeding 1.5 m long, and of the following sizes:-</u><br>150 mm ND | No.  | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.1: MERU IN BUVUMA DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <u>Penstocks; hand operated including head stock and distance spindle, as specified in drawings of the following size: -</u>  |      |           |             |               |
| 9.6                                | 300mm wide x 1000mm high, Stainless steel.  | No.  | 1         |             |               |
|                                    | <b>MISCELLANEOUS METAL WORK</b>   |      |           |             |               |
|                                    | <b>Ladders</b>  |      |           |             |               |
| 10.1                               | External galvanized mild steel ladder to BS 4211, galvanized to BS 729, complete and as shown in the drawings including fixing to precast concrete units..  | m    | 8         |             |               |
|                                    | <b>Access Manhole Cover</b>   |      |           |             |               |
| 10.2                               | 600 x 600mm clear opening painted mild steel cover and frame include fixing and locking arrangement.  | No.  | 2         |             |               |
|                                    | <b>Pump Protection System</b>   |      |           |             |               |
| 10.3                               | Vertical pipe pump stilling tube/ anti-vandal protection sleeve structure to detail as per Drawing No. OIS/NUC/SD/010, including 1.5x1.5x0.3m support base.   | No.  | 0         |             |               |
|                                    | <b>Valve Surface Boxes</b>  |      |           |             |               |
| 10.4                               | Valve surface box with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to a depth not exceeding 4.5 m.  | No.  | Rate Only |             |               |
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>  |      |           |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)   |      |           |             |               |
| ME1                                | 4.0kW Submersible Pump Set with 5.5kW Pumping Inverter with Data Module, rated flow Q = 15 m <sup>3</sup> /hr., rated head H = 55m total head; set to not more than <b>5m</b> below ground including Dry- run protection, Motor and Pump End. | No.  | 1         |             |               |
| ME2                                | 1x17No. x 550Wp panels solar array to provide 19.35kW power to the pump system complete including wiring.   | Item | 1         |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.1: MERU IN BUVUMA DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| <b>Item No.</b>                    | <b>Description</b>  | <b>Unit</b> | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
|------------------------------------|---|-------------|-------------|--------------------|----------------------|
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 1x17No. x 550Wp panels Solar Array in Item 2 above as per drawings, including foundations, vandal proofing mounting to the Engineer's approval | Sum         | 1           |                    |                      |
| ME4                                | PV Disconnect 1000-40-2   | No.         | 1           |                    |                      |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.   | No.         | 1           |                    |                      |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.   | Item        | 1           |                    |                      |
| ME7                                | PV Combiner   | No.         | 1           |                    |                      |
| ME7a                               | Pressure Switch and Gauge - P5/8  | No.         | 1           |                    |                      |
| ME8                                | Sinewave filter - SWAP0009D.  | No.         | 1           |                    |                      |
| ME9                                | 4mm <sup>2</sup> Borehole drop cable,   | m           | 5           |                    |                      |
| ME10                               | 4mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m           | 100         |                    |                      |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.   | m           | 60          |                    |                      |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors   | No.         | 2           |                    |                      |
| ME11a                              | Adapter box   | No.         | 1           |                    |                      |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.   | Item        | 1           |                    |                      |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/NUC/PH/001 - Sheets 3 & 4 of 4.   | Item        | 1           |                    |                      |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm  | Sum         | 1           |                    |                      |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.  | Sum         | 1           |                    |                      |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box   | No.         | 5           |                    |                      |
| <b>Total Carried to Collection</b> |   |             |             |                    |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.1: MERU IN BUVUMA DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|----------------|------|-------------|---------------|
| ME16                               | <b>Alarm System</b><br>GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item           | 1    |             |               |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.  | Item           | 1    |             |               |
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>   |                |      |             |               |
|                                    | <b><u>Pump Protection System</u></b>  |                |      |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base.              | No.            | 1    |             |               |
|                                    | <b><u>Kerbs</u></b><br>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m <sup>2</sup> to the following alignment: -   |                |      |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m   | m              | 60   |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a gauge 500 polythene sheet.   | m <sup>2</sup> | 135  |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert  | m              | 2    |             |               |
|                                    | <b><u>Pump House</u></b>  |                |      |             |               |
| X5                                 | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.   | Sum            | 1    |             |               |
|                                    | <b><u>Fences</u></b>  |                |      |             |               |
| X6a                                | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m              | 80   |             |               |
| X6b                                | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m              | 120  |             |               |
| <b>Total Carried to Collection</b> |   |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.1: MERU IN BUVUMA DISTRICT**

**Region: Central**

| <b>BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b> |   |      |           |  |                      |
|---|---|------|-----------|--|----------------------|
| <b>Item No.</b>   | <b>Description</b>  |      |           |  | <b>Amount (UGx.)</b> |
|   | <u><b>Gates</b></u>   |      |           |  |                      |
| X7  | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.  | 1         |  |                      |
|   | <u><b>Training of Operator's staff</b></u>  |      |           |  |                      |
| X8  | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval                                    | Sum  | 1         |  |                      |
|   | <u><b>Operation and Maintenance Manuals</b></u>   |      |           |  |                      |
| X9  | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum  | 1         |  |                      |
| XX  | Horizontal pump installation option out of flanged/ sealed end HDPE culvert pipe mounted on fabricated GI support structure including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/005. | Item | Rate Only |  |                      |
| <b>Total Carried to Collection</b>                          |   |      |           |  |                      |
|   | <b>Bill No. 1 Collection</b>  |      |           |  |                      |
|   | Page 2  |      |           |  |                      |
|   | Page 3  |      |           |  |                      |
|   | Page 4  |      |           |  |                      |
|   | Page 5  |      |           |  |                      |
|   | Page 6  |      |           |  |                      |
|   | Page 7  |      |           |  |                      |
|   | Page 8  |      |           |  |                      |
| <b>Total Bill No. 1 Carried to Bill Summary</b>             |   |      |           |  |                      |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.1: MERU IN BUVUMA DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.  | Item | 1         |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>   |      |           |             |               |
|                                    | <b><u>Steel Pipes</u></b>   |      |           |             |               |
|                                    | <u>Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes;</u>  |      |           |             |               |
| 2.1                                | DN75mm, in trenches; depths not exceeding 1.5m  | m    | 12        |             |               |
|                                    | <b><u>HDPE Pipes</u></b>  |      |           |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>  |      |           |             |               |
| 3.1                                | OD63mm HDPE PN10  | m    | 151       |             |               |
|                                    | <b><u>uPVC Pipes</u></b>  |      |           |             |               |
|                                    | <u>uPVC pressure pipes to UNBS US 264: 2000 and DIN 8062 with integral rubber ring socket joints laid in trenches</u>   |      |           |             |               |
|                                    | <u>OD110 to PN 10</u>   |      |           |             |               |
| 4.1                                | Depth not exceeding 1.5m  | m    | Rate Only |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>   |      |           |             |               |
|                                    | <b><u>Bends</u></b>   |      |           |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |           |             |               |
| 5.3                                | DN65mm  | No.  | 4         |             |               |
|                                    | <b><u>Bulk Flow Meters</u></b>  |      |           |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |           |             |               |
| 6.1                                | DN65mm PN10   | No.  | 1         |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.1: MERU IN BUVUMA DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b>PN16 HDPE Compression fitting to DIN 8074/BS 5114</b>   |      |           |             |               |
| <b>7</b>                           | <b>Equal Adapters</b>  |      |           |             |               |
| 7.1                                | OD90 female adapter  | No.  | 2         |             |               |
| <b>8</b>                           | <b>Valves and Penstocks</b>  |      |           |             |               |
|                                    | <b>Air Valves</b>  |      |           |             |               |
|                                    | <u>Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                          |      |           |             |               |
| 8.1                                | DN65mm   | No.  | 1         |             |               |
| <b>9</b>                           | <b>Washouts</b>  |      |           |             |               |
|                                    | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |           |             |               |
| 9.1                                | DN65mm   | No.  | 4         |             |               |
|                                    | <b>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</b>  |      |           |             |               |
|                                    | <b>Other Chambers</b>  |      |           |             |               |
|                                    | <u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>   |      |           |             |               |
| 10.1                               | Depth not exceeding 1.5m   | No.  | 2         |             |               |
|                                    | <b>Valve Surface Boxes</b>   |      |           |             |               |
|                                    | <u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u>  |      |           |             |               |
| 10.2                               | Depth not exceeding 1.5m   | No.  | 5         |             |               |
|                                    | <b>Reinstatement</b>   |      |           |             |               |
|                                    | <b>Roads</b>   |      |           |             |               |
|                                    | <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>   |      |           |             |               |
| 11                                 | Not exceeding DN300mm  | m    | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.1: MERU IN BUVUMA DISTRICT**

**Region: Central**

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.  | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|--|------|-----------|-------------|---------------|
| 12.1  | <b><u>Surrounds</u></b><br>Pipe surrounds, of selected excavated granular material, for the following pipe sizes<br>Not exceeding DN200mm                                      | m    | Rate Only |             |               |
| 12.2  | Pipe surrounds, of imported granular material, for the following pipe sizes<br>Not exceeding DN200mm   | m    | 65        |             |               |
| 12.3  | Pipe surrounds, of mass concrete, for the following pipe sizes<br>Not exceeding DN200mm  | m    | 25        |             |               |
|   | <b><u>Concrete Stools and Thrust Blocks</u></b>  |      |           |             |               |
| 13  | <b><u>Thrust Blocks</u></b><br>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes<br>Diameter not exceeding DN200mm | No.  | Rate Only |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>   |      |           |             |               |
| 14  | <b><u>Marker Posts</u></b><br>Marker posts for pipes, gate valves, air valves, washouts.   | No.  | 18        |             |               |
| <b>Total Carried to Collection</b>              |  |      |           |             |               |
| <b>BILL No. 2 : TRANSMISSION MAINS</b>          |  |      |           |             |               |
| Item No.  | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|   | <b>Bill No. 2 Collection</b>   |      |           |             |               |
|   | Page 9   |      |           |             |               |
|   | Page 10  |      |           |             |               |
|   | Page 11  |      |           |             |               |
| <b>Total Bill No. 2 Carried to Bill Summary</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.1: MERU IN BUVUMA DISTRICT**

**Region: Central**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.   | Item | 1    |             |               |
| 2                                  | <b><u>Reservoir</u></b>   |      |      |             |               |
|                                    | <u>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc., painting and finishes; complete as specified and detailed in the drawings . of the following height and reservoir capacities.</u>  |      |      |             |               |
| 2.1                                | Height; 4.5m for (4No. x 10m <sup>3</sup> Tanks)  | No.  | 1    |             |               |
| 3                                  | <b><u>Plastic Tanks</u></b>   |      |      |             |               |
|                                    | Supply and install a vertical cylindrical Rotational Moulded Polyethylene Water Storage Tank to DUS 1560: 2013 as manufactured by Ms. Gentex Ltd. / Crest Tanks or any other approved complete with a lockable access man ways, inlet/ riser, ball float valve, overflow with insect screen, float type water level indicator and outlet/ down pipe with a strainer, washout and overflow connection, including interconnecting pipe work and fittings, as detailed in the drawings, supply specifications and of the following capacity. |      |      |             |               |
| 3.1                                | 10m <sup>3</sup>  | No.  | 4    |             |               |
| 4                                  | <u>150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>   |      |      |             |               |
| 4.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| 5                                  | <u>150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u>   |      |      |             |               |
|                                    | [OPTIONAL]  |      |      |             |               |
| 5.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.1: MERU IN BUVUMA DISTRICT**

**Region: Central**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|----------------|-----------|-------------|---------------|
| <b>6</b> | <b><u>Landscaping and Walkways</u></b>  |                |           |             |               |
| 6.1      | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2      | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one row, laid onto 200mm thick murram fill. | No.            | Rate Only |             |               |
| <b>7</b> | <b><u>Fences</u></b>  |                |           |             |               |
| 7.1      | Galvanized wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|          | <b><u>Gates</u></b>   |                |           |             |               |
| 7.2      | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 2         |             |               |
|          | <b><u>Provision and Placing of Concrete</u></b><br><b><u>Ordinary Designed Mix Concrete</u></b>   |                |           |             |               |
| <b>8</b> | <b><u>Designed mix concrete, to BS 5328, with ordinary Portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u></b>         |                |           |             |               |
| 8.1      | Grade C15   | m <sup>3</sup> | 2         |             |               |

**Total Carried to Collection**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|------------------------------|------|------|-------------|---------------|
|          | <b>Bill No. 3 Collection</b> |      |      |             |               |
|          | Page 12                      |      |      |             |               |
|          | Page 13                      |      |      |             |               |

**Total Bill No. 3 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.1: MERU IN BUVUMA DISTRICT

Region: Central

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                     | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m |      |           |             |               |
| 2.1                                | OD63mm PN6   | m    | 151       |             |               |
| 2.2                                | OD90mm PN6   | m    | 263       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>   |      |           |             |               |
| 3.1                                | OD90mm   | No.  | 1         |             |               |
|                                    | <b><u>Unequal tees</u></b>   |      |           |             |               |
| 3.2                                | OD90 x 63mm  | No.  | 5         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>   |      |           |             |               |
| 4.2                                | OD90mm   | No.  | Rate Only |             |               |
| 4.4                                | OD63mm   | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>   |      |           |             |               |
| 5.1                                | OD63mm   | No.  | 5         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.1: MERU IN BUVUMA DISTRICT**

**Region: Central**

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.  | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|---|---|------|------|-------------|---------------|
| <b>6</b>  | <b><u>Valves and Penstocks</u></b>  |      |      |             |               |
|   | <b><u>Air Valves</u></b>  |      |      |             |               |
|   | Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.  |      |      |             |               |
| 6.1   | OD75mm  | No.  | 1    |             |               |
| <b>7</b>  | <b><u>Washouts</u></b>  |      |      |             |               |
|   | Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |      |             |               |
| 7.3   | DN65mm  | No.  | 2    |             |               |
| <b>8</b>  | <b><u>Farm Gate Connections</u></b>   |      |      |             |               |
|   | Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and lockable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -   |      |      |             |               |
| 8.4   | DN50mm  | No.  | 5    |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>  |      |      |             |               |
|   | <b><u>Marker Posts</u></b>  |      |      |             |               |
| 9   | Marker posts for pipes, gate valves, air valves, washouts.  | No.  | 30   |             |               |
| <b>Total Carried to Collection</b>              |   |      |      |             |               |
|   | <b>Bill No. 4 Collection</b>  |      |      |             |               |
|   | Page 14   |      |      |             |               |
|   | Page 15   |      |      |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.2: BWAMULAMIRA IN KAYUNGA DISTRICT**  
**BILL SUMMARY**

**Region: Central**

| <b>Bill No.</b>                       | <b>Description</b>                      | <b>Amount (UGx.)</b> |
|---------------------------------------|---|----------------------|
|                                       | <b>WORK ITEMS</b>                       |                      |
| 1                                     | Abstraction and Electromechanical Works |                      |
| 2                                     | Transmission Mains                      |                      |
| 3                                     | Storage Reservoir Works                 |                      |
| 4                                     | Distribution Network                    |                      |
| <b>Total Carried to Grand Summary</b> |   |                      |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.2: BWAMULAMIRA IN KAYUNGA DISTRICT**

**Region: Central**

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|----------------|------|-------------|---------------|
|                                    | <b><u>General Site Clearance</u></b>  |                |      |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer.  | Item           | 1    |             |               |
|                                    | <b><u>Earthworks</u></b>  |                |      |             |               |
|                                    | Excavation to form trapezoidal prism silt basin and reservoir in material other than topsoil, rock or other artificial hard material, depth not exceeding 4.0m including forming earth bands around the reservoir banks with the excavated material as per the drawings to fair profiles to receive grassing and/ or disposing the excavated material on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings. |                |      |             |               |
| 2.1                                | Marshy soils  | m <sup>3</sup> | 1555 |             |               |
| 2.2                                | Soft / decomposed rock soils  | m <sup>3</sup> | 30   |             |               |
|                                    | Excavation to form trapezoidal channel in material other than topsoil, rock or other artificial hard material, depth not exceeding 3.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.   |                |      |             |               |
| 2.4                                | Marshy soils  | m <sup>3</sup> | 150  |             |               |
| 2.5                                | Soft / decomposed rock soils  | m <sup>3</sup> | 6    |             |               |
|                                    | Excavation to form cylindrical sump well in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.   |                |      |             |               |
| 2.6                                | Marshy soils  | m <sup>3</sup> | 16   |             |               |
| 2.7                                | Soft / decomposed rock soils  | m <sup>3</sup> | 8    |             |               |
|                                    | <b><u>Filling Structures</u></b>  |                |      |             |               |
|                                    | <u>Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -</u>   |                |      |             |               |
| 3                                  | Selected excavated material including topping with a 200mm thick layer of top/ vegetable soil.  | m <sup>3</sup> | 10   |             |               |
| <b>Total Carried to Collection</b> |   |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.2: BWAMULAMIRA IN KAYUNGA DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|----------------|------|-------------|---------------|
| 4                                  | <b>Landscaping</b><br>Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 40   |             |               |
|                                    | <b>IN-SITU CONCRETE</b><br><b>Provision and Placing of Concrete</b><br><b>Ordinary Design Mix Concrete</b><br><u>Designed mix , concrete to BS 8500 and BS EN 206-1, with ordinary portland cement to BS 12, aggregate to BS 882 , maximum aggregate size : 20mm for the following structures: -</u>            |                |      |             |               |
| 5                                  | <b>In situ Concrete</b><br>75mm thick Grade C15 concrete blinding to pump sump base   | m <sup>3</sup> | 0.25 |             |               |
| 6.1                                | 2200mm Diameter x 150mm thick Grade C25 concrete base slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float.   | Item           | 1    |             |               |
| 6.2                                | 2200mm Diameter x 150mm thick Grade C25 concrete top slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float and forming a 600 x 600mm opening for the inspection cover (MS).  | Item           | 1    |             |               |
|                                    | <b>Pre-cast Concrete</b><br><b>Pump Well/ Sump</b><br>Supply and install 100mm thick precast reinforced concrete vertical culverts on concrete base slab (MS) ; complete with water tight jointing and finishing works to approval.   |                |      |             |               |
| 7                                  | 1200mm diameter ; height n.e 8m<br><br><b>Concrete Inserts</b><br><b>Cast or Spun Iron Pipe Fittings.</b><br>Flanged, puddled and plain end pipe insert projecting from one face of the concrete, all to PN6 and of the following sizes and lengths, including supply of the pipe and as shown in the drawings. | Item           | 1    |             |               |
| 8                                  | 200mm ND and not exceeding 0.5m length  | No.            | 2    |             |               |
|                                    | <b>Adaptors</b><br>Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:-   |                |      |             |               |
| 9                                  | 200 mm ND   | No.            | 2    |             |               |
| <b>Total Carried to Collection</b> |   |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.2: BWAMULAMIRA IN KAYUNGA DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| 10                                 | OD225mm PN10 plain end uPVC pipe connection between Silt Trap Basin and Pump Sump.   | m    | 8         |             |               |
|                                    | <b>Bellmouths</b>  |      |           |             |               |
| 11                                 | Flanged bellmouth to ISO 2531, flanges to ISO 2441, of the following sizes all to PN 6<br>200 mm ND  | No.  | 1         |             |               |
|                                    | <b>PIPEWORK - FITTINGS AND VALVES</b>  |      |           |             |               |
|                                    | <b>Gate Valves: Hand Operated</b>  |      |           |             |               |
| 12                                 | DN 200 mm all flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 6 for operation by tee key, with extension spindle not exceeding 4.5 metres long, and of the following sizes                       |      |           |             |               |
|                                    | <b>MISCELLANEOUS WORK</b>  |      |           |             |               |
|                                    | <b>Ladders</b>   |      |           |             |               |
| 13                                 | Internal galvanized mild steel ladder to BS 4211, galvernized to BS 729, complete andas shown in the drawings including fixing to precast concrete units..   | m    | 8         |             |               |
|                                    | <b>Steel grating</b>   |      |           |             |               |
| 14.1                               | Galvanized iron Coarse Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
| 14.2                               | Galvanized iron Fine Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
|                                    | <b>Pump Well/ Sump</b>   |      |           |             |               |
|                                    | Supply and install 8.0m long HDPE vertical culverts on concrete base slab (MS) ; complete with a Single ND200mm flanged branch to receive a ND200 gate valve. Branch height/ positioning to be determined on site. | Item | Rate Only |             |               |
| 15                                 | Internal diameter ; 1200x200mm   |      |           |             |               |
|                                    | <b>Stone pitched Channel.</b>  |      |           |             |               |
| 16                                 | 3.0 x 1.5 top x bottom width x 1.5m deep maximum trapezoidal lined drain as detailed in the drawing.   | m    | 5         |             |               |
|                                    | <b>Gabion boxes</b>  |      |           |             |               |
| 17                                 | PVC coated gabion boxes ; size 1m x 1m x 1m; including rockfill of size 100 - 250mm; as instructed by the Engineer   | nr   | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.2: BWAMULAMIRA IN KAYUNGA DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>   |      |      |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)  |      |      |             |               |
| ME1                                | 7.5kW Submersible Pump Set with 11.0kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 55m total head; set to not more than <b>5m</b> below ground including Dry- run protection, Motor and Pump End. | No.  | 1    |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item | 1    |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings, including foundations, vandal proofing mounting to the Engineer's approval    | Sum  | 1    |             |               |
| ME4                                | PV Disconnect 1000-40-2  | No.  | 1    |             |               |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.  | 1    |             |               |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item | 1    |             |               |
| ME7                                | PV Combiner  | No.  | 1    |             |               |
| ME7a                               | Pressure Switch and Gauge - P5/8   | No.  | 1    |             |               |
| ME8                                | Sinewave filter - SWAP0017D.   | No.  | 1    |             |               |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,   | m    | 5    |             |               |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m    | 225  |             |               |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m    | 60   |             |               |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.  | 2    |             |               |
| ME11a                              | Adapter box  | No.  | 1    |             |               |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item | 1    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.2: BWAMULAMIRA IN KAYUNGA DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| <b>Item No.</b>                    | <b>Description</b>   | <b>Unit</b>    | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
|------------------------------------|--|----------------|-------------|--------------------|----------------------|
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm               | Sum            | 1           |                    |                      |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                                 | Sum            | 1           |                    |                      |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.            | 5           |                    |                      |
|                                    | <b>Alarm System</b>  |                |             |                    |                      |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item           | 1           |                    |                      |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item           | 1           |                    |                      |
|                                    | <b>MISCELLANEOUS WORKS</b>   |                |             |                    |                      |
|                                    | <b>Pump Protection System</b>  |                |             |                    |                      |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base. | No.            | 1           |                    |                      |
|                                    | <b>Kerbs</b>   |                |             |                    |                      |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>   |                |             |                    |                      |
| X2                                 | Straight or curved to a radius exceeding 12 m  | m              | 70          |                    |                      |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a gauge 500 polythene sheet.  | m <sup>2</sup> | 220         |                    |                      |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert   | m              | Rate Only   |                    |                      |
|                                    | <b>Pump House</b>  |                |             |                    |                      |
| X5                                 | Construct a 12.0m superficial area Pump House to detail as per Drawing   | Sum            | 1           |                    |                      |
| <b>Total Carried to Collection</b> |  |                |             |                    |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.2: BWAMULAMIRA IN KAYUNGA DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.  | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|----------------|-----------|-------------|---------------|
|   | <b><u>Fences</u></b>  |                |           |             |               |
| X6a   | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m              | 80        |             |               |
| X6b   | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m              | 120       |             |               |
|   | <b><u>Gates</u></b>   |                |           |             |               |
| X7  | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 2         |             |               |
|   | <b><u>Training of Operator's staff</u></b>  |                |           |             |               |
| X8  | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval  | Sum            | 1         |             |               |
|   | <b><u>Operation and Maintenance Manuals</u></b>   |                |           |             |               |
| X9  | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum            | 1         |             |               |
| XX  | Horizontal pump installation option out of flanged/ sealed end HDPE culvert pipe mounted on fabricated GI support structure including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/005.       | Item           | Rate Only |             |               |
|   | <b><u>Stone Pitching.</u></b>   |                |           |             |               |
| XXX   | 250mm minimum thick grouted stone masonry jointed in cement : sand (1:4) motar as detailed in the drawing.  | m <sup>2</sup> | 125       |             |               |
| <b>Total Carried to Collection</b>                          |   |                |           |             |               |
| <b>BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b> |   |                |           |             |               |
| Item No.  | Description   |                |           |             | Amount (UGx.) |
|   | <b>Bill No. 1 Collection</b>  |                |           |             |               |
|   | Page 2  |                |           |             |               |
|   | Page 3  |                |           |             |               |
|   | Page 4  |                |           |             |               |
|   | Page 5  |                |           |             |               |
|   | Page 6  |                |           |             |               |
|   | Page 7  |                |           |             |               |
| <b>Total Bill No. 1 Carried to Bill Summary</b>             |   |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.2: BWAMULAMIRA IN KAYUNGA DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description   | Unit | Rate Only | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.  | Item | 1         |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Steel Pipes</u></b>   |      |           |             |               |
|                                    | <u>Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes;</u>  |      |           |             |               |
| 2.1                                | DN75mm, in trenches; depths not exceeding 1.5m  | m    | 12        |             |               |
| 3                                  | <b><u>HDPE Pipes</u></b>  |      |           |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>  |      |           |             |               |
| 3.1                                | OD75mm HDPE PN10  | m    | 400       |             |               |
| 4                                  | <b><u>uPVC Pipes</u></b>  |      |           |             |               |
|                                    | <u>uPVC pressure pipes to UNBS US 264: 2000 and DIN 8062 with integral rubber ring socket joints laid in trenches</u>   |      |           |             |               |
|                                    | <u>OD110 to PN 10</u>   |      |           |             |               |
| 4.1                                | Depth not exceeding 1.5m  | m    | Rate Only |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>   |      |           |             |               |
| 5                                  | <b><u>Bends</u></b>   |      |           |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |           |             |               |
| 5.1                                | DN65mm  | No.  | 4         |             |               |
| 6                                  | <b><u>Bulk Flow Meters</u></b>  |      |           |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |           |             |               |
| 6.3                                | DN65mm PN10   | No.  | 1         |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.2: BWAMULAMIRA IN KAYUNGA DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                               | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|--|--|------|------|-------------|---------------|
|  | <b>PN16 HDPE Compression fitting to DIN 8074/BS 5114</b>   |      |      |             |               |
| 7                                      | <b>Equal Adapters</b>  |      |      |             |               |
| 7.1                                    | OD90 female adapter  | No.  | 2    |             |               |
| 8                                      | <b>Valves and Penstocks</b>  |      |      |             |               |
|  | <b>Air Valves</b>  |      |      |             |               |
|  | <u>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                          |      |      |             |               |
| 8.3                                    | DN65mm   | No.  | 1    |             |               |
| 9                                      | <b>Washouts</b>  |      |      |             |               |
|  | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |      |             |               |
| 9.1                                    | DN65mm   | No.  | 2    |             |               |
|  | <b>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</b>  |      |      |             |               |
|  | <b>Other Chambers</b>  |      |      |             |               |
|  | <u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>   |      |      |             |               |
| 10.1                                   | Depth not exceeding 1.5m   | No.  | 2    |             |               |
|  | <b>Valve Surface Boxes</b>   |      |      |             |               |
|  | <u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u>  |      |      |             |               |
| 10.2                                   | Depth not exceeding 1.5m   | No.  | 3    |             |               |
|  | <b>Reinstatement</b>   |      |      |             |               |
|  | <b>Roads</b>   |      |      |             |               |
|  | <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>   |      |      |             |               |
| 11                                     | Not exceeding DN300mm  | m    | 12   |             |               |
| <b>Total Carried to Collection</b>     |  |      |      |             |               |
| <b>BILL No. 2 : TRANSMISSION MAINS</b> |  |      |      |             |               |
| Item No.                               | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
| 12                                     | <b>Surrounds</b>   |      |      |             |               |
|  | <u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u>   |      |      |             |               |



## CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

### Scheme ID. 3.2: BWAMULAMIRA IN KAYUNGA DISTRICT

Region: Central

|      |  |     |           |
|------|--|-----|-----------|
| 12.1 | Not exceeding DN200mm  | m   | Rate Only |
|      | <u>Pipe surrounds, of imported granular material, for the following pipe sizes</u>                                   |     |           |
| 12.2 | Not exceeding DN200mm  | m   | 90        |
|      | <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u>  |     |           |
| 12.3 | Not exceeding DN200mm  | m   | 20        |
| 13   | <b><u>Concrete Stools and Thrust Blocks</u></b>  |     |           |
|      | <b><i>Thrust Blocks</i></b>  |     |           |
|      | <u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes</u> |     |           |
| 13.1 | Diameter not exceeding DN200mm   | No. | Rate Only |
|      | <b><u>Other Pipework Ancillaries</u></b>   |     |           |
|      | <b><i>Marker Posts</i></b>   |     |           |
| 14   | Marker posts for pipes, gate valves, air valves, washouts.   | No. | 20        |

**Total Carried to Collection**

## BILL No. 2 : TRANSMISSION MAINS

| Item No.  | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|---|--|------|------|-------------|---------------|
|   | <p align="center"><b>Bill No. 2 Collection</b></p> <p align="center">Page 8</p> <p align="center">Page 9</p> <p align="center">Page 10</p> |      |      |             |               |
| <b>Total Bill No. 2 Carried to Bill Summary</b> |  |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.2: BWAMULAMIRA IN KAYUNGA DISTRICT**

**Region: Central**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.   | Item | 1    |             |               |
|                                    | <b><u>Reservoir</u></b>   |      |      |             |               |
|                                    | Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc., painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.   |      |      |             |               |
| 2.1                                | Height; 6.0m for (4No. x 10m <sup>3</sup> Tanks)  | No.  | 1    |             |               |
|                                    | <b><u>Plastic Tanks</u></b>   |      |      |             |               |
|                                    | Supply and install a vertical cylindrical Rotational Moulded Polyethylene Water Storage Tank to DUS 1560: 2013 as manufactured by Ms. Gentex Ltd. / Crest Tanks or any other approved complete with a lockable access man ways, inlet/ riser, ball float valve, overflow with insect screen, float type water level indicator and outlet/ down pipe with a strainer, washout and overflow connection, including interconnecting pipe work and fittings, as detailed in the drawings, supply specifications and of the following capacity. |      |      |             |               |
| 3.1                                | 10m <sup>3</sup>  | No.  | 4    |             |               |
| 4                                  | <u>150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>   |      |      |             |               |
| 4.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| 5                                  | <u>150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u>   |      |      |             |               |
|                                    | [OPTIONAL]  |      |      |             |               |
| 5.2                                | DN75mm, PN10  | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**Scheme ID. 3.2: BWAMULAMIRA IN KAYUNGA DISTRICT**  
**BILL No. 3 : STORAGE RESERVOIR WORKS**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

|                             |  |  |
|-----------------------------|--|--|
| Total Carried to Collection |  |  |
|-----------------------------|--|--|

| Item | Description | Unit | Qty | Price/Unit | Amount |
|------|-------------|------|-----|------------|--------|
|------|-------------|------|-----|------------|--------|

|  |  |
|--|--|
| Total Bill No. 3 Carried to Bill Summary |  |
|--|--|

**Total Bill No. 3 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.2: BWAMULAMIRA IN KAYUNGA DISTRICT

Region: Central

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                        | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>  |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br>HDPE pressure pipes to BS 3505, include unions / sockets, all to be laid in trench to the following depths not exceeding 1.5m |      |           |             |               |
| 2.1                                | OD63mm PN6  | m    | 86        |             |               |
| 2.2                                | OD90mm PN6  | m    | 195       |             |               |
|                                    | <b><u>uPVC Pipes</u></b><br>uPVC pressure pipes to UNBS US 264: 2000 and DIN 8062 with integral rubber ring socket joints laid in trenches  |      |           |             |               |
|                                    | <b><u>OD110 to PN 6</u></b>   |      |           |             |               |
| 2.2                                | Depth not exceeding 1.5m  | m    | 280       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>  |      |           |             |               |
| 3.1                                | OD110mm   | No.  | 1         |             |               |
|                                    | <b><u>Unequal tees</u></b>  |      |           |             |               |
| 3.2                                | OD110 x 90mm  | No.  | 2         |             |               |
| 3.3                                | OD110 x 63mm  | No.  | 5         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>  |      |           |             |               |
| 4.1                                | OD90mm  | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>  |      |           |             |               |
| 5.1                                | OD90mm  | No.  | Rate Only |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.2: BWAMULAMIRA IN KAYUNGA DISTRICT**

**Region: Central**

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
| <b>6</b>  | <b><u>Valves and Penstocks</u></b><br><b><u>Air Valves</u></b><br>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.                          |      |           |             |               |
| 6.1   | OD90mm  | No.  | Rate Only |             |               |
| <b>7</b>  | <b><u>Washouts</u></b><br>Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |           |             |               |
| 7.1   | DN65mm  | No.  | Rate Only |             |               |
| <b>8</b>  | <b><u>Farm Gate Connections</u></b><br>Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and lockable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -  |      |           |             |               |
| 8.4   | DN50mm  | No.  | 5         |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b><br><b><u>Marker Posts</u></b>  |      |           |             |               |
| 9   | Marker posts for pipes, gate valves, air valves, washouts.  | No.  | 20        |             |               |
| <b>Total Carried to Collection</b>              |   |      |           |             |               |
|   | <b>Bill No. 4 Collection</b><br><br>Page 13<br><br>Page 14  |      |           |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |   |      |           |             |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.3: BUWUNGIRO IN KAYUNGA DISTRICT**

**Region: Central**

## **BILL SUMMARY**

| Bill No.                              | Description                             | Amount (UGx.) |
|---------------------------------------|---|---------------|
|                                       | <b>WORK ITEMS</b>                       |               |
| 1                                     | Abstraction and Electromechanical Works |               |
| 2                                     | Transmission Mains                      |               |
| 3                                     | Storage Reservoir Works                 |               |
| 4                                     | Distribution Network                    |               |
| <b>Total Carried to Grand Summary</b> |   |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.3: BUWUNGIRO IN KAYUNGA DISTRICT**

**Region: Central**

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
|                                    | <b><u>General Site Clearance</u></b>   |                |      |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer.   | Item           | 1    |             |               |
|                                    | <b><u>Earthworks</u></b>   |                |      |             |               |
|                                    | Excavation to form trapezoidal prism reservoir in material other than topsoil, rock or other artificial hard material, depth not exceeding 6.0m including forming earth bands along the channel of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings. |                |      |             |               |
| 2.1                                | Marshy soils   | m <sup>3</sup> | 52   |             |               |
| 2.2                                | Soft / decomposed rock soils   | m <sup>3</sup> | 26   |             |               |
|                                    | Excavation to form trapezoidal channel in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                        |                |      |             |               |
| 2.4                                | Marshy soils   | m <sup>3</sup> | 68   |             |               |
| 2.5                                | Soft / decomposed rock soils   | m <sup>3</sup> | 17   |             |               |
|                                    | Excavation to form cylindrical sump well in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                      |                |      |             |               |
| 2.6                                | Marshy soils   | m <sup>3</sup> | 16   |             |               |
| 2.7                                | Soft / decomposed rock soils   | m <sup>3</sup> | 8    |             |               |
|                                    | <b><u>Filling Structures</u></b>   |                |      |             |               |
|                                    | <u>Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -</u>  |                |      |             |               |
| 3                                  | Selected excavated material including topping with a 200mm thick layer of top/ vegetable soil.   | m <sup>3</sup> | 10   |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.3: BUWUNGIRO IN KAYUNGA DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| <b>Item No.</b>                    | <b>Description</b>   | <b>Unit</b>    | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
|------------------------------------|--|----------------|-------------|--------------------|----------------------|
| 4                                  | <b>Landscaping</b><br>Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.  | m <sup>2</sup> | 40          |                    |                      |
|                                    | <b>IN-SITU CONCRETE</b><br><b>Provision and Placing of Concrete</b><br><b>Ordinary Design Mix Concrete</b><br><u>Designed mix , concrete to BS 8500 and BS EN 206-1, with ordinary portland cement to BS 12, aggregate to BS 882 , maximum aggregate size ; 20mm for the following structures: -</u> |                |             |                    |                      |
| 5                                  | <b>Insitu Concrete</b><br>75mm thick Grade C15 concrete blinding to pump sump base   | m <sup>3</sup> | 0.25        |                    |                      |
| 6.1                                | 2200mm Diameter x 150mm thick Grade C25 concrete base slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float.  | Item           | 1           |                    |                      |
| 6.2                                | 2200mm Diameter x 150mm thick Grade C25 concrete top slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float and forming a 600 x 600mm opening for the inspection cover (MS).   | Item           | 1           |                    |                      |
|                                    | <b>Pre-cast Concrete</b><br><b>Pump Well/ Sump</b><br>Supply and install 100mm thick precast reinforced concrete vertical culverts on concrete base slab (MS) ; complete with water tight jointing and finishing works to approval.  |                |             |                    |                      |
| 7                                  | 1200mm diameter ; height n.e 8m  | Item           | 1           |                    |                      |
|                                    | <b>Concrete Inserts</b><br><b>Cast or Spum Iron Pipe Fittings.</b><br>Flanged, puddled and plain end pipe insert projecting from one face of the concrete, all to PN6 and of the following sizes and lengths, including supply of the pipe and as shown in the drawings.                             |                |             |                    |                      |
| 8                                  | 200mm ND and not exceeding 0.5m length   | No.            | 2           |                    |                      |
|                                    | <b>Adaptors</b><br>Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:-  |                |             |                    |                      |
| 9                                  | 200 mm ND  | No.            | 2           |                    |                      |
| <b>Total Carried to Collection</b> |  |                |             |                    |                      |



# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.3: BUWUNGIRO IN KAYUNGA DISTRICT**

**Region: Central**

## **BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| 10                                 | OD225mm PN10 plain end uPVC pipe connection between Silt Trap Basin and Pump Sump.   | m    | 8         |             |               |
|                                    | <b>Bellmouths</b>  |      |           |             |               |
| 11                                 | Flanged bellmouth to ISO 2531, flanges to ISO 2441, of the following sizes all to PN 6<br>200 mm ND  | No.  | 1         |             |               |
|                                    | <b>PIPEWORK - FITTINGS AND VALVES</b>  |      |           |             |               |
|                                    | <b>Gate Valves: Hand Operated</b>  |      |           |             |               |
| 12                                 | DN 200 mm all flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 6 for operation by tee key, with extension spindle not exceeding 4.5 metres long, and of the following sizes                       |      |           |             |               |
|                                    | <b>MISCELLANEOUS WORK</b>  |      |           |             |               |
|                                    | <b>Ladders</b>   |      |           |             |               |
| 13                                 | Internal galvanized mild steel ladder to BS 4211, galvanized to BS 729, complete and as shown in the drawings including fixing to precast concrete units..   | m    | 8         |             |               |
|                                    | <b>Steel grating</b>   |      |           |             |               |
| 14.1                               | Galvanized iron Coarse Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
| 14.2                               | Galvanized iron Fine Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
|                                    | <b>Pump Well/ Sump</b>   |      |           |             |               |
|                                    | Supply and install 8.0m long HDPE vertical culverts on concrete base slab (MS) ; complete with a Single ND200mm flanged branch to receive a ND200 gate valve. Branch height/ positioning to be determined on site. | Item | Rate Only |             |               |
| 15                                 | Internal diameter ; 1200x200mm   |      |           |             |               |
|                                    | <b>Stone pitched Channel.</b>  |      |           |             |               |
| 16                                 | 3.0 x 1.5 top x bottom width x 1.5m deep maximum trapezoidal lined drain as detailed in the drawing.   | m    | 5         |             |               |
|                                    | <b>Gabion boxes</b>  |      |           |             |               |
| 17                                 | PVC coated gabion boxes ; size 1m x 1m x 1m; including rockfill of size 100 - 250mm; as instructed by the Engineer   | nr   | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.3: BUWUNGIRO IN KAYUNGA DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>   |      |      |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)  |      |      |             |               |
| ME1                                | 7.5kW Submersible Pump Set with 11.0kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 55m total head; set to not more than <b>5m</b> below ground including Dry- run protection, Motor and Pump End. | No.  | 1    |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item | 1    |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings, including foundations, vandal proofing mounting to the Engineer's approval    | Sum  | 1    |             |               |
| ME4                                | PV Disconnect 1000-40-2  | No.  | 1    |             |               |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.  | 1    |             |               |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item | 1    |             |               |
| ME7                                | PV Combiner  | No.  | 1    |             |               |
| ME7a                               | Pressure Switch and Gauge - P5/8   | No.  | 1    |             |               |
| ME8                                | Sinewave filter - SWAP0017D.   | No.  | 1    |             |               |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,   | m    | 5    |             |               |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m    | 125  |             |               |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m    | 60   |             |               |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.  | 2    |             |               |
| ME11a                              | Adapter box  | No.  | 1    |             |               |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item | 1    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.3: BUWUNGIRO IN KAYUNGA DISTRICT**

**Region: Central**

## **BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|-----------|-------------|---------------|
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm               | Sum            | 1         |             |               |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                                 | Sum            | 1         |             |               |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.            | 5         |             |               |
|                                    | <b>Alarm System</b>  |                |           |             |               |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item           | 1         |             |               |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item           | 1         |             |               |
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>  |                |           |             |               |
|                                    | <b><u>Pump Protection System</u></b>   |                |           |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base. | No.            | 1         |             |               |
|                                    | <b><u>Kerbs</u></b>  |                |           |             |               |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>   |                |           |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m  | m              | 70        |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a gauge 500 polythene sheet.  | m <sup>2</sup> | 220       |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert   | m              | Rate Only |             |               |
|                                    | <b><u>Pump House</u></b>   |                |           |             |               |
| X5                                 | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.  | Sum            | 1         |             |               |
| <b>Total Carried to Collection</b> |  |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.3: BUWUNGIRO IN KAYUNGA DISTRICT

Region: Central

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No. | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|------|-----------|-------------|---------------|
|          | <b><u>Fences</u></b>  |      |           |             |               |
| X6a      | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m    | 80        |             |               |
| X6b      | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m    | 120       |             |               |
|          | <b><u>Gates</u></b>   |      |           |             |               |
| X7       | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.  | 2         |             |               |
|          | <b><u>Training of Operator's staff</u></b>  |      |           |             |               |
| X8       | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval  | Sum  | 1         |             |               |
|          | <b><u>Operation and Maintenance Manuals</u></b>   |      |           |             |               |
| X9       | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum  | 1         |             |               |
| XX       | Horizontal pump installation option out of flanged/ sealed end HDPE culvert pipe mounted on fabricated GI support structure including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/005.       | Item | Rate Only |             |               |

**Total Carried to Collection**

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No. | Description                  |  |  |  | Amount (UGx.) |
|----------|------------------------------|--|--|--|---------------|
|          | <b>Bill No. 1 Collection</b> |  |  |  |               |
|          | Page 2                       |  |  |  |               |
|          | Page 3                       |  |  |  |               |
|          | Page 4                       |  |  |  |               |
|          | Page 5                       |  |  |  |               |
|          | Page 6                       |  |  |  |               |
|          | Page 7                       |  |  |  |               |

**Total Bill No. 1 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.3: BUWUNGIRO IN KAYUNGA DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.  | Item | 1         |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Galvanised steel pipes with threaded joints, include unions/sockets, all to ISO 2531 and to PN10, laid in trench of the following sizes and depths</u></b>  |      |           |             |               |
|                                    | <u>Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes;</u>  |      |           |             |               |
| 2.1                                | DN75mm, in trenches; depths not exceeding 1.5m  | m    | 12        |             |               |
|                                    | <b><u>HDPE Pipes</u></b>  |      |           |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>  |      |           |             |               |
| 3.1                                | OD75mm HDPE PN10  | m    | 290       |             |               |
|                                    | <b><u>uPVC Pipes</u></b>  |      |           |             |               |
|                                    | <u>uPVC pressure pipes to UNBS US 264: 2000 and DIN 8062 with integral rubber ring socket joints laid in trenches</u>   |      |           |             |               |
|                                    | <u>OD110 to PN 10</u>   |      |           |             |               |
| 4.1                                | Depth not exceeding 1.5m  | m    | Rate Only |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>   |      |           |             |               |
|                                    | <b><u>Bends</u></b>   |      |           |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |           |             |               |
| 5.1                                | DN65mm  | No.  | 4         |             |               |
|                                    | <b><u>Bulk Flow Meters</u></b>  |      |           |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |           |             |               |
| 6.1                                | DN65mm PN10   | No.  | 1         |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.3: BUWUNGIRO IN KAYUNGA DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
| <b>7</b>                           | <b>Equal Adapters</b>  |      |           |             |               |
| 7.1                                | OD90 female adapter  | No.  | 2         |             |               |
| <b>8</b>                           | <b><u>Valves and Penstocks</u></b>   |      |           |             |               |
|                                    | <b><u>Air Valves</u></b>   |      |           |             |               |
|                                    | <u>Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                          |      |           |             |               |
| 8.1                                | DN65mm   | No.  | 1         |             |               |
| <b>9</b>                           | <b><u>Washouts</u></b>   |      |           |             |               |
|                                    | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |           |             |               |
| 9.1                                | DN65mm   | No.  | 2         |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b>   |      |           |             |               |
|                                    | <b><u>Other Chambers</u></b>   |      |           |             |               |
|                                    | <u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>   |      |           |             |               |
| 10.1                               | Depth not exceeding 1.5m   | No.  | 2         |             |               |
|                                    | <b><u>Valve Surface Boxes</u></b>  |      |           |             |               |
|                                    | <u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u>  |      |           |             |               |
| 10.2                               | Depth not exceeding 1.5m   | No.  | 2         |             |               |
|                                    | <b><u>Reinstatement</u></b>  |      |           |             |               |
| <b>11</b>                          | <b><u>Roads</u></b>  |      |           |             |               |
|                                    | <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>   |      |           |             |               |
| 11.1                               | Not exceeding DN300mm  | m    | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.3: BUWUNGIRO IN KAYUNGA DISTRICT

Region: Central

**BILL No.2 : TRANSMISSION MAINS**

| Item No. | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|------|-----------|-------------|---------------|
| 12       | <b><u>Surrounds</u></b><br><u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u>                             |      |           |             |               |
| 12.1     | Not exceeding DN200mm   | m    | Rate Only |             |               |
|          | <u>Pipe surrounds, of imported granular material, for the following pipe sizes</u>  |      |           |             |               |
| 12.2     | Not exceeding DN200mm   | m    | 30        |             |               |
|          | <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u>   |      |           |             |               |
| 12.3     | Not exceeding DN200mm   | m    | 25        |             |               |
| 13       | <b><u>Concrete Stools and Thrust Blocks</u></b>   |      |           |             |               |
|          | <b><u>Thrust Blocks</u></b><br><u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes</u> |      |           |             |               |
| 13.1     | Diameter not exceeding DN200mm  | No.  | Rate Only |             |               |
|          | <b><u>Other Pipework Ancillaries</u></b>  |      |           |             |               |
|          | <b><u>Marker Posts</u></b>  |      |           |             |               |
| 14       | Marker posts for pipes, gate valves, air valves, washouts.  | No.  | 15        |             |               |

**Total Carried to Collection**

**BILL No. 2 : TRANSMISSION MAINS**

| Item No. | Description                   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|-------------------------------|------|------|-------------|---------------|
|          | <b>Bill No. .2 Collection</b> |      |      |             |               |
|          | Page 6                        |      |      |             |               |
|          | Page 7                        |      |      |             |               |
|          | Page 8                        |      |      |             |               |

**Total Bill No. 2 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.3: BUWUNGIRO IN KAYUNGA DISTRICT

Region: Central

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.   | Item | 1    |             |               |
| 2                                  | <b><u>Reservoir</u></b>   |      |      |             |               |
|                                    | <u>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc., painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.</u>  |      |      |             |               |
| 2.1                                | Height; 6.0m for (4No. x 10m <sup>3</sup> Tanks)  | No.  | 1    |             |               |
| 3                                  | <b><u>Plastic Tanks</u></b>   |      |      |             |               |
|                                    | Supply and install a vertical cylindrical Rotational Moulded Polyethylene Water Storage Tank to DUS 1560: 2013 as manufactured by Ms. Gentex Ltd. / Crest Tanks or any other approved complete with a lockable access man ways, inlet/ riser, ball float valve, overflow with insect screen, float type water level indicator and outlet/ down pipe with a strainer, washout and overflow connection, including interconnecting pipe work and fittings, as detailed in the drawings, supply specifications and of the following capacity. |      |      |             |               |
| 3.1                                | 10m <sup>3</sup>  | No.  | 4    |             |               |
| 4                                  | <u>150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>   |      |      |             |               |
| 4.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| 5                                  | <u>150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u>   |      |      |             |               |
|                                    | [OPTIONAL]  |      |      |             |               |
| 5.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.3: BUWUNGIRO IN KAYUNGA DISTRICT

Region: Central

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|----------------|-----------|-------------|---------------|
| <b>6</b> | <b><u>Landscaping and Walkways</u></b>  |                |           |             |               |
| 6.1      | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2      | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murrum fill. | No.            | Rate Only |             |               |
| <b>7</b> | <b><u>Fences</u></b>  |                |           |             |               |
| 7.1      | Galvanized wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|          | <b><u>Gates</u></b>   |                |           |             |               |
| 7.2      | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 2         |             |               |
|          | <b><u>Provision and Placing of Concrete</u></b><br><b><u>Ordinary Designed Mix Concrete</u></b>   |                |           |             |               |
| <b>8</b> | <b><u>Designed mix concrete, to BS 5328, with ordinary Portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u></b>         |                |           |             |               |
| 8.1      | Grade C15   | m <sup>3</sup> | 2         |             |               |

**Total Carried to Collection**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|------------------------------|------|------|-------------|---------------|
|          | <b>Bill No. 3 Collection</b> |      |      |             |               |
|          | Page 10                      |      |      |             |               |
|          | Page 11                      |      |      |             |               |

**Total Bill No.3 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.3: BUWUNGIRO IN KAYUNGA DISTRICT

Region: Central

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |      |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                            | Item | 1    |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>  |      |      |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br><u>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m</u> |      |      |             |               |
| 2.1                                | OD63mm PN6  | m    | 235  |             |               |
| 2.2                                | OD75mm PN6  | m    | 108  |             |               |
| 2.3                                | OD90mm PN6  | m    | 248  |             |               |
|                                    | <b><u>uPVC Pipes</u></b><br><u>uPVC pressure pipes to UNBS US 264: 2000 and DIN 8062 with integral rubber ring socket joints laid in trenches</u>                                       |      |      |             |               |
| 2.4                                | <u>OD110 to PN 6</u><br>Depth not exceeding 1.5m  | m    | 167  |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |      |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |      |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>   |      |      |             |               |
| 3                                  | <b><u>Equal tees</u></b>  |      |      |             |               |
| 3.1                                | OD110mm   | No.  | 1    |             |               |
| 3.3                                | OD75mm  | No.  | 4    |             |               |
| 3.4                                | OD63mm  | No.  | 1    |             |               |
|                                    | <b><u>Unequal tees</u></b>  |      |      |             |               |
| 3.5                                | OD110 x 90mm  | No.  | 1    |             |               |
| 3.6                                | OD110 x 63mm  | No.  | 3    |             |               |
| 3.7                                | OD90 x 75mm   | No.  | 1    |             |               |
| 3.8                                | OD90 x 63mm   | No.  | 2    |             |               |
| 3.9                                | OD75 x 63mm   | No.  | 1    |             |               |
|                                    | <b><u>Bends</u></b>   |      |      |             |               |
| 3.10                               | OD63mm  | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.3: BUWUNGIRO IN KAYUNGA DISTRICT

Region: Central

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b>PN10 HDPE Compression fitting to DIN 8074/BS 5114</b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| <b>4</b>                           | <b><u>Couplers</u></b>  |      |           |             |               |
| 4.1                                | OD110mm   | No.  | Rate Only |             |               |
| 4.2                                | OD90mm  | No.  | Rate Only |             |               |
| 4.3                                | OD75mm  | No.  | Rate Only |             |               |
| 4.4                                | OD63mm  | No.  | Rate Only |             |               |
| <b>5</b>                           | <b><u>End caps</u></b>  |      |           |             |               |
| 5.1                                | OD63mm  | No.  | 15        |             |               |
| 5.2                                | OD50mm  | No.  | Rate Only |             |               |
| <b>6</b>                           | <b><u>Valves and Penstocks</u></b>  |      |           |             |               |
|                                    | <b><u>Air Valves</u></b>  |      |           |             |               |
|                                    | Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.  |      |           |             |               |
| 6.1                                | OD110mm   | No.  | 2         |             |               |
| <b>7</b>                           | <b><u>Washouts</u></b>  |      |           |             |               |
|                                    | Washout as specified in the drawings, complete with plastic compression pipe fittings: tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |           |             |               |
| 7.1                                | DN100mm   | No.  | 2         |             |               |
| <b>8</b>                           | <b><u>Farm Gate Connections</u></b>   |      |           |             |               |
|                                    | Make DN50mm Irrigation Water Supply Hydrant connection to the   |      |           |             |               |
| 8.1                                | DN65mm  | No.  | Rate Only |             |               |
| 8.2                                | DN50mm  | No.  | 15        |             |               |
|                                    | <b><u>Other Pipework Ancillaries</u></b>  |      |           |             |               |
|                                    | <b><u>Marker Posts</u></b>  |      |           |             |               |
| 9                                  | Marker posts for pipes, gate valves, air valves, washouts.  | No.  | 30        |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.3: BUWUNGIRO IN KAYUNGA DISTRICT

Region: Central

**BILL No. 4 : DISTRIBUTION NETWORK**

| Item No.  | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|---|------------------------------|------|------|-------------|---------------|
|   | <b>Bill No. 4 Collection</b> |      |      |             |               |
|   | Page 12                      |      |      |             |               |
|   | Page 13                      |      |      |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |                              |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.4: MPANGATI IN LUWERO DISTRICT**

**Region: Central**

**BILL SUMMARY**

| <b>Bill No.</b>                       | <b>Description</b>                      | <b>Amount (UGx.)</b> |
|---------------------------------------|---|----------------------|
|                                       | <b>WORK ITEMS</b>                       |                      |
| 1                                     | Abstraction and Electromechanical Works |                      |
| 2                                     | Transmission Mains                      |                      |
| 3                                     | Storage Reservoir Works                 |                      |
| 4                                     | Distribution Network                    |                      |
| <b>Total Carried to Grand Summary</b> |   |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.4: MPANGATI IN LUWERO DISTRICT**

**Region: Central**

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|----------------|-----------|-------------|---------------|
|                                    | <b><u>General Site Clearance</u></b>  |                |           |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer.                              | Item           | 1         |             |               |
|                                    | <b><u>Earthworks</u></b>  |                |           |             |               |
| 2.1                                | Excavation to form trapezoidal prism reservoir in material other than topsoil, rock or other artificial hard material, depth not exceeding 6.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings. | m <sup>3</sup> | 520       |             |               |
| 2.2                                | Ditto but in marshy soils   | m <sup>3</sup> | 296       |             |               |
| 2.3                                | Ditto but in soft / decomposed rock soils   | m <sup>3</sup> | 136       |             |               |
| 2.4                                | Excavation to form trapezoidal drain in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.           | m <sup>3</sup> | 345       |             |               |
| 2.5                                | Ditto but in marshy soils   | m <sup>3</sup> | 255       |             |               |
| 2.6                                | Ditto but in soft / decomposed rock soils   | m <sup>3</sup> | 165       |             |               |
|                                    | <b><u>Filling Structures</u></b>  |                |           |             |               |
|                                    | <u>Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -</u>   |                |           |             |               |
| 3.1                                | Imported rock/ hardcore fill, size 75 to 300mm hand packed or compacted by the arm of an excavator.   | m <sup>3</sup> | Rate Only |             |               |
| 3.2                                | Selected excavated material including topping with a 200mm thick layer of top/ vegetable soil.  | m <sup>3</sup> | Rate Only |             |               |
| 4                                  | Single layer of geotextile laid to manufacturer's specifications  | m <sup>2</sup> | Rate Only |             |               |
|                                    | <b><u>Landscaping</u></b>   |                |           |             |               |
| 5                                  | Turfing for lawns inside fenced off compound, including filling with excavated topsoil and the preparation of surfaces; 240m <sup>2</sup> at Intake Site and 800m <sup>2</sup> at Pump Station.   | m <sup>2</sup> | 1,050     |             |               |
| <b>Total Carried to Collection</b> |   |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.4: MPANGATI IN LUWERO DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>   |      |      |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)  |      |      |             |               |
| ME1                                | 7.5kW Submersible Pump Set with 11.0kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 55m total head; set to not more than <b>5m</b> below ground including Dry- run protection, Motor and Pump End. | No.  | 1    |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item | 1    |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings, including foundations, vandal proofing mounting to the Engineer's approval    | Sum  | 1    |             |               |
| ME4                                | PV Disconnect 1000-40-2  | No.  | 1    |             |               |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.  | 1    |             |               |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item | 1    |             |               |
| ME7                                | PV Combiner  | No.  | 1    |             |               |
| ME7a                               | Pressure Switch and Gauge - P5/8   | No.  | 1    |             |               |
| ME8                                | Sinewave filter - SWAP0017D.   | No.  | 1    |             |               |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,   | m    | 5    |             |               |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m    | 120  |             |               |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m    | 60   |             |               |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.  | 2    |             |               |
| ME11a                              | Adapter box  | No.  | 1    |             |               |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item | 1    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.4: MPANGATI IN LUWERO DISTRICT**

**Region: Central**

## **BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|-----------|-------------|---------------|
|                                    | <b><u>Earthing and Lightening Protection</u></b>   |                |           |             |               |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm | Sum            | 1         |             |               |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                   | Sum            | 1         |             |               |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.            | 5         |             |               |
|                                    | <b><u>Alarm System</u></b>   |                |           |             |               |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item           | 1         |             |               |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item           | 1         |             |               |
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>  |                |           |             |               |
|                                    | <b><u>Pump Protection System</u></b>   |                |           |             |               |
| X1                                 | Diagonal pipe sleeve pump anti-vandal protection including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/004.   | No.            | 1         |             |               |
|                                    | <b><u>Kerbs</u></b><br><u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>  |                |           |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m  | m              | 70        |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a gauge 500 polythene sheet.  | m <sup>2</sup> | 220       |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert   | m              | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |                |           |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.4: MPANGATI IN LUWERO DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.  | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|--|------|-----------|-------------|---------------|
|   | <b><u>Pump House</u></b>   |      |           |             |               |
| X5  | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.  | Sum  | 1         |             |               |
|   | <b><u>Fences</u></b>   |      |           |             |               |
| X6a   | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection</u>  | m    | 80        |             |               |
| X6b   | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.   | m    | 120       |             |               |
|   | <b><u>Gates</u></b>  |      |           |             |               |
| X7  | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.   | No.  | 2         |             |               |
|   | <b><u>Training of Operator's staff</u></b>   |      |           |             |               |
| X8  | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval   | Sum  | 1         |             |               |
|   | <b><u>Operation and Maintenance Manuals</u></b>  |      |           |             |               |
| X9  | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval   | Sum  | 1         |             |               |
| XX  | Horizontal pump installation option out of flanged/ sealed end HDPE culvert pipe mounted on fabricated GI support structure including a floating suction assembly structure to detail as per Drawing No. OIS/...../SD/011. | Item | Rate Only |             |               |
| <b>Total Carried to Collection</b>                          |  |      |           |             |               |
| <b>BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b> |  |      |           |             |               |
| Item No.  | Description  |      |           |             | Amount (UGx.) |
|   | <b>Bill No. 1 Collection</b>   |      |           |             |               |
|   | Page 2   |      |           |             |               |
|   | Page 3   |      |           |             |               |
|   | Page 4   |      |           |             |               |
|   | Page 5   |      |           |             |               |
| <b>Total Bill No. 1 Carried to Bill Summary</b>             |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.4: MPANGATI IN LUWERO DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description   | Unit | Qty.  | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |       |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |       |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.  | Item | 1     |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>   |      |       |             |               |
| 2                                  | <b><u>Steel Pipes</u></b>   |      |       |             |               |
|                                    | <u>Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes:</u>  |      |       |             |               |
| 2.1                                | Galvanised steel pipes with threaded joints, include unions/sockets, all to ISO 2531 and to PN10, laid in trench of the following sizes and depths  | m    | 12    |             |               |
| 3                                  | <b><u>HDPE Pipes</u></b>  |      |       |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>  |      |       |             |               |
| 3.1                                | OD90mm HDPE PN10  | m    | 1,263 |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |       |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>   |      |       |             |               |
| 5                                  | <b><u>Bends</u></b>   |      |       |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends. EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |       |             |               |
| 5.1                                | DN75mm  | No.  | 4     |             |               |
| 6                                  | <b><u>Bulk Flow Meters</u></b>  |      |       |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |       |             |               |
| 6.1                                | DN75mm PN10   | No.  | 1     |             |               |
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |       |             |               |
| 7                                  | <b><u>Equal Adapters</u></b>  |      |       |             |               |
| 7.1                                | OD90 female adapter   | No.  | 2     |             |               |
| <b>Total Carried to Collection</b> |   |      |       |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.4: MPANGATI IN LUWERO DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
| <b>8</b>                           | <b><u>Valves and Penstocks</u></b>  |      |           |             |               |
|                                    | <b><u>Air Valves</u></b>  |      |           |             |               |
|                                    | Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.                          |      |           |             |               |
| 8.1                                | DN75mm  | No.  | 1         |             |               |
| <b>9</b>                           | <b><u>Washouts</u></b>  |      |           |             |               |
|                                    | Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail. |      |           |             |               |
| 9.1                                | DN75mm  | No.  | 1         |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b>  |      |           |             |               |
|                                    | <b><u>Other Chambers</u></b>  |      |           |             |               |
|                                    | Masonry air valve chamber, complete as specified in the drawings, and of the following depths   |      |           |             |               |
| 10.1                               | Depth not exceeding 1.5m  | No.  | 1         |             |               |
|                                    | <b><u>Valve Surface Boxes</u></b>   |      |           |             |               |
|                                    | Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths  |      |           |             |               |
| 10.2                               | Depth not exceeding 1.5m  | No.  | 1         |             |               |
|                                    | <b><u>Reinstatement</u></b>   |      |           |             |               |
| <b>11</b>                          | <b><u>Roads</u></b>   |      |           |             |               |
|                                    | Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes   |      |           |             |               |
| 11.1                               | Not exceeding DN300mm   | m    | Rate Only |             |               |
| <b>12</b>                          | <b><u>Surrounds</u></b>   |      |           |             |               |
|                                    | Pipe surrounds, of selected excavated granular material, for the following pipe sizes   |      |           |             |               |
| 12.1                               | Not exceeding DN200mm   | m    | Rate Only |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.4: MPANGATI IN LUWERO DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

| Item No. | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|--|------|-----------|-------------|---------------|
|          | <u>Pipe surrounds, of imported granular material, for the following pipe sizes</u>                                   |      |           |             |               |
| 12.2     | Not exceeding DN200mm  | m    | 150       |             |               |
|          | <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u>  |      |           |             |               |
| 12.3     | Not exceeding DN200mm  | m    | 60        |             |               |
| 13       | <b><u>Concrete Stools and Thrust Blocks</u></b>  |      |           |             |               |
|          | <b><i>Thrust Blocks</i></b>  |      |           |             |               |
|          | <u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes</u> |      |           |             |               |
| 13.1     | Diameter not exceeding DN200mm   | No.  | Rate Only |             |               |
|          | <b><u>Other Pipework Ancillaries</u></b>   |      |           |             |               |
|          | <b><i>Marker Posts</i></b>   |      |           |             |               |
| 14       | Marker posts for pipes, gate valves, air valves, washouts.   | No.  | 40        |             |               |

**Total Carried to Collection**

**BILL No. 2 : TRANSMISSION MAINS**

| Item No. | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|------------------------------|------|------|-------------|---------------|
|          | <b>Bill No. 2 Collection</b> |      |      |             |               |
|          | Page 6                       |      |      |             |               |
|          | Page 7                       |      |      |             |               |
|          | Page 8                       |      |      |             |               |

**Total Bill No. 15.2 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.4: MPANGATI IN LUWERO DISTRICT

Region: Central

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description   | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|----------------|------|-------------|---------------|
|                                    | <b>DEMOLITION AND SITE CLEARANCE</b>  |                |      |             |               |
|                                    | <b>General Site Clearance</b>   |                |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.   | Item           | 1    |             |               |
| 2                                  | <b>Reservoir</b>  |                |      |             |               |
|                                    | <u>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc., painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.</u>  |                |      |             |               |
| 2.1                                | Height; 4.5m for (4No. x 10m <sup>3</sup> Tanks)  | No.            | 1    |             |               |
| 3                                  | <b>Plastic Tanks</b>  |                |      |             |               |
|                                    | Supply and install a vertical cylindrical Rotational Moulded Polyethylene Water Storage Tank to DUS 1560: 2013 as manufactured by Ms. Gentex Ltd. / Crest Tanks or any other approved complete with a lockable access man ways, inlet/ riser, ball float valve, overflow with insect screen, float type water level indicator and outlet/ down pipe with a strainer, washout and overflow connection, including interconnecting pipe work and fittings, as detailed in the drawings, supply specifications and of the following capacity. |                |      |             |               |
| 3.1                                | 10m <sup>3</sup>  | No.            | 4    |             |               |
| 4                                  | <u>150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>   |                |      |             |               |
| 4.1                                | DN75mm, PN10  | No.            | 1    |             |               |
| 5                                  | <u>150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u>   |                |      |             |               |
|                                    | [OPTIONAL]  |                |      |             |               |
| 5.2                                | DN75mm, PN10  | No.            | 1    |             |               |
| 6                                  | <b>Landscaping and Walkways</b>   |                |      |             |               |
| 6.1                                | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150  |             |               |
| <b>Total Carried to Collection</b> |   |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.4: MPANGATI IN LUWERO DISTRICT

Region: Central

**BILL No. .3 : STORAGE RESERVOIR WORKS**

| Item No. | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|----------------|-----------|-------------|---------------|
| 6.2      | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill. | No.            | Rate Only |             |               |
| <b>7</b> | <b><u>Fences</u></b>  |                |           |             |               |
| 7.1      | Galvanized wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|          | <b><u>Gates</u></b>   |                |           |             |               |
| 7.2      | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|          | <b>Provision and Placing of Concrete</b><br><b>Ordinary Designed Mix Concrete</b>   |                |           |             |               |
| <b>8</b> | <u>Designed mix concrete, to BS 5328, with ordinary Portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u>                |                |           |             |               |
| 8.1      | Grade C15   | m <sup>3</sup> | 2         |             |               |

**Total Carried to Collection**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|------------------------------|------|------|-------------|---------------|
|          | <b>Bill No. 3 Collection</b> |      |      |             |               |
|          | Page 9                       |      |      |             |               |
|          | Page 10                      |      |      |             |               |

**Total Bill No.3 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.4: MPANGATI IN LUWERO DISTRICT

Region: Central

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                            | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>  |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br><u>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m</u> |      |           |             |               |
| 2.1                                | OD63mm PN6  | m    | 510       |             |               |
| 2.3                                | OD90mm PN6  | m    | 509       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>  |      |           |             |               |
| 3.1                                | OD90mm  | No.  | 1         |             |               |
| 3.2                                | OD63mm  | No.  | 1         |             |               |
|                                    | <b><u>Unequal tees</u></b>  |      |           |             |               |
| 3.3                                | OD90 x 63mm   | No.  | 2         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>  |      |           |             |               |
| 4.1                                | OD90mm  | No.  | Rate Only |             |               |
| 4.2                                | OD63mm  | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>  |      |           |             |               |
| 5.1                                | OD63mm  | No.  | 4         |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.4: MPANGATI IN LUWERO DISTRICT**

**Region: Central**

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
| <b>6</b>  | <b><u>Valves and Penstocks</u></b>  |      |           |             |               |
|   | <b><u>Air Valves</u></b>  |      |           |             |               |
|   | Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.  |      |           |             |               |
| 6.1   | OD90mm  | No.  | Rate Only |             |               |
| <b>7</b>  | <b><u>Washouts</u></b>  |      |           |             |               |
|   | Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |           |             |               |
| 7.2   | DN75mm  | No.  | 1         |             |               |
| 7.4   | DN50mm  | No.  | 1         |             |               |
| <b>8</b>  | <b><u>Farm Gate Connections</u></b>   |      |           |             |               |
|   | Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and lockable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -   |      |           |             |               |
| 8.4   | DN50mm  | No.  | 4         |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>  |      |           |             |               |
|   | <b><u>Marker Posts</u></b>  |      |           |             |               |
| 9   | Marker posts for pipes, gate valves, air valves, washouts.  | No.  | 21        |             |               |
| <b>Total Carried to Collection</b>              |   |      |           |             |               |
|   | <b>Bill No. 4 Collection</b>  |      |           |             |               |
|   | Page 13   |      |           |             |               |
|   | Page 14   |      |           |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |   |      |           |             |               |



# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.5: MAWUNDWE IN MITYANA DISTRICT**

**Region: Central**

## **BILL SUMMARY**

| Bill No.                              | Description                             | Amount (UGx.) |
|---------------------------------------|---|---------------|
|                                       | <b>WORK ITEMS</b>                       |               |
| 1                                     | Abstraction and Electromechanical Works |               |
| 2                                     | Transmission Mains                      |               |
| 3                                     | Storage Reservoir Works                 |               |
| 4                                     | Distribution Network                    |               |
| <b>Total Carried to Grand Summary</b> |   |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 3.5: MAWUNDWE IN MITYANA DISTRICT

Region: Central

## BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
|                                    | <b><u>General Site Clearance</u></b>   |                |      |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer. | Item           | 1    |             |               |
|                                    | <b><u>Landscaping</u></b>  |                |      |             |               |
| 2                                  | Turfing for lawns inside fenced off compound, including filling with excavated topsoil and the preparation of surfaces; 40m <sup>2</sup> at Intake Site and 800m <sup>2</sup> at Pump Station.   | m <sup>2</sup> | 840  |             |               |
| 3                                  | Reinforced concrete pipe support/ pedestal to detail as per Drawings.  | No.            | 2    |             |               |
|                                    | <b>MISCELLANEOUS METAL WORK</b>  |                |      |             |               |
|                                    | <b>Pump Protection System</b>  |                |      |             |               |
| 4.1                                | Diagonal pipe pump stilling tube/ anti-vandal protection sleeve structure to detail as per Drawing No. OIS/NUC/SD/010, including 1.5x1.5x0.3m support base.  | Item           | 1    |             |               |
| 4.2                                | Purpose -made pipe support structure made of welded GI pipes to detail as per Drawings.  | Item           | 1    |             |               |
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>   |                |      |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)  |                |      |             |               |
| ME1                                | 11.0kW Submersible Pump Set with 15kW Pumping Inverter with Data Module, rated flow Q = 15 m <sup>3</sup> /hr., rated head H = 160m total head; set to not more than <b>5m</b> below ground including Dry- run protection, Motor and Pump End.   | No.            | 1    |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item           | 1    |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings, including foundations, vandal proofing mounting to the Engineer's approval  | Sum            | 1    |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 3.5: MAWUNDWE IN MITYANA DISTRICT

Region: Central

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
| ME4                                | PV Disconnect 1000-40-2  | No.  | 1    |             |               |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.  | 1    |             |               |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item | 1    |             |               |
| ME7                                | PV Combiner  | No.  | 1    |             |               |
| ME7a                               | Pressure Switch and Gauge - P6/12  | No.  | 1    |             |               |
| ME8                                | Sinewave filter - SWAP0022D.   | No.  | 1    |             |               |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,   | m    | 5    |             |               |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m    | 100  |             |               |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m    | 60   |             |               |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.  | 2    |             |               |
| ME11a                              | Adapter box  | No.  | 1    |             |               |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item | 1    |             |               |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm | Sum  | 1    |             |               |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                   | Sum  | 1    |             |               |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.  | 5    |             |               |
|                                    | <b>Alarm System</b>  |      |      |             |               |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item | 1    |             |               |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item | 1    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 3.5: MAWUNDWE IN MITYANA DISTRICT

Region: Central

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>   |      |           |             |               |
|                                    | <b><u>Pump Protection System</u></b>  |      |           |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base.              | No.  | 0         |             |               |
|                                    | <b><u>Kerbs</u></b>   |      |           |             |               |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m² to the following alignment: -</u>   |      |           |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m   | m    | 70        |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a gauge 500 polythene sheet.   | m²   | 220       |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert  | m    | Rate Only |             |               |
|                                    | <b><u>Pump House</u></b>  |      |           |             |               |
| X5                                 | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.   | Sum  | 1         |             |               |
|                                    | <b><u>Fences</u></b>  |      |           |             |               |
| X6a                                | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m    | 80        |             |               |
| X6b                                | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m    | 120       |             |               |
|                                    | <b><u>Gates</u></b>   |      |           |             |               |
| X7                                 | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.  | 2         |             |               |
|                                    | <b><u>Training of Operator's staff</u></b>  |      |           |             |               |
| X8                                 | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval  | Sum  | 1         |             |               |
|                                    | <b><u>Operation and Maintenance Manuals</u></b>   |      |           |             |               |
| X9                                 | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum  | 1         |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

## CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

### Scheme ID. 3.5: MAWUNDWE IN MITYANA DISTRICT

Region: Central

| BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS |   |  |  |  |               |
|--|---|--|--|--|---------------|
| Item No.   | Description   |  |  |  | Amount (UGx.) |
|  | <p align="center"><b>Bill No. 1 Collection</b></p> <p align="center">Page 2</p> <p align="center">Page 3</p> <p align="center">Page 4</p> |  |  |  |               |
| Total Bill No. 1 Carried to Bill Summary             |   |  |  |  |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.5: MAWUNDWE IN MITYANA DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.     | Item | 1         |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>  |      |           |             |               |
| 2                                  | <b><u>Galvanised steel pipes with threaded joints, include unions/sockets, all to ISO 2531 and to PN10, laid in trench of the following sizes and depths</u></b> |      |           |             |               |
|                                    | <u>Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes;</u>                                     |      |           |             |               |
| 2.1                                | DN75mm, in trenches; depths not exceeding 1.5m   | m    | 12        |             |               |
|                                    | <b><u>HDPE Pipes</u></b>   |      |           |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>   |      |           |             |               |
| 3.1                                | OD90mm HDPE PN10   | m    | 1,248     |             |               |
|                                    | <b><u>uPVC Pipes</u></b>   |      |           |             |               |
|                                    | <u>uPVC pressure pipes to UNBS US 264: 2000 and DIN 8062 with integral rubber ring socket joints laid in trenches</u>  |      |           |             |               |
|                                    | <u>OD110 to PN 10</u>  |      |           |             |               |
| 4.1                                | Depth not exceeding 1.5m   | m    | Rate Only |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>  |      |           |             |               |
| 5                                  | <b><u>Bends</u></b>  |      |           |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, EN 10242:1995, all to PN 10, and of the following sizes</u>  |      |           |             |               |
| 5.1                                | DN75mm   | No.  | 4         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.5: MAWUNDWE IN MITYANA DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
| 6                                  | <b>Bulk Flow Meters</b><br><u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u>  |      |      |             |               |
| 6.1                                | DN75mm PN10   | No.  | 1    |             |               |
|                                    | <b>PN16 HDPE Compression fitting to DIN 8074/BS 5114</b>  |      |      |             |               |
| 7                                  | <b>Equal Adapters</b>   |      |      |             |               |
| 7.1                                | OD90 female adapter   | No.  | 2    |             |               |
| 8                                  | <b>Valves and Penstocks</b>   |      |      |             |               |
|                                    | <b>Air Valves</b><br><u>Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                        |      |      |             |               |
| 8.4                                | DN75mm  | No.  | 1    |             |               |
| 9                                  | <b>Washouts</b><br><u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |      |             |               |
| 9.1                                | DN75mm  | No.  | 1    |             |               |
|                                    | <b>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</b>   |      |      |             |               |
|                                    | <b>Other Chambers</b><br><u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>   |      |      |             |               |
| 10.1                               | Depth not exceeding 1.5m  | No.  | 2    |             |               |
|                                    | <b>Valve Surface Boxes</b><br><u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u>   |      |      |             |               |
| 10.2                               | Depth not exceeding 1.5m  | No.  | 2    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.5: MAWUNDWE IN MITYANA DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.  | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|--|------|-----------|-------------|---------------|
| 11  | <b><u>Reinstatement Roads</u></b><br><u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>  |      |           |             |               |
| 11.1  | Not exceeding DN300mm  | m    | 12        |             |               |
| 12  | <b><u>Surrounds</u></b><br><u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u>  |      |           |             |               |
| 12.1  | Not exceeding DN200mm  | m    | Rate Only |             |               |
|   | <u>Pipe surrounds, of imported granular material, for the following pipe sizes</u>   |      |           |             |               |
| 12.2  | Not exceeding DN200mm  | m    | 200       |             |               |
|   | <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u>  |      |           |             |               |
| 12.3  | Not exceeding DN200mm  | m    | 30        |             |               |
| 13  | <b><u>Concrete Stools and Thrust Blocks</u></b><br><br><b><u>Thrust Blocks</u></b><br><u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes</u> |      |           |             |               |
| 13.1  | Diameter not exceeding DN200mm   | No.  | Rate Only |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b><br><b><u>Marker Posts</u></b>   |      |           |             |               |
| 14  | Marker posts for pipes, gate valves, air valves, washouts.   | No.  | 42        |             |               |
| <b>Total Carried to Collection</b>              |  |      |           |             |               |
|   | <b>Bill No. 2 Collection</b><br><br>Page 6<br><br>Page 7<br><br>Page 8   |      |           |             |               |
| <b>Total Bill No. 2 Carried to Bill Summary</b> |  |      |           |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.5: MAWUNDWE IN MITYANA DISTRICT

Region: Central

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.   | Item | 1    |             |               |
| 2                                  | <b><u>Reservoir</u></b>   |      |      |             |               |
|                                    | Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc., painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.   |      |      |             |               |
| 2.1                                | Height; 6.0m for (4No. x 10m <sup>3</sup> Tanks)  | No.  | 1    |             |               |
| 3                                  | <b><u>Plastic Tanks</u></b>   |      |      |             |               |
|                                    | Supply and install a vertical cylindrical Rotational Moulded Polyethylene Water Storage Tank to DUS 1560: 2013 as manufactured by Ms. Gentex Ltd. / Crest Tanks or any other approved complete with a lockable access man ways, inlet/ riser, ball float valve, overflow with insect screen, float type water level indicator and outlet/ down pipe with a strainer, washout and overflow connection, including interconnecting pipe work and fittings, as detailed in the drawings, supply specifications and of the following capacity. |      |      |             |               |
| 3.1                                | 10m <sup>3</sup>  | No.  | 4    |             |               |
| 4                                  | <u>150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>   |      |      |             |               |
| 4.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| 5                                  | <u>150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u>   |      |      |             |               |
|                                    | [OPTIONAL]  |      |      |             |               |
| 5.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.5: MAWUNDWE IN MITYANA DISTRICT

Region: Central

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|----------------|-----------|-------------|---------------|
| <b>6</b> | <b><u>Landscaping and Walkways</u></b>  |                |           |             |               |
| 6.1      | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2      | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill. | No.            | Rate Only |             |               |
| <b>7</b> | <b><u>Fences</u></b>  |                |           |             |               |
| 7.1      | Galvanized wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|          | <b><u>Gates</u></b>   |                |           |             |               |
| 7.2      | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|          | <b><u>Provision and Placing of Concrete</u></b><br><b><u>Ordinary Designed Mix Concrete</u></b>   |                |           |             |               |
| <b>8</b> | <b><u>Designed mix concrete, to BS 5328, with ordinary Portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u></b>         |                |           |             |               |
| 8.1      | Grade C15   | m <sup>3</sup> | 1         |             |               |

**Total Carried to Collection**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|------------------------------|------|------|-------------|---------------|
|          | <b>Bill No. 3 Collection</b> |      |      |             |               |
|          | Page 9                       |      |      |             |               |
|          | Page 10                      |      |      |             |               |

**Total Bill No. 3 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.5: MAWUNDWE IN MITYANA DISTRICT

Region: Central

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                     | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m |      |           |             |               |
| 2.1                                | OD63mm PN6   | m    | 943       |             |               |
| 2.2                                | OD75mm PN6   | m    | 684       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>   |      |           |             |               |
| 3.1                                | OD75mm   | No.  | 3         |             |               |
| 3.2                                | OD63mm   | No.  | 3         |             |               |
|                                    | <b><u>Unequal tees</u></b>   |      |           |             |               |
| 3.3                                | OD90 x 75mm  | No.  | Rate Only |             |               |
| 3.4                                | OD90 x 63mm  | No.  | Rate Only |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>   |      |           |             |               |
| 4.1                                | OD90mm   | No.  | Rate Only |             |               |
| 4.2                                | OD75mm   | No.  | Rate Only |             |               |
| 4.3                                | OD63mm   | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>   |      |           |             |               |
| 5.1                                | OD63mm   | No.  | 5         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.5: MAWUNDWE IN MITYANA DISTRICT

Region: Central

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.  | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|---|---|------|------|-------------|---------------|
| <b>6</b>  | <b><u>Valves and Penstocks</u></b>  |      |      |             |               |
|   | <b><u>Air Valves</u></b>  |      |      |             |               |
|   | Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.  |      |      |             |               |
| 6.3   | OD75mm  | No.  | 1    |             |               |
| <b>7</b>  | <b><u>Washouts</u></b>  |      |      |             |               |
|   | Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |      |             |               |
| 7.4   | DN50mm  | No.  | 1    |             |               |
| <b>8</b>  | <b><u>Farm Gate Connections</u></b>   |      |      |             |               |
|   | Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and lockable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -   |      |      |             |               |
| 8.4   | DN50mm  | No.  | 5    |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>  |      |      |             |               |
|   | <b><u>Marker Posts</u></b>  |      |      |             |               |
| 9   | Marker posts for pipes, gate valves, air valves, washouts.  | No.  | 34   |             |               |
| <b>Total Carried to Collection</b>              |   |      |      |             |               |
|   | <b>Bill No. 4 Collection</b>  |      |      |             |               |
|   | Page 11   |      |      |             |               |
|   | Page 12   |      |      |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.6: NVUNANWA IN NAKASEKE DISTRICT**

**Region: Central**

**BILL SUMMARY**

| Bill No. | Description  | Amount (UGx.) |
|----------|--|---------------|
|          | <p><b>WORK ITEMS</b></p> <p>1 Abstraction and Electromechanical Works</p> <p>2 Transmission Mains</p> <p>3 Storage Reservoir Works</p> <p>4 Distribution Network</p> |               |
|          | <b>Total Carried to Grand Summary</b>  |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.6: NVUNANWA IN NAKASEKE DISTRICT**

**Region: Central**

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
|                                    | <b><u>General Site Clearance</u></b>   |                |      |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer.   | Item           | 1    |             |               |
|                                    | <b><u>Earthworks</u></b>   |                |      |             |               |
|                                    | Excavation to form trapezoidal prism reservoir in material other than topsoil, rock or other artificial hard material, depth not exceeding 6.0m including forming earth bands along the channel of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings. |                |      |             |               |
| 2.1                                | Marshy soils   | m <sup>3</sup> | 52   |             |               |
| 2.2                                | Soft / decomposed rock soils   | m <sup>3</sup> | 26   |             |               |
|                                    | Excavation to form trapezoidal channel in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                        |                |      |             |               |
| 2.4                                | Marshy soils   | m <sup>3</sup> | 56   |             |               |
| 2.5                                | Soft / decomposed rock soils   | m <sup>3</sup> | 14   |             |               |
|                                    | Excavation to form cylindrical sump well in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                      |                |      |             |               |
| 2.6                                | Marshy soils   | m <sup>3</sup> | 16   |             |               |
| 2.7                                | Soft / decomposed rock soils   | m <sup>3</sup> | 8    |             |               |
|                                    | <b><u>Fillinn Structures</u></b>   |                |      |             |               |
| 3                                  | Selected excavated material including topping with a 200mm thick layer of top/ vegetable soil.   | m <sup>3</sup> | 10   |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.6: NVUNANWA IN NAKASEKE DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| <b>Item No.</b>                    | <b>Description</b>   | <b>Unit</b>    | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
|------------------------------------|--|----------------|-------------|--------------------|----------------------|
| 4                                  | <b>Landscaping</b><br>Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.  | m <sup>2</sup> | 40          |                    |                      |
|                                    | <b>IN-SITU CONCRETE</b><br><b>Provision and Placing of Concrete</b><br><b>Ordinary Design Mix Concrete</b><br><u>Designed mix , concrete to BS 8500 and BS EN 206-1, with ordinary portland cement to BS 12, aggregate to BS 882 , maximum aggregate size : 20mm for the following structures: -</u> |                |             |                    |                      |
| 5                                  | <b>In situ Concrete</b><br>75mm thick Grade C15 concrete blinding to pump sump base  | m <sup>3</sup> | 0.25        |                    |                      |
| 6.1                                | 1800mm Diameter x 150mm thick Grade C25 concrete base slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float.  | Item           | 1           |                    |                      |
| 6.2                                | 1800mm Diameter x 150mm thick Grade C25 concrete top slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float and forming a 600 x 600mm opening for the inspection cover (MS).   | Item           | 1           |                    |                      |
|                                    | <b>Pre-cast Concrete</b><br><b>Pump Well/ Sump</b><br>Supply and install 100mm thick precast reinforced concrete vertical culverts on concrete base slab (MS) ; complete with water tight jointing and finishing works to approval.  |                |             |                    |                      |
| 7                                  | Internal diameter ; 1200mm   | Item           | 1           |                    |                      |
|                                    | <b>Concrete Inserts</b><br><b>Cast or Spun Iron Pipe Fittings.</b><br>Flanged, puddled and plain end pipe insert projecting from one face of the concrete, all to PN6 and of the following sizes and lengths, including supply of the pipe and as shown in the drawings.                             |                |             |                    |                      |
| 8                                  | 200mm ND and not exceeding 0.5m length   | No.            | 2           |                    |                      |
|                                    | <b>Adaptors</b><br>Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:-  |                |             |                    |                      |
| 9                                  | 200 mm ND  | No.            | 2           |                    |                      |
| <b>Total Carried to Collection</b> |  |                |             |                    |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.6: NVUNANWA IN NAKASEKE DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| <b>Item No.</b>                    | <b>Description</b>   | <b>Unit</b> | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
|------------------------------------|--|-------------|-------------|--------------------|----------------------|
| 10                                 | OD225mm PN10 plain end uPVC pipe connection between Silt Trap Basin and Pump Sump.   | m           | 8           |                    |                      |
|                                    | <b>Bellmouths</b>  |             |             |                    |                      |
| 11                                 | Flanged bellmouth to ISO 2531, flanges to ISO 2441, of the following sizes all to PN 6<br>200 mm ND  | No.         | 1           |                    |                      |
|                                    | <b>PIPEWORK - FITTINGS AND VALVES</b>  |             |             |                    |                      |
|                                    | <b>Gate Valves: Hand Operated</b>  |             |             |                    |                      |
| 12                                 | DN 200 mm all flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 6 for operation by tee key, with extension spindle not exceeding 4.5 metres long, and of the following sizes                       |             |             |                    |                      |
|                                    | <b>MISCELLANEOUS WORK</b>  |             |             |                    |                      |
|                                    | <b>Ladders</b>   |             |             |                    |                      |
| 13                                 | Internal galvanized mild steel ladder to BS 4211, galvanized to BS 729, complete and as shown in the drawings including fixing to precast concrete units..   | m           | 8           |                    |                      |
|                                    | <b>Steel grating</b>   |             |             |                    |                      |
| 14.1                               | Galvanized iron Coarse Trash Screen as detailed in the drawings.   | No.         | 1           |                    |                      |
| 14.2                               | Galvanized iron Fine Trash Screen as detailed in the drawings.   | No.         | 1           |                    |                      |
|                                    | <b>Pump Well/ Sump</b>   |             |             |                    |                      |
|                                    | Supply and install 8.0m long HDPE vertical culverts on concrete base slab (MS) ; complete with a Single ND200mm flanged branch to receive a ND200 gate valve. Branch height/ positioning to be determined on site. | Item        | Rate Only   |                    |                      |
| 15                                 | Internal diameter ; 1200x200mm   |             |             |                    |                      |
|                                    | <b>Stone pitched Channel.</b>  |             |             |                    |                      |
| 16                                 | 3.0 x 1.5 top x bottom width x 1.5m deep maximum trapezoidal lined drain as detailed in the drawing.   | m           | 5           |                    |                      |
|                                    | <b>Gabion boxes</b>  |             |             |                    |                      |
| 17                                 | PVC coated gabion boxes ; size 1m x 1m x 1m; including rockfill of size 100 - 250mm; as instructed by the Engineer   | nr          | Rate Only   |                    |                      |
| <b>Total Carried to Collection</b> |  |             |             |                    |                      |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.6: NVUNANWA IN NAKASEKE DISTRICT**

**Region: Central**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>  |      |      |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)   |      |      |             |               |
| ME1                                | 7.5kW Submersible Pump Set with 11.0kW Pumping Inverter with Data Module, rated flow Q = 15 m <sup>3</sup> /hr., rated head H = 100m total head; set to not more than <u>5m</u> below ground including Dry- run protection, Motor and Pump End. | No.  | 1    |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.  | Item | 1    |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings, including foundations, vandal proofing mounting to the Engineer's approval     | Sum  | 1    |             |               |
| ME4                                | PV Disconnect 1000-40-2   | No.  | 1    |             |               |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.   | No.  | 1    |             |               |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.   | Item | 1    |             |               |
| ME7                                | PV Combiner   | No.  | 1    |             |               |
| ME7a                               | Pressure Switch and Gauge - P6/12   | No.  | 1    |             |               |
| ME8                                | Sinewave filter - SWAP0017D.  | No.  | 1    |             |               |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,  | m    | 5    |             |               |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.   | m    | 150  |             |               |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.   | m    | 60   |             |               |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors   | No.  | 2    |             |               |
| ME11a                              | Adapter box   | No.  | 1    |             |               |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.   | Item | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 3.6: NVUNANWA IN NAKASEKE DISTRICT

Region: Central

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|-----------|-------------|---------------|
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm               | Sum            | 1         |             |               |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                                 | Sum            | 1         |             |               |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.            | 5         |             |               |
|                                    | <b>Alarm System</b>  |                |           |             |               |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item           | 1         |             |               |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item           | 1         |             |               |
|                                    | <b>MISCELLANEOUS WORKS</b>   |                |           |             |               |
|                                    | <b>Pump Protection System</b>  |                |           |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base. | No.            | 1         |             |               |
|                                    | <b>Kerbs</b>   |                |           |             |               |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>   |                |           |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m  | m              | 70        |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a gauge 500 polythene sheet.  | m <sup>2</sup> | 220       |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert   | m              | Rate Only |             |               |
|                                    | <b>Pump House</b>  |                |           |             |               |
| X5                                 | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.  | Sum            | 1         |             |               |
|                                    | <b>Fences</b>  |                |           |             |               |
| <b>Total Carried to Collection</b> |  |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.6: NVUNANWA IN NAKASEKE DISTRICT

Region: Central

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No. | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|------|-----------|-------------|---------------|
| X6a      | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m    | 80        |             |               |
| X6b      | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m    | 120       |             |               |
|          | <b><u>Gates</u></b>   |      |           |             |               |
| X7       | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.  | 2         |             |               |
|          | <b><u>Training of Operator's staff</u></b>  |      |           |             |               |
| X8       | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval  | Sum  | 1         |             |               |
|          | <b><u>Operation and Maintenance Manuals</u></b>   |      |           |             |               |
| X9       | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum  | 1         |             |               |
| XX       | Horizontal pump installation option out of flanged/ sealed end HDPE culvert pipe mounted on fabricated GI support structure including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/005.       | Item | Rate Only |             |               |

**Total Carried to Collection**

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.  | Description                  |  |  |  | Amount (UGx.) |
|---|------------------------------|--|--|--|---------------|
|   | <b>Bill No. 1 Collection</b> |  |  |  |               |
|   | Page 2                       |  |  |  |               |
|   | Page 3                       |  |  |  |               |
|   | Page 4                       |  |  |  |               |
|   | Page 5                       |  |  |  |               |
|   | Page 6                       |  |  |  |               |
|   | Page 7                       |  |  |  |               |
| <b>Total Bill No. 1 Carried to Bill Summary</b> |                              |  |  |  |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.6: NVUNANWA IN NAKASEKE DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description   | Unit | Qty.  | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |       |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |       |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.  | Item | 1     |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>   |      |       |             |               |
| 2                                  | <b><u>Steel Pipes</u></b>   |      |       |             |               |
|                                    | <u>Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes:</u>  |      |       |             |               |
| 2.1                                | DN75mm, in trenches; depths not exceeding 1.5m  | m    | 12    |             |               |
| 3                                  | <b><u>HDPE Pipes</u></b>  |      |       |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>  |      |       |             |               |
| 3.1                                | OD75mm HDPE PN16  | m    | 1,100 |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |       |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>   |      |       |             |               |
| 5                                  | <b><u>Bends</u></b>   |      |       |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |       |             |               |
| 5.1                                | DN65mm  | No.  | 4     |             |               |
| 6                                  | <b><u>Bulk Flow Meters</u></b>  |      |       |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |       |             |               |
| 6.1                                | DN65mm PN10   | No.  | 1     |             |               |
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |       |             |               |
| 7                                  | <b><u>Equal Adapters</u></b>  |      |       |             |               |
| 7.1                                | OD90 female adapter   | No.  | 2     |             |               |
| <b>Total Carried to Collection</b> |   |      |       |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.6: NVUNANWA IN NAKASEKE DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| <b>8</b>                           | <b><u>Valves and Penstocks</u></b>   |      |           |             |               |
|                                    | <b><u>Air Valves</u></b>   |      |           |             |               |
|                                    | <u>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                          |      |           |             |               |
| 8.1                                | DN65mm   | No.  | 1         |             |               |
| <b>9</b>                           | <b><u>Washouts</u></b>   |      |           |             |               |
|                                    | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |           |             |               |
| 9.1                                | DN65mm   | No.  | 1         |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b>   |      |           |             |               |
|                                    | <b><u>Other Chambers</u></b>   |      |           |             |               |
|                                    | <u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>   |      |           |             |               |
| 10.1                               | Depth not exceeding 1.5m   | No.  | 2         |             |               |
|                                    | <b><u>Valve Surface Boxes</u></b>  |      |           |             |               |
|                                    | <u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u>  |      |           |             |               |
| 10.2                               | Depth not exceeding 1.5m   | No.  | 2         |             |               |
|                                    | <b><u>Reinstatement</u></b>  |      |           |             |               |
| <b>11</b>                          | <b><u>Roads</u></b>  |      |           |             |               |
|                                    | <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>   |      |           |             |               |
| 11.1                               | Not exceeding DN300mm  | m    | 12        |             |               |
| <b>12</b>                          | <b><u>Surrounds</u></b>  |      |           |             |               |
|                                    | <u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u>   |      |           |             |               |
| 12.1                               | Not exceeding DN200mm  | m    | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.6: NVUNANWA IN NAKASEKE DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

| Item No. | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|--|------|-----------|-------------|---------------|
| 12.2     | <u>Pipe surrounds, of imported granular material, for the following pipe sizes</u><br>Not exceeding DN200mm          | m    | 180       |             |               |
| 12.3     | <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u><br>Not exceeding DN200mm                       | m    | 128       |             |               |
| 13       | <b><u>Concrete Stools and Thrust Blocks</u></b>  |      |           |             |               |
|          | <b><i>Thrust Blocks</i></b>  |      |           |             |               |
|          | <u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes</u> |      |           |             |               |
| 13.1     | Diameter not exceeding DN200mm   | No.  | Rate Only |             |               |
|          | <b><u>Other Pipework Ancillaries</u></b>   |      |           |             |               |
|          | <b><i>Marker Posts</i></b>   |      |           |             |               |
| 14       | Marker posts for pipes, gate valves, air valves, washouts.   | No.  | 40        |             |               |

**Total Carried to Collection**

**BILL No. 2 : TRANSMISSION MAINS**

| Item No. | Description                     | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|---------------------------------|------|------|-------------|---------------|
|          | <b>Bill No. 18.2 Collection</b> |      |      |             |               |
|          | Page 6                          |      |      |             |               |
|          | Page 7                          |      |      |             |               |
|          | Page 8                          |      |      |             |               |

**Total Bill No. 2 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 3.6: NVUNANWA IN NAKASEKE DISTRICT**

**Region: Central**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.   | Item | 1    |             |               |
| 2                                  | <b><u>Reservoir</u></b>   |      |      |             |               |
|                                    | <u>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc., painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.</u>  |      |      |             |               |
| 2.1                                | Height; 4.5m for (4No. x 10m <sup>3</sup> Tanks)  | No.  | 1    |             |               |
| 3                                  | <b><u>Plastic Tanks</u></b>   |      |      |             |               |
|                                    | Supply and install a vertical cylindrical Rotational Moulded Polyethylene Water Storage Tank to DUS 1560: 2013 as manufactured by Ms. Gentex Ltd. / Crest Tanks or any other approved complete with a lockable access man ways, inlet/ riser, ball float valve, overflow with insect screen, float type water level indicator and outlet/ down pipe with a strainer, washout and overflow connection, including interconnecting pipe work and fittings, as detailed in the drawings, supply specifications and of the following capacity. |      |      |             |               |
| 3.1                                | 10m <sup>3</sup>  | No.  | 4    |             |               |
| 4                                  | <u>150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>   |      |      |             |               |
| 4.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| 5                                  | <u>150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u>   |      |      |             |               |
|                                    | [OPTIONAL]  |      |      |             |               |
| 5.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.6: NVUNANWA IN NAKASEKE DISTRICT

Region: Central

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|----------------|-----------|-------------|---------------|
| <b>6</b> | <b><u>Landscaping and Walkways</u></b>  |                |           |             |               |
| 6.1      | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2      | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill. | No.            | Rate Only |             |               |
| <b>7</b> | <b><u>Fences</u></b>  |                |           |             |               |
| 7.1      | Galvanized wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|          | <b><u>Gates</u></b>   |                |           |             |               |
| 7.2      | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|          | <b><u>Provision and Placing of Concrete</u></b><br><b><u>Ordinary Designed Mix Concrete</u></b>   |                |           |             |               |
| <b>8</b> | <b><u>Designed mix concrete, to BS 5328, with ordinary Portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u></b>         |                |           |             |               |
| 8.1      | Grade C15   | m <sup>3</sup> | 2         |             |               |

**Total Carried to Collection**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|------------------------------|------|------|-------------|---------------|
|          | <b>Bill No. 3 Collection</b> |      |      |             |               |
|          | Page 9                       |      |      |             |               |
|          | Page 10                      |      |      |             |               |

**Total Bill No. 3 Carried to Bill Summary**



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.6: NVUNANWA IN NAKASEKE DISTRICT

Region: Central

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                     | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m |      |           |             |               |
| 2.1                                | OD63mm PN6   | m    | 78        |             |               |
| 2.2                                | OD75mm PN6   | m    | 240       |             |               |
| 2.3                                | OD90mm PN6   | m    | 425       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>   |      |           |             |               |
| 3.1                                | OD90mm   | No.  | 2         |             |               |
|                                    | <b><u>Unequal tees</u></b>   |      |           |             |               |
| 3.2                                | OD90 x 75mm  | No.  | 1         |             |               |
| 3.3                                | OD90 x 63mm  | No.  | 2         |             |               |
| 3.4                                | OD75 x 63mm  | No.  | 2         |             |               |
|                                    | <b><u>Bends</u></b>  |      |           |             |               |
| 3.5                                | OD75 x 63mm  | No.  | 2         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>   |      |           |             |               |
| 4.1                                | OD90mm   | No.  | Rate Only |             |               |
| 4.2                                | OD75mm   | No.  | Rate Only |             |               |
| 4.3                                | OD63mm   | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>   |      |           |             |               |
| 5.1                                | OD63mm   | No.  | 5         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.6: NVUNANWA IN NAKASEKE DISTRICT

Region: Central

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
| <b>6</b>  | <b><u>Valves and Penstocks</u></b>  |      |           |             |               |
|   | <b><u>Air Valves</u></b>  |      |           |             |               |
|   | Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.  |      |           |             |               |
| 6.1   | OD75mm  | No.  | Rate Only |             |               |
| 6.2   | OD63mm  | No.  | Rate Only |             |               |
| <b>7</b>  | <b><u>Washouts</u></b>  |      |           |             |               |
|   | Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |           |             |               |
| 7.1   | DN50mm  | No.  | 1         |             |               |
| <b>8</b>  | <b><u>Farm Gate Connections</u></b>   |      |           |             |               |
|   | Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and lockable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -   |      |           |             |               |
| 8.1   | DN65mm  | No.  | Rate Only |             |               |
| 8.2   | DN50mm  | No.  | 5         |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>  |      |           |             |               |
|   | <b><u>Marker Posts</u></b>  |      |           |             |               |
| 9   | Marker posts for pipes, gate valves, air valves, washouts.  | No.  | 48        |             |               |
| <b>Total Carried to Collection</b>              |   |      |           |             |               |
|   | <b>Bill No. 4 Collection</b>  |      |           |             |               |
|   | Page 11   |      |           |             |               |
|   | Page 12   |      |           |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.7: MASULITA IN WAKISO DISTRICT

Region: Central

**BILL SUMMARY**

| Bill No.                              | Description                             | Amount (UGx.) |
|---------------------------------------|---|---------------|
|                                       | <b>WORK ITEMS</b>                       |               |
| 1                                     | Abstraction and Electromechanical Works |               |
| 2                                     | Transmission Mains                      |               |
| 3                                     | Storage Reservoir Works                 |               |
| 4                                     | Distribution Network                    |               |
| <b>Total Carried to Grand Summary</b> |   |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.7: MASULITA IN WAKISO DISTRICT

Region: Central

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|----------------|-----------|-------------|---------------|
|                                    | <b><u>General Site Clearance</u></b>  |                |           |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer.                              | Item           | 1         |             |               |
|                                    | <b><u>Earthworks</u></b>  |                |           |             |               |
| 2.1                                | Excavation to form trapezoidal prism reservoir in material other than topsoil, rock or other artificial hard material, depth not exceeding 6.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings. | m <sup>3</sup> | 520       |             |               |
| 2.2                                | Ditto but in marshy soils   | m <sup>3</sup> | 296       |             |               |
| 2.3                                | Ditto but in soft / decomposed rock soils   | m <sup>3</sup> | 136       |             |               |
| 2.4                                | Excavation to form trapezoidal drain in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.           | m <sup>3</sup> | 175       |             |               |
| 2.5                                | Ditto but in marshy soils   | m <sup>3</sup> | 130       |             |               |
| 2.6                                | Ditto but in soft / decomposed rock soils   | m <sup>3</sup> | 85        |             |               |
|                                    | <b><u>Filling Structures</u></b>  |                |           |             |               |
|                                    | <u>Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -</u>   |                |           |             |               |
| 3.1                                | Imported rock/ hardcore fill, size 75 to 300mm hand packed or compacted by the arm of an excavator.   | m <sup>3</sup> | Rate Only |             |               |
| 3.2                                | Selected excavated material including topping with a 200mm thick layer of top/ vegetable soil.  | m <sup>3</sup> | Rate Only |             |               |
| 4                                  | Single layer of geotextile laid to manufacturer's specifications  | m <sup>2</sup> | Rate Only |             |               |
| <b>Total Carried to Collection</b> |   |                |           |             |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.7: MASULITA IN WAKISO DISTRICT

Region: Central

## **BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit           | Qty.  | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|----------------|-------|-------------|---------------|
| 5                                  | <b>Landscaping</b><br>Turfing for lawns inside fenced off compound, including filling with excavated topsoil and the preparation of surfaces; 240m <sup>2</sup> at Intake Site and 800m <sup>2</sup> at Pump Station.                         | m <sup>2</sup> | 1,050 |             |               |
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>  |                |       |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)   |                |       |             |               |
| ME1                                | 5.5kW Submersible Pump Set with 7.5kW Pumping Inverter with Data Module, rated flow Q = 15 m <sup>3</sup> /hr., rated head H = 70m total head; set to not more than <b>5m</b> below ground including Dry- run protection, Motor and Pump End. | No.            | 1     |             |               |
| ME2                                | 1x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.  | Item           | 1     |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 1x17No. x 550Wp panels Solar Array in Item 2 above as per drawings, including foundations, vandal proofing mounting to the Engineer's approval   | Sum            | 1     |             |               |
| ME4                                | PV Disconnect 1000-40-2   | No.            | 1     |             |               |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.   | No.            | 1     |             |               |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.   | Item           | 1     |             |               |
| ME7                                | PV Combiner   | No.            | 1     |             |               |
| ME7a                               | Pressure Switch and Gauge - P5/8  | No.            | 1     |             |               |
| ME8                                | Sinewave filter - SWAP0012D.  | No.            | 1     |             |               |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,  | m              | 5     |             |               |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.   | m              | 200   |             |               |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.   | m              | 60    |             |               |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors   | No.            | 2     |             |               |
| ME11a                              | Adapter box   | No.            | 1     |             |               |
| <b>Total Carried to Collection</b> |   |                |       |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.7: MASULITA IN WAKISO DISTRICT

Region: Central

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|-----------|-------------|---------------|
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item           | 1         |             |               |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm               | Sum            | 1         |             |               |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                                 | Sum            | 1         |             |               |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.            | 5         |             |               |
|                                    | <b>Alarm System</b>  |                |           |             |               |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item           | 1         |             |               |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item           | 1         |             |               |
|                                    | <b>MISCELLANEOUS WORKS</b>   |                |           |             |               |
|                                    | <b>Pump Protection System</b>  |                |           |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base. | No.            | 1         |             |               |
|                                    | <b>Kerbs</b>   |                |           |             |               |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>   |                |           |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m  | m              | 70        |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a gauge 500 polythene sheet.  | m <sup>2</sup> | 135       |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert   | m              | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.7: MASULITA IN WAKISO DISTRICT

Region: Central

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
|   | <b><u>Pump House</u></b>  |      |           |             |               |
| X5  | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.   | Sum  | 1         |             |               |
|   | <b><u>Fences</u></b>  |      |           |             |               |
| X6a   | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m    | 80        |             |               |
| X6b   | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m    | 120       |             |               |
|   | <b><u>Gates</u></b>   |      |           |             |               |
| X7  | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.  | 1         |             |               |
|   | <b><u>Training of Operator's staff</u></b>  |      |           |             |               |
| X8  | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval  | Sum  | 1         |             |               |
|   | <b><u>Operation and Maintenance Manuals</u></b>   |      |           |             |               |
| X9  | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum  | 1         |             |               |
| XX  | Horizontal pump installation option out of flanged/ sealed end HDPE culvert pipe mounted on fabricated GI support structure including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/005.       | Item | Rate Only |             |               |
| <b>Total Carried to Collection</b>              |   |      |           |             |               |
|   | <b>Bill No. 1 Collection</b>  |      |           |             |               |
|   | Page 2  |      |           |             |               |
|   | Page 3  |      |           |             |               |
|   | Page 4  |      |           |             |               |
|   | Page 5  |      |           |             |               |
| <b>Total Bill No. 1 Carried to Bill Summary</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.7: MASULITA IN WAKISO DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.  | Item | 1         |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>   |      |           |             |               |
|                                    | <b><u>Steel Pipes</u></b>   |      |           |             |               |
|                                    | <u>Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes;</u>  |      |           |             |               |
| 2.6                                | DN75mm, in trenches; depths not exceeding 1.5m  | m    | 12        |             |               |
|                                    | <b><u>HDPE Pipes</u></b>  |      |           |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>  |      |           |             |               |
| 3.1                                | OD90mm HDPE PN10  | m    | 2,234     |             |               |
|                                    | <b><u>uPVC Pipes</u></b>  |      |           |             |               |
|                                    | <u>uPVC pressure pipes to UNBS US 264: 2000 and DIN 8062 with integral rubber ring socket joints laid in trenches</u>   |      |           |             |               |
|                                    | <u>OD110 to PN 10</u>   |      |           |             |               |
| 4.1                                | Depth not exceeding 1.5m  | m    | Rate Only |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>   |      |           |             |               |
|                                    | <b><u>Bends</u></b>   |      |           |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |           |             |               |
| 5.1                                | DN65mm  | No.  | 4         |             |               |
|                                    | <b><u>Bulk Flow Meters</u></b>  |      |           |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |           |             |               |
| 6.1                                | DN65mm PN10   | No.  | 1         |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |
|                                    | <b>BILL No. 2 : TRANSMISSION MAINS</b>  |      |           |             |               |
| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |



# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

## Scheme ID. 3.7: MASULITA IN WAKISO DISTRICT

Region: Central

|                                    |   |     |    |  |  |
|------------------------------------|---|-----|----|--|--|
| 7                                  | <b>Equal Adapters</b>   |     |    |  |  |
| 7.1                                | OD90 female adapter   | No. | 2  |  |  |
| 8                                  | <b>Valves and Penstocks</b>   |     |    |  |  |
|                                    | <b>Air Valves</b>   |     |    |  |  |
|                                    | Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.                          |     |    |  |  |
| 8.3                                | DN65mm  | No. | 1  |  |  |
| 9                                  | <b>Washouts</b>   |     |    |  |  |
|                                    | Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail. |     |    |  |  |
| 9.3                                | DN65mm  | No. | 1  |  |  |
|                                    | <b>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</b>   |     |    |  |  |
|                                    | <b>Other Chambers</b>   |     |    |  |  |
|                                    | Masonry air valve chamber, complete as specified in the drawings, and of the following depths   |     |    |  |  |
| 10.1                               | Depth not exceeding 1.5m  | No. | 2  |  |  |
|                                    | <b>Valve Surface Boxes</b>  |     |    |  |  |
|                                    | Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths  |     |    |  |  |
| 10.2                               | Depth not exceeding 1.5m  | No. | 2  |  |  |
|                                    | <b>Reinstatement</b>  |     |    |  |  |
|                                    | <b>Roads</b>  |     |    |  |  |
|                                    | Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes   |     |    |  |  |
| 11                                 | Not exceeding DN300mm   | m   | 12 |  |  |
| <b>Total Carried to Collection</b> |   |     |    |  |  |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.7: MASULITA IN WAKISO DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
|   | <b><u>Surrounds</u></b>   |      |           |             |               |
| 12.1  | Pipe surrounds, of selected excavated granular material, for the following pipe sizes<br>Not exceeding DN200mm                                  | m    | Rate Only |             |               |
| 12.2  | Pipe surrounds, of imported granular material, for the following pipe sizes<br>Not exceeding DN200mm  | m    | 310       |             |               |
| 12.3  | Pipe surrounds, of mass concrete, for the following pipe sizes<br>Not exceeding DN200mm   | m    | 95        |             |               |
| 13  | <b><u>Concrete Stools and Thrust Blocks</u></b>   |      |           |             |               |
|   | <b><u>Thrust Blocks</u></b>   |      |           |             |               |
| 13.1  | Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes<br>Diameter not exceeding DN200mm | No.  | Rate Only |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>  |      |           |             |               |
|   | <b><u>Marker Posts</u></b>  |      |           |             |               |
| 14  | Marker posts for pipes, gate valves, air valves, washouts.  | No.  | 40        |             |               |
| <b>Total Carried to Collection</b>              |   |      |           |             |               |
| <b>BILL No. 2 : TRANSMISSION MAINS</b>          |   |      |           |             |               |
| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|   | <b>Bill No. 2 Collection</b>  |      |           |             |               |
|   | Page 6  |      |           |             |               |
|   | Page 7  |      |           |             |               |
|   | Page 8  |      |           |             |               |
| <b>Total Bill No. 2 Carried to Bill Summary</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.7: MASULITA IN WAKISO DISTRICT

Region: Central

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.   | Item | 1    |             |               |
| 2                                  | <b><u>Reservoir</u></b>   |      |      |             |               |
|                                    | <u>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc., painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.</u>  |      |      |             |               |
| 2.1                                | Height; 4.5m for (4No. x 10m <sup>3</sup> Tanks)  | No.  | 1    |             |               |
| 3                                  | <b><u>Plastic Tanks</u></b>   |      |      |             |               |
|                                    | Supply and install a vertical cylindrical Rotational Moulded Polyethylene Water Storage Tank to DUS 1560: 2013 as manufactured by Ms. Gentex Ltd. / Crest Tanks or any other approved complete with a lockable access man ways, inlet/ riser, ball float valve, overflow with insect screen, float type water level indicator and outlet/ down pipe with a strainer, washout and overflow connection, including interconnecting pipe work and fittings, as detailed in the drawings, supply specifications and of the following capacity. |      |      |             |               |
| 3.1                                | 10m <sup>3</sup>  | No.  | 4    |             |               |
| 4                                  | <u>150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>   |      |      |             |               |
| 5.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| 5                                  | <u>150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u>   |      |      |             |               |
|                                    | [OPTIONAL]  |      |      |             |               |
| 5.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.7: MASULITA IN WAKISO DISTRICT

Region: Central

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|----------------|-----------|-------------|---------------|
| <b>6</b> | <b>Landscaping and Walkways</b>   |                |           |             |               |
| 6.1      | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2      | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill. | No.            | Rate Only |             |               |
| <b>7</b> | <b>Fences</b>   |                |           |             |               |
| 7.1      | Galvanized wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|          | <b>Gates</b>  |                |           |             |               |
| 7.2      | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|          | <b>Provision and Placing of Concrete</b><br><b>Ordinary Designed Mix Concrete</b>   |                |           |             |               |
| <b>8</b> | <u>Designed mix concrete, to BS 5328, with ordinary Portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u>                |                |           |             |               |
| 8.1      | Grade C15   | m <sup>3</sup> | 2         |             |               |

**Total Carried to Collection**

**BILL No.3 : STORAGE RESERVOIR WORKS**

| Item No. | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|------------------------------|------|------|-------------|---------------|
|          | <b>Bill No. 3 Collection</b> |      |      |             |               |
|          | Page 9                       |      |      |             |               |
|          | Page 10                      |      |      |             |               |

**Total Bill No. 18.3 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.7: MASULITA IN WAKISO DISTRICT

Region: Central

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                     | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m |      |           |             |               |
| 2.1                                | OD75mm PN6   | m    | 195       |             |               |
| 2.2                                | OD90mm PN6   | m    | 1,490     |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>   |      |           |             |               |
| 3.1                                | OD90mm   | No.  | Rate Only |             |               |
| 3.2                                | OD75mm   | No.  | Rate Only |             |               |
| 3.3                                | OD63mm   | No.  | Rate Only |             |               |
|                                    | <b><u>Unequal tees</u></b>   |      |           |             |               |
| 3.4                                | OD75 x 63mm  | No.  | 5         |             |               |
|                                    | <b><u>Bends</u></b>  |      |           |             |               |
| 3.5                                | OD75 x 63mm  | No.  | 1         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>   |      |           |             |               |
| 4.1                                | OD90mm   | No.  | Rate Only |             |               |
| 4.2                                | OD75mm   | No.  | Rate Only |             |               |
| 4.3                                | OD63mm   | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>   |      |           |             |               |
| 5.1                                | OD75mm   | No.  | Rate Only |             |               |
| 5.2                                | OD63mm   | No.  | 6         |             |               |
| 5.3                                | OD50mm   | No.  | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 3.7: MASULITA IN WAKISO DISTRICT

Region: Central

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.  | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|---|---|------|------|-------------|---------------|
| <b>6</b>  | <b><u>Valves and Penstocks</u></b>  |      |      |             |               |
|   | <b><u>Air Valves</u></b>  |      |      |             |               |
|   | Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.  |      |      |             |               |
| 6.1   | OD75mm  | No.  | 1    |             |               |
| <b>7</b>  | <b><u>Washouts</u></b>  |      |      |             |               |
|   | Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |      |             |               |
| 7.1   | DN75mm  | No.  | 2    |             |               |
| <b>8</b>  | <b><u>Farm Gate Connections</u></b>   |      |      |             |               |
|   | Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and lockable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -   |      |      |             |               |
| 8.1   | DN50mm  | No.  | 6    |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>  |      |      |             |               |
|   | <b><u>Marker Posts</u></b>  |      |      |             |               |
| 9   | Marker posts for pipes, gate valves, air valves, washouts.  | No.  | 60   |             |               |
| <b>Total Carried to Collection</b>              |   |      |      |             |               |
|   | <b>Bill No. 4 Collection</b>  |      |      |             |               |
|   | Page 11   |      |      |             |               |
|   | Page 12   |      |      |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |   |      |      |             |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.1: BEDIMWOLO IN ALEBTONG DISTRICT

Region: North

## **BILL SUMMARY**

| Bill No.                              | Description                             | Amount (UGx.) |
|---------------------------------------|---|---------------|
|                                       | <b>WORK ITEMS</b>                       |               |
| 1                                     | Abstraction and Electromechanical Works |               |
| 2                                     | Transmission Mains                      |               |
| 3                                     | Storage Reservoir Works                 |               |
| 4                                     | Distribution Network                    |               |
| <b>Total Carried to Grand Summary</b> |   |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.1: BEDIMWOLO IN ALEBTONG DISTRICT

Region: North

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|----------------|------|-------------|---------------|
|                                    | <b><u>General Site Clearance</u></b>  |                |      |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer.  | Item           | 1    |             |               |
|                                    | <b><u>Earthworks</u></b>  |                |      |             |               |
|                                    | Excavation to form trapezoidal prism silt basin and reservoir in material other than topsoil, rock or other artificial hard material, depth not exceeding 4.0m including forming earth bands around the reservoir banks with the excavated material as per the drawings to fair profiles to receive grassing and/ or disposing the excavated material on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings. |                |      |             |               |
| 2.1                                | Marshy soils  | m <sup>3</sup> | 1555 |             |               |
| 2.2                                | Soft / decomposed rock soils  | m <sup>3</sup> | 30   |             |               |
|                                    | Excavation to form trapezoidal channel in material other than topsoil, rock or other artificial hard material, depth not exceeding 3.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.   |                |      |             |               |
| 2.4                                | Marshy soils  | m <sup>3</sup> | 150  |             |               |
| 2.5                                | Soft / decomposed rock soils  | m <sup>3</sup> | 6    |             |               |
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>  |                |      |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)   |                |      |             |               |
| ME1                                | 11.0kW Submersible Pump Set with 15kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 100m total head; set to not more than <b>5m</b> below ground including Dry- run protection, Motor and Pump End.  | No.            | 1    |             |               |
| <b>Total Carried to Collection</b> |   |                |      |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 4.1: BEDIMWOLO IN ALEBTONG DISTRICT**

**Region: North**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item | 1    |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings including foundations, vandal proofing mounting to the Engineer's approval | Sum  | 1    |             |               |
| ME4                                | PV Disconnect 1000-40-2  | No.  | 1    |             |               |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.  | 1    |             |               |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item | 1    |             |               |
| ME7                                | PV Combiner  | No.  | 1    |             |               |
| ME7a                               | Pressure Switch and Gauge - P6/12  | No.  | 1    |             |               |
| ME8                                | Sinewave filter - SWAP0022D.   | No.  | 1    |             |               |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,   | m    | 5    |             |               |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m    | 125  |             |               |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m    | 60   |             |               |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.  | 2    |             |               |
| ME11a                              | Adapter box  | No.  | 1    |             |               |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item | 1    |             |               |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm   | Sum  | 1    |             |               |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.   | Sum  | 1    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 4.1: BEDIMWOLO IN ALEBTONG DISTRICT

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box   | No.  | 5         |             |               |
|                                    | <b>Alarm System</b>   |      |           |             |               |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.   | Item | 1         |             |               |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.  | Item | 1         |             |               |
|                                    | <b>MISCELLANEOUS WORKS</b>  |      |           |             |               |
|                                    | <b>Pump Protection System</b>   |      |           |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base.              | No.  | 1         |             |               |
|                                    | <b>Kerbs</b>  |      |           |             |               |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m² to the following alignment: -</u>   |      |           |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m   | m    | 70        |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a gauge 500 polythene sheet.   | m²   | 220       |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert  | m    | Rate Only |             |               |
|                                    | <b>Pump House</b>   |      |           |             |               |
| X5                                 | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.   | Sum  | 1         |             |               |
|                                    | <b>Fences</b>   |      |           |             |               |
| X6a                                | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m    | Rate Only |             |               |
| X6b                                | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m    | 120       |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.1: BEDIMWOLO IN ALEBTONG DISTRICT

Region: North

| <b>BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b> |  |                |     |  |                      |
|---|--|----------------|-----|--|----------------------|
| <b>Item No.</b>   | <b>Description</b>   |                |     |  | <b>Amount (UGx.)</b> |
| X7  | <u><b>Gates</b></u><br>Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1   |  |                      |
| X8  | <u><b>Training of Operator's staff</b></u><br>Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval | Sum            | 1   |  |                      |
| X9  | <u><b>Operation and Maintenance Manuals</b></u><br>Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum            | 1   |  |                      |
| XXX   | <u><b>Stone Pitching.</b></u><br>250mm minimum thick grouted stone masonry jointed in cement : sand (1:4) mortar as detailed in the drawing.   | m <sup>2</sup> | 125 |  |                      |
| <b>Total Carried to Collection</b>                          |  |                |     |  |                      |
|   | <b>Bill No. 1 Collection</b><br><br>Page 2<br><br>Page 3<br><br>Page 4<br><br>Page 5   |                |     |  |                      |
| <b>Total Bill No. 1 Carried to Bill Summary</b>             |  |                |     |  |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.1: BEDIMWOLO IN ALEBTONG DISTRICT

Region: North

| <b>BILL No. 2 : TRANSMISSION MAINS</b> |   |             |             |                    |                      |
|--|---|-------------|-------------|--------------------|----------------------|
| <b>Item No.</b>                        | <b>Description</b>  | <b>Unit</b> | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
|  | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |             |             |                    |                      |
|  | <b><u>General Site Clearance</u></b>  |             |             |                    |                      |
| 1                                      | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.  | Item        | 1           |                    |                      |
|  | <b><u>PIPEWORKS - PIPES</u></b>   |             |             |                    |                      |
| 2                                      | <b><u>Steel Pipes</u></b>   |             |             |                    |                      |
|  | <u>Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes:</u>  |             |             |                    |                      |
| 2.1                                    | DN75mm, in trenches; depths not exceeding 1.5m  | m           | 18          |                    |                      |
| 3                                      | <b><u>HDPE Pipes</u></b>  |             |             |                    |                      |
|  | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>  |             |             |                    |                      |
| 3.1                                    | OD90mm HDPE PN16  | m           | 332         |                    |                      |
|  | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |             |             |                    |                      |
|  | <b><u>Cast or Spun Iron Pipe Fittings</u></b>   |             |             |                    |                      |
| 5                                      | <b><u>Bends</u></b>   |             |             |                    |                      |
|  | <u>Galvanized iron threaded socket 45° bends, EN 10242:1995, all to PN 10, and of the following sizes</u>   |             |             |                    |                      |
| 5.1                                    | DN75mm  | No.         | 4           |                    |                      |
| 6                                      | <b><u>Bulk Flow Meters</u></b>  |             |             |                    |                      |
|  | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |             |             |                    |                      |
| 6.1                                    | DN100mm PN10  | No.         | Rate Only   |                    |                      |
| 6.2                                    | DN75mm PN10   | No.         | 1           |                    |                      |
|  | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |             |             |                    |                      |
| 7                                      | <b><u>Equal Adapters</u></b>  |             |             |                    |                      |
| 7.1                                    | OD90 female adapter   | No.         | 2           |                    |                      |
| <b>Total Carried to Collection</b>     |   |             |             |                    |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.1: BEDIMWOLO IN ALEBTONG DISTRICT

Region: North

**BILL No.2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| <b>8</b>                           | <b><u>Valves and Penstocks</u></b>   |      |           |             |               |
|                                    | <b><u>Air Valves</u></b>   |      |           |             |               |
|                                    | <u>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                          |      |           |             |               |
| 8.1                                | DN75mm   | No.  | 1         |             |               |
| <b>9</b>                           | <b><u>Washouts</u></b>   |      |           |             |               |
|                                    | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |           |             |               |
| 9.1                                | DN75mm   | No.  | Rate Only |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b>   |      |           |             |               |
|                                    | <b><u>Other Chambers</u></b>   |      |           |             |               |
|                                    | <u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>   |      |           |             |               |
| 10.1                               | Depth not exceeding 1.5m   | No.  | 2         |             |               |
|                                    | <b><u>Valve Surface Boxes</u></b>  |      |           |             |               |
|                                    | <u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u>  |      |           |             |               |
| 10.2                               | Depth not exceeding 1.5m   | No.  | 3         |             |               |
|                                    | <b><u>Reinstatement</u></b>  |      |           |             |               |
|                                    | <b><u>Roads</u></b>  |      |           |             |               |
|                                    | <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>   |      |           |             |               |
| 11                                 | Not exceeding DN300mm  | m    | 12        |             |               |
|                                    | <b><u>Surrounds</u></b>  |      |           |             |               |
|                                    | <u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u>   |      |           |             |               |
| 12.1                               | Not exceeding DN200mm  | m    | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.1: BEDIMWOLO IN ALEBTONG DISTRICT

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.  | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|--|------|-----------|-------------|---------------|
| 12.2  | <u>Pipe surrounds, of imported granular material, for the following pipe sizes</u><br>Not exceeding DN200mm  | m    | Rate Only |             |               |
| 12.3  | <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u><br>Not exceeding DN200mm   | m    | 20        |             |               |
| 13  | <b><u>Concrete Stools and Thrust Blocks</u></b><br><br><b><i>Thrust Blocks</i></b><br><u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes</u> |      |           |             |               |
| 13.1  | Diameter not exceeding DN200mm<br><br><b><u>Other Pipework Ancillaries</u></b><br><b><i>Marker Posts</i></b>   | No.  | Rate Only |             |               |
| 14  | <b><i>Marker Posts</i></b><br>Marker posts for pipes, gate valves, air valves, washouts.   | No.  | 15        |             |               |
| <b>Total Carried to Collection</b>              |  |      |           |             |               |
| <b>BILL No. 2 : TRANSMISSION MAINS</b>          |  |      |           |             |               |
| Item No.  | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|   | <b>Bill No. 3.2 Collection</b><br><br>Page 6<br><br>Page 7<br><br>Page 8   |      |           |             |               |
| <b>Total Bill No. 2 Carried to Bill Summary</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.1: BEDIMWOLO IN ALEBTONG DISTRICT

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.   | Item | 1    |             |               |
| 2                                  | <b><u>Reservoir Tower</u></b>   |      |      |             |               |
|                                    | <u>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc, painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.</u>   |      |      |             |               |
| 2.1                                | Height; 6.0m for 30m <sup>3</sup> Tank.   | No.  | 1    |             |               |
| 3                                  | <b><u>Tanks</u></b>   |      |      |             |               |
|                                    | <u>Supply and Install a fabricated 6.0mm thick mild steel plate horizontal cylindrical tank with 1No. 0.6m wide access man way, water level indicator (scale in cubic metres), with inlet, outlet, washout and overflow connection complete with access points, ventilators (2 nr), and internal access ladders, inclusive of anti-rust painting internally, finishes and all necessary accessories to installation complete as specified and detailed in the drawings; to the Engineer's satisfaction. All tank accessories shall be of hot dipped galvanised steel.</u> |      |      |             |               |
| 3.1                                | Reservoir: 30m <sup>3</sup> nominal capacity erected on a 6m high tower   | No.  | 1    |             |               |
| 4                                  | <u>150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>   |      |      |             |               |
| 4.2                                | DN75mm, PN10  | No.  | 1    |             |               |
| 5                                  | <u>150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u>   |      |      |             |               |
|                                    | [OPTIONAL]  |      |      |             |               |
| 5.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.1: BEDIMWOLO IN ALEBTONG DISTRICT

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|----------------|-----------|-------------|---------------|
| <b>6</b> | <b>Landscaping and Walkways</b>   |                |           |             |               |
| 6.1      | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2      | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill. | No.            | Rate Only |             |               |
| <b>7</b> | <b>Fences</b>   |                |           |             |               |
| 7.1      | Galvanized wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|          | <b>Gates</b>  |                |           |             |               |
| 7.2      | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|          | <b>Provision and Placing of Concrete</b><br><b>Ordinary Designed Mix Concrete</b>   |                |           |             |               |
| <b>8</b> | <u>Designed mix concrete, to BS 5328, with ordinary Portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u>                |                |           |             |               |
| 8.1      | Grade C15   | m <sup>3</sup> | 2         |             |               |

**Total Carried to Collection**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description                 | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|-----------------------------|------|------|-------------|---------------|
|          | <b>Bill No.3 Collection</b> |      |      |             |               |
|          | Page 9                      |      |      |             |               |
|          | Page 10                     |      |      |             |               |

**Total Bill No. 3.3 Carried to Bill Summary**



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.1: BEDIMWOLO IN ALEBTONG DISTRICT

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                     | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m |      |           |             |               |
| 2.1                                | OD63mm PN6   | m    | 85        |             |               |
| 2.2                                | OD75mm PN6   | m    | 132       |             |               |
| 2.3                                | OD90mm PN6   | m    | 275       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>   |      |           |             |               |
| 3.1                                | OD90mm   | No.  | 1         |             |               |
| 3.2                                | OD63mm   | No.  | 2         |             |               |
|                                    | <b><u>Unequal tees</u></b>   |      |           |             |               |
| 3.3                                | OD90 x 75mm  | No.  | 1         |             |               |
| 3.4                                | OD90 x 63mm  | No.  | 6         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>   |      |           |             |               |
| 4.1                                | OD90mm   | No.  | Rate Only |             |               |
| 4.2                                | OD75mm   | No.  | Rate Only |             |               |
| 4.3                                | OD63mm   | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>   |      |           |             |               |
| 5.1                                | OD63mm   | No.  | 5         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.1: BEDIMWOLO IN ALEBTONG DISTRICT

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
| <b>6</b>  | <b><u>Valves and Penstocks</u></b>  |      |           |             |               |
|   | <b><u>Air Valves</u></b>  |      |           |             |               |
|   | Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.  |      |           |             |               |
| 6.1   | OD90mm  | No.  | Rate Only |             |               |
| 6.2   | OD75mm  | No.  | Rate Only |             |               |
| 6.3   | OD63mm  | No.  | Rate Only |             |               |
| <b>7</b>  | <b><u>Washouts</u></b>  |      |           |             |               |
|   | Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |           |             |               |
| 7.1   | DN75mm  | No.  | 1         |             |               |
| 7.2   | DN65mm  | No.  | 1         |             |               |
| <b>8</b>  | <b><u>Farm Gate Connections</u></b>   |      |           |             |               |
|   | Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and lockable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -   |      |           |             |               |
| 8.1   | DN50mm  | No.  | 5         |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>  |      |           |             |               |
|   | <b><u>Marker Posts</u></b>  |      |           |             |               |
| 9   | Marker posts for pipes, gate valves, air valves, washouts.  | No.  | 18        |             |               |
| <b>Total Carried to Collection</b>              |   |      |           |             |               |
|   | <b>Bill No. 4 Collection</b>  |      |           |             |               |
|   | Page 11   |      |           |             |               |
|   | Page 10   |      |           |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |   |      |           |             |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.2: ODOKOMIT IN AGAGO DISTRICT

Region: North

## **BILL SUMMARY**

| Bill No.                              | Description                             | Amount (UGx.) |
|---------------------------------------|---|---------------|
|                                       | <b>WORK ITEMS</b>                       |               |
| 1.0                                   | Abstraction and Electromechanical Works |               |
| 2.0                                   | Transmission Mains                      |               |
| 3.0                                   | Storage Reservoir Works                 |               |
| 4.0                                   | Distribution Network                    |               |
| <b>Total Carried to Grand Summary</b> |   |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.2: ODOKOMIT IN AGAGO DISTRICT

Region: North

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|----------------|------|-------------|---------------|
|                                    | <b><u>General Site Clearance</u></b>  |                |      |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer.  | Item           | 1    |             |               |
|                                    | <b><u>Earthworks</u></b>  |                |      |             |               |
|                                    | Excavation to form trapezoidal prism silt basin and reservoir in material other than topsoil, rock or other artificial hard material, depth not exceeding 4.0m including forming earth bands around the reservoir banks with the excavated material as per the drawings to fair profiles to receive grassing and/ or disposing the excavated material on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings. |                |      |             |               |
| 2.1                                | Marshy soils  | m <sup>3</sup> | 1555 |             |               |
| 2.2                                | Soft / decomposed rock soils  | m <sup>3</sup> | 30   |             |               |
|                                    | Excavation to form trapezoidal channel in material other than topsoil, rock or other artificial hard material, depth not exceeding 3.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.   |                |      |             |               |
| 2.4                                | Marshy soils  | m <sup>3</sup> | 150  |             |               |
| 2.5                                | Soft / decomposed rock soils  | m <sup>3</sup> | 6    |             |               |
|                                    | Excavation to form cylindrical sump well in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.   |                |      |             |               |
| 2.6                                | Marshy soils  | m <sup>3</sup> | 16   |             |               |
| 2.7                                | Soft / decomposed rock soils  | m <sup>3</sup> | 8    |             |               |
|                                    | <b><u>Filling Structures</u></b>  |                |      |             |               |
|                                    | <u>Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -</u>   |                |      |             |               |
| 3                                  | Selected excavated material including topping with a 200mm thick layer of top/ vegetable soil.  | m <sup>3</sup> | 10   |             |               |
| <b>Total Carried to Collection</b> |   |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.2: ODOKOMIT IN AGAGO DISTRICT

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
| 4                                  | <b>Landscaping</b><br>Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.  | m <sup>2</sup> | 40   |             |               |
|                                    | <b>IN-SITU CONCRETE</b><br><b>Provision and Placing of Concrete</b><br><b>Ordinary Design Mix Concrete</b><br><u>Designed mix , concrete to BS 8500 and BS EN 206-1, with ordinary portland cement to BS 12, aggregate to BS 882 , maximum aggregate size : 20mm for the following structures: -</u> |                |      |             |               |
| 5                                  | <b>In situ Concrete</b><br>75mm thick Grade C15 concrete blinding to pump sump base  | m <sup>3</sup> | 0.25 |             |               |
| 6.1                                | 1800mm Diameter x 150mm thick Grade C25 concrete base slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float.  | Item           | 1    |             |               |
| 6.2                                | 1800mm Diameter x 150mm thick Grade C25 concrete top slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float and forming a 600 x 600mm opening for the inspection cover (MS).   | Item           | 1    |             |               |
|                                    | <b>Pre-cast Concrete</b><br><b>Pump Well/ Sump</b><br>Supply and install 100mm thick precast reinforced concrete vertical culverts on concrete base slab (MS) ; complete with water tight jointing and finishing works to approval.  |                |      |             |               |
| 7                                  | Internal diameter ; 1200mm   | Item           | 1    |             |               |
|                                    | <b>Concrete Inserts</b><br><b>Cast or Spum Iron Pipe Fittings.</b><br>Flanged, puddled and plain end pipe insert projecting from one face of the concrete, all to PN6 and of the following sizes and lengths, including supply of the pipe and as shown in the drawings.                             |                |      |             |               |
| 8                                  | 200mm ND and not exceeding 0.5m length   | No.            | 2    |             |               |
|                                    | <b>Adaptors</b><br>Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:-  |                |      |             |               |
| 9                                  | 200 mm ND  | No.            | 2    |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 4.2: ODOKOMIT IN AGAGO DISTRICT**

**Region: North**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| 10                                 | OD225mm PN10 plain end uPVC pipe connection between Silt Trap Basin and Pump Sump.   | m    | 8         |             |               |
|                                    | <b>Bellmouths</b>  |      |           |             |               |
| 11                                 | Flanged bellmouth to ISO 2531, flanges to ISO 2441, of the following sizes all to PN 6<br>200 mm ND  | No.  | 1         |             |               |
|                                    | <b>PIPEWORK - FITTINGS AND VALVES</b>  |      |           |             |               |
|                                    | <b>Gate Valves: Hand Operated</b>  |      |           |             |               |
| 12                                 | DN 200 mm all flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 6 for operation by tee key, with extension spindle not exceeding 4.5 metres long, and of the following sizes                       |      |           |             |               |
|                                    | <b>MISCELLANEOUS WORK</b>  |      |           |             |               |
|                                    | <b>Ladders</b>   |      |           |             |               |
| 13                                 | Internal galvanized mild steel ladder to BS 4211, galvanized to BS 729, complete and as shown in the drawings including fixing to precast concrete units..   | m    | 8         |             |               |
|                                    | <b>Steel grating</b>   |      |           |             |               |
| 14.1                               | Galvanized iron Coarse Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
| 14.2                               | Galvanized iron Fine Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
|                                    | <b>Pump Well/ Sump</b>   |      |           |             |               |
|                                    | Supply and install 8.0m long HDPE vertical culverts on concrete base slab (MS) ; complete with a Single ND200mm flanged branch to receive a ND200 gate valve. Branch height/ positioning to be determined on site. | Item | Rate Only |             |               |
| 15                                 | Internal diameter ; 1200x200mm   |      |           |             |               |
|                                    | <b>Stone pitched Channel.</b>  |      |           |             |               |
| 16                                 | 3.0 x 1.5 top x bottom width x 1.5m deep maximum trapezoidal lined drain as detailed in the drawing.   | m    | 5         |             |               |
|                                    | <b>Gabion boxes</b>  |      |           |             |               |
| 17                                 | PVC coated gabion boxes ; size 1m x 1m x 1m; including rockfill of size 100 - 250mm; as instructed by the Engineer   | nr   | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 4.2: ODOKOMIT IN AGAGO DISTRICT

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>  |      |      |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)   |      |      |             |               |
| ME1                                | 11.0kW Submersible Pump Set with 15kW Pumping Inverter with Data Module, rated flow Q = 25 m <sup>3</sup> /hr., rated head H = 70m total head; set to not more than <b>5m</b> below ground including Dry- run protection, Motor and Pump End. | No.  | 1    |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.  | Item | 1    |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings including foundations, vandal proofing mounting to the Engineer's approval    | Sum  | 1    |             |               |
| ME4                                | PV Disconnect 1000-40-2   | No.  | 1    |             |               |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.   | No.  | 1    |             |               |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.   | Item | 1    |             |               |
| ME7                                | PV Combiner   | No.  | 1    |             |               |
| ME7a                               | Pressure Switch and Gauge - P5/8  | No.  | 1    |             |               |
| ME8                                | Sinewave filter - SWAP0022D.  | No.  | 1    |             |               |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,  | m    | 5    |             |               |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.   | m    | 100  |             |               |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.   | m    | 60   |             |               |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors   | No.  | 2    |             |               |
| ME11a                              | Adapter box   | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 4.2: ODOKOMIT IN AGAGO DISTRICT**

**Region: North**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|-----------|-------------|---------------|
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item           | 1         |             |               |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm               | Sum            | 1         |             |               |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                                 | Sum            | 1         |             |               |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.            | 5         |             |               |
|                                    | <b>Alarm System</b>  |                |           |             |               |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item           | 1         |             |               |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item           | 1         |             |               |
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>  |                |           |             |               |
|                                    | <b><u>Pump Protection System</u></b>   |                |           |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base. | No.            | 1         |             |               |
|                                    | <b><u>Kerbs</u></b>  |                |           |             |               |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>   |                |           |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m  | m              | 70        |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a gauge 500 polythene sheet.  | m <sup>2</sup> | 220       |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert   | m              | Rate Only |             |               |
|                                    | <b><u>Pump House</u></b>   |                |           |             |               |
| X5                                 | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.  | Sum            | 1         |             |               |
| <b>Total Carried to Collection</b> |  |                |           |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.2: ODOKOMIT IN AGAGO DISTRICT

Region: North

| <b>BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b> |   |                |     |  |                      |
|---|---|----------------|-----|--|----------------------|
| <b>Item No.</b>   | <b>Description</b>  |                |     |  | <b>Amount (UGx.)</b> |
|   | <b><u>Fences</u></b>  |                |     |  |                      |
| X6a   | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m              | 50  |  |                      |
| X6b   | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m              | 10  |  |                      |
|   | <b><u>Gates</u></b>   |                |     |  |                      |
| X7  | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1   |  |                      |
|   | <b><u>Training of Operator's staff</u></b>  |                |     |  |                      |
| X8  | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval  | Sum            | 1   |  |                      |
|   | <b><u>Operation and Maintenance Manuals</u></b>   |                |     |  |                      |
| X9  | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum            | 1   |  |                      |
|   | <b><u>Stone Pitching.</u></b>   |                |     |  |                      |
| XXX   | 250mm minimum thick grouted stone masonry jointed in cement : sand (1:4) motar as detailed in the drawing.  | m <sup>2</sup> | 125 |  |                      |
| <b>Total Carried to Collection</b>                          |   |                |     |  |                      |
| <b>BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b> |   |                |     |  |                      |
| <b>Item No.</b>   | <b>Description</b>  |                |     |  | <b>Amount (UGx.)</b> |
|   | <b>Bill No. 1 Collection</b>  |                |     |  |                      |
|   | Page 2  |                |     |  |                      |
|   | Page 3  |                |     |  |                      |
|   | Page 4  |                |     |  |                      |
|   | Page 5  |                |     |  |                      |
|   | Page 6  |                |     |  |                      |
|   | Page 7  |                |     |  |                      |
| <b>Total Bill No. 1 Carried to Bill Summary</b>             |   |                |     |  |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.2: ODOKOMIT IN AGAGO DISTRICT

Region: North

**BILL No.2 : TRANSMISSION MAINS**

| Item No.                               | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|--|---|------|------|-------------|---------------|
|  | <b>DEMOLITION AND SITE CLEARANCE</b>  |      |      |             |               |
|  | <b>General Site Clearance</b>   |      |      |             |               |
| 1                                      | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.  | Item | 1    |             |               |
|  | <b>PIPEWORKS - PIPES</b>  |      |      |             |               |
| 2                                      | <u>Galvanised steel pipes with threaded joints, include unions/sockets, all to ISO 2531 and to PN10, laid in trench of the following sizes and depths</u>   |      |      |             |               |
|  | <u>Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes:</u>  |      |      |             |               |
| 2.1                                    | DN75mm, in trenches; depths not exceeding 1.5m  | m    | 12   |             |               |
|  | <b>HDPE Pipes</b>   |      |      |             |               |
|  | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>  |      |      |             |               |
| 3.1                                    | OD75mm HDPE PN16  | m    | 300  |             |               |
|  | <b>PIPEWORK - FITTINGS AND VALVES</b>   |      |      |             |               |
|  | <b>Cast or Spun Iron Pipe Fittings</b>  |      |      |             |               |
|  | <b>Bends</b>  |      |      |             |               |
|  | <u>Galvanized iron threaded socket 45° bends, EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |      |             |               |
| 5.1                                    | DN65mm  | No.  | 4    |             |               |
|  | <b>Bulk Flow Meters</b>   |      |      |             |               |
|  | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |      |             |               |
| 6.1                                    | DN65mm PN10   | No.  | 1    |             |               |
| <b>Total Carried to Collection</b>     |   |      |      |             |               |
| <b>BILL No. 2 : TRANSMISSION MAINS</b> |   |      |      |             |               |
| Item No.                               | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|  | <b>PN16 HDPE Compression fitting to DIN 8074/BS 5114</b>  |      |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

## Scheme ID. 4.2: ODOKOMIT IN AGAGO DISTRICT

Region: North

|                                    |   |     |           |  |  |
|------------------------------------|---|-----|-----------|--|--|
| 7                                  | <b>Equal Adapters</b>   |     |           |  |  |
| 7.1                                | OD90 female adapter   | No. | 2         |  |  |
| 8                                  | <b>Valves and Penstocks</b>   |     |           |  |  |
|                                    | <b>Air Valves</b>   |     |           |  |  |
|                                    | Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.                          |     |           |  |  |
| 8.1                                | DN65mm, PN16  | No. | 1         |  |  |
| 9                                  | <b>Washouts</b>   |     |           |  |  |
|                                    | Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail. |     |           |  |  |
| 9.3                                | DN65mm, PN16  | No. | 1         |  |  |
|                                    | <b>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</b>   |     |           |  |  |
|                                    | <b>Other Chambers</b>   |     |           |  |  |
|                                    | Masonry air valve chamber, complete as specified in the drawings, and of the following depths   |     |           |  |  |
| 10.1                               | Depth not exceeding 1.5m  | No. | 2         |  |  |
|                                    | <b>Valve Surface Boxes</b>  |     |           |  |  |
|                                    | Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths  |     |           |  |  |
| 10.2                               | Depth not exceeding 1.5m  | No. | 1         |  |  |
|                                    | <b>Reinstatement</b>  |     |           |  |  |
| 11                                 | <b>Roads</b>  |     |           |  |  |
|                                    | Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes   |     |           |  |  |
| 11.1                               | Not exceeding DN300mm   | m   | Rate Only |  |  |
| <b>Total Carried to Collection</b> |   |     |           |  |  |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.2: ODOKOMIT IN AGAGO DISTRICT

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No. | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|--|------|-----------|-------------|---------------|
| 12       | <b><u>Surrounds</u></b><br>Pipe surrounds, of selected excavated granular material, for the following pipe sizes                             |      |           |             |               |
| 12.1     | Not exceeding DN200mm  | m    | Rate Only |             |               |
|          | <b><u>Pipe surrounds, of imported granular material, for the following pipe sizes</u></b>  |      |           |             |               |
| 12.2     | Not exceeding DN200mm  | m    | Rate Only |             |               |
|          | <b><u>Pipe surrounds, of mass concrete, for the following pipe sizes</u></b>   |      |           |             |               |
| 12.3     | Not exceeding DN200mm  | m    | 30        |             |               |
|          | <b><u>Concrete Stools and Thrust Blocks</u></b>  |      |           |             |               |
|          | <b><u>Thrust Blocks</u></b><br>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes |      |           |             |               |
| 13       | Diameter not exceeding DN200mm   | No.  | Rate Only |             |               |
|          | <b><u>Other Pipework Ancillaries</u></b>   |      |           |             |               |
|          | <b><u>Marker Posts</u></b>   |      |           |             |               |
| 14       | Marker posts for pipes, gate valves, air valves, washouts.   | No.  | 15        |             |               |

**Total Carried to Collection**

**BILL No. 2 : TRANSMISSION MAINS**

| Item No. | Description                 | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|-----------------------------|------|------|-------------|---------------|
|          | <b>Bill No.2 Collection</b> |      |      |             |               |
|          | Page 8                      |      |      |             |               |
|          | Page 9                      |      |      |             |               |
|          | Page 10                     |      |      |             |               |

**Total Bill No. 2 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.2: ODOKOMIT IN AGAGO DISTRICT

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.   | Item | 1    |             |               |
| 2                                  | <b><u>Reservoir Tower</u></b>   |      |      |             |               |
|                                    | <u>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc, painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.</u>   |      |      |             |               |
| 2.1                                | Height; 6.0m for 30m <sup>3</sup> Tank.   | No.  | 1    |             |               |
| 3                                  | <b><u>Tanks</u></b>   |      |      |             |               |
|                                    | <u>Supply and Install a fabricated 6.0mm thick mild steel plate horizontal cylindrical tank with 1No. 0.6m wide access man way, water level indicator (scale in cubic metres), with inlet, outlet, washout and overflow connection complete with access points, ventilators (2 nr), and internal access ladders, inclusive of anti-rust painting internally, finishes and all necessary accessories to installation complete as specified and detailed in the drawings; to the Engineer's satisfaction. All tank accessories shall be of hot dipped galvanised steel.</u> |      |      |             |               |
| 3.1                                | Reservoir: 30m <sup>3</sup> nominal capacity erected on a 6m high tower   | No.  | 1    |             |               |
| 4                                  | <u>150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>   |      |      |             |               |
| 4.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| 5                                  | <u>150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u>   |      |      |             |               |
|                                    | [OPTIONAL]  |      |      |             |               |
| 5.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.2: ODOKOMIT IN AGAGO DISTRICT

Region: North

**BILL No.3 : STORAGE RESERVOIR WORKS**

| Item No.                                       | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|--|---|----------------|-----------|-------------|---------------|
| <b>6</b>                                       | <b>Landscaping and Walkways</b>   |                |           |             |               |
| 6.1  | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2  | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill. | No.            | Rate Only |             |               |
| <b>7</b>                                       | <b>Fences</b>   |                |           |             |               |
| 7.1  | Galvanized wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|  | <b>Gates</b>  |                |           |             |               |
| 7.2  | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|  | <b>Provision and Placing of Concrete</b><br><b>Ordinary Designed Mix Concrete</b>   |                |           |             |               |
| <b>8</b>                                       | <u>Designed mix concrete, to BS 5328, with ordinary Portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u>                |                |           |             |               |
| 8.1  | Grade C15   | m <sup>3</sup> | 2         |             |               |
| <b>Total Carried to Collection</b>             |   |                |           |             |               |
| <b>BILL No. 3 : STORAGE RESERVOIR WORKS</b>    |   |                |           |             |               |
| Item No.                                       | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|  | <b>Bill No. 3 Collection</b>  |                |           |             |               |
|  | Page 11   |                |           |             |               |
|  | Page 12   |                |           |             |               |
| <b>Total Bill No.3 Carried to Bill Summary</b> |   |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.2: ODOKOMIT IN AGAGO DISTRICT

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                     | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m |      |           |             |               |
| 2.1                                | OD63mm PN6   | m    | 93        |             |               |
| 2.2                                | OD90mm PN6   | m    | 197       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>   |      |           |             |               |
| 3.1                                | OD90mm   | No.  | 1         |             |               |
|                                    | <b><u>Unequal tees</u></b>   |      |           |             |               |
| 3.2                                | OD90 x 63mm  | No.  | 5         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>   |      |           |             |               |
| 4.2                                | OD90mm   | No.  | Rate Only |             |               |
| 4.3                                | OD75mm   | No.  | Rate Only |             |               |
| 4.4                                | OD63mm   | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>   |      |           |             |               |
| 5.4                                | OD63mm   | No.  | 5         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.2: ODOKOMIT IN AGAGO DISTRICT

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
| <b>6</b>  | <b><u>Valves and Penstocks</u></b>  |      |           |             |               |
|   | <b><u>Air Valves</u></b>  |      |           |             |               |
|   | Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.  |      |           |             |               |
| 6.2   | OD90mm  | No.  | Rate Only |             |               |
| 6.3   | OD75mm  | No.  | Rate Only |             |               |
| 6.4   | OD63mm  | No.  | Rate Only |             |               |
| <b>7</b>  | <b><u>Washouts</u></b>  |      |           |             |               |
|   | Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |           |             |               |
| 7.2   | DN75mm  | No.  | Rate Only |             |               |
| 7.3   | DN65mm  | No.  | Rate Only |             |               |
| <b>8</b>  | <b><u>Farm Gate Connections</u></b>   |      |           |             |               |
|   | Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and lockable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -   |      |           |             |               |
| 8.4   | DN50mm  | No.  | 5         |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>  |      |           |             |               |
|   | <b><u>Marker Posts</u></b>  |      |           |             |               |
| 9   | Marker posts for pipes, gate valves, air valves, washouts.  | No.  | 14        |             |               |
| <b>Total Carried to Collection</b>              |   |      |           |             |               |
|   | <b>Bill No. 4 Collection</b>  |      |           |             |               |
|   | Page 13   |      |           |             |               |
|   | Page 14   |      |           |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |   |      |           |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 4.3: OGET IN KITGUM DISTRICT**

**Region: North**

**BILL SUMMARY**

| <b>Bill No.</b>                       | <b>Description</b>                      | <b>Amount (UGx.)</b> |
|---------------------------------------|---|----------------------|
|                                       | <b>WORK ITEMS</b>                       |                      |
| 1                                     | Abstraction and Electromechanical Works |                      |
| 2                                     | Transmission Mains                      |                      |
| 3                                     | Storage Reservoir Works                 |                      |
| 4                                     | Distribution Network                    |                      |
| <b>Total Carried to Grand Summary</b> |   |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 4.3: OGET IN KITGUM DISTRICT**

**Region: North**

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|----------------|------|-------------|---------------|
|                                    | <b><u>General Site Clearance</u></b>  |                |      |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer.  | Item           | 1    |             |               |
|                                    | <b><u>Earthworks</u></b>  |                |      |             |               |
|                                    | Excavation to form trapezoidal prism silt basin and reservoir in material other than topsoil, rock or other artificial hard material, depth not exceeding 4.0m including forming earth bands around the reservoir banks with the excavated material as per the drawings to fair profiles to receive grassing and/ or disposing the excavated material on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings. |                |      |             |               |
| 2.1                                | Marshy soils  | m <sup>3</sup> | 1555 |             |               |
| 2.2                                | Soft / decomposed rock soils  | m <sup>3</sup> | 30   |             |               |
|                                    | Excavation to form trapezoidal channel in material other than topsoil, rock or other artificial hard material, depth not exceeding 3.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.   |                |      |             |               |
| 2.4                                | Marshy soils  | m <sup>3</sup> | 150  |             |               |
| 2.5                                | Soft / decomposed rock soils  | m <sup>3</sup> | 6    |             |               |
|                                    | <b><u>MISCELLANEOUS METAL WORK</u></b>  |                |      |             |               |
|                                    | <b><u>Pump Protection System</u></b>  |                |      |             |               |
| 4.1                                | Diagonal pipe pump stilling tube/ anti-vandal protection sleeve structure to detail as per Drawing No. OIS/NUC/SD/010, including 1.5x1.5x0.3m support base.   | Item           | 1    |             |               |
| 4.2                                | Purpose -made pipe support structure made of welded GI pipes to detail as per Drawings.   | Item           | 1    |             |               |
| <b>Total Carried to Collection</b> |   |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 4.3: OGET IN KITGUM DISTRICT**

**Region: North**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b>MISCELLANEOUS METAL WORK</b>  |      |      |             |               |
|                                    | <b>Pump Protection System</b>  |      |      |             |               |
| 4.1                                | Diagonal pipe pump stilling tube/ anti-vandal protection sleeve structure to detail as per Drawing No. OIS/NUC/SD/010, including 1.5x1.5x0.3m support base.  | Item | 1    |             |               |
| 4.2                                | Purpose -made pipe support structure made of welded GI pipes to detail as per Drawing s.   | Item | 1    |             |               |
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>   |      |      |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)  |      |      |             |               |
| ME1                                | 11.0kW Submersible Pump Set with 15kW Pumping Inverter with Data Module, rated flow Q = 25 m <sup>3</sup> /hr., rated head H = 100m total head; set to not more than <b>5m</b> below ground including Dry- run protection, Motor and Pump End. | No.  | 1    |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item | 1    |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings including foundations, vandal proofing mounting to the Engineer's approval     | Sum  | 1    |             |               |
| ME4                                | PV Disconnect 1000-40-2  | No.  | 1    |             |               |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.  | 1    |             |               |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item | 1    |             |               |
| ME7                                | PV Combiner  | No.  | 1    |             |               |
| ME7a                               | Pressure Switch and Gauge - P6/12  | No.  | 1    |             |               |
| ME8                                | Sinewave filter - SWAP0022.  | No.  | 1    |             |               |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,   | m    | 5    |             |               |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m    | 125  |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 4.3: OGET IN KITGUM DISTRICT**

**Region: North**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| <b>Item No.</b>                    | <b>Description</b>   | <b>Unit</b> | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
|------------------------------------|--|-------------|-------------|--------------------|----------------------|
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m           | 60          |                    |                      |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.         | 2           |                    |                      |
| ME11a                              | Adapter box  | No.         | 1           |                    |                      |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item        | 1           |                    |                      |
|                                    | <b><u>Earthing and Lightening Protection</u></b>   |             |             |                    |                      |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm               | Sum         | 1           |                    |                      |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                                 | Sum         | 1           |                    |                      |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.         | 5           |                    |                      |
|                                    | <b><u>Alarm System</u></b>   |             |             |                    |                      |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item        | 1           |                    |                      |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item        | 1           |                    |                      |
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>  |             |             |                    |                      |
|                                    | <b><u>Pump Protection System</u></b>   |             |             |                    |                      |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base. | No.         | 1           |                    |                      |
| <b>Total Carried to Collection</b> |  |             |             |                    |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 4.3: OGET IN KITGUM DISTRICT**

**Region: North**

| <b>BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b> |   |                |           |  |                      |
|---|---|----------------|-----------|--|----------------------|
| <b>Item No.</b>   | <b>Description</b>  |                |           |  | <b>Amount (UGx.)</b> |
|   | <b><u>Kerbs</u></b>   |                |           |  |                      |
|   | Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m <sup>2</sup> to the following alignment: -  |                |           |  |                      |
| X2  | Straight or curved to a radius exceeding 12 m   | m              | 70        |  |                      |
| X3  | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a gauge 500 polythene sheet.   | m <sup>2</sup> | 220       |  |                      |
| X4  | 450mm diameter reinforced concrete pipe/ culvert  | m              | Rate Only |  |                      |
|   | <b><u>Pump House</u></b>  |                |           |  |                      |
| X5  | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.   | Sum            | 1         |  |                      |
|   | <b><u>Fences</u></b>  |                |           |  |                      |
| X6a   | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m              | 40        |  |                      |
| X6b   | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m              | 120       |  |                      |
|   | <b><u>Gates</u></b>   |                |           |  |                      |
| X7  | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |  |                      |
|   | <b><u>Training of Operator's staff</u></b>  |                |           |  |                      |
| X8  | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval  | Sum            | 1         |  |                      |
|   | <b><u>Operation and Maintenance Manuals</u></b>   |                |           |  |                      |
| X9  | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum            | 1         |  |                      |
|   | <b><u>Stone Pitching.</u></b>   |                |           |  |                      |
| XXX   | 250mm minimum thick grouted stone masonry jointed in cement : sand (1:4) motar as detailed in the drawing.  | m <sup>2</sup> | 125       |  |                      |
| <b>Total Carried to Collection</b>                          |   |                |           |  |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.3: OGET IN KITGUM DISTRICT

Region: North

| <b>BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b> |                              |  |  |  |                      |
|---|------------------------------|--|--|--|----------------------|
| <b>Item No.</b>   | <b>Description</b>           |  |  |  | <b>Amount (UGx.)</b> |
|   | <b>Bill No. 1 Collection</b> |  |  |  |                      |
|   | Page 2                       |  |  |  |                      |
|   | Page 3                       |  |  |  |                      |
|   | Page 4                       |  |  |  |                      |
|   | Page 5                       |  |  |  |                      |
| <b>Total Bill No. 1 Carried to Bill Summary</b>             |                              |  |  |  |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.3: OGET IN KITGUM DISTRICT

Region: North

| BILL No. .2 : TRANSMISSION MAINS   |   |      |           |             |               |
|------------------------------------|---|------|-----------|-------------|---------------|
| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.  | Item | 1         |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Steel Pipes</u></b>   |      |           |             |               |
|                                    | <u>Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes:</u>  |      |           |             |               |
| 2.1                                | DN75mm, not in trenches;  | m    | Rate Only |             |               |
| 2.2                                | DN75mm, in trenches; depths not exceeding 1.5m  | m    | 12        |             |               |
| 3                                  | <b><u>HDPE Pipes</u></b>  |      |           |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>  |      |           |             |               |
| 3.1                                | OD75mm HDPE PN16  | m    | 240       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>   |      |           |             |               |
| 5                                  | <b><u>Bends</u></b>   |      |           |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |           |             |               |
| 5.1                                | DN65mm  | No.  | 4         |             |               |
| 6                                  | <b><u>Bulk Flow Meters</u></b>  |      |           |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |           |             |               |
| 6.1                                | DN65mm PN16   | No.  | 6         |             |               |
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
| 7                                  | <b><u>Equal Adapters</u></b>  |      |           |             |               |
| 7.1                                | OD90 female adapter   | No.  | 2         |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.3: OGET IN KITGUM DISTRICT

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| <b>8</b>                           | <b><u>Valves and Penstocks</u></b>   |      |           |             |               |
|                                    | <b><u>Air Valves</u></b>   |      |           |             |               |
|                                    | <u>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                          |      |           |             |               |
| 8.1                                | DN65mm, PN16   | No.  | 1         |             |               |
| <b>9</b>                           | <b><u>Washouts</u></b>   |      |           |             |               |
|                                    | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |           |             |               |
| 9.1                                | DN65mm, PN16   | No.  | 1         |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b>   |      |           |             |               |
|                                    | <b><u>Other Chambers</u></b>   |      |           |             |               |
|                                    | <u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>   |      |           |             |               |
| 10.1                               | Depth not exceeding 1.5m   | No.  | 2         |             |               |
|                                    | <b><u>Valve Surface Boxes</u></b>  |      |           |             |               |
|                                    | <u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u>  |      |           |             |               |
| 10.2                               | Depth not exceeding 1.5m   | No.  | 3         |             |               |
|                                    | <b><u>Reinstatement</u></b>  |      |           |             |               |
|                                    | <b><u>Roads</u></b>  |      |           |             |               |
|                                    | <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>   |      |           |             |               |
| 11                                 | Not exceeding DN300mm  | m    | 12        |             |               |
|                                    | <b><u>Surrounds</u></b>  |      |           |             |               |
|                                    | <u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u>   |      |           |             |               |
| 12.1                               | Not exceeding DN200mm  | m    | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.3: OGET IN KITGUM DISTRICT

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No. | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|--|------|-----------|-------------|---------------|
| 12.2     | <u>Pipe surrounds, of imported granular material, for the following pipe sizes</u><br>Not exceeding DN200mm          | m    | 15        |             |               |
| 12.3     | <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u><br>Not exceeding DN200mm                       | m    | 20        |             |               |
|          | <b><u>Concrete Stools and Thrust Blocks</u></b>  |      |           |             |               |
|          | <b><u>Thrust Blocks</u></b>  |      |           |             |               |
|          | <u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes</u> |      |           |             |               |
| 13       | Diameter not exceeding DN200mm   | No.  | Rate Only |             |               |
|          | <b><u>Other Pipework Ancillaries</u></b>   |      |           |             |               |
|          | <b><u>Marker Posts</u></b>   |      |           |             |               |
| 14       | Marker posts for pipes, gate valves, air valves, washouts.   | No.  | 12        |             |               |

**Total Carried to Collection**

**BILL No. 2 : TRANSMISSION MAINS**

| Item No. | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|------------------------------|------|------|-------------|---------------|
|          | <b>Bill No. 2 Collection</b> |      |      |             |               |
|          | Page 7                       |      |      |             |               |
|          | Page 8                       |      |      |             |               |
|          | Page 9                       |      |      |             |               |

**Total Bill No. 2 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.3: OGET IN KITGUM DISTRICT

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b>DEMOLITION AND SITE CLEARANCE</b>   |      |      |             |               |
|                                    | <b>General Site Clearance</b>  |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.  | Item | 1    |             |               |
| 2                                  | <b>Reservoir Tower</b><br>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc, painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.   |      |      |             |               |
| 2.1                                | Height; 6.0m for 30m <sup>3</sup> Tank.  | No.  | 1    |             |               |
| 3                                  | <b>Tanks</b><br>Supply and Install a fabricated 6.0mm thick mild steel plate horizontal cylindrical tank with 1No. 0.6m wide access man way, water level indicator (scale in cubic metres), with inlet, outlet, washout and overflow connection complete with access points, ventilators (2 nr), and internal access ladders, inclusive of anti-rust painting internally, finishes and all necessary accessories to installation complete as specified and detailed in the drawings; to the Engineer's satisfaction. All tank accessories shall be of hot dipped galvanised steel. |      |      |             |               |
| 3.1                                | Reservoir: 30m <sup>3</sup> nominal capacity erected on a 6m high tower  | No.  | 1    |             |               |
| 4                                  | 150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-   |      |      |             |               |
| 4.1                                | DN75mm, PN10   | No.  | 1    |             |               |
| 5                                  | 150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-<br>[OPTIONAL]   |      |      |             |               |
| 5.2                                | DN75mm, PN10   | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.3: OGET IN KITGUM DISTRICT

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|----------------|-----------|-------------|---------------|
| <b>6</b> | <b><u>Landscaping and Walkways</u></b>  |                |           |             |               |
| 6.1      | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2      | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murrum fill. | No.            | Rate Only |             |               |
| <b>7</b> | <b><u>Fences</u></b>  |                |           |             |               |
| 7.1      | Galvanized wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|          | <b><u>Gates</u></b>   |                |           |             |               |
| 7.2      | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 2         |             |               |
|          | <b>Provision and Placing of Concrete</b><br><b><i>Ordinary Designed Mix Concrete</i></b>  |                |           |             |               |
| <b>8</b> | <u>Designed mix concrete, to BS 5328, with ordinary Portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u>                |                |           |             |               |
| 8.1      | Grade C15   | m <sup>3</sup> | 2         |             |               |

**Total Carried to Collection**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|------------------------------|------|------|-------------|---------------|
|          | <b>Bill No. 3 Collection</b> |      |      |             |               |
|          | Page 10                      |      |      |             |               |
|          | Page 11                      |      |      |             |               |

**Total Bill No. 3 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.3: OGET IN KITGUM DISTRICT

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                     | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m |      |           |             |               |
| 2.1                                | OD75mm PN6   | m    | 300       |             |               |
| 2.2                                | OD90mm PN6   | m    | 200       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>   |      |           |             |               |
| 3.1                                | OD90mm   | No.  | 2         |             |               |
| 3.2                                | OD75mm   | No.  | Rate Only |             |               |
| 3.3                                | OD63mm   | No.  | 1         |             |               |
|                                    | <b><u>Unequal tees</u></b>   |      |           |             |               |
| 6.4                                | OD90 x 75mm  | No.  | Rate Only |             |               |
| 3.5                                | OD90 x 63mm  | No.  | 4         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>   |      |           |             |               |
| 4.1                                | OD90mm   | No.  | Rate Only |             |               |
| 4.2                                | OD75mm   | No.  | Rate Only |             |               |
| 4.3                                | OD63mm   | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>   |      |           |             |               |
| 5.1                                | OD90mm   | No.  | Rate Only |             |               |
| 5.2                                | OD75mm   | No.  | Rate Only |             |               |
| 5.3                                | OD63mm   | No.  | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.3: OGET IN KITGUM DISTRICT

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
| <b>6</b>  | <b><u>Valves and Penstocks</u></b><br><b><u>Air Valves</u></b><br>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.                          |      |           |             |               |
| 6.1   | OD90mm  | No.  | Rate Only |             |               |
| 6.2   | OD75mm  | No.  | Rate Only |             |               |
| 6.3   | OD63mm  | No.  | Rate Only |             |               |
| <b>7</b>  | <b><u>Washouts</u></b><br>Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |           |             |               |
| 7.1   | DN75mm  | No.  | Rate Only |             |               |
| 7.2   | DN65mm  | No.  | Rate Only |             |               |
| <b>8</b>  | <b><u>Farm Gate Connections</u></b><br>Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and lockable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -  |      |           |             |               |
| 8.1   | DN50mm  | No.  | 5         |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b><br><b><u>Marker Posts</u></b>  |      |           |             |               |
| 9   | Marker posts for pipes, gate valves, air valves, washouts.  | No.  | 14        |             |               |
| <b>Total Carried to Collection</b>              |   |      |           |             |               |
|   | <b>Bill No. 4 Collection</b>  |      |           |             |               |
|   | Page 12   |      |           |             |               |
|   | Page 13   |      |           |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |   |      |           |             |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.4: LOGOT OPUKT IN LAMWO DISTRICT

Region: North

## **BILL SUMMARY**

| Bill No.                              | Description                             | Amount (UGx.) |
|---------------------------------------|---|---------------|
|                                       | <b>WORK ITEMS</b>                       |               |
| 1                                     | Abstraction and Electromechanical Works |               |
| 2                                     | Transmission Mains                      |               |
| 3                                     | Storage Reservoir Works                 |               |
| 4                                     | Distribution Network                    |               |
| <b>Total Carried to Grand Summary</b> |   |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.4: LOGOT OPUKT IN LAMWO DISTRICT

Region: North

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
|                                    | <b><u>General Site Clearance</u></b>   |                |      |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer. | Item           | 1    |             |               |
|                                    | <b><u>Landscaping</u></b>  |                |      |             |               |
| 2                                  | Turfing for lawns inside fenced off compound, including filling with excavated topsoil and the preparation of surfaces; 40m <sup>2</sup> at Intake Site and 800m <sup>2</sup> at Pump Station.   | m <sup>2</sup> | 840  |             |               |
| 3                                  | Reinforced concrete pipe support/ pedestal to detail as per Drawings.  | No.            | 2    |             |               |
|                                    | <b>MISCELLANEOUS METAL WORK</b>  |                |      |             |               |
|                                    | <b>Pump Protection System</b>  |                |      |             |               |
| 4.1                                | Diagonal pipe sleeve pump anti-vandal protection structure to detail as per Drawing No. OIS/NUC/SD/010.  | Item           | 1    |             |               |
| 4.2                                | Purpose -made pipe support structure made of welded GI pipes to detail as per Drawings.  | Item           | 1    |             |               |
|                                    | <b>MISCELLANEOUS METAL WORK</b>  |                |      |             |               |
|                                    | <b>Pump Protection System</b>  |                |      |             |               |
| 4.1                                | Diagonal pipe pump stilling tube/ anti-vandal protection sleeve structure to detail as per Drawing No. OIS/NUC/SD/010, including 1.5x1.5x0.3m support base.  | Item           | 1    |             |               |
| 4.2                                | Purpose -made pipe support structure made of welded GI pipes to detail as per Drawing s.   | Item           | 1    |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.4: LOGOT OPUKT IN LAMWO DISTRICT

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>   |      |      |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)  |      |      |             |               |
| ME1                                | 11.0kW Submersible Pump Set with 15kW Pumping Inverter with Data Module, rated flow Q = 25 m <sup>3</sup> /hr., rated head H = 100m total head; set to not more than <u>5m</u> below ground including Dry- run protection, Motor and Pump End. | No.  | 1    |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item | 1    |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings including foundations, vandal proofing mounting to the Engineer's approval     | Sum  | 1    |             |               |
| ME4                                | PV Disconnect 1000-40-2  | No.  | 1    |             |               |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.  | 1    |             |               |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item | 1    |             |               |
| ME7                                | PV Combiner  | No.  | 1    |             |               |
| ME7a                               | Pressure Switch and Gauge - P6/12  | No.  | 1    |             |               |
| ME8                                | Sinewave filter - SWAP0022D.   | No.  | 1    |             |               |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,   | m    | 5    |             |               |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m    | 125  |             |               |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m    | 60   |             |               |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.  | 2    |             |               |
| ME11a                              | Adapter box  | No.  | 1    |             |               |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item | 1    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.4: LOGOT OPUKT IN LAMWO DISTRICT

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|-----------|-------------|---------------|
|                                    | <b><u>Earthing and Lightening Protection</u></b>   |                |           |             |               |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm               | Sum            | 1         |             |               |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                                 | Sum            | 1         |             |               |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.            | 5         |             |               |
|                                    | <b><u>Alarm System</u></b>   |                |           |             |               |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item           | 1         |             |               |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item           | 1         |             |               |
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>  |                |           |             |               |
|                                    | <b><u>Pump Protection System</u></b>   |                |           |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base. | Item           | Rate Only |             |               |
|                                    | <b><u>Kerbs</u></b>  |                |           |             |               |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>   |                |           |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m  | m              | 70        |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a gauge 500 polythene sheet.  | m <sup>2</sup> | 220       |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert   | m              | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 4.4: LOGOT OPUKT IN LAMWO DISTRICT**

**Region: North**

| <b>BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b> |   |      |           |  |                     |
|---|---|------|-----------|--|---------------------|
| <b>Item No.</b>   | <b>Description</b>  |      |           |  | <b>Amount (UGX)</b> |
|   | <b><u>Pump House</u></b>  |      |           |  |                     |
| X5  | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.   | Sum  | 1         |  |                     |
|   | <b><u>Fences</u></b>  |      |           |  |                     |
| X6a   | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m    | 40        |  |                     |
| X6b   | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m    | 120       |  |                     |
|   | <b><u>Gates</u></b>   |      |           |  |                     |
| X7  | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.  | 1         |  |                     |
|   | <b><u>Training of Operator's staff</u></b>  |      |           |  |                     |
| X8  | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval  | Sum  | 1         |  |                     |
|   | <b><u>Operation and Maintenance Manuals</u></b>   |      |           |  |                     |
| X9  | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum  | 1         |  |                     |
| XX  | Horizontal pump installation option out of flanged/ sealed end HDPE culvert pipe mounted on fabricated GI support structure including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/005.       | Item | Rate Only |  |                     |
| <b>Total Carried to Collection</b>                          |   |      |           |  |                     |
|   | <b>Bill No. 1 Collection</b>  |      |           |  |                     |
|   | Page 2  |      |           |  |                     |
|   | Page 3  |      |           |  |                     |
|   | Page 4  |      |           |  |                     |
|   | Page 5  |      |           |  |                     |
| <b>Total Bill No. 1 Carried to Bill Summary</b>             |   |      |           |  |                     |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.4: LOGOT OPUKT IN LAMWO DISTRICT

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.  | Item | 1         |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Steel Pipes</u></b>   |      |           |             |               |
|                                    | <u>Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes;</u>  |      |           |             |               |
| 2.1                                | DN75mm, in trenches; depths not exceeding 1.5m  | m    | 12        |             |               |
| 3                                  | <b><u>HDPE Pipes</u></b>  |      |           |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>  |      |           |             |               |
| 3.1                                | OD90mm HDPE PN16  | m    | 410       |             |               |
| 4                                  | <b><u>uPVC Pipes</u></b>  |      |           |             |               |
|                                    | <u>uPVC pressure pipes to UNBS US 264: 2000 and DIN 8062 with integral rubber ring socket joints laid in trenches</u>   |      |           |             |               |
|                                    | <u>OD110 to PN 16</u>   |      |           |             |               |
| 4.1                                | Depth not exceeding 1.5m  | m    | Rate Only |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>   |      |           |             |               |
| 5                                  | <b><u>Bends</u></b>   |      |           |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |           |             |               |
| 5.1                                | DN75mm, PN16  | No.  | 4         |             |               |
| 6                                  | <b><u>Bulk Flow Meters</u></b>  |      |           |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |           |             |               |
| 6.1                                | DN75mm PN16   | No.  | 1         |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.4: LOGOT OPUKT IN LAMWO DISTRICT

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
| 7                                  | <b>Equal Adapters</b>  |      |           |             |               |
| 7.1                                | OD90 female adapter  | No.  | 2         |             |               |
| 8                                  | <b><u>Valves and Penstocks</u></b>   |      |           |             |               |
|                                    | <b><u>Air Valves</u></b>   |      |           |             |               |
|                                    | <u>Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                          |      |           |             |               |
| 8.1                                | DN75mm   | No.  | 1         |             |               |
| 9                                  | <b><u>Washouts</u></b>   |      |           |             |               |
|                                    | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |           |             |               |
| 9.1                                | DN75mm   | No.  | 2         |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b>   |      |           |             |               |
|                                    | <b><u>Other Chambers</u></b>   |      |           |             |               |
|                                    | <u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>   |      |           |             |               |
| 10.1                               | Depth not exceeding 1.5m   | No.  | 2         |             |               |
|                                    | <b><u>Valve Surface Boxes</u></b>  |      |           |             |               |
|                                    | <u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u>  |      |           |             |               |
| 10.2                               | Depth not exceeding 1.5m   | No.  | 3         |             |               |
|                                    | <b><u>Reinstatement</u></b>  |      |           |             |               |
|                                    | <b><u>Roads</u></b>  |      |           |             |               |
|                                    | <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>   |      |           |             |               |
| 11                                 | Not exceeding DN300mm  | m    | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.4: LOGOT OPUKT IN LAMWO DISTRICT

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.  | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|--|------|-----------|-------------|---------------|
|   | <b><u>Surrounds</u></b>  |      |           |             |               |
| 12.1  | Pipe surrounds, of selected excavated granular material, for the following pipe sizes<br>Not exceeding DN200mm   | m    | Rate Only |             |               |
| 12.2  | Pipe surrounds, of imported granular material, for the following pipe sizes<br>Not exceeding DN200mm   | m    | Rate Only |             |               |
| 12.3  | Pipe surrounds, of mass concrete, for the following pipe sizes<br>Not exceeding DN200mm  | m    | Rate Only |             |               |
|   | <b><u>Concrete Stools and Thrust Blocks</u></b>  |      |           |             |               |
|   | <b><u>Thrust Blocks</u></b>  |      |           |             |               |
| 13  | Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m <sup>3</sup> , for the following pipe sizes<br>Diameter not exceeding DN200mm | No.  | Rate Only |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>   |      |           |             |               |
|   | <b><u>Marker Posts</u></b>   |      |           |             |               |
| 14  | Marker posts for pipes, gate valves, air valves, washouts.   | No.  | 20        |             |               |
| <b>Total Carried to Collection</b>              |  |      |           |             |               |
| <b>BILL No. 2 : TRANSMISSION MAINS</b>          |  |      |           |             |               |
| Item No.  | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|   | <b>Bill No. 2 Collection</b>   |      |           |             |               |
|   | Page 6   |      |           |             |               |
|   | Page 7   |      |           |             |               |
|   | Page 8   |      |           |             |               |
| <b>Total Bill No. 2 Carried to Bill Summary</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.4: LOGOT OPUKT IN LAMWO DISTRICT

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.   | Item | 1    |             |               |
| 2                                  | <b><u>Reservoir Tower</u></b>   |      |      |             |               |
|                                    | <u>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc, painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.</u>   |      |      |             |               |
| 2.1                                | Height; 6.0m for 30m <sup>3</sup> Tank.   | No.  | 1    |             |               |
| 3                                  | <b><u>Tanks</u></b>   |      |      |             |               |
|                                    | <u>Supply and Install a fabricated 6.0mm thick mild steel plate horizontal cylindrical tank with 1No. 0.6m wide access man way, water level indicator (scale in cubic metres), with inlet, outlet, washout and overflow connection complete with access points, ventilators (2 nr), and internal access ladders, inclusive of anti-rust painting internally, finishes and all necessary accessories to installation complete as specified and detailed in the drawings; to the Engineer's satisfaction. All tank accessories shall be of hot dipped galvanised steel.</u> |      |      |             |               |
| 3.1                                | Reservoir: 30m <sup>3</sup> nominal capacity erected on a 6m high tower   | No.  | 1    |             |               |
| 4                                  | <u>150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>   |      |      |             |               |
| 4.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| 5                                  | <u>150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u>   |      |      |             |               |
|                                    | [OPTIONAL]  |      |      |             |               |
| 5.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.4: LOGOT OPUKT IN LAMWO DISTRICT

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.  | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|----------------|-----------|-------------|---------------|
| <b>6</b>  | <b>Landscaping and Walkways</b>   |                |           |             |               |
| 6.1   | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2   | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill. | No.            | Rate Only |             |               |
| <b>7</b>  | <b>Fences</b>   |                |           |             |               |
| 7.1   | Galvanized wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|   | <b>Gates</b>  |                |           |             |               |
| 7.2   | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|   | <b>Provision and Placing of Concrete</b><br><b>Ordinary Designed Mix Concrete</b>   |                |           |             |               |
| <b>8</b>  | <u>Designed mix concrete, to BS 5328, with ordinary Portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u>                |                |           |             |               |
| 8.1   | Grade C15   | m <sup>3</sup> | 1         |             |               |
| <b>Total Carried to Collection</b>              |   |                |           |             |               |
|   | <b>Bill No.3 Collection</b>   |                |           |             |               |
|   | Page 9  |                |           |             |               |
|   | Page 10   |                |           |             |               |
| <b>Total Bill No. 3 Carried to Bill Summary</b> |   |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.4: LOGOT OPUKT IN LAMWO DISTRICT

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                     | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m |      |           |             |               |
| 2.1                                | OD75mm PN6   | m    | 166       |             |               |
| 2.2                                | OD90mm PN6   | m    | 300       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>   |      |           |             |               |
| 3.1                                | OD90mm   | No.  | 1         |             |               |
| 3.2                                | OD63mm   | No.  | 1         |             |               |
|                                    | <b><u>Unequal tees</u></b>   |      |           |             |               |
| 3.3                                | OD90 x 63mm  | No.  | 4         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>   |      |           |             |               |
| 4.1                                | OD75mm   | No.  | Rate Only |             |               |
| 4.2                                | OD63mm   | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>   |      |           |             |               |
| 5.1                                | OD63mm   | No.  | 5         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.4: LOGOT OPUKT IN LAMWO DISTRICT

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
| <b>6</b>  | <b>Valves and Penstocks</b>   |      |           |             |               |
|   | <b>Air Valves</b>   |      |           |             |               |
|   | Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.  |      |           |             |               |
| 6.1   | OD90mm  | No.  | Rate Only |             |               |
| 6.2   | OD75mm  | No.  | Rate Only |             |               |
| <b>7</b>  | <b>Washouts</b>   |      |           |             |               |
|   | Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |           |             |               |
| 7.1   | DN65mm  | No.  | 2         |             |               |
| <b>8</b>  | <b>Farm Gate Connections</b>  |      |           |             |               |
|   | Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and lockable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -   |      |           |             |               |
| 8.1   | DN50mm  | No.  | 5         |             |               |
|   | <b>Other Pipework Ancillaries</b>   |      |           |             |               |
|   | <b>Marker Posts</b>   |      |           |             |               |
| 9   | Marker posts for pipes, gate valves, air valves, washouts.  | No.  | 24        |             |               |
| <b>Total Carried to Collection</b>              |   |      |           |             |               |
|   | <b>Bill No. 4 Collection</b>  |      |           |             |               |
|   | Page 11   |      |           |             |               |
|   | Page 12   |      |           |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.5: TEKULLU IN LIRA DSTRIC

Region: North

**BILL SUMMARY**

| Bill No.                              | Description                             | Amount (UGx.) |
|---------------------------------------|---|---------------|
|                                       | <b>WORK ITEMS</b>                       |               |
| 1                                     | Abstraction and Electromechanical Works |               |
| 2                                     | Transmission Mains                      |               |
| 3                                     | Storage Reservoir Works                 |               |
| 4                                     | Distribution Network                    |               |
| <b>Total Carried to Grand Summary</b> |   |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.5: TEKULLU IN LIRA DSTRIC

Region: North

| <b>BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b> |  |                |             |                    |                      |
|--|--|----------------|-------------|--------------------|----------------------|
| <b>Item No.</b>  | <b>Description</b>   | <b>Unit</b>    | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
|  | <b><u>General Site Clearance</u></b>   |                |             |                    |                      |
| 1  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer. | Item           | 1           |                    |                      |
|  | <b><u>Earthworks</u></b>   |                |             |                    |                      |
| 2.1  | Excavation to form river/ stream diversion towards the intake / abstraction structure in normal ground, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to receive hardcore fill. | m <sup>3</sup> | 57          |                    |                      |
| 2.2  | Ditto but for the Intake Structure   | m <sup>3</sup> | 34          |                    |                      |
| 2.3  | Excavation to form trapezoidal drain in marshy soils, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                                     | m <sup>3</sup> | 175         |                    |                      |
|  | <b><u>Filling Structures</u></b>   |                |             |                    |                      |
|  | <u>Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -</u>  |                |             |                    |                      |
| 3.1  | Imported rock/ hardcore fill, size 75 to 300mm hand packed or compacted by the arm of an excavator.  | m <sup>3</sup> | 12          |                    |                      |
| 3.2  | Imported murrum.   | m <sup>3</sup> | 10          |                    |                      |
| 4  | Single layer of geotextile laid to manufacturer's specifications   | m <sup>2</sup> | Rate Only   |                    |                      |
|  | <b><u>Landscaping</u></b>  |                |             |                    |                      |
| 5  | Turfing for lawns inside fenced off compound, including filling with excavated topsoil and the preparation of surfaces; 40m <sup>2</sup> at Intake Site and 800m <sup>2</sup> at Pump Station.   | m <sup>2</sup> | 840         |                    |                      |
| <b>Total Carried to Collection</b>                         |  |                |             |                    |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.5: TEKULLU IN LIRA DSTRIC

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
|                                    | <b>IN-SITU CONCRETE</b><br><b>Provision and Placing of Concrete</b><br><b>Ordinary Design Mix Concrete</b><br><u>Designed mix , concrete to BS 8500 and BS EN 206-1, with ordinary Portland cement to BS 12, aggregate to BS 882 for the following structures: -</u> |                |      |             |               |
|                                    | <b>Grade C15/10</b><br><b>Blinding</b><br>6.1 50mm thick blinding concrete, for base slabs, toes, key and heel; grade C15, of the following thickness  | m <sup>3</sup> | 1.1  |             |               |
|                                    | <b>Grade C25/10</b><br><b>Reinforced Concrete Base Slabs, Toe and Heel</b><br>6.2 200mm thick toe.   | m <sup>3</sup> | 0.3  |             |               |
|                                    | 6.3 200mm thick base slab.   | m <sup>3</sup> | 2.4  |             |               |
|                                    | 6.4 350/ 200mm thick retaining wall/ weir stem.  | m <sup>3</sup> | 0    |             |               |
|                                    | 6.5 200mm thick sump walls.  | m <sup>3</sup> | 13.5 |             |               |
|                                    | 6.6 200mm thick top slab.  | m <sup>3</sup> | 1.2  |             |               |
|                                    | <b>Formwork</b><br><b>Formwork-Fair Finish</b>   |                |      |             |               |
|                                    | <b>Fair Finish Plane Horizontal</b><br>7.1 Plane fair finish horizontal formwork to the tops slab including chamfering and / or filleting of all exposed concrete corners.   | m <sup>2</sup> | 4.0  |             |               |
|                                    | <b>Fair Finish Plane Vertical</b><br>7.2 Plane fair finish vertical and / or slightly sloping formwork to walls including chamfering and / or filleting of all exposed concrete corners.   | m <sup>2</sup> | 140  |             |               |
|                                    | <b>Finishing of top surfaces</b><br>7.3 Steel trowel finishing of top surfaces.  | m <sup>2</sup> | 11   |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.5: TEKULLU IN LIRA DSTRIC

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| 8.1                                | <b>Reinforcement</b><br><b>Deformed High Yield Steel</b><br><u>High yield square twisted bars to BS 4449 and of the following sizes</u><br>Nominal size, 12mm  | t    | 1.2       |             |               |
| 8.2                                | <b>Inserts</b><br>DN 250 CI / ST flanged, puddled pipe insert pipe inserts projecting from two faces of the concrete wall and of the following sizes, excluding supply of pipe.  | No.  | Rate Only |             |               |
| 9.1                                | <b>PIPEWORK - FITTINGS AND VALVES</b><br><b>Cast or Spun Iron Pipe Fittings.</b><br><br><b>Flanged Reducers</b><br>DN250 x 150mm   | No.  | Rate Only |             |               |
| 9.2                                | <b>Flange Adaptors</b><br>DN 150mm Maxi Type or similar wide range adaptor to fit pipe spigots, flanges to BS 4505, all to PN6.  | No.  | Rate Only |             |               |
| 9.3                                | <b>Strainers</b><br><u>Flanged outlet pipe strainer, to BS 4772, flanges to BS 4504, all to PN 10, cement mortar lined, and of the following sizes: -</u><br>DN 250 mm   | No.  | Rate Only |             |               |
| 9.4                                | <b>End Caps</b><br>DN250mm flanged end cap.  | No.  | Rate Only |             |               |
| 9.5                                | <b>Valves and Penstocks</b><br><b>Gate Valves: Hand Operated</b><br><br><u>All flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 10 for operation by tee key, with extension spindle not exceeding 1.5 m long, and of the following sizes:-</u><br>150 mm ND | No.  | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.5: TEKULLU IN LIRA DSTRIC

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| 9.6                                | <u>Penstocks; hand operated including head stock and distance spindle, as specified in drawings of the following size: -</u><br>300mm wide x 1000mm high, stainless steel.   | No.  | 1         |             |               |
|                                    | <b>MISCELLANEOUS METAL WORK</b>  |      |           |             |               |
|                                    | <b>Ladders</b>   |      |           |             |               |
| 10.1                               | External galvanized mild steel ladder to BS 4211, galvanized to BS 729, complete and as shown in the drawings including fixing to precast concrete units..   | m    | 8         |             |               |
|                                    | <b>Access Manhole Cover</b>  |      |           |             |               |
| 10.2                               | 600 x 600mm clear opening painted mild steel cover and frame include fixing and locking arrangement.   | No.  | 2         |             |               |
|                                    | <b>Pump Protection System</b>  |      |           |             |               |
| 10.3                               | Vertical pipe pump stilling tube/ anti-vandal protection sleeve structure to detail as per Drawing No. OIS/NUC/SD/010, including 1.5x1.5x0.3m support base.  | No.  | 0         |             |               |
|                                    | <b>Valve Surface Boxes</b>   |      |           |             |               |
| 10.4                               | Valve surface box with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to a depth not exceeding 4.5 m.   | No.  | Rate Only |             |               |
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>   |      |           |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)  |      |           |             |               |
| ME1                                | 11.0kW Submersible Pump Set with 15kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 100m total head; set to not more than <u>5m</u> below ground including Dry- run protection, Motor and Pump End. | No.  | 1         |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item | 1         |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings including foundations, vandal proofing mounting to the Engineer's approval     | Sum  | 1         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 4.5: TEKULLU IN LIRA DSTRIC**

**Region: North**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| <b>Item No.</b>                    | <b>Description</b>   | <b>Unit</b> | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
|------------------------------------|--|-------------|-------------|--------------------|----------------------|
| ME4                                | PV Disconnect 1000-40-2  | No.         | 1           |                    |                      |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.         | 1           |                    |                      |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item        | 1           |                    |                      |
| ME7                                | PV Combiner  | No.         | 1           |                    |                      |
| ME7a                               | Pressure Switch and Gauge - P6/12  | No.         | 1           |                    |                      |
| ME8                                | Sinewave filter - SWAP0022D.   | No.         | 1           |                    |                      |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,   | m           | 5           |                    |                      |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m           | 125         |                    |                      |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m           | 60          |                    |                      |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.         | 2           |                    |                      |
| ME11a                              | Adapter box  | No.         | 1           |                    |                      |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item        | 1           |                    |                      |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm | Sum         | 1           |                    |                      |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                   | Sum         | 1           |                    |                      |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.         | 5           |                    |                      |
|                                    | <b>Alarm System</b>  |             |             |                    |                      |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item        | 1           |                    |                      |
| <b>Total Carried to Collection</b> |  |             |             |                    |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.5: TEKULLU IN LIRA DSTRIC

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.  | Item | 1    |             |               |
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>   |      |      |             |               |
|                                    | <b><u>Pump Protection System</u></b>  |      |      |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base.              | No.  | 1    |             |               |
|                                    | <b><u>Kerbs</u></b>   |      |      |             |               |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m² to the following alignment: -</u>   |      |      |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m   | m    | 70   |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a gauge 500 polythene sheet.   | m²   | 220  |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert  | m    | 2    |             |               |
|                                    | <b><u>Pump House</u></b>  |      |      |             |               |
| X5                                 | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.   | Sum  | 1    |             |               |
|                                    | <b><u>Fences</u></b>  |      |      |             |               |
| X6a                                | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds" to the Engineer's approval.</u> | m    | 40   |             |               |
| X6b                                | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m    | 120  |             |               |
|                                    | <b><u>Gates</u></b>   |      |      |             |               |
| X7                                 | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.  | 2    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.5: TEKULLU IN LIRA DSTRIC

Region: North

| BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS |   |      |           |  |               |
|--|---|------|-----------|--|---------------|
| Item No.   | Description   |      |           |  | Amount (UGx.) |
|  | <u>Training of Operator's staff</u>   |      |           |  |               |
| X8   | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval                                    | Sum  | 1         |  |               |
|  | <u>Operation and Maintenance Manuals</u>  |      |           |  |               |
| X9   | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum  | 1         |  |               |
| XX   | Horizontal pump installation option out of flanged/ sealed end HDPE culvert pipe mounted on fabricated GI support structure including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/005. | Item | Rate Only |  |               |
| Total Carried to Collection                          |   |      |           |  |               |
| BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS |   |      |           |  |               |
| Item No.   | Description   |      |           |  | Amount (UGx.) |
|  | <b>Bill No. 1 Collection</b>  |      |           |  |               |
|  | Page 2  |      |           |  |               |
|  | Page 3  |      |           |  |               |
|  | Page 4  |      |           |  |               |
|  | Page 5  |      |           |  |               |
|  | Page 6  |      |           |  |               |
|  | Page 7  |      |           |  |               |
|  | Page 8  |      |           |  |               |
| Total Bill No. 1 Carried to Bill Summary             |   |      |           |  |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.5: TEKULLU IN LIRA DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.  | Item | 1.00      |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Steel Pipes</u></b>   |      |           |             |               |
|                                    | <u>Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes:</u>  |      |           |             |               |
| 2.1                                | DN75mm, not in trenches;  | m    | Rate Only |             |               |
| 2.2                                | DN75mm, in trenches; depths not exceeding 1.5m  | m    | 12        |             |               |
| 3                                  | <b><u>HDPE Pipes</u></b>  |      |           |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>  |      |           |             |               |
| 3.1                                | OD90mm HDPE PN16  | m    | 420       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>   |      |           |             |               |
| 5                                  | <b><u>Bends</u></b>   |      |           |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |           |             |               |
| 5.1                                | DN75mm  | No.  | 4         |             |               |
| 6                                  | <b><u>Bulk Flow Meters</u></b>  |      |           |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |           |             |               |
| 6.1                                | DN75mm PN10   | No.  | 1         |             |               |
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
| 7                                  | <b><u>Equal Adapters</u></b>  |      |           |             |               |
| 7.1                                | OD90 female adapter   | No.  | 2         |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.5: TEKULLU IN LIRA DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| <b>8</b>                           | <b><u>Valves and Penstocks</u></b>   |      |           |             |               |
|                                    | <b><u>Air Valves</u></b>   |      |           |             |               |
|                                    | <u>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                          |      |           |             |               |
| 8.1                                | DN75mm   | No.  | 1         |             |               |
| <b>9</b>                           | <b><u>Washouts</u></b>   |      |           |             |               |
|                                    | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |           |             |               |
| 9.1                                | DN75mm   | No.  | 2         |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b>   |      |           |             |               |
|                                    | <b><u>Other Chambers</u></b>   |      |           |             |               |
|                                    | <u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>   |      |           |             |               |
| 10.1                               | Depth not exceeding 1.5m   | No.  | 2         |             |               |
|                                    | <b><u>Valve Surface Boxes</u></b>  |      |           |             |               |
|                                    | <u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u>  |      |           |             |               |
| 10.2                               | Depth not exceeding 1.5m   | No.  | 3         |             |               |
|                                    | <b><u>Reinstatement</u></b>  |      |           |             |               |
|                                    | <b><u>Roads</u></b>  |      |           |             |               |
|                                    | <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>   |      |           |             |               |
| 11                                 | Not exceeding DN300mm  | m    | Rate Only |             |               |
|                                    | <b><u>Surrounds</u></b>  |      |           |             |               |
|                                    | <u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u>   |      |           |             |               |
| 12.1                               | Not exceeding DN200mm  | m    | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.5: TEKULLU IN LIRA DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.  | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|--|------|-----------|-------------|---------------|
| 12.2  | <u>Pipe surrounds, of imported granular material, for the following pipe sizes</u><br>Not exceeding DN200mm  | m    | Rate Only |             |               |
| 12.3  | <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u><br>Not exceeding DN200mm   | m    | 40        |             |               |
|   | <b><u>Concrete Stools and Thrust Blocks</u></b>  |      |           |             |               |
|   | <b><u>Thrust Blocks</u></b>  |      |           |             |               |
| 13.1  | <u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes</u><br>Diameter not exceeding DN200mm | No.  | Rate Only |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>   |      |           |             |               |
|   | <b><u>Marker Posts</u></b>   |      |           |             |               |
| 14  | Marker posts for pipes, gate valves, air valves, washouts.   | No.  | 18        |             |               |
| <b>Total Carried to Collection</b>              |  |      |           |             |               |
| <b>BILL No. 2 : TRANSMISSION MAINS</b>          |  |      |           |             |               |
| Item No.  | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|   | <b>Bill No. 2 Collection</b>   |      |           |             |               |
|   | Page 9   |      |           |             |               |
|   | Page 10  |      |           |             |               |
|   | Page 11  |      |           |             |               |
| <b>Total Bill No. 2 Carried to Bill Summary</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.5: TEKULLU IN LIRA DSTRIC

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.   | Item | 1    |             |               |
| 2                                  | <b><u>Reservoir Tower</u></b>   |      |      |             |               |
|                                    | <u>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc, painting and finishes; complete as specified and detailed in the drawings , of the following height and reservior capacities.</u>   |      |      |             |               |
| 2.1                                | Height; 6.0m for 30m <sup>3</sup> Tank.   | No.  | 1    |             |               |
| 3                                  | <b><u>Tanks</u></b>   |      |      |             |               |
|                                    | <u>Supply and Install a fabricated 6.0mm thick mild steel plate horizontal cylindrical tank with 1No. 0.6m wide access man way, water level indicator (scale in cubic metres), with inlet, outlet, washout and overflow connection complete with access points, ventilators (2 nr), and internal access ladders, inclusive of anti-rust painting internally, finishes and all necessary accessories to installation complete as specified and detailed in the drawings; to the Engineer's satisfaction. All tank accessories shall be of hot dipped galvanised steel.</u> |      |      |             |               |
| 3.1                                | Reservoir: 30m <sup>3</sup> nominal capacity erected on a 6m high tower   | No.  | 1    |             |               |
| 4                                  | <u>150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>   |      |      |             |               |
| 4.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| 5                                  | <u>150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u>   |      |      |             |               |
|                                    | [OPTIONAL]  |      |      |             |               |
| 5.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.5: TEKULLU IN LIRA DSTRIC

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|----------------|-----------|-------------|---------------|
| <b>6</b> | <b><u>Landscaping and Walkways</u></b>  |                |           |             |               |
| 6.1      | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2      | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill. | No.            | Rate Only |             |               |
| <b>7</b> | <b><u>Fences</u></b>  |                |           |             |               |
| 7.1      | Galvanized wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|          | <b><u>Gates</u></b>   |                |           |             |               |
| 7.2      | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 2         |             |               |
|          | <b>Provision and Placing of Concrete</b><br><b><i>Ordinary Designed Mix Concrete</i></b>  |                |           |             |               |
| <b>8</b> | <u>Designed mix concrete, to BS 5328, with ordinary Portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u>                |                |           |             |               |
| 8.1      | Grade C15   | m <sup>3</sup> | 2         |             |               |

**Total Carried to Collection**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|------------------------------|------|------|-------------|---------------|
|          | <b>Bill No. 3 Collection</b> |      |      |             |               |
|          | Page 12                      |      |      |             |               |
|          | Page 13                      |      |      |             |               |

**Total Bill No. 3 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.5: TEKULLU IN LIRA DSTRIC

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                                | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
|   | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|   | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                       | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                            | Item | 1         |             |               |
|   | <b><u>PIPEWORK-PIPES</u></b>  |      |           |             |               |
| 2                                       | <b><u>Plastic Pressure Pipes- Distribution</u></b><br><u>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m</u> |      |           |             |               |
| 2.1                                     | OD63mm PN6  | m    | 135       |             |               |
| 2.2                                     | OD75mm PN6  | m    | 140       |             |               |
| 2.3                                     | OD90mm PN6  | m    | 122       |             |               |
|   | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|   | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|   | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 3                                       | <b><u>Equal tees</u></b>  |      |           |             |               |
| 3.1                                     | OD90mm  | No.  | 1         |             |               |
| 3.2                                     | OD63mm  | No.  | 2         |             |               |
|   | <b><u>Unequal tees</u></b>  |      |           |             |               |
| 3.3                                     | OD90 x 75mm   | No.  | 1         |             |               |
| 3.4                                     | OD90 x 63mm   | No.  | 2         |             |               |
| 3.5                                     | OD75 x 63mm   | No.  | 3         |             |               |
|   | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|   | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 4                                       | <b><u>Couplers</u></b>  |      |           |             |               |
| 4.2                                     | OD90mm  | No.  | Rate Only |             |               |
| 4.3                                     | OD75mm  | No.  | Rate Only |             |               |
| 4.4                                     | OD63mm  | No.  | Rate Only |             |               |
| 5                                       | <b><u>End caps</u></b>  |      |           |             |               |
| 5.4                                     | OD63mm  | No.  | 5         |             |               |
| <b>Total Carried to Collection</b>      |   |      |           |             |               |
| <b>BILL No.4 : DISTRIBUTION NETWORK</b> |   |      |           |             |               |
| Item No.                                | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
| 6                                       | <b><u>Valves and Penstocks</u></b><br><b><u>Air Valves</u></b>  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 4.5: TEKULLU IN LIRA DSTRIC**

**Region: North**

|   |   |     |           |  |  |
|---|---|-----|-----------|--|--|
| 6.1   | <p>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</p> <p>OD75mm</p>   | No. | 1         |  |  |
| 7   | <p><b>Washouts</b></p> <p>Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004.</p> |     |           |  |  |
| 7.1   | DN75mm  | No. | Rate Only |  |  |
| 7.2   | DN65mm  | No. | Rate Only |  |  |
| 7.3   | DN50mm  | No. | Rate Only |  |  |
| 8   | <p><b>Farm Gate Connections</b></p> <p>Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and lockable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -</p>  |     |           |  |  |
| 8.1   | DN50mm  | No. | 5         |  |  |
|   | <p><b>Other Pipework Ancillaries</b></p>  |     |           |  |  |
|   | <p><b>Marker Posts</b></p>  |     |           |  |  |
| 9   | Marker posts for pipes, gate valves, air valves, washouts.  | No. | 18        |  |  |
| <b>Total Carried to Collection</b>              |   |     |           |  |  |
|   | <p align="center"><b>Bill No. 4 Collection</b></p> <p align="center">Page 16</p> <p align="center">Page 17</p>  |     |           |  |  |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |   |     |           |  |  |



# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.6: BWAMULAMIRA IN KAYUNGA DISTRICT

Region: North

## **BILL SUMMARY**

| Bill No.                              | Description                             | Amount (UGx.) |
|---------------------------------------|---|---------------|
|                                       | <b>WORK ITEMS</b>                       |               |
| 1                                     | Abstraction and Electromechanical Works |               |
| 2                                     | Transmission Mains                      |               |
| 3                                     | Storage Reservoir Works                 |               |
| 4                                     | Distribution Network                    |               |
| <b>Total Carried to Grand Summary</b> |   |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 4.6: BWAMULAMIRA IN KAYUNGA DISTRICT

Region: North

| BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS |  |                |      |             |               |
|--|--|----------------|------|-------------|---------------|
| Item No.   | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|  | <b>General Site Clearance</b>  |                |      |             |               |
| 1  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer. | Item           | 1    |             |               |
|  | <b>BOREHOLE SITING, DRILLING AND TEST PUMPING</b>  |                |      |             |               |
| 2.1  | Inception (Desk Studies), field reconnaissance surveys and siting of suitable borehole site within <u>River Sezibwa Swamp system</u> .   | Item           | 1    |             |               |
| 2.2  | Mobilization and demobilization of personnel and equipment to and from site.   | Item           | 1    |             |               |
| 2.3  | 150mm borehole drilling and casing to depth not exceeding 180m, including 72-hour test pumping, recovery, construction of the well head structures and production of reports.  | Item           | 1    |             |               |
| 2.4  | Allow for the supervision of items 2.1, 2.2 and 2.3 by the Ministry of Water and Environment, Ground Water Unit - WSDF-N.  | Item           | 1    |             |               |
|  | <b>Landscaping</b>   |                |      |             |               |
| 4  | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.  | m <sup>2</sup> | 40   |             |               |
| <b>Total Carried to Collection</b>                   |  |                |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 4.6: BWAMULAMIRA IN KAYUNGA DISTRICT

Region: North

| BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS |  |  |   |             |               |
|---|--|--|---|-------------|---------------|
| Item No.  | Description  | Unit   | Qty.  | Rate (UGx.) | Amount (UGx.) |
|   | <b>IN-SITU CONCRETE</b><br><b>Provision and Placing of Concrete</b><br><b>Ordinary Design Mix Concrete</b><br><u>Designed mix , concrete to BS 8500 and BS EN 206-1, with ordinary portland cement to BS 12, aggregate to BS 882 , maximum aggregate size ; 20mm for the following structures: -</u><br><br><b>In situ Concrete</b><br>5 75mm thick Grade C15 concrete blinding to pump sump base<br><br>6.1 2200mm Diameter x 150mm thick Grade C25 concrete base slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float.<br><br>6.2 2200mm Diameter x 150mm thick Grade C25 concrete top slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float and forming a 600 x 600mm opening for the inspection cover (MS).<br><br><b>Pre-cast Concrete</b><br><b>Pump Well/ Sump</b><br>Supply and install 100mm thick precast reinforced concrete vertical culverts on concrete base slab (MS) ; complete with water tight jointing and finishing works to approval.<br>7 1200mm diameter ; height n.e 8m<br><br><b>Concrete Inserts</b><br><b>Cast or Spum Iron Pipe Fittings.</b><br>Flanged, puddled and plain end pipe insert projecting from one face of the concrete, all to PN6 and of the following sizes and lengths, including supply of the pipe and as shown in the drawings.<br>8 200mm ND and not exceeding 0.5m length<br><br><b>Adaptors</b><br>Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:-<br><br>9 200 mm ND | m <sup>3</sup><br><br>Item<br><br>Item<br><br>Item<br><br>No.<br><br>No. | 0.25<br><br>1<br><br>1<br><br>1<br><br>2<br><br>2 |             |               |
| Total Carried to Collection                         |  |  |   |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 4.6: BWAMULAMIRA IN KAYUNGA DISTRICT

Region: North

| BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS |  |      |           |             |               |
|---|--|------|-----------|-------------|---------------|
| Item No.  | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
| 10  | OD225mm PN10 plain end uPVC pipe connection between Silt Trap Basin and Pump Sump.   | m    | 8         |             |               |
|   | <b>Bellmouths</b>  |      |           |             |               |
| 11  | Flanged bellmouth to ISO 2531, flanges to ISO 2441, of the following sizes all to PN 6<br>200 mm ND  | No.  | 1         |             |               |
|   | <b>PIPEWORK - FITTINGS AND VALVES</b>  |      |           |             |               |
|   | <b>Gate Valves: Hand Operated</b>  |      |           |             |               |
| 12  | DN 200 mm all flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 6 for operation by tee key, with extension spindle not exceeding 4.5 metres long, and of the following sizes                       |      |           |             |               |
|   | <b>MISCELLANEOUS WORK</b>  |      |           |             |               |
|   | <b>Ladders</b>   |      |           |             |               |
| 13  | Internal galvanized mild steel ladder to BS 4211, galvanized to BS 729, complete and as shown in the drawings including fixing to precast concrete units..   | m    | 8         |             |               |
|   | <b>Steel grating</b>   |      |           |             |               |
| 14.1  | Galvanized iron Coarse Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
| 14.2  | Galvanized iron Fine Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
|   | <b>Pump Well/ Sump</b>   |      |           |             |               |
|   | Supply and install 8.0m long HDPE vertical culverts on concrete base slab (MS) ; complete with a Single ND200mm flanged branch to receive a ND200 gate valve. Branch height/ positioning to be determined on site. | Item | Rate Only |             |               |
| 15  | Internal diameter ; 1200x200mm   |      |           |             |               |
|   | <b>Stone pitched Channel.</b>  |      |           |             |               |
| 16  | 3.0 x 1.5 top x bottom width x 1.5m deep maximum trapezoidal lined drain as detailed in the drawing.   | m    | 5         |             |               |
|   | <b>Gabion boxes</b>  |      |           |             |               |
| 17  | PVC coated gabion boxes ; size 1m x 1m x 1m; including rockfill of size 100 - 250mm; as instructed by the Engineer   | nr   | Rate Only |             |               |
| Total Carried to Collection                         |  |      |           |             |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 4.6: BWAMULAMIRA IN KAYUNGA DISTRICT**

**Region: North**

| <b>BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b> |  |             |             |                    |                      |
|--|--|-------------|-------------|--------------------|----------------------|
| <b>Item No.</b>  | <b>Description</b>   | <b>Unit</b> | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
|  | <b><u>ELECTRO-MECHANICAL WORKS</u></b>   |             |             |                    |                      |
|  | <b>Solar Pumping System</b> (based on 550Wp panels; bidder to adjust numbers to  |             |             |                    |                      |
| ME1  | 7.5kW Submersible Pump Set with 11.0kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 55m total head; set to not more than <u>5m</u> below ground including Dry- run protection, Motor and Pump End. | No.         | 1           |                    |                      |
| ME2  | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item        | 1           |                    |                      |
| ME3  | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings, including foundations, vandal proofing mounting to the Engineer's approval    | Sum         | 1           |                    |                      |
| ME4  | PV Disconnect 1000-40-2  | No.         | 1           |                    |                      |
| ME5  | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.         | 1           |                    |                      |
| ME6  | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item        | 1           |                    |                      |
| ME7  | PV Combiner  | No.         | 1           |                    |                      |
| ME7a   | Pressure Switch and Gauge - P5/8   | No.         | 1           |                    |                      |
| ME8  | Sinewave filter - SWAP0017D.   | No.         | 1           |                    |                      |
| ME9  | 10mm <sup>2</sup> Borehole drop cable,   | m           | 5           |                    |                      |
| ME10   | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m           | 225         |                    |                      |
| ME10a  | 6mm <sup>2</sup> UV Single Cable.  | m           | 60          |                    |                      |
| ME11   | Wire kit array from solar array to controller with MC4 connectors  | No.         | 2           |                    |                      |
| ME11a  | Adapter box  | No.         | 1           |                    |                      |
| ME12   | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item        | 1           |                    |                      |
| <b>Total Carried to Collection</b>                         |  |             |             |                    |                      |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 4.6: BWAMULAMIRA IN KAYUNGA DISTRICT**

**Region: North**

| <b>BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b> |  |                |             |                    |                      |
|--|--|----------------|-------------|--------------------|----------------------|
| <b>Item No.</b>  | <b>Description</b>   | <b>Unit</b>    | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
| ME13   | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm               | Sum            | 1           |                    |                      |
| ME14   | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                                 | Sum            | 1           |                    |                      |
| ME15   | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.            | 5           |                    |                      |
|  | <b>Alarm System</b>  |                |             |                    |                      |
| ME16   | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item           | 1           |                    |                      |
| ME17   | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item           | 1           |                    |                      |
|  | <b><u>MISCELLANEOUS WORKS</u></b>  |                |             |                    |                      |
|  | <b>Pump Protection System</b>  |                |             |                    |                      |
| X1   | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base. | No.            | 1           |                    |                      |
|  | <b><u>Kerbs</u></b>  |                |             |                    |                      |
|  | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>   |                |             |                    |                      |
| X2   | Straight or curved to a radius exceeding 12 m  | m              | 70          |                    |                      |
| X3   | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a gauge 500 polythene sheet.  | m <sup>2</sup> | 220         |                    |                      |
| X4   | 450mm diameter reinforced concrete pipe/ culvert   | m              | Rate Only   |                    |                      |
|  | <b><u>Pump House</u></b>   |                |             |                    |                      |
| X5   | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.  | Sum            | 1           |                    |                      |
| <b>Total Carried to Collection</b>                         |  |                |             |                    |                      |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 4.6: BWAMULAMIRA IN KAYUNGA DISTRICT**

**Region: North**

| <b>BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b>  |  |             |             |                    |                      |
|---|--|-------------|-------------|--------------------|----------------------|
| <b>Item No.</b>   | <b>Description</b>   | <b>Unit</b> | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
|   | <b><u>Fences</u></b>   |             |             |                    |                      |
| X6a   | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of  | m           | 80          |                    |                      |
| X6b   | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.   | m           | 120         |                    |                      |
|   | <b><u>Gates</u></b>  |             |             |                    |                      |
| X7  | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.   | No.         | 2           |                    |                      |
|   | <b><u>Training of Operator's staff</u></b>   |             |             |                    |                      |
| X8  | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval | Sum         | 1           |                    |                      |
|   | <b><u>Operation and Maintenance Manuals</u></b>  |             |             |                    |                      |
| X9  | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval   | Sum         | 1           |                    |                      |
| <b>Total Carried to Collection</b>                          |  |             |             |                    |                      |
| <b>BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b> |  |             |             |                    |                      |
| <b>Item No.</b>   | <b>Description</b>   |             |             |                    | <b>Amount (UGx.)</b> |
|   | <b>Bill No. 1 Collection</b>   |             |             |                    |                      |
|   | Page 2   |             |             |                    |                      |
|   | Page 3   |             |             |                    |                      |
|   | Page 4   |             |             |                    |                      |
|   | Page 5   |             |             |                    |                      |
|   | Page 6   |             |             |                    |                      |
|   | Page 7   |             |             |                    |                      |
| <b>Total Bill No. 1 Carried to Bill Summary</b>             |  |             |             |                    |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.6: BWAMULAMIRA IN KAYUNGA DISTRICT

Region: North

| BILL No. 2 : TRANSMISSION MAINS    |   |      |           |             |               |
|------------------------------------|---|------|-----------|-------------|---------------|
| Item No.                           | Description   | Unit | Rate Only | Rate (UGx.) | Amount (UGx.) |
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.  | Item | 1         |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>   |      |           |             |               |
|                                    | <b><u>Steel Pipes</u></b>   |      |           |             |               |
|                                    | <u>Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes;</u>  |      |           |             |               |
| 2.1                                | DN75mm, in trenches; depths not exceeding 1.5m  | m    | 12        |             |               |
|                                    | <b><u>HDPE Pipes</u></b>  |      |           |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>  |      |           |             |               |
| 3.1                                | OD75mm HDPE PN10  | m    | 400       |             |               |
|                                    | <b><u>uPVC Pipes</u></b>  |      |           |             |               |
|                                    | <u>uPVC pressure pipes to UNBS US 264: 2000 and DIN 8062 with integral rubber ring socket joints laid in trenches</u>   |      |           |             |               |
|                                    | <u>OD110 to PN 10</u>   |      |           |             |               |
| 4.1                                | Depth not exceeding 1.5m  | m    | Rate Only |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>   |      |           |             |               |
|                                    | <b><u>Bends</u></b>   |      |           |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |           |             |               |
| 5.1                                | DN65mm  | No.  | 4         |             |               |
|                                    | <b><u>Bulk Flow Meters</u></b>  |      |           |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |           |             |               |
| 6.3                                | DN65mm PN10   | No.  | 1         |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.6: BWAMULAMIRA IN KAYUNGA DISTRICT

Region: North

| BILL No. 2 : TRANSMISSION MAINS    |   |      |      |             |               |
|------------------------------------|---|------|------|-------------|---------------|
| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |      |             |               |
| 7                                  | <b>Equal Adapters</b>   |      |      |             |               |
| 7.1                                | OD90 female adapter   | No.  | 2    |             |               |
| 8                                  | <b><u>Valves and Penstocks</u></b>  |      |      |             |               |
|                                    | <b><u>Air Valves</u></b>  |      |      |             |               |
|                                    | Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.                          |      |      |             |               |
| 8.3                                | DN65mm  | No.  | 1    |             |               |
| 9                                  | <b><u>Washouts</u></b>  |      |      |             |               |
|                                    | Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail. |      |      |             |               |
| 9.1                                | DN65mm  | No.  | 2    |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b>  |      |      |             |               |
|                                    | <b><u>Other Chambers</u></b>  |      |      |             |               |
|                                    | Masonry air valve chamber, complete as specified in the drawings, and of the following depths   |      |      |             |               |
| 10.1                               | Depth not exceeding 1.5m  | No.  | 2    |             |               |
|                                    | <b><u>Valve Surface Boxes</u></b>   |      |      |             |               |
|                                    | Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths  |      |      |             |               |
| 10.2                               | Depth not exceeding 1.5m  | No.  | 3    |             |               |
|                                    | <b><u>Reinstatement</u></b>   |      |      |             |               |
|                                    | <b><u>Roads</u></b>   |      |      |             |               |
|                                    | Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes   |      |      |             |               |
| 11                                 | Not exceeding DN300mm   | m    | 12   |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.6: BWAMULAMIRA IN KAYUNGA DISTRICT

Region: North

| BILL No. 2 : TRANSMISSION MAINS          |  |      |           |             |               |
|--|--|------|-----------|-------------|---------------|
| Item No.                                 | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
| 12                                       | <b><u>Surrounds</u></b><br>Pipe surrounds, of selected excavated granular material, for the following pipe sizes                             |      |           |             |               |
| 12.1                                     | Not exceeding DN200mm  | m    | Rate Only |             |               |
|  | <b><u>Pipe surrounds, of imported granular material, for the following pipe sizes</u></b>  |      |           |             |               |
| 12.2                                     | Not exceeding DN200mm  | m    | 90        |             |               |
|  | <b><u>Pipe surrounds, of mass concrete, for the following pipe sizes</u></b>   |      |           |             |               |
| 12.3                                     | Not exceeding DN200mm  | m    | 20        |             |               |
| 13                                       | <b><u>Concrete Stools and Thrust Blocks</u></b>  |      |           |             |               |
|  | <b><u>Thrust Blocks</u></b><br>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes |      |           |             |               |
| 13.1                                     | Diameter not exceeding DN200mm   | No.  | Rate Only |             |               |
|  | <b><u>Other Pipework Ancillaries</u></b><br><b><u>Marker Posts</u></b>   |      |           |             |               |
| 14                                       | Marker posts for pipes, gate valves, air valves, washouts.   | No.  | 20        |             |               |
| Total Carried to Collection              |  |      |           |             |               |
| BILL No. 2 : TRANSMISSION MAINS          |  |      |           |             |               |
| Item No.                                 | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|  | <b>Bill No. 2 Collection</b>   |      |           |             |               |
|  | Page 8   |      |           |             |               |
|  | Page 9   |      |           |             |               |
|  | Page 10  |      |           |             |               |
| Total Bill No. 2 Carried to Bill Summary |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.6: BWAMULAMIRA IN KAYUNGA DISTRICT

Region: North

| BILL No. 3 : STORAGE RESERVOIR WORKS |   |      |      |             |        |
|--------------------------------------|---|------|------|-------------|--------|
| Item                                 | Description   | Unit | Qty. | Rate (UGx.) | Amount |
|                                      | <b>DEMOLITION AND SITE CLEARANCE</b>  |      |      |             |        |
|                                      | <b>General Site Clearance</b>   |      |      |             |        |
| 1                                    | General site clearance including trees, stumps and disposal of arising materials.   | Item | 1    |             |        |
| 2                                    | <b>Reservoir Tower</b><br><u>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc, painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.</u>   |      |      |             |        |
| 2.1                                  | Height; 6.0m for 30m <sup>3</sup> Tank.   | No.  | 1    |             |        |
| 3                                    | <b>Tanks</b><br><u>Supply and Install a fabricated 6.0mm thick mild steel plate horizontal cylindrical tank with 1No. 0.6m wide access man way, water level indicator (scale in cubic metres), with inlet, outlet, washout and overflow connection complete with access points, ventilators (2 nr), and internal access ladders, inclusive of anti-rust painting internally, finishes and all necessary accessories to installation complete as specified and detailed in the drawings; to the Engineer's satisfaction. All tank accessories shall be of hot dipped galvanised steel.</u> |      |      |             |        |
| 3.1                                  | Reservoir: 30m <sup>3</sup> nominal capacity erected on a 6m high tower   | No.  | 1    |             |        |
| 4                                    | <u>150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>   |      |      |             |        |
| 4.1                                  | DN75mm, PN10  | No.  | 1    |             |        |
| 5                                    | <u>150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u><br>[OPTIONAL]   |      |      |             |        |
| 5.2                                  | DN75mm, PN10  | No.  | 1    |             |        |
| <b>Total Carried to Collection</b>   |   |      |      |             |        |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.6: BWAMULAMIRA IN KAYUNGA DISTRICT

Region: North

| BILL No. 3 : STORAGE RESERVOIR WORKS            |   |                |           |             |               |
|---|---|----------------|-----------|-------------|---------------|
| Item No.  | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
| <b>6</b>  | <b><u>Landscaping and Walkways</u></b>  |                |           |             |               |
| 6.1   | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2   | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill. | No.            | Rate Only |             |               |
| <b>7</b>  | <b><u>Fences</u></b>  |                |           |             |               |
| 7.1   | Galvanized wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|   | <b><u>Gates</u></b>   |                |           |             |               |
| 7.2   | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|   | <b><u>Provision and Placing of Concrete</u></b><br><b><u>Ordinary Designed Mix Concrete</u></b>   |                |           |             |               |
| <b>8</b>  | <b><u>Designed mix concrete, to BS 5328, with ordinary Portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u></b>         |                |           |             |               |
| 8.1   | Grade C15   | m <sup>3</sup> | 1         |             |               |
| <b>Total Carried to Collection</b>              |   |                |           |             |               |
| BILL No. 3 : STORAGE RESERVOIR WORKS            |   |                |           |             |               |
| Item No.  | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|   | <b>Bill No. 3 Collection</b>  |                |           |             |               |
|   | Page 11   |                |           |             |               |
|   | Page 12   |                |           |             |               |
| <b>Total Bill No. 3 Carried to Bill Summary</b> |   |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.6: BWAMULAMIRA IN KAYUNGA DISTRICT

Region: North

| BILL No.4 : DISTRIBUTION NETWORK   |  |      |           |             |               |
|------------------------------------|--|------|-----------|-------------|---------------|
| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                     | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m |      |           |             |               |
| 2.1                                | OD63mm PN10  | m    | 400       |             |               |
| 2.2                                | OD75mm PN10  | m    | Rate Only |             |               |
|                                    | <b><u>uPVC Pipes</u></b><br>uPVC pressure pipes to UNBS US 264: 2000 and DIN 8062 with integral rubber ring socket joints laid in trenches<br>OD110 to PN 6                      |      |           |             |               |
| 2.2                                | Depth not exceeding 1.5m   | m    | 280       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>   |      |           |             |               |
| 3.1                                | OD110mm  | No.  | 1         |             |               |
|                                    | <b><u>Unequal tees</u></b>   |      |           |             |               |
| 3.2                                | OD110 x 90mm   | No.  | 2         |             |               |
| 3.3                                | OD110 x 63mm   | No.  | 5         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>   |      |           |             |               |
| 4.1                                | OD90mm   | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>   |      |           |             |               |
| 5.1                                | OD90mm   | No.  | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.6: BWAMULAMIRA IN KAYUNGA DISTRICT

Region: North

| BILL No.4 : DISTRIBUTION NETWORK                |   |      |           |             |               |
|---|---|------|-----------|-------------|---------------|
| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
| 6   | <b>Valves and Penstocks</b><br><b>Air Valves</b><br><u>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                                 |      |           |             |               |
| 6.1   | OD90mm  | No.  | Rate Only |             |               |
| 7   | <b>Washouts</b><br><u>Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004.</u> |      |           |             |               |
| 7.1   | DN65mm  | No.  | Rate Only |             |               |
| 8   | <b>Farm Gate Connections</b><br>Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and lockable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -   |      |           |             |               |
| 8.4   | DN50mm  | No.  | 5         |             |               |
|   | <b>Other Pipework Ancillaries</b><br><b>Marker Posts</b>  |      |           |             |               |
| 9   | Marker posts for pipes, gate valves, air valves, washouts.  | No.  | 20        |             |               |
| <b>Total Carried to Collection</b>              |   |      |           |             |               |
|   | <b>Bill No. 4 Collection</b><br><br>Page 13<br><br>Page 14  |      |           |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.7: OPORE IN OTUKE DSTRIC

Region: North

**BILL SUMMARY**

| Bill No.                              | Description                             | Amount (UGx.) |
|---------------------------------------|---|---------------|
|                                       | <b>WORK ITEMS</b>                       |               |
| 1                                     | Abstraction and Electromechanical Works |               |
| 2                                     | Transmission Mains                      |               |
| 3                                     | Storage Reservoir Works                 |               |
| 4                                     | Distribution Network                    |               |
| <b>Total Carried to Grand Summary</b> |   |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 4.7: OPORE IN OTUKE DSTRIC**

**Region: North**

| <b>BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b> |  |                |             |                    |                      |
|--|--|----------------|-------------|--------------------|----------------------|
| <b>Item No.</b>  | <b>Description</b>   | <b>Unit</b>    | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
|  | <b><u>General Site Clearance</u></b>   |                |             |                    |                      |
| 1  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer. | Item           | 1           |                    |                      |
|  | <b><u>Earthworks</u></b>   |                |             |                    |                      |
| 2.1  | Excavation to form river/ stream diversion towards the intake / abstraction structure in normal ground, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to receive hardcore fill. | m <sup>3</sup> | 57          |                    |                      |
| 2.2  | Ditto but for the Intake Structure   | m <sup>3</sup> | 34          |                    |                      |
| 2.3  | Excavation to form trapezoidal drain in marshy soils, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                                     | m <sup>3</sup> | 345         |                    |                      |
|  | <b><u>Filling Structures</u></b>   |                |             |                    |                      |
|  | <u>Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -</u>  |                |             |                    |                      |
| 3.1  | Imported rock/ hardcore fill, size 75 to 300mm hand packed or compacted by the arm of an excavator.  | m <sup>3</sup> | 12          |                    |                      |
| 3.2  | Imported murrum.   | m <sup>3</sup> | 10          |                    |                      |
| 4  | Single layer of geotextile laid to manufacturer's specifications   | m <sup>2</sup> | Rate Only   |                    |                      |
|  | <b><u>Landscaping</u></b>  |                |             |                    |                      |
| 5  | Turfing for lawns inside fenced off compound, including filling with excavated topsoil and the preparation of surfaces; 40m <sup>2</sup> at Intake Site and 800m <sup>2</sup> at Pump Station.   | m <sup>2</sup> | 840         |                    |                      |
| <b>Total Carried to Collection</b>                         |  |                |             |                    |                      |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.7: OPORE IN OTUKE DSTRIC

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
|                                    | <b>IN-SITU CONCRETE</b>  |                |      |             |               |
|                                    | <b>Provision and Placing of Concrete</b>   |                |      |             |               |
|                                    | <b>Ordinary Design Mix Concrete</b>  |                |      |             |               |
|                                    | <u>Designed mix , concrete to BS 8500 and BS EN 206-1, with ordinary Portland cement to BS 12, aggregate to BS 882 for the following structures: -</u>                               |                |      |             |               |
|                                    | <b>Grade C15/10</b>  |                |      |             |               |
|                                    | <b>Blinding</b>  |                |      |             |               |
| 6.1                                | 50mm thick blinding concrete, for base slabs, toes, key and heel; grade C15, of the following thickness  | m <sup>3</sup> | 1.1  |             |               |
|                                    | <b>Grade C25/10</b>  |                |      |             |               |
|                                    | <b>Reinforced Concrete Base Slabs, Toe and Heel</b>  |                |      |             |               |
| 6.2                                | 200mm thick toe.   | m <sup>3</sup> | 0.3  |             |               |
| 6.3                                | 200mm thick base slab.   | m <sup>3</sup> | 2.4  |             |               |
| 6.4                                | 350/ 200mm thick retaining wall/ weir stem.  | m <sup>3</sup> | 0    |             |               |
| 6.5                                | 200mm thick sump walls.  | m <sup>3</sup> | 13.5 |             |               |
| 6.6                                | 200mm thick top slab.  | m <sup>3</sup> | 1.2  |             |               |
|                                    | <b>Formwork</b>  |                |      |             |               |
|                                    | <b>Formwork-Fair Finish</b>  |                |      |             |               |
| 7.1                                | <b>Fair Finish Plane Horizontal</b><br>Plane fair finish horizontal formwork to the tops slab including chamfering and / or filleting of all exposed concrete corners.               | m <sup>2</sup> | 4.0  |             |               |
| 7.2                                | <b>Fair Finish Plane Vertical</b><br>Plane fair finish vertical and / or slightly sloping formwork to walls including chamfering and / or filleting of all exposed concrete corners. | m <sup>2</sup> | 140  |             |               |
|                                    | <b>Finishing of top surfaces</b>   |                |      |             |               |
| 7.3                                | Steel trowel finishing of top surfaces.  | m <sup>2</sup> | 11   |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.7: OPORE IN OTUKE DSTRIC

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| 8.1                                | <b>Reinforcement</b><br><b>Deformed High Yield Steel</b><br><u>High yield square twisted bars to BS 4449 and of the following sizes</u><br>Nominal size, 12mm  | t    | 1.2       |             |               |
| 8.2                                | <b>Inserts</b><br>DN 250 CI / ST flanged, puddled pipe insert pipe inserts projecting from two faces of the concrete wall and of the following sizes, excluding supply of pipe.  | No.  | Rate Only |             |               |
| 9.1                                | <b>PIPEWORK - FITTINGS AND VALVES</b><br><b>Cast or Spun Iron Pipe Fittings.</b><br><br><b>Flanged Reducers</b><br>DN250 x 150mm   | No.  | Rate Only |             |               |
| 9.2                                | <b>Flange Adaptors</b><br>DN 150mm Maxi Type or similar wide range adaptor to fit pipe spigots, flanges to BS 4505, all to PN6.  | No.  | Rate Only |             |               |
| 9.3                                | <b>Strainers</b><br><u>Flanged outlet pipe strainer, to BS 4772, flanges to BS 4504, all to PN 10, cement mortar lined, and of the following sizes: -</u><br>DN 250 mm   | No.  | Rate Only |             |               |
| 9.4                                | <b>End Caps</b><br>DN250mm flanged end cap.  | No.  | Rate Only |             |               |
| 9.5                                | <b>Valves and Penstocks</b><br><b>Gate Valves: Hand Operated</b><br><br><u>All flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 10 for operation by tee key, with extension spindle not exceeding 1.5 m long, and of the following sizes:-</u><br>150 mm ND | No.  | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 4.7: OPORE IN OTUKE DSTRIC**

**Region: North**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| 9.6                                | <u>Penstocks: hand operated including head stock and distance spindle, as specified in drawings of the following size: -</u><br>300mm wide x 1000mm high, stainless steel.   | No.  | 1         |             |               |
|                                    | <b>MISCELLANEOUS METAL WORK</b>  |      |           |             |               |
|                                    | <b>Ladders</b>   |      |           |             |               |
| 10.1                               | External galvanized mild steel ladder to BS 4211, galvanized to BS 729, complete and as shown in the drawings including fixing to precast concrete units..   | m    | 8         |             |               |
|                                    | <b>Access Manhole Cover</b>  |      |           |             |               |
| 10.2                               | 600 x 600mm clear opening painted mild steel cover and frame include fixing and locking arrangement.   | No.  | 2         |             |               |
|                                    | <b>Pump Protection System</b>  |      |           |             |               |
| 10.3                               | Vertical pipe pump stilling tube/ anti-vandal protection sleeve structure to detail as per Drawing No. OIS/NUC/SD/010, including 1.5x1.5x0.3m support base.  | No.  | 0         |             |               |
|                                    | <b>Valve Surface Boxes</b>   |      |           |             |               |
| 10.4                               | Valve surface box with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to a depth not exceeding 4.5 m.   | No.  | Rate Only |             |               |
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>   |      |           |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)  |      |           |             |               |
| ME1                                | 5.5kW Submersible Pump Set with 11.0W Pumping Inverter with Data Module, rated flow Q = 22 m <sup>3</sup> /hr., rated head H = 75 total head; set to not more than <u>5m</u> below ground including Dry- run protection, Motor and Pump End. | No.  | 1         |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item | 1         |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings including foundations, vandal proofing mounting to the Engineer's approval   | Sum  | 1         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 4.7: OPORE IN OTUKE DSTRIC**

**Region: North**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| <b>Item No.</b>                    | <b>Description</b>   | <b>Unit</b> | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
|------------------------------------|--|-------------|-------------|--------------------|----------------------|
| ME4                                | PV Disconnect 1000-40-2  | No.         | 1           |                    |                      |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.         | 1           |                    |                      |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item        | 1           |                    |                      |
| ME7                                | PV Combiner  | No.         | 1           |                    |                      |
| ME7a                               | Pressure Switch and Gauge - P5/8   | No.         | 1           |                    |                      |
| ME8                                | Sinewave filter - SWAP0017D.   | No.         | 1           |                    |                      |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,   | m           | 5           |                    |                      |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m           | 175         |                    |                      |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m           | 60          |                    |                      |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.         | 2           |                    |                      |
| ME11a                              | Adapter box  | No.         | 1           |                    |                      |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item        | 1           |                    |                      |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm | Sum         | 1           |                    |                      |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                   | Sum         | 1           |                    |                      |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.         | 5           |                    |                      |
|                                    | <b>Alarm System</b>  |             |             |                    |                      |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item        | 1           |                    |                      |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item        | 1           |                    |                      |
| <b>Total Carried to Collection</b> |  |             |             |                    |                      |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 4.7: OPORE IN OTUKE DSTRIC

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>   |      |      |             |               |
|                                    | <b><u>Pump Protection System</u></b>  |      |      |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base.              | No.  | 1    |             |               |
|                                    | <b><u>Kerbs</u></b>   |      |      |             |               |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m² to the following alignment: -</u>   |      |      |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m   | m    | 70   |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a gauge 500 polythene sheet.   | m²   | 220  |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert  | m    | 0    |             |               |
|                                    | <b><u>Pump House</u></b>  |      |      |             |               |
| X5                                 | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.   | Sum  | 1    |             |               |
|                                    | <b><u>Fences</u></b>  |      |      |             |               |
| X6a                                | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m    | 40   |             |               |
| X6b                                | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m    | 120  |             |               |
|                                    | <b><u>Gates</u></b>   |      |      |             |               |
| X7                                 | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.  | 2    |             |               |
|                                    | <b><u>Training of Operator's staff</u></b>  |      |      |             |               |
| X8                                 | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval  | Sum  | 1    |             |               |
|                                    | <b><u>Operation and Maintenance Manuals</u></b>   |      |      |             |               |
| X9                                 | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum  | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 4.7: OPORE IN OTUKE DSTRIC**

**Region: North**

| <b>BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b> |  |                |     |  |                      |
|---|--|----------------|-----|--|----------------------|
| <b>Item No.</b>   | <b>Description</b>   |                |     |  | <b>Amount (UGx.)</b> |
| XXX   | <b>Stone Pitching.</b><br>250mm minimum thick grouted stone masonry jointed in cement : sand (1:4) motar as detailed in the drawing. | m <sup>2</sup> | 125 |  |                      |
| <b>Total Carried to Collection</b>                          |  |                |     |  | <b>0</b>             |
|   | <b>Bill No. 1 Collection</b><br><br>Page 2<br><br>Page 3<br><br>Page 4<br><br>Page 5<br><br>Page 6<br><br>Page 7<br><br>Page 8       |                |     |  |                      |
| <b>Total Bill No. 1 Carried to Bill Summary</b>             |  |                |     |  |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.7: OPORE IN OTUKE DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description   | Unit | Qty.  | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |       |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |       |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.  | Item | 1     |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>   |      |       |             |               |
| 2                                  | <b><u>Steel Pipes</u></b>   |      |       |             |               |
|                                    | <u>Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes;</u>  |      |       |             |               |
| 2.1                                | DN75mm, in trenches; depths not exceeding 1.5m  | m    | 12    |             |               |
| 3                                  | <b><u>HDPE Pipes</u></b>  |      |       |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>  |      |       |             |               |
| 3.1                                | OD90mm HDPE PN16  | m    | 1,060 |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |       |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>   |      |       |             |               |
| 5                                  | <b><u>Bends</u></b>   |      |       |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |       |             |               |
| 5.1                                | DN65mm  | No.  | 4     |             |               |
| 6                                  | <b><u>Bulk Flow Meters</u></b>  |      |       |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |       |             |               |
| 6.1                                | DN65mm PN10   | No.  | 1     |             |               |
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |       |             |               |
| 7                                  | <b><u>Equal Adapters</u></b>  |      |       |             |               |
| 7.1                                | OD90 female adapter   | No.  | 2     |             |               |
| <b>Total Carried to Collection</b> |   |      |       |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.7: OPORE IN OTUKE DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
| <b>8</b>                           | <b><u>Valves and Penstocks</u></b>   |      |      |             |               |
|                                    | <b><u>Air Valves</u></b>   |      |      |             |               |
|                                    | <u>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                          |      |      |             |               |
| 8.1                                | DN65mm   | No.  | 1    |             |               |
| <b>9</b>                           | <b><u>Washouts</u></b>   |      |      |             |               |
|                                    | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |      |             |               |
| 9.1                                | DN65mm   | No.  | 1    |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b>   |      |      |             |               |
|                                    | <b><u>Other Chambers</u></b>   |      |      |             |               |
|                                    | <u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>   |      |      |             |               |
| 10.1                               | Depth not exceeding 1.5m   | No.  | 2    |             |               |
|                                    | <b><u>Valve Surface Boxes</u></b>  |      |      |             |               |
|                                    | <u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u>  |      |      |             |               |
| 10.2                               | Depth not exceeding 1.5m   | No.  | 2    |             |               |
|                                    | <b><u>Reinstatement</u></b>  |      |      |             |               |
|                                    | <b><u>Roads</u></b>  |      |      |             |               |
|                                    | <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>   |      |      |             |               |
| 11                                 | Not exceeding DN300mm  | m    | 12   |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.7: OPORE IN OTUKE DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.  | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|--|------|-----------|-------------|---------------|
| 12.1  | <b>Surrounds</b><br><u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u><br>Not exceeding DN200mm    | m    | Rate Only |             |               |
| 12.2  | <u>Pipe surrounds, of imported granular material, for the following pipe sizes</u><br>Not exceeding DN200mm                                  | m    | Rate Only |             |               |
| 12.3  | <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u><br>Not exceeding DN200mm   | m    | 60        |             |               |
|   | <b>Concrete Stools and Thrust Blocks</b>   |      |           |             |               |
|   | <b>Thrust Blocks</b><br><u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes</u> |      |           |             |               |
| 13  | Diameter not exceeding DN200mm   | No.  | Rate Only |             |               |
|   | <b>Other Pipework Ancillaries</b>  |      |           |             |               |
| 14  | <b>Marker Posts</b><br>Marker posts for pipes, gate valves, air valves, washouts.  | No.  | 20        |             |               |
| <b>Total Carried to Collection</b>              |  |      |           |             |               |
| <b>BILL No. 2 : TRANSMISSION MAINS</b>          |  |      |           |             |               |
| Item No.  | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|   | <b>Bill No. 2 Collection</b>   |      |           |             |               |
|   | Page 9   |      |           |             |               |
|   | Page 10  |      |           |             |               |
|   | Page 11  |      |           |             |               |
| <b>Total Bill No. 2 Carried to Bill Summary</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.7: OPORE IN OTUKE DSTRIC

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.   | Item | 1    |             |               |
| 2                                  | <b><u>Reservoir Tower</u></b>   |      |      |             |               |
|                                    | <u>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc, painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.</u>   |      |      |             |               |
| 2.1                                | Height; 6.0m for 30m <sup>3</sup> Tank.   | No.  | 1    |             |               |
| 3                                  | <b><u>Tanks</u></b>   |      |      |             |               |
|                                    | <u>Supply and Install a fabricated 6.0mm thick mild steel plate horizontal cylindrical tank with 1No. 0.6m wide access man way, water level indicator (scale in cubic metres), with inlet, outlet, washout and overflow connection complete with access points, ventilators (2 nr), and internal access ladders, inclusive of anti-rust painting internally, finishes and all necessary accessories to installation complete as specified and detailed in the drawings; to the Engineer's satisfaction. All tank accessories shall be of hot dipped galvanised steel.</u> |      |      |             |               |
| 3.1                                | Reservoir: 30m <sup>3</sup> nominal capacity erected on a 6m high tower   | No.  | 1    |             |               |
| 4                                  | <u>150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>  |      |      |             |               |
| 4.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| 5                                  | <u>150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u>  |      |      |             |               |
|                                    | [OPTIONAL]  |      |      |             |               |
| 5.2                                | DN75mm, PN10  | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.7: OPORE IN OTUKE DSTRIC

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.  | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|----------------|-----------|-------------|---------------|
| <b>6</b>  | <b>Landscaping and Walkways</b>   |                |           |             |               |
| 6.1   | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2   | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill. | No.            | Rate Only |             |               |
| <b>7</b>  | <b>Fences</b>   |                |           |             |               |
| 7.1   | Galvanized wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|   | <b>Gates</b>  |                |           |             |               |
| 7.2   | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|   | <b>Provision and Placing of Concrete</b><br><b>Ordinary Designed Mix Concrete</b>   |                |           |             |               |
| <b>8</b>  | <u>Designed mix concrete, to BS 5328, with ordinary Portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u>                |                |           |             |               |
| 8.1   | Grade C15   | m <sup>3</sup> | 2         |             |               |
| <b>Total Carried to Collection</b>              |   |                |           |             |               |
|   | <b>Bill No. 3 Collection</b><br><br>Page 112<br><br>Page 13   |                |           |             |               |
| <b>Total Bill No. 3 Carried to Bill Summary</b> |   |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.7: OPORE IN OTUKE DSTRIC

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                     | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m |      |           |             |               |
| 2.1                                | OD63mm PN6   | m    | 685       |             |               |
| 2.2                                | OD75mm PN6   | m    | 298       |             |               |
| 2.3                                | OD90mm PN6   | m    | 140       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>   |      |           |             |               |
| 3.2                                | OD90mm   | No.  | 1         |             |               |
|                                    | <b><u>Unequal tees</u></b>   |      |           |             |               |
| 3.8                                | OD75 x 63mm  | No.  | 6         |             |               |
|                                    | <b><u>Bends</u></b>  |      |           |             |               |
| 3.90                               | OD75 x 63  | No.  | 6         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>   |      |           |             |               |
| 4.3                                | OD75mm   | No.  | Rate Only |             |               |
| 4.4                                | OD63mm   | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>   |      |           |             |               |
| 5.1                                | OD63mm   | No.  | 5         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 4.7: OPORE IN OTUKE DSTRIC

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.  | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|---|---|------|------|-------------|---------------|
| <b>6</b>  | <b>Valves and Penstocks</b>   |      |      |             |               |
|   | <b>Air Valves</b>   |      |      |             |               |
|   | Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.  |      |      |             |               |
| 6.2   | OD90mm  | No.  | 1    |             |               |
| 6.4   | OD63mm  | No.  | 2    |             |               |
| <b>7</b>  | <b>Washouts</b>   |      |      |             |               |
|   | Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |      |             |               |
| 7.1   | DN65mm  | No.  | 2    |             |               |
| <b>8</b>  | <b>Farm Gate Connections</b>  |      |      |             |               |
|   | Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and lockable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -   |      |      |             |               |
| 8.1   | DN50mm  | No.  | 5    |             |               |
|   | <b>Other Pipework Ancillaries</b>   |      |      |             |               |
|   | <b>Marker Posts</b>   |      |      |             |               |
| 9   | Marker posts for pipes, gate valves, air valves, washouts.  | No.  | 35   |             |               |
| <b>Total Carried to Collection</b>              |   |      |      |             |               |
|   | <b>Bill No. 4 Collection</b>  |      |      |             |               |
|   | Page 14   |      |      |             |               |
|   | Page 15   |      |      |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.1: BORO EAST CENTRAL IN PAKWACH DSTRIC

Region: North

**BILL SUMMARY**

| Bill No.                              | Description                             | Amount (UGx.) |
|---------------------------------------|---|---------------|
|                                       | <b>WORK ITEMS</b>                       |               |
| 1                                     | Abstraction and Electromechanical Works |               |
| 2                                     | Transmission Mains                      |               |
| 3                                     | Storage Reservoir Works                 |               |
| 4                                     | Distribution Network                    |               |
| <b>Total Carried to Grand Summary</b> |   |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 5.1: BORO EAST CENTRAL IN PAKWACH DSTRIC**

**Region: North**

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
|                                    | <b><u>General Site Clearance</u></b>   |                |      |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer.   | Item           | 1    |             |               |
|                                    | <b><u>Earthworks</u></b>   |                |      |             |               |
|                                    | Excavation to form trapezoidal prism reservoir in material other than topsoil, rock or other artificial hard material, depth not exceeding 6.0m including forming earth bands along the channel of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings. |                |      |             |               |
| 2.1                                | Marshy soils   | m <sup>3</sup> | 52   |             |               |
| 2.2                                | Soft / decomposed rock soils   | m <sup>3</sup> | 26   |             |               |
|                                    | Excavation to form trapezoidal channel in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                        |                |      |             |               |
| 2.4                                | Marshy soils   | m <sup>3</sup> | 80   |             |               |
| 2.5                                | Soft / decomposed rock soils   | m <sup>3</sup> | 20   |             |               |
|                                    | Excavation to form cylindrical sump well in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                      |                |      |             |               |
| 2.6                                | Marshy soils   | m <sup>3</sup> | 16   |             |               |
| 2.7                                | Soft / decomposed rock soils   | m <sup>3</sup> | 8    |             |               |
|                                    | <b><u>Filling Structures</u></b>   |                |      |             |               |
|                                    | <u>Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials:-</u>   |                |      |             |               |
| 3                                  | Selected excavated material including topping with a 200mm thick layer of top/ vegetable soil.   | m <sup>3</sup> | 10   |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 5.1: BORO EAST CENTRAL IN PAKWACH DSTRIC**

**Region: North**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|----------------|------|-------------|---------------|
| 4                                  | <b>Landscaping</b><br>Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.<br><br><b>IN-SITU CONCRETE</b><br><b>Provision and Placing of Concrete</b><br><b>Ordinary Design Mix Concrete</b><br><u>Designed mix , concrete to BS 8500 and BS EN 206-1, with ordinary portland cement to BS 12, aggregate to BS 882 , maximum aggregate size ; 20mm for the following structures: -</u> | m <sup>2</sup> | 40   |             |               |
| 5                                  | <b>Insitu Concrete</b><br>75mm thick Grade C15 concrete blinding to pump sump base  | m <sup>3</sup> | 0.25 |             |               |
| 6.1                                | 2200mm Diameter x 150mm thick Grade C25 concrete base slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float.   | Item           | 1    |             |               |
| 6.2                                | 2200mm Diameter x 150mm thick Grade C25 concrete top slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float and forming a 600 x 600mm opening for the inspection cover (MS).  | Item           | 1    |             |               |
| 7                                  | <b>Pre-cast Concrete</b><br><b>Pump Well/ Sump</b><br>Supply and install 100mm thick precast reinforced concrete vertical culverts on concrete base slab (MS) ; complete with water tight jointing and finishing works to approval.<br>1200mm diameter ; height n.e 8m  | Item           | 1    |             |               |
| 8                                  | <b>Concrete Inserts</b><br><b>Cast or Spun Iron Pipe Fittings.</b><br>Flanged, puddled and plain end pipe insert projecting from one face of the concrete, all to PN6 and of the following sizes and lengths, including supply of the pipe and as shown in the drawings.<br><br>200mm ND and not exceeding 0.5m length  | No.            | 2    |             |               |
| <b>Total Carried to Collection</b> |   |                |      |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 5.1: BORO EAST CENTRAL IN PAKWACH DSTRIC**

**Region: North**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b>Adaptors</b>  |      |           |             |               |
|                                    | Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:-   |      |           |             |               |
| 9                                  | 200 mm ND  | No.  | 2         |             |               |
| 10                                 | OD225mm PN10 plain end uPVC pipe connection between Silt Trap Basin and Pump Sump.   | m    | 8         |             |               |
|                                    | <b>Bellmouths</b>  |      |           |             |               |
| 11                                 | Flanged bellmouth to ISO 2531, flanges to ISO 2441, of the following sizes all to PN 6   |      |           |             |               |
|                                    | 200 mm ND  | No.  | 1         |             |               |
|                                    | <b>PIPEWORK - FITTINGS AND VALVES</b>  |      |           |             |               |
|                                    | <b>Gate Valves: Hand Operated</b>  |      |           |             |               |
| 12                                 | DN 200 mm all flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 6 for operation by tee key, with extension spindle not exceeding 4.5 metres long, and of the following sizes                       |      |           |             |               |
|                                    | <b>MISCELLANEOUS WORK</b>  |      |           |             |               |
|                                    | <b>Ladders</b>   |      |           |             |               |
| 13                                 | Internal galvanized mild steel ladder to BS 4211, galvernized to BS 729, complete andas shown in the drawings including fixing to precast concrete units..   | m    | 8         |             |               |
|                                    | <b>Steel grating</b>   |      |           |             |               |
| 14.1                               | Galvanized iron Coarse Trash Screen as detailed in the drawins.  | No.  | 1         |             |               |
| 14.2                               | Galvanized iron Fine Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
|                                    | <b>Pump Well/ Sump</b>   |      |           |             |               |
|                                    | Supply and install 8.0m long HDPE vertical culverts on concrete base slab (MS) ; complete with a Single ND200mm flanged branch to receive a ND200 gate valve. Branch height/ positioning to be determined on site. | Item | Rate Only |             |               |
| 15                                 | Internal diameter ; 1200x200mm   |      |           |             |               |
|                                    | <b>Stone pitched Channel.</b>  |      |           |             |               |
| 16                                 | 3.0 x 1.5 top x bottom width x 1.5m deep maximum trapezoidal lined drain as detailed in the drawing.   | m    | 5         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 5.1: BORO EAST CENTRAL IN PAKWACH DSTRIC**

**Region: North**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item                               | Description  | Unit | Qty. | Rate (UGx.) | Amount |
|------------------------------------|--|------|------|-------------|--------|
|                                    | <b>ELECTRO-MECHANICAL WORKS</b>  |      |      |             |        |
|                                    | <u><b>Solar Pumping System</b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)</u>  |      |      |             |        |
| ME1                                | 11.0kW Submersible Pump Set with 15kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 100m total head; set to not more than <b>5m</b> below ground including Dry- run protection, Motor and Pump End. | No.  | 1    |             |        |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item | 1    |             |        |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings including foundations, vandal proofing mounting to the Engineer's approval     | Sum  | 1    |             |        |
| ME4                                | PV Disconnect 1000-40-2  | No.  | 1    |             |        |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.  | 1    |             |        |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item | 1    |             |        |
| ME7                                | PV Combiner  | No.  | 1    |             |        |
| ME7a                               | Pressure Switch and Gauge - P6/12  | No.  | 1    |             |        |
| ME8                                | Sinewave filter - SWAP0022D.   | No.  | 1    |             |        |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,   | m    | 5    |             |        |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m    | 225  |             |        |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m    | 60   |             |        |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.  | 2    |             |        |
| ME11a                              | Adapter box  | No.  | 1    |             |        |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item | 1    |             |        |
| <b>Total Carried to Collection</b> |  |      |      |             |        |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 5.1: BORO EAST CENTRAL IN PAKWACH DSTRIC**

**Region: North**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|-----------|-------------|---------------|
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm               | Sum            | 1         |             |               |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                                 | Sum            | 1         |             |               |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.            | 5         |             |               |
|                                    | <b>Alarm System</b>  |                |           |             |               |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors   | Item           | 1         |             |               |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor  | Item           | 1         |             |               |
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>  |                |           |             |               |
|                                    | <b><u>Pump Protection System</u></b>   |                |           |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base. | No.            | 1         |             |               |
|                                    | <b><u>Kerbs</u></b>  |                |           |             |               |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>   |                |           |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m  | m              | 70        |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a gauge 500 polythene sheet.  | m <sup>2</sup> | 220       |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert   | m              | Rate Only |             |               |
|                                    | <b><u>Pump House</u></b>   |                |           |             |               |
| X5                                 | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.  | Sum            | 1         |             |               |
| <b>Total Carried to Collection</b> |  |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 5.1: BORO EAST CENTRAL IN PAKWACH DSTRIC**

**Region: North**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
|   | <b><u>Fences</u></b>  |      |           |             |               |
| X6a   | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m    | 50        |             |               |
| X6b   | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m    | 10        |             |               |
|   | <b><u>Gates</u></b>   |      |           |             |               |
| X7  | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.  | 2         |             |               |
|   | <b><u>Training of Operator's staff</u></b>  |      |           |             |               |
| X8  | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval  | Sum  | 1         |             |               |
|   | <b><u>Operation and Maintenance Manuals</u></b>   |      |           |             |               |
| X9  | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum  | 1         |             |               |
| XX  | Horizontal pump installation option out of flanged/ sealed end HDPE culvert pipe mounted on fabricated GI support structure including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/005.       | Item | Rate Only |             |               |
| <b>Total Carried to Collection</b>              |   |      |           |             |               |
|   | <b>Bill No. 1 Collection</b>  |      |           |             |               |
|   | Page 2  |      |           |             |               |
|   | Page 3  |      |           |             |               |
|   | Page 4  |      |           |             |               |
|   | Page 5  |      |           |             |               |
|   | Page 6  |      |           |             |               |
|   | Page 7  |      |           |             |               |
| <b>Total Bill No. 1 Carried to Bill Summary</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.1: BORO EAST CENTRAL IN PAKWACH DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.  | Item | 1         |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Steel Pipes</u></b>   |      |           |             |               |
|                                    | <u>Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes:</u>  |      |           |             |               |
| 2.1                                | DN75mm, not in trenches;  | m    | Rate Only |             |               |
| 2.2                                | DN75mm, in trenches; depths not exceeding 1.5m  | m    | 12        |             |               |
| 3                                  | <b><u>HDPE Pipes</u></b>  |      |           |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>  |      |           |             |               |
| 3.1                                | OD75mm HDPE PN10  | m    | 500       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>   |      |           |             |               |
| 5                                  | <b><u>Bends</u></b>   |      |           |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, to BS EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |           |             |               |
| 5.1                                | DN65mm  | No.  | 4         |             |               |
| 6                                  | <b><u>Bulk Flow Meters</u></b>  |      |           |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |           |             |               |
| 6.1                                | DN65mm PN10   | No.  | 1         |             |               |
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
| 7                                  | <b><u>Equal Adapters</u></b>  |      |           |             |               |
| 7.1                                | OD90 female adapter   | No.  | 2         |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 5.1: BORO EAST CENTRAL IN PAKWACH DSTRIC**

**Region: North**

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| <b>8</b>                           | <b><u>Valves and Penstocks</u></b>   |      |           |             |               |
|                                    | <b><u>Air Valves</u></b>   |      |           |             |               |
|                                    | <u>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                          |      |           |             |               |
| 8.3                                | DN65mm   | No.  | 1         |             |               |
| <b>9</b>                           | <b><u>Washouts</u></b>   |      |           |             |               |
|                                    | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |           |             |               |
| 9.1                                | DN65mm   | No.  | 1         |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b>   |      |           |             |               |
|                                    | <b><u>Other Chambers</u></b>   |      |           |             |               |
|                                    | <u>Masonry air valve chamber, complete as specified in the drawings, and Depth not exceeding 1.5m</u>  |      |           |             |               |
| 10.1                               |  | No.  | 2         |             |               |
|                                    | <b><u>Valve Surface Boxes</u></b>  |      |           |             |               |
|                                    | <u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u>  |      |           |             |               |
| 10.2                               | Depth not exceeding 1.5m   | No.  | 3         |             |               |
|                                    | <b><u>Reinstatement</u></b>  |      |           |             |               |
|                                    | <b><u>Roads</u></b>  |      |           |             |               |
|                                    | <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>   |      |           |             |               |
| 11                                 | Not exceeding DN300mm  | m    | 24        |             |               |
| <b>12</b>                          | <b><u>Surrounds</u></b>  |      |           |             |               |
|                                    | <u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u>   |      |           |             |               |
| 12.1                               | Not exceeding DN200mm  | m    | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.1: BORO EAST CENTRAL IN PAKWACH DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.  | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|--|------|-----------|-------------|---------------|
| 12.2  | <u>Pipe surrounds, of imported granular material, for the following pipe sizes</u><br>Not exceeding DN200mm          | m    | 50        |             |               |
| 12.3  | <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u><br>Not exceeding DN200mm                       | m    | 30        |             |               |
|   | <b><u>Concrete Stools and Thrust Blocks</u></b>  |      |           |             |               |
|   | <b><u>Thrust Blocks</u></b>  |      |           |             |               |
|   | <u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes</u> |      |           |             |               |
| 13  | Diameter not exceeding DN200mm   | No.  | Rate Only |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>   |      |           |             |               |
|   | <b><u>Marker Posts</u></b>   |      |           |             |               |
| 14  | Marker posts for pipes, gate valves, air valves, washouts.   | No.  | 24        |             |               |
| <b>Total Carried to Collection</b>              |  |      |           |             |               |
|   | <b>Bill No. 2 Collection</b>   |      |           |             |               |
|   | Page 8   |      |           |             |               |
|   | Page 9   |      |           |             |               |
|   | Page 10  |      |           |             |               |
| <b>Total Bill No. 2 Carried to Bill Summary</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.1: BORO EAST CENTRAL IN PAKWACH DSTRIC

Region: North

**BILL No.3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b>DEMOLITION AND SITE CLEARANCE</b>   |      |      |             |               |
|                                    | <b>General Site Clearance</b>  |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.  | Item | 1    |             |               |
| 2                                  | <b>Reservoir Tower</b><br>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc, painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.   |      |      |             |               |
| 2.1                                | Height; 6.0m for 30m <sup>3</sup> Tank.  | No.  | 1    |             |               |
| 3                                  | <b>Tanks</b><br>Supply and Install a fabricated 6.0mm thick mild steel plate horizontal cylindrical tank with 1No. 0.6m wide access man way, water level indicator (scale in cubic metres), with inlet, outlet, washout and overflow connection complete with access points, ventilators (2 nr), and internal access ladders, inclusive of anti-rust painting internally, finishes and all necessary accessories to installation complete as specified and detailed in the drawings; to the Engineer's satisfaction. All tank accessories shall be of hot dipped galvanised steel. |      |      |             |               |
| 3.1                                | Reservoir: 30m <sup>3</sup> nominal capacity erected on a 6m high tower  | No.  | 1    |             |               |
| 4                                  | 150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-   |      |      |             |               |
| 4.1                                | DN75mm, PN10   | No.  | 1    |             |               |
| 5                                  | 150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-<br>[OPTIONAL]   |      |      |             |               |
| 5.2                                | DN75mm, PN10   | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.1: BORO EAST CENTRAL IN PAKWACH DSTRIC

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.  | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|----------------|-----------|-------------|---------------|
| <b>6</b>  | <b><u>Landscaping and Walkways</u></b>  |                |           |             |               |
| 6.1   | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2   | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murrum fill. | No.            | Rate Only |             |               |
| <b>7</b>  | <b><u>Fences</u></b>  |                |           |             |               |
| 7.1   | Galvanized wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|   | <b><u>Gates</u></b>   |                |           |             |               |
| 7.2   | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|   | <b>Provision and Placing of Concrete</b><br><b><i>Ordinary Designed Mix Concrete</i></b>  |                |           |             |               |
| <b>8</b>  | <b><u>Designed mix concrete, to BS 5520, with Ordinary Portland Cement to BS 12, aggregate to BS992, for 10mm aggregate sizes and the</u></b>                             |                |           |             |               |
| 8.1   | Grade C15   | m <sup>3</sup> | 2         |             |               |
| <b>Total Carried to Collection</b>              |   |                |           |             |               |
|   | <b>Bill No. 3 Collection</b>  |                |           |             |               |
|   | Page 11   |                |           |             |               |
|   | Page 12   |                |           |             |               |
| <b>Total Bill No. 3 Carried to Bill Summary</b> |   |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.1: BORO EAST CENTRAL IN PAKWACH DSTRIC

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                            | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>  |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br><u>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m</u> |      |           |             |               |
| 2.1                                | OD63mm PN6  | m    | 378       |             |               |
| 2.3                                | OD90mm PN6  | m    | 280       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>  |      |           |             |               |
| 3.1                                | OD90mm  | No.  | 1         |             |               |
| 3.2                                | OD63mm  | No.  | 1         |             |               |
|                                    | <b><u>Unequal tees</u></b>  |      |           |             |               |
| 3.3                                | OD90 x 63mm   | No.  | 3         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>  |      |           |             |               |
| 4.1                                | OD90mm  | No.  | Rate Only |             |               |
| 4.2                                | OD63mm  | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>  |      |           |             |               |
| 5.1                                | OD63mm  | No.  | 5         |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.1: BORO EAST CENTRAL IN PAKWACH DSTRIC

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.  | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|--|------|-----------|-------------|---------------|
| <b>6</b>  | <b><u>Valves and Penstocks</u></b>   |      |           |             |               |
|   | <b><u>Air Valves</u></b>   |      |           |             |               |
|   | <u>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>  |      |           |             |               |
| 6.1   | OD90mm   | No.  | Rate Only |             |               |
| 6.2   | OD63mm   | No.  | Rate Only |             |               |
| <b>7</b>  | <b><u>Washouts</u></b>   |      |           |             |               |
|   | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004.</u> |      |           |             |               |
| 7.1   | DN75mm   | No.  | 1         |             |               |
| 7.2   | DN50mm   | No.  | 1         |             |               |
| <b>8</b>  | <b><u>Farm Gate Connections</u></b>  |      |           |             |               |
|   | <u>Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and lockable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -</u>   |      |           |             |               |
| 8.1   | DN50mm   | No.  | 5         |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>   |      |           |             |               |
|   | <b><u>Marker Posts</u></b>   |      |           |             |               |
| 9   | <u>Marker posts for pipes, gate valves, air valves, washouts.</u>  | No.  | 16        |             |               |
| <b>Total Carried to Collection</b>              |  |      |           |             |               |
|   | <b>Bill No. 4 Collection</b>   |      |           |             |               |
|   | Page 13  |      |           |             |               |
|   | Page 14  |      |           |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.2: PANYUA IN MADI OKOLLO DSTRIC

Region: North

**BILL SUMMARY**

| Bill No.                              | Description                             | Amount (UGx.) |
|---------------------------------------|---|---------------|
|                                       | <b>WORK ITEMS</b>                       |               |
| 1                                     | Abstraction and Electromechanical Works |               |
| 2                                     | Transmission Mains                      |               |
| 3                                     | Storage Reservoir Works                 |               |
| 4                                     | Distribution Network                    |               |
| <b>Total Carried to Grand Summary</b> |   |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.2: PANYUA IN MADI OKOLLO DSTRIC

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|-----------|-------------|---------------|
|                                    | <b><u>General Site Clearance</u></b>   |                |           |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer. | Item           | 1         |             |               |
|                                    | <b><u>Earthworks</u></b>   |                |           |             |               |
| 2.1                                | Excavation to form river/ stream diversion towards the intake / abstraction structure in normal ground, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to receive hardcore fill. | m <sup>3</sup> | 57        |             |               |
| 2.2                                | Ditto but for the Intake Structure   | m <sup>3</sup> | 34        |             |               |
| 2.3                                | Excavation to form trapezoidal drain in marshy soils, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                                     | m <sup>3</sup> | 175       |             |               |
|                                    | <b><u>Filling Structures</u></b>   |                |           |             |               |
|                                    | <u>Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -</u>  |                |           |             |               |
| 3.1                                | Imported rock/ hardcore fill, size 75 to 300mm hand packed or compacted by the arm of an excavator.  | m <sup>3</sup> | 12        |             |               |
| 3.2                                | Imported murrum.   | m <sup>3</sup> | 10        |             |               |
| 4                                  | Single layer of geotextile laid to manufacturer's specifications   | m <sup>2</sup> | Rate Only |             |               |
|                                    | <b><u>Landscaping</u></b>  |                |           |             |               |
| 5                                  | Turfing for lawns inside fenced off compound, including filling with excavated topsoil and the preparation of surfaces; 40m <sup>2</sup> at Intake Site and 800m <sup>2</sup> at Pump Station.   | m <sup>2</sup> | 840       |             |               |
| <b>Total Carried to Collection</b> |  |                |           |             |               |

## Region: North

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
|                                    | <b>IN-SITU CONCRETE</b><br><b>Provision and Placing of Concrete</b><br><b>Ordinary Design Mix Concrete</b><br><u>Designed mix , concrete to BS 8500 and BS EN 206-1, with ordinary Portland cement to BS 12, aggregate to BS 882 for the following structures: -</u> |                |      |             |               |
| 6.1                                | <b>Grade C15/10</b><br><b>Blinding</b><br>50mm thick blinding concrete, for base slabs, toes, key and heel; grade C15, of the following thickness  | m <sup>3</sup> | 1.1  |             |               |
| 6.2                                | <b>Grade C25/10</b><br><b>Reinforced Concrete Base Slabs, Toe and Heel</b><br>200mm thick toe.   | m <sup>3</sup> | 0.3  |             |               |
| 6.3                                | 200mm thick base slab.   | m <sup>3</sup> | 2.4  |             |               |
| 6.4                                | 350/ 200mm thick retaining wall/ weir stem.  | m <sup>3</sup> | 0    |             |               |
| 6.5                                | 200mm thick sump walls.  | m <sup>3</sup> | 13.5 |             |               |
| 6.6                                | 200mm thick top slab.  | m <sup>3</sup> | 1.2  |             |               |
|                                    | <b>Formwork</b><br><b>Formwork-Fair Finish</b>   |                |      |             |               |
| 7.1                                | <b>Fair Finish Plane Horizontal</b><br>Plane fair finish horizontal formwork to the tops slab including chamfering and / or filleting of all exposed concrete corners.   | m <sup>2</sup> | 4.0  |             |               |
| 7.2                                | <b>Fair Finish Plane Vertical</b><br>Plane fair finish vertical and / or slightly sloping formwork to walls including chamfering and / or filleting of all exposed concrete corners.   | m <sup>2</sup> | 140  |             |               |
| 7.3                                | <b>Finishing of top surfaces</b><br>Steel trowel finishing of top surfaces.  | m <sup>2</sup> | 11   |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.2: PANYUA IN MADI OKOLLO DSTRIC

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| 8.1                                | <b>Reinforcement</b><br><b>Deformed High Yield Steel</b><br><u>High yield square twisted bars to BS 4449 and of the following sizes</u><br>Nominal size, 12mm  | t    | 1.2       |             |               |
| 8.2                                | <b>Inserts</b><br>DN 250 CI / ST flanged, puddled pipe insert pipe inserts projecting from two faces of the concrete wall and of the following sizes, excluding supply of pipe.  | No.  | Rate Only |             |               |
| 9.1                                | <b>PIPEWORK - FITTINGS AND VALVES</b><br><b>Cast or Spun Iron Pipe Fittings.</b><br><br><b>Flanged Reducers</b><br>DN250 x 150mm   | No.  | Rate Only |             |               |
| 9.2                                | <b>Flange Adaptors</b><br>DN 150mm Maxi Type or similar wide range adaptor to fit pipe spigots, flanges to BS 4505, all to PN6.  | No.  | Rate Only |             |               |
| 9.3                                | <b>Strainers</b><br><u>Flanged outlet pipe strainer, to BS 4772, flanges to BS 4504, all to PN 10, cement mortar lined, and of the following sizes: -</u><br>DN 250 mm   | No.  | Rate Only |             |               |
| 9.4                                | <b>End Caps</b><br>DN250mm flanged end cap.  | No.  | Rate Only |             |               |
| 9.5                                | <b>Valves and Penstocks</b><br><b>Gate Valves: Hand Operated</b><br><br><u>All flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 10 for operation by tee key, with extension spindle not exceeding 1.5 m long, and of the following sizes:-</u><br>150 mm ND | No.  | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.2: PANYUA IN MADI OKOLLO DSTRIC

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| 9.6                                | <u>Penstocks; hand operated including head stock and distance spindle, as specified in drawings of the following size: -</u><br>300mm wide x 1000mm high, Stainless steel.   | No.  | 1         |             |               |
|                                    | <b>MISCELLANEOUS METAL WORK</b>  |      |           |             |               |
|                                    | <b>Ladders</b>   |      |           |             |               |
| 10.1                               | External galvanized mild steel ladder to BS 4211, galvanized to BS 729, complete and as shown in the drawings including fixing to precast concrete units..   | m    | 8         |             |               |
|                                    | <b>Access Manhole Cover</b>  |      |           |             |               |
| 10.2                               | 600 x 600mm clear opening painted mild steel cover and frame include fixing and locking arrangement.   | No.  | 2         |             |               |
|                                    | <b>Pump Protection System</b>  |      |           |             |               |
| 10.3                               | Vertical pipe pump stilling tube/ anti-vandal protection sleeve structure to detail as per Drawing No. OIS/NUC/SD/010, including 1.5x1.5x0.3m support base.  | No.  | 0         |             |               |
|                                    | <b>Valve Surface Boxes</b>   |      |           |             |               |
| 10.4                               | Valve surface box with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to a depth not exceeding 4.5 m.   | No.  | Rate Only |             |               |
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>   |      |           |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)  |      |           |             |               |
| ME1                                | 7.5kW Submersible Pump Set with 11.0kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 70m total head; set to not more than <b>5m</b> below ground including Dry- run protection, Motor and Pump End. | No.  | 1         |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item | 1         |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings including foundations, vandal proofing mounting to the Engineer's approval     | Sum  | 1         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 5.2: PANYUA IN MADI OKOLLO DSTRIC**

**Region: North**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| <b>Item No.</b>                    | <b>Description</b>   | <b>Unit</b> | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
|------------------------------------|--|-------------|-------------|--------------------|----------------------|
| ME4                                | PV Disconnect 1000-40-2  | No.         | 1           |                    |                      |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.         | 1           |                    |                      |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item        | 1           |                    |                      |
| ME7                                | PV Combiner  | No.         | 1           |                    |                      |
| ME7a                               | Pressure Switch and Gauge - P5/8   | No.         | 1           |                    |                      |
| ME8                                | Sinewave filter - SWAP0017D.   | No.         | 1           |                    |                      |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,   | m           | 5           |                    |                      |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m           | 175         |                    |                      |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m           | 60          |                    |                      |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.         | 2           |                    |                      |
| ME11a                              | Adapter box  | No.         | 1           |                    |                      |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item        | 1           |                    |                      |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm | Sum         | 1           |                    |                      |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                   | Sum         | 1           |                    |                      |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.         | 5           |                    |                      |
|                                    | <b>Alarm System</b>  |             |             |                    |                      |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item        | 1           |                    |                      |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item        | 1           |                    |                      |
| <b>Total Carried to Collection</b> |  |             |             |                    |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.2: PANYUA IN MADI OKOLLO DSTRIC

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>   |      |      |             |               |
|                                    | <b><u>Pump Protection System</u></b>  |      |      |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base.              | No.  | 1    |             |               |
|                                    | <b><u>Kerbs</u></b>   |      |      |             |               |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m² to the following alignment: -</u>   |      |      |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m   | m    | 70   |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a gauge 500 polythene sheet.   | m²   | 220  |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert  | m    | 0    |             |               |
|                                    | <b><u>Pump House</u></b>  |      |      |             |               |
| X5                                 | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.   | Sum  | 1    |             |               |
|                                    | <b><u>Fences</u></b>  |      |      |             |               |
| X6a                                | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m    | 40   |             |               |
| X6b                                | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m    | 120  |             |               |
|                                    | <b><u>Gates</u></b>   |      |      |             |               |
| X7                                 | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.  | 1    |             |               |
|                                    | <b><u>Training of Operator's staff</u></b>  |      |      |             |               |
| X8                                 | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval  | Sum  | 1    |             |               |
|                                    | <b><u>Operation and Maintenance Manuals</u></b>   |      |      |             |               |
| X9                                 | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum  | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.2: PANYUA IN MADI OKOLLO DSTRIC

Region: North

| <b>BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b> |                              |  |  |  |                      |
|---|------------------------------|--|--|--|----------------------|
| <b>Item No.</b>   | <b>Description</b>           |  |  |  | <b>Amount (UGx.)</b> |
|   | <b>Bill No. 1 Collection</b> |  |  |  |                      |
|   | Page 2                       |  |  |  |                      |
|   | Page 3                       |  |  |  |                      |
|   | Page 4                       |  |  |  |                      |
|   | Page 5                       |  |  |  |                      |
|   | Page 6                       |  |  |  |                      |
|   | Page 7                       |  |  |  |                      |
| <b>Total Bill No. 1 Carried to Bill Summary</b>             |                              |  |  |  |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.2: PANYUA IN MADI OKOLLO DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.  | Item | 1         |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Steel Pipes</u></b>   |      |           |             |               |
|                                    | <u>Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes:</u>  |      |           |             |               |
| 2.1                                | DN75mm, in trenches; depths not exceeding 1.5m  | m    | 12        |             |               |
| 3                                  | <b><u>HDPE Pipes</u></b>  |      |           |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>  |      |           |             |               |
| 3.1                                | OD75mm HDPE PN16  | m    | 340       |             |               |
| 4                                  | <b><u>uPVC Pipes</u></b>  |      |           |             |               |
|                                    | <u>uPVC pressure pipes to UNBS US 264: 2000 and DIN 8062 with integral rubber ring socket joints laid in trenches</u>   |      |           |             |               |
|                                    | <u>OD110 to PN 16</u>   |      |           |             |               |
| 4.1                                | Depth not exceeding 1.5m  | m    | Rate Only |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>   |      |           |             |               |
| 5                                  | <b><u>Bends</u></b>   |      |           |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |           |             |               |
| 5.1                                | DN65mm  | No.  | 4         |             |               |
| 6                                  | <b><u>Bulk Flow Meters</u></b>  |      |           |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |           |             |               |
| 6.1                                | DN65mm PN16   | No.  | 1         |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.2: PANYUA IN MADI OKOLLO DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |      |             |               |
| 7                                  | <b>Equal Adapters</b>  |      |      |             |               |
| 7.1                                | OD90 female adapter  | No.  | 2    |             |               |
| 8                                  | <b><u>Valves and Penstocks</u></b>   |      |      |             |               |
|                                    | <b><u>Air Valves</u></b>   |      |      |             |               |
|                                    | <u>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                          |      |      |             |               |
| 8.1                                | DN65mm   | No.  | 1    |             |               |
| 9                                  | <b><u>Washouts</u></b>   |      |      |             |               |
|                                    | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |      |             |               |
| 9.1                                | DN65mm   | No.  | 1    |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b>   |      |      |             |               |
|                                    | <b><u>Other Chambers</u></b>   |      |      |             |               |
|                                    | <u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>   |      |      |             |               |
| 10.1                               | Depth not exceeding 1.5m   | No.  | 2    |             |               |
|                                    | <b><u>Valve Surface Boxes</u></b>  |      |      |             |               |
|                                    | <u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u>  |      |      |             |               |
| 10.2                               | Depth not exceeding 1.5m   | No.  | 2    |             |               |
|                                    | <b><u>Reinstatement</u></b>  |      |      |             |               |
|                                    | <b><u>Roads</u></b>  |      |      |             |               |
|                                    | <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>   |      |      |             |               |
| 11                                 | Not exceeding DN300mm  | m    | 12   |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.2: PANYUA IN MADI OKOLLO DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.  | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|--|------|-----------|-------------|---------------|
|   | <b><u>Surrounds</u></b>  |      |           |             |               |
| 12.1  | <u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u><br>Not exceeding DN200mm                                  | m    | Rate Only |             |               |
| 12.2  | <u>Pipe surrounds, of imported granular material, for the following pipe sizes</u><br>Not exceeding DN200mm  | m    | Rate Only |             |               |
| 12.3  | <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u><br>Not exceeding DN200mm   | m    | 30        |             |               |
| 13  | <b><u>Concrete Stools and Thrust Blocks</u></b>  |      |           |             |               |
|   | <b><u>Thrust Blocks</u></b>  |      |           |             |               |
| 13.1  | <u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes</u><br>Diameter not exceeding DN200mm | No.  | Rate Only |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>   |      |           |             |               |
|   | <b><u>Marker Posts</u></b>   |      |           |             |               |
| 14  | Marker posts for pipes, gate valves, air valves, washouts.   | No.  | 15        |             |               |
| <b>Total Carried to Collection</b>                |  |      |           |             |               |
|   | <b>Bill No. 2 Collection</b>   |      |           |             |               |
|   | Page 9   |      |           |             |               |
|   | Page 10  |      |           |             |               |
|   | Page 11  |      |           |             |               |
| <b>Total Bill No. 1.2 Carried to Bill Summary</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.2: PANYUA IN MADI OKOLLO DSTRIC

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.   | Item | 1    |             |               |
| 2                                  | <b><u>Reservoir Tower</u></b>   |      |      |             |               |
|                                    | <u>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc, painting and finishes; complete as specified and detailed in the drawings , of the following height and reservior capacities.</u>   |      |      |             |               |
| 2.1                                | Height; 6.0m for 30m <sup>3</sup> Tank.   | No.  | 1    |             |               |
| 3                                  | <b><u>Tanks</u></b>   |      |      |             |               |
|                                    | <u>Supply and Install a fabricated 6.0mm thick mild steel plate horizontal cylindrical tank with 1No. 0.6m wide access man way, water level indicator (scale in cubic metres), with inlet, outlet, washout and overflow connection complete with access points, ventilators (2 nr), and internal access ladders, inclusive of anti-rust painting internally, finishes and all necessary accessories to installation complete as specified and detailed in the drawings; to the Engineer's satisfaction. All tank accessories shall be of hot dipped galvanised steel.</u> |      |      |             |               |
| 3.1                                | Reservoir: 30m <sup>3</sup> nominal capacity erected on a 6m high tower   | No.  | 1    |             |               |
| 4                                  | <u>150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>   |      |      |             |               |
| 4.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| 5                                  | <u>150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u>   |      |      |             |               |
|                                    | [OPTIONAL]  |      |      |             |               |
| 5.2                                | DN75mm, PN10  | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.2: PANYUA IN MADI OKOLLO DSTRIC

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|----------------|-----------|-------------|---------------|
| <b>6</b> | <b><u>Landscaping and Walkways</u></b>  |                |           |             |               |
| 6.1      | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2      | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill. | No.            | Rate Only |             |               |
| <b>7</b> | <b><u>Fences</u></b>  |                |           |             |               |
| 7.1      | Galvanized wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|          | <b><u>Gates</u></b>   |                |           |             |               |
| 7.2      | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|          | <b>Provision and Placing of Concrete</b><br><b><i>Ordinary Designed Mix Concrete</i></b>  |                |           |             |               |
| <b>8</b> | <u>Designed mix concrete, to BS 5328, with ordinary Portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u>                |                |           |             |               |
| 8.1      | Grade C15   | m <sup>3</sup> | 2         |             |               |

**Total Carried to Collection**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|------------------------------|------|------|-------------|---------------|
|          | <b>Bill No. 3 Collection</b> |      |      |             |               |
|          | Page 12                      |      |      |             |               |
|          | Page 13                      |      |      |             |               |

**Total Bill No. 2 Carried to Bill Summary**



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.2: PANYUA IN MADI OKOLLO DSTRIC

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                                | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
|   | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|   | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                       | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                            | Item | 1         |             |               |
|   | <b><u>PIPEWORK-PIPES</u></b>  |      |           |             |               |
| 2                                       | <b><u>Plastic Pressure Pipes- Distribution</u></b><br><u>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m</u> |      |           |             |               |
| 2.1                                     | OD63mm PN6  | m    | 867       |             |               |
| 2.2                                     | OD75mm PN6  | m    | 270       |             |               |
| 2.3                                     | OD90mm PN6  | m    | 125       |             |               |
|   | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|   | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|   | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 3                                       | <b><u>Equal tees</u></b>  |      |           |             |               |
| 3.1                                     | OD90mm  | No.  | Rate Only |             |               |
| 3.2                                     | OD75mm  | No.  | Rate Only |             |               |
| 3.3                                     | OD63mm  | No.  | 2         |             |               |
|   | <b><u>Unequal tees</u></b>  |      |           |             |               |
| 3.4                                     | OD90 x 75mm   | No.  | 1         |             |               |
| 3.5                                     | OD75 x 63mm   | No.  | 5         |             |               |
|   | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|   | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 4                                       | <b><u>Couplers</u></b>  |      |           |             |               |
| 4.1                                     | OD90mm  | No.  | Rate Only |             |               |
| 4.2                                     | OD75mm  | No.  | Rate Only |             |               |
| 4.3                                     | OD63mm  | No.  | Rate Only |             |               |
| 5                                       | <b><u>End caps</u></b>  |      |           |             |               |
| 5.1                                     | OD63mm  | No.  | 5         |             |               |
| <b>Total Carried to Collection</b>      |   |      |           |             |               |
| <b>BILL No.4 : DISTRIBUTION NETWORK</b> |   |      |           |             |               |
| Item No.                                | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
| 6                                       | <b><u>Valves and Penstocks</u></b><br><b><u>Air Valves</u></b>  |      |           |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

## Scheme ID. 5.2: PANYUA IN MADI OKOLLO DSTRIC

Region: North

|  |   |     |    |  |   |
|--|---|-----|----|--|---|
| 6.1                                      | <p>Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</p> <p>OD90mm' PN6</p>  | No. | 2  |  |   |
| 7  | <p><b>Washouts</b></p> <p>Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004.</p> |     |    |  |   |
| 7.1                                      | DN75mm  | No. | 1  |  |   |
| 7.2                                      | DN65mm  | No. | 3  |  |   |
| 8  | <p><b>Farm Gate Connections</b></p> <p>Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and lockable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -</p>  |     |    |  |   |
| 8.1                                      | DN50mm  | No. | 5  |  |   |
|  | <p><b>Other Pipework Ancillaries</b></p> <p><b>Marker Posts</b></p>   |     |    |  |   |
| 9  | Marker posts for pipes, gate valves, air valves, washouts.  | No. | 36 |  |   |
| Total Carried to Collection              |   |     |    |  |   |
|  | <p><b>Bill No. 4 Collection</b></p> <p>Page 14</p> <p>Page 15</p>   |     |    |  |   |
| Total Bill No. 4 Carried to Bill Summary |   |     |    |  | 0 |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.3: ABAA IN MARACHA DSTRIC

Region: North

**BILL SUMMARY**

| Bill No.                              | Description                             | Amount (UGx.) |
|---------------------------------------|---|---------------|
|                                       | <b>WORK ITEMS</b>                       |               |
| 1                                     | Abstraction and Electromechanical Works |               |
| 2                                     | Transmission Mains                      |               |
| 3                                     | Storage Reservoir Works                 |               |
| 4                                     | Distribution Network                    |               |
| <b>Total Carried to Grand Summary</b> |   |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.3: ABAA IN MARACHA DSTRIC

Region: North

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|----------------|------|-------------|---------------|
|                                    | <b><u>General Site Clearance</u></b>  |                |      |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer.  | Item           | 1    |             |               |
|                                    | <b><u>Earthworks</u></b>  |                |      |             |               |
|                                    | Excavation to form trapezoidal prism silt basin and reservoir in material other than topsoil, rock or other artificial hard material, depth not exceeding 4.0m including forming earth bands around the reservoir banks with the excavated material as per the drawings to fair profiles to receive grassing and/ or disposing the excavated material on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings. |                |      |             |               |
| 2.1                                | Marshy soils  | m <sup>3</sup> | 1555 |             |               |
| 2.2                                | Soft / decomposed rock soils  | m <sup>3</sup> | 30   |             |               |
| 2.4                                | Excavation to form trapezoidal channel in material other than topsoil. rock or Marshy soils   | m <sup>3</sup> | 150  |             |               |
| 2.5                                | Soft / decomposed rock soils  | m <sup>3</sup> | 6    |             |               |
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>  |                |      |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)   |                |      |             |               |
| ME1                                | 11.0kW Submersible Pump Set with 15kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 100m total head; set to not more than <u>5m</u> below ground including Dry- run protection, Motor and Pump End.  | No.            | 1    |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.  | Item           | 1    |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings including foundations, vandal proofing mounting to the Engineer's approval  | Sum            | 1    |             |               |
| <b>Total Carried to Collection</b> |   |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 5.3: ABAA IN MARACHA DSTRIC**

**Region: North**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| <b>Item No.</b>                    | <b>Description</b>   | <b>Unit</b> | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
|------------------------------------|--|-------------|-------------|--------------------|----------------------|
| ME4                                | PV Disconnect 1000-40-2  | No.         | 1           |                    |                      |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.         | 1           |                    |                      |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item        | 1           |                    |                      |
| ME7                                | PV Combiner  | No.         | 1           |                    |                      |
| ME7a                               | Pressure Switch and Gauge - P6/12  | No.         | 1           |                    |                      |
| ME8                                | Sinewave filter - SWAP0022D.   | No.         | 1           |                    |                      |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,   | m           | 5           |                    |                      |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m           | 125         |                    |                      |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m           | 60          |                    |                      |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.         | 2           |                    |                      |
| ME11a                              | Adapter box  | No.         | 1           |                    |                      |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item        | 1           |                    |                      |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm | Sum         | 1           |                    |                      |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                   | Sum         | 1           |                    |                      |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.         | 5           |                    |                      |
|                                    | <b>Alarm System</b>  |             |             |                    |                      |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item        | 1           |                    |                      |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item        | 1           |                    |                      |
| <b>Total Carried to Collection</b> |  |             |             |                    |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 5.3: ABAA IN MARACHA DSTRIC**

**Region: North**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|----------------|-----------|-------------|---------------|
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>   |                |           |             |               |
|                                    | <b><u>Pump Protection System</u></b>  |                |           |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base.              | No.            | 1         |             |               |
|                                    | <b><u>Kerbs</u></b>   |                |           |             |               |
|                                    | Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m <sup>2</sup> to the following alignment: -  |                |           |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m   | m              | 70        |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a gauge 500 polythene sheet.   | m <sup>2</sup> | 220       |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert  | m              | Rate Only |             |               |
|                                    | <b><u>Pump House</u></b>  |                |           |             |               |
| X5                                 | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.   | Sum            | 1         |             |               |
|                                    | <b><u>Fences</u></b>  |                |           |             |               |
| X6a                                | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m              | 40        |             |               |
| X6b                                | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m              | 120       |             |               |
|                                    | <b><u>Gates</u></b>   |                |           |             |               |
| X7                                 | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|                                    | <b><u>Training of Operator's staff</u></b>  |                |           |             |               |
| X8                                 | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval  | Sum            | 1         |             |               |
|                                    | <b><u>Operation and Maintenance Manuals</u></b>   |                |           |             |               |
| X9                                 | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum            | 1         |             |               |
| <b>Total Carried to Collection</b> |   |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 5.3: ABAA IN MARACHA DSTRIC**

**Region: North**

| <b>BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b> |  |                |     |  |                      |
|---|--|----------------|-----|--|----------------------|
| <b>Item No.</b>   | <b>Description</b>   |                |     |  | <b>Amount (UGx.)</b> |
| XXX   | <b>Stone Pitching.</b><br>250mm minimum thick grouted stone masonry jointed in cement : sand (1:4) motar as detailed in the drawing.                                   | m <sup>2</sup> | 125 |  |                      |
| <b>Total Carried to Collection</b>                          |  |                |     |  |                      |
|   | <p align="center"><b>Bill No. 1 Collection</b></p> <p align="center">Page 2</p> <p align="center">Page 3</p> <p align="center">Page 4</p> <p align="center">Page 5</p> |                |     |  |                      |
| <b>Total Bill No. 1 Carried to Bill Summary</b>             |  |                |     |  |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.3: ABAA IN MARACHA DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |      |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.  | Item | 1    |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>   |      |      |             |               |
|                                    | <b><u>Steel Pipes</u></b>   |      |      |             |               |
|                                    | <u>Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes:</u>  |      |      |             |               |
| 2.1                                | DN75mm, in trenches; depths not exceeding 1.5m  | m    | 12   |             |               |
|                                    | <b><u>HDPE Pipes</u></b>  |      |      |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>  |      |      |             |               |
| 3.1                                | OD75mm HDPE PN16  | m    | 240  |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |      |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>   |      |      |             |               |
|                                    | <b><u>Bends</u></b>   |      |      |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |      |             |               |
| 5.1                                | DN65mm  | No.  | 4    |             |               |
|                                    | <b><u>Bulk Flow Meters</u></b>  |      |      |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |      |             |               |
| 6.1                                | DN65mm PN10   | No.  | 1    |             |               |
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |      |             |               |
|                                    | <b><u>Equal Adapters</u></b>  |      |      |             |               |
| 7.1                                | OD90 female adapter   | No.  | 2    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.3: ABAA IN MARACHA DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| <b>8</b>                           | <b><u>Valves and Penstocks</u></b>   |      |           |             |               |
|                                    | <b><u>Air Valves</u></b>   |      |           |             |               |
|                                    | <u>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                          |      |           |             |               |
| 8.1                                | DN65mm   | No.  | 1         |             |               |
| <b>9</b>                           | <b><u>Washouts</u></b>   |      |           |             |               |
|                                    | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |           |             |               |
| 9.1                                | DN65mm   | No.  | 2         |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b>   |      |           |             |               |
|                                    | <b><u>Other Chambers</u></b>   |      |           |             |               |
|                                    | <u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>   |      |           |             |               |
| 10.1                               | Depth not exceeding 1.5m   | No.  | 2         |             |               |
|                                    | <b><u>Valve Surface Boxes</u></b>  |      |           |             |               |
|                                    | <u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u>  |      |           |             |               |
| 10.2                               | Depth not exceeding 1.5m   | No.  | 3         |             |               |
|                                    | <b><u>Reinstatement</u></b>  |      |           |             |               |
|                                    | <b><u>Roads</u></b>  |      |           |             |               |
|                                    | <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>   |      |           |             |               |
| 11                                 | Not exceeding DN200mm  | m    | 24        |             |               |
|                                    | <b><u>Surrounds</u></b>  |      |           |             |               |
|                                    | <u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u>   |      |           |             |               |
| 12.1                               | Not exceeding DN200mm  | m    | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.3: ABAA IN MARACHA DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
| 12.2  | <u>Pipe surrounds, of imported granular material, for the following pipe sizes</u><br>Not exceeding DN200mm                     | m    | 40        |             |               |
| 12.3  | <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u><br>Not exceeding DN200mm                                  | m    | 30        |             |               |
|   | <b><u>Concrete Stools and Thrust Blocks</u></b>   |      |           |             |               |
|   | <b><u>Thrust Blocks</u></b>   |      |           |             |               |
|   | <u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m<sup>3</sup>, for the following pipe sizes</u> |      |           |             |               |
| 13  | Diameter not exceeding DN200mm  | No.  | Rate Only |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>  |      |           |             |               |
|   | <b><u>Marker Posts</u></b>  |      |           |             |               |
| 14  | Marker posts for pipes, gate valves, air valves, washouts.  | No.  | 15        |             |               |
| <b>Total Carried to Collection</b>              |   |      |           |             |               |
|   | <b>Bill No. 2 Collection</b>  |      |           |             |               |
|   | Page 6  |      |           |             |               |
|   | Page 7  |      |           |             |               |
|   | Page 8  |      |           |             |               |
| <b>Total Bill No. 2 Carried to Bill Summary</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.3: ABAA IN MARACHA DSTRIC

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b>DEMOLITION AND SITE CLEARANCE</b>   |      |      |             |               |
|                                    | <b>General Site Clearance</b>  |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.  | Item | 1    |             |               |
| 2                                  | <b>Reservoir Tower</b><br>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc, painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.   |      |      |             |               |
| 2.1                                | Height; 6.0m for 30m <sup>3</sup> Tank.  | No.  | 1    |             |               |
| 3                                  | <b>Tanks</b><br>Supply and Install a fabricated 6.0mm thick mild steel plate horizontal cylindrical tank with 1No. 0.6m wide access man way, water level indicator (scale in cubic metres), with inlet, outlet, washout and overflow connection complete with access points, ventilators (2 nr), and internal access ladders, inclusive of anti-rust painting internally, finishes and all necessary accessories to installation complete as specified and detailed in the drawings; to the Engineer's satisfaction. All tank accessories shall be of hot dipped galvanised steel. |      |      |             |               |
| 3.1                                | Reservoir: 30m <sup>3</sup> nominal capacity erected on a 6m high tower  | No.  | 1    |             |               |
| 4                                  | 150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-   |      |      |             |               |
| 4.1                                | DN75mm, PN10   | No.  | 1    |             |               |
| 5                                  | 150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-<br>[OPTIONAL]   |      |      |             |               |
| 5.1                                | DN75mm, PN10   | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.3: ABAA IN MARACHA DSTRIC

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.                                       | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|--|---|----------------|-----------|-------------|---------------|
| <b>6</b>                                       | <b><u>Landscaping and Walkways</u></b>  |                |           |             |               |
| 6.1  | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2  | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murrum fill. | No.            | Rate Only |             |               |
| <b>7</b>                                       | <b><u>Fences</u></b>  |                |           |             |               |
| 7.1  | Galvanized wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|  | <b><u>Gates</u></b>   |                |           |             |               |
| 7.2  | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|  | <b>Provision and Placing of Concrete</b><br><b><i>Ordinary Designed Mix Concrete</i></b>  |                |           |             |               |
| <b>8</b>                                       | <u>Designed mix concrete, to BS 5328, with ordinary Portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u>                |                |           |             |               |
| 8.1  | Grade C15   | m <sup>3</sup> | 2         |             |               |
| <b>Total Carried to Collection</b>             |   |                |           |             |               |
|  | <b>Bill No. 12.3 Collection</b>   |                |           |             |               |
|  | Page 10   |                |           |             |               |
|  | Page 11   |                |           |             |               |
| <b>Total Bill No.3 Carried to Bill Summary</b> |   |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.3: ABAA IN MARACHA DSTRIC

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                     | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m |      |           |             |               |
| 2.1                                | OD75mm PN6   | m    | 200       |             |               |
| 2.2                                | OD90mm PN6   | m    | 236       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>   |      |           |             |               |
| 3.1                                | OD63mm   | No.  | 2         |             |               |
|                                    | <b><u>Unequal tees</u></b>   |      |           |             |               |
| 3.2                                | OD75 x 63mm  | No.  | 5         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>   |      |           |             |               |
| 4.2                                | OD90mm   | No.  | Rate Only |             |               |
| 4.3                                | OD75mm   | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>   |      |           |             |               |
| 5.1                                | OD50mm   | No.  | 5         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.3: ABAA IN MARACHA DSTRCT

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.  | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|---|--|------|------|-------------|---------------|
| 6   | <b>Valves and Penstocks</b>  |      |      |             |               |
|   | <b>Air Valves</b>  |      |      |             |               |
|   | <u>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>  |      |      |             |               |
| 6.1   | OD75mm   | No.  | 2    |             |               |
| 7   | <b>Washouts</b>  |      |      |             |               |
|   | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004.</u> |      |      |             |               |
| 7.4   | DN50mm   | No.  | 3    |             |               |
| 8   | <b>Farm Gate Connections</b>   |      |      |             |               |
|   | Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and lockable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -  |      |      |             |               |
| 8.1   | DN50mm   | No.  | 5    |             |               |
|   | <b>Other Pipework Ancillaries</b>  |      |      |             |               |
|   | <b>Marker Posts</b>  |      |      |             |               |
| 9   | Marker posts for pipes, gate valves, air valves, washouts.   | No.  | 42   |             |               |
| <b>Total Carried to Collection</b>              |  |      |      |             |               |
|   | <b>Bill No. 4 Collection</b>   |      |      |             |               |
|   | Page 11  |      |      |             |               |
|   | Page 12  |      |      |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |  |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.4: PAUBA IN MOYO DSTRIC

Region: North

**BILL SUMMARY**

| Bill No.                              | Description                             | Amount (UGx.) |
|---------------------------------------|---|---------------|
|                                       | <b>WORK ITEMS</b>                       |               |
| 1                                     | Abstraction and Electromechanical Works |               |
| 2                                     | Transmission Mains                      |               |
| 3                                     | Storage Reservoir Works                 |               |
| 4                                     | Distribution Network                    |               |
| <b>Total Carried to Grand Summary</b> |   |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.4: PAUBA IN MOYO DSTRIC

Region: North

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.   | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|--|--|----------------|------|-------------|---------------|
|  | <b>General Site Clearance</b>  |                |      |             |               |
| 1  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer.   | Item           | 1    |             |               |
|  | <b>Earthworks</b>  |                |      |             |               |
|  | Excavation to form trapezoidal prism reservior in material other than topsoil, rock or other artificial hard material, depth not exceeding 6.0m including forming earth bands along the channel of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings. |                |      |             |               |
| 2.1  | Marshy soils   | m <sup>3</sup> | 52   |             |               |
| 2.2  | Soft / decomposed rock soils   | m <sup>3</sup> | 26   |             |               |
|  | Excavation to form trapezoidal channel in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                        |                |      |             |               |
| 2.4  | Marshy soils   | m <sup>3</sup> | 4    |             |               |
| 2.5  | Soft / decomposed rock soils   | m <sup>3</sup> | 1    |             |               |
|  | Excavation to form cylindrical sump well in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                      |                |      |             |               |
| 2.6  | Marshy soils   | m <sup>3</sup> | 16   |             |               |
| 2.7  | Soft / decomposed rock soils   | m <sup>3</sup> | 8    |             |               |
|  | <b>Filling Structures</b>  |                |      |             |               |
|  | Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -   |                |      |             |               |
| 3  | Selected excavated material including topping with a 200mm thick layer of top/ vegetable soil.   | m <sup>3</sup> | 10   |             |               |
| <b>Total Carried to Collection</b>                         |  |                |      |             |               |
| <b>BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b> |  |                |      |             |               |
| Item No.   | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
| 4  | <b>Landscaping</b><br>Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.  | m <sup>2</sup> | 40   |             |               |
|  | <b>IN-SITU CONCRETE</b><br><b>Provision and Placing of Concrete</b><br><b>Ordinary Design Mix Concrete</b>   |                |      |             |               |



# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

## **Scheme ID. 5.4: PAUBA IN MOYO DSTRIC**

**Region: North**

|                                    |  |                |      |  |  |
|------------------------------------|--|----------------|------|--|--|
|                                    | <u>Designed mix , concrete to BS 8500 and BS EN 206-1, with ordinary portland cement to BS 12, aggregate to BS 882 , maximum aggregate size ; 20mm for the following structures: -</u>   |                |      |  |  |
|                                    | <b><u>In situ Concrete</u></b>   |                |      |  |  |
| 5                                  | 75mm thick Grade C15 concrete blinding to pump sump base   | m <sup>3</sup> | 0.25 |  |  |
| 6.1                                | 2200mm Diameter x 150mm thick Grade C25 concrete base slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float.  | Item           | 1    |  |  |
| 6.2                                | 2200mm Diameter x 150mm thick Grade C25 concrete top slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float and forming a 600 x 600mm opening for the inspection cover (MS). | Item           | 1    |  |  |
|                                    | <b><u>Pre-cast Concrete</u></b>  |                |      |  |  |
|                                    | <b><u>Pump Well/ Sump</u></b>  |                |      |  |  |
|                                    | Supply and install 100mm thick precast reinforced concrete vertical culverts on concrete base slab (MS) ; complete with water tight jointing and finishing works to approval.  |                |      |  |  |
| 7                                  | 1200mm diameter ; height n.e 8m  | Item           | 1    |  |  |
|                                    | <b><u>Concrete Inserts</u></b>   |                |      |  |  |
|                                    | <b><u>Cast or Spum Iron Pipe Fittings.</u></b>   |                |      |  |  |
|                                    | Flanged, puddled and plain end pipe insert projecting from one face of the concrete, all to PN6 and of the following sizes and lengths, including supply of the pipe and as shown in the drawings.                               |                |      |  |  |
| 8                                  | 200mm ND and not exceeding 0.5m length   | No.            | 2    |  |  |
|                                    | <b><u>Adaptors</u></b>   |                |      |  |  |
|                                    | Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:-   |                |      |  |  |
| 9                                  | 200 mm ND  | No.            | 2    |  |  |
| <b>Total Carried to Collection</b> |  |                |      |  |  |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.4: PAUBA IN MOYO DSTRIC

Region: North

## **BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| 10                                 | OD225mm PN10 plain end uPVC pipe connection between Silt Trap Basin and Pump Sump.   | m    | 8         |             |               |
|                                    | <b>Bellmouths</b>  |      |           |             |               |
| 11                                 | Flanged bellmouth to ISO 2531, flanges to ISO 2441, of the following sizes all to PN 6<br>200 mm ND  | No.  | 1         |             |               |
|                                    | <b>PIPEWORK - FITTINGS AND VALVES</b>  |      |           |             |               |
|                                    | <b>Gate Valves: Hand Operated</b>  |      |           |             |               |
| 12                                 | DN 200 mm all flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 6 for operation by tee key, with extension spindle not exceeding 4.5 metres long, and of the following sizes                       |      |           |             |               |
|                                    | <b>MISCELLANEOUS WORK</b>  |      |           |             |               |
|                                    | <b>Ladders</b>   |      |           |             |               |
| 13                                 | Internal galvanized mild steel ladder to BS 4211, galvanized to BS 729, complete and as shown in the drawings including fixing to precast concrete units..   | m    | 8         |             |               |
|                                    | <b>Steel grating</b>   |      |           |             |               |
| 14.1                               | Galvanized iron Coarse Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
| 14.2                               | Galvanized iron Fine Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
|                                    | <b>Pump Well/ Sump</b>   |      |           |             |               |
|                                    | Supply and install 8.0m long HDPE vertical culverts on concrete base slab (MS) ; complete with a Single ND200mm flanged branch to receive a ND200 gate valve. Branch height/ positioning to be determined on site. | Item | Rate Only |             |               |
| 15                                 | Internal diameter ; 1200x200mm   |      |           |             |               |
|                                    | <b>Stone pitched Channel.</b>  |      |           |             |               |
| 16                                 | 3.0 x 1.5 top x bottom width x 1.5m deep maximum trapezoidal lined drain as detailed in the drawing.   | m    | 5         |             |               |
|                                    | <b>Gabion boxes</b>  |      |           |             |               |
| 17                                 | PVC coated gabion boxes ; size 1m x 1m x 1m; including rockfill of size 100 - 250mm; as instructed by the Engineer   | nr   | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.4: PAUBA IN MOYO DSTRIC

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>   |      |      |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)  |      |      |             |               |
| ME1                                | 7.5kW Submersible Pump Set with 11.0kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 70m total head; set to not more than <u>5m</u> below ground including Dry- run protection, Motor and Pump End. | No.  | 1    |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item | 1    |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings including foundations, vandal proofing mounting to the Engineer's approval     | Sum  | 1    |             |               |
| ME4                                | PV Disconnect 1000-40-2  | No.  | 1    |             |               |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.  | 1    |             |               |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item | 1    |             |               |
| ME7                                | PV Combiner  | No.  | 1    |             |               |
| ME7a                               | Pressure Switch and Gauge - P5/8   | No.  | 1    |             |               |
| ME8                                | Sinewave filter - SWAP0017D.   | No.  | 1    |             |               |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,   | m    | 5    |             |               |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m    | 125  |             |               |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m    | 60   |             |               |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.  | 2    |             |               |
| ME11a                              | Adapter box  | No.  | 1    |             |               |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item | 1    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 5.4: PAUBA IN MOYO DSTRIC

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|-----------|-------------|---------------|
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm               | Sum            | 1         |             |               |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                                 | Sum            | 1         |             |               |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.            | 5         |             |               |
|                                    | <b>Alarm System</b>  |                |           |             |               |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item           | 1         |             |               |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item           | 1         |             |               |
|                                    | <b>MISCELLANEOUS WORKS</b>   |                |           |             |               |
|                                    | <b>Pump Protection System</b>  |                |           |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base. | No.            | 1         |             |               |
|                                    | <b>Kerbs</b>   |                |           |             |               |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>   |                |           |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m  | m              | 70        |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a gauge 500 polythene sheet.  | m <sup>2</sup> | 220       |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert   | m              | Rate Only |             |               |
|                                    | <b>Pump House</b>  |                |           |             |               |
| X5                                 | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.  | Sum            | 1         |             |               |
| <b>Total Carried to Collection</b> |  |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.4: PAUBA IN MOYO DSTRIC

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No. | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|------|-----------|-------------|---------------|
|          | <b><u>Fences</u></b>  |      |           |             |               |
| X6a      | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m    | 50        |             |               |
| X6b      | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m    | 10        |             |               |
|          | <b><u>Gates</u></b>   |      |           |             |               |
| X7       | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.  | 2         |             |               |
|          | <b><u>Training of Operator's staff</u></b>  |      |           |             |               |
| X8       | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval  | Sum  | 1         |             |               |
|          | <b><u>Operation and Maintenance Manuals</u></b>   |      |           |             |               |
| X9       | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum  | 1         |             |               |
| XX       | Horizontal pump installation option out of flanged/ sealed end HDPE culvert pipe mounted on fabricated GI support structure including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/005.       | Item | Rate Only |             |               |

**Total Carried to Collection**

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No. | Description                  |  |  |  | Amount (UGx.) |
|----------|------------------------------|--|--|--|---------------|
|          | <b>Bill No. 1 Collection</b> |  |  |  |               |
|          | Page 2                       |  |  |  |               |
|          | Page 3                       |  |  |  |               |
|          | Page 4                       |  |  |  |               |
|          | Page 5                       |  |  |  |               |
|          | Page 6                       |  |  |  |               |
|          | Page 7                       |  |  |  |               |

**Total Bill No. 1 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.4: PAUBA IN MOYO DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.  | Item | 1.00      |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Steel Pipes</u></b>   |      |           |             |               |
|                                    | <u>Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes;</u>  |      |           |             |               |
| 2.1                                | DN75mm, not in trenches;  | m    | Rate Only |             |               |
| 2.2                                | DN75mm, in trenches; depths not exceeding 1.5m  | m    | 12        |             |               |
| 3                                  | <b><u>HDPE Pipes</u></b>  |      |           |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>  |      |           |             |               |
| 3.1                                | OD75mm HDPE PN16  | m    | 330       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>   |      |           |             |               |
| 5                                  | <b><u>Bends</u></b>   |      |           |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |           |             |               |
| 5.1                                | DN65mm  | No.  | 4         |             |               |
| 6                                  | <b><u>Bulk Flow Meters</u></b>  |      |           |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |           |             |               |
| 6.1                                | DN65mm PN10   | No.  | 1         |             |               |
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
| 7                                  | <b><u>Equal Adapters</u></b>  |      |           |             |               |
| 7.1                                | OD90 female adapter   | No.  | 2         |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.4: PAUBA IN MOYO DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| <b>8</b>                           | <b><u>Valves and Penstocks</u></b>   |      |           |             |               |
|                                    | <b><u>Air Valves</u></b>   |      |           |             |               |
|                                    | <u>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                          |      |           |             |               |
| 8.1                                | DN65mm   | No.  | 1         |             |               |
| <b>9</b>                           | <b><u>Washouts</u></b>   |      |           |             |               |
|                                    | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |           |             |               |
| 9.3                                | DN65mm   | No.  | 1         |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b>   |      |           |             |               |
|                                    | <b><u>Other Chambers</u></b>   |      |           |             |               |
|                                    | <u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>   |      |           |             |               |
| 10.1                               | Depth not exceeding 1.5m   | No.  | 2         |             |               |
|                                    | <b><u>Valve Surface Boxes</u></b>  |      |           |             |               |
|                                    | <u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u>  |      |           |             |               |
| 10.2                               | Depth not exceeding 1.5m   | No.  | 3         |             |               |
|                                    | <b><u>Reinstatement</u></b>  |      |           |             |               |
|                                    | <b><u>Roads</u></b>  |      |           |             |               |
|                                    | <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>   |      |           |             |               |
|                                    | <b><u>Surrounds</u></b>  |      |           |             |               |
|                                    | <u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u>   |      |           |             |               |
| 12.1                               | Not exceeding DN200mm  | m    | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.4: PAUBA IN MOYO DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
| 12.2  | Pipe surrounds, of imported granular material, for the following pipe sizes<br>Not exceeding DN200mm          | m    | Rate Only |             |               |
| 12.3  | Pipe surrounds, of mass concrete, for the following pipe sizes<br>Not exceeding DN200mm                       | m    | 45        |             |               |
|   | <b><u>Concrete Stools and Thrust Blocks</u></b>   |      |           |             |               |
|   | <b><u>Thrust Blocks</u></b>   |      |           |             |               |
|   | Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes |      |           |             |               |
| 13  | Diameter not exceeding DN200mm  | No.  | Rate Only |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>  |      |           |             |               |
|   | <b><u>Marker Posts</u></b>  |      |           |             |               |
| 14  | Marker posts for pipes, gate valves, air valves, washouts.  | No.  | 11        |             |               |
| <b>Total Carried to Collection</b>              |   |      |           |             |               |
|   | <b>Bill No. 2 Collection</b>  |      |           |             |               |
|   | Page 6  |      |           |             |               |
|   | Page 7  |      |           |             |               |
|   | Page 8  |      |           |             |               |
| <b>Total Bill No. 2 Carried to Bill Summary</b> |   |      |           |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.4: PAUBA IN MOYO DSTRIC

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.   | Item | 1    |             |               |
| 2                                  | <b><u>Reservoir Tower</u></b>   |      |      |             |               |
|                                    | <u>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc, painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.</u>   |      |      |             |               |
| 2.1                                | Height; 6.0m for 30m <sup>3</sup> Tank.   | No.  | 1    |             |               |
| 3                                  | <b><u>Tanks</u></b>   |      |      |             |               |
|                                    | <u>Supply and Install a fabricated 6.0mm thick mild steel plate horizontal cylindrical tank with 1No. 0.6m wide access man way, water level indicator (scale in cubic metres), with inlet, outlet, washout and overflow connection complete with access points, ventilators (2 nr), and internal access ladders, inclusive of anti-rust painting internally, finishes and all necessary accessories to installation complete as specified and detailed in the drawings; to the Engineer's satisfaction. All tank accessories shall be of hot dipped galvanised steel.</u> |      |      |             |               |
| 3.1                                | Reservoir: 30m <sup>3</sup> nominal capacity erected on a 6m high tower   | No.  | 1    |             |               |
| 4                                  | <u>150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>   |      |      |             |               |
| 4.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| 5                                  | <u>150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u>   |      |      |             |               |
|                                    | [OPTIONAL]  |      |      |             |               |
| 5.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.4: PAUBA IN MOYO DSTRIC

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.  | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|----------------|-----------|-------------|---------------|
| <b>6</b>  | <b>Landscaping and Walkways</b>   |                |           |             |               |
| 6.1   | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2   | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill. | No.            | Rate Only |             |               |
| <b>7</b>  | <b>Fences</b>   |                |           |             |               |
| 7.1   | Galvanized wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|   | <b>Gates</b>  |                |           |             |               |
| 7.2   | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|   | <b>Provision and Placing of Concrete</b><br><b>Ordinary Designed Mix Concrete</b>   |                |           |             |               |
| <b>8</b>  | <u>Designed mix concrete, to BS 5328, with ordinary Portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u>                |                |           |             |               |
| 8.1   | Grade C15   | m <sup>3</sup> | 2         |             |               |
| <b>Total Carried to Collection</b>              |   |                |           |             |               |
|   | <b>Bill No. 3 Collection</b>  |                |           |             |               |
|   | Page 9  |                |           |             |               |
|   | Page 10   |                |           |             |               |
| <b>Total Bill No. 3 Carried to Bill Summary</b> |   |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.4: PAUBA IN MOYO DSTRIC

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                     | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m |      |           |             |               |
| 2.1                                | OD63mm PN10  | m    | 165       |             |               |
| 2.2                                | OD75mm PN10  | m    | 200       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>   |      |           |             |               |
| 3.1                                | OD75mm   | No.  | 1         |             |               |
| 3.2                                | OD63mm   | No.  | 1         |             |               |
|                                    | <b><u>Unequal tees</u></b>   |      |           |             |               |
| 3.3                                | OD75 x 63mm  | No.  | 2         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>   |      |           |             |               |
| 4.1                                | OD75mm   | No.  | Rate Only |             |               |
| 4.2                                | OD63mm   | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>   |      |           |             |               |
| 5.1                                | OD50mm   | No.  | 5         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.4: PAUBA IN MOYO DSTRIC

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
| <b>6</b>  | <b>Valves and Penstocks</b>   |      |           |             |               |
|   | <b>Air Valves</b>   |      |           |             |               |
|   | Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.  |      |           |             |               |
| 6.1   | OD75mm  | No.  | Rate Only |             |               |
| 6.2   | OD63mm  | No.  | Rate Only |             |               |
| <b>7</b>  | <b>Washouts</b>   |      |           |             |               |
|   | Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |           |             |               |
| 7.1   | DN50mm  | No.  | 1         |             |               |
| <b>8</b>  | <b>Farm Gate Connections</b>  |      |           |             |               |
|   | Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and lockable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -   |      |           |             |               |
| 8.4   | DN50mm  | No.  | 5         |             |               |
|   | <b>Other Pipework Ancillaries</b>   |      |           |             |               |
|   | <b>Marker Posts</b>   |      |           |             |               |
| 14  | Marker posts for pipes, gate valves, air valves, washouts.  | No.  | 16        |             |               |
| <b>Total Carried to Collection</b>              |   |      |           |             |               |
|   | <b>Bill No. 4 Collection</b>  |      |           |             |               |
|   | Page 13   |      |           |             |               |
|   | Page 14   |      |           |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 5.5: CEKE IN NWOYA DSTRIC**  
**BILL SUMMARY**

**Region: North**

| <b>Bill No.</b>                       | <b>Description</b>                      | <b>Amount (UGx.)</b> |
|---------------------------------------|---|----------------------|
|                                       | <b>WORK ITEMS</b>                       |                      |
| 1                                     | Abstraction and Electromechanical Works |                      |
| 2                                     | Transmission Mains                      |                      |
| 3                                     | Storage Reservoir Works                 |                      |
| 4                                     | Distribution Network                    |                      |
| <b>Total Carried to Grand Summary</b> |   |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 5.5: CEKE IN NWOYA DSTRIC**

**Region: North**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|-----------|-------------|---------------|
|                                    | <b><u>General Site Clearance</u></b>   |                |           |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer. | Item           | 1         |             |               |
|                                    | <b><u>Earthworks</u></b>   |                |           |             |               |
| 2.1                                | Excavation to form river/ stream diversion towards the intake / abstraction structure in normal ground, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to receive hardcore fill. | m <sup>3</sup> | 57        |             |               |
| 2.2                                | Ditto but for the Intake Structure   | m <sup>3</sup> | 34        |             |               |
| 2.3                                | Excavation to form trapezoidal drain in marshy soils, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                                     | m <sup>3</sup> | 175       |             |               |
|                                    | <b><u>Filling Structures</u></b>   |                |           |             |               |
|                                    | <u>Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -</u>  |                |           |             |               |
| 3.1                                | Imported rock/ hardcore fill, size 75 to 300mm hand packed or compacted by the arm of an excavator.  | m <sup>3</sup> | 12        |             |               |
| 3.2                                | Imported murrum.   | m <sup>3</sup> | 10        |             |               |
| 4                                  | Single layer of geotextile laid to manufacturer's specifications   | m <sup>2</sup> | Rate Only |             |               |
|                                    | <b><u>Landscaping</u></b>  |                |           |             |               |
| 5                                  | Turfing for lawns inside fenced off compound, including filling with excavated topsoil and the preparation of surfaces; 40m <sup>2</sup> at Intake Site and 800m <sup>2</sup> at Pump Station.   | m <sup>2</sup> | 840       |             |               |
| <b>Total Carried to Collection</b> |  |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.5: CEKE IN NWOYA DSTRIC

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
|                                    | <b>IN-SITU CONCRETE</b><br><b>Provision and Placing of Concrete</b><br><b>Ordinary Design Mix Concrete</b><br><u>Designed mix . concrete to BS 8500 and BS EN 206-1, with ordinary Portland cement to BS 12, aggregate to BS 882 for the following structures: -</u> |                |      |             |               |
|                                    | <b>Grade C15/10</b><br><b>Blinding</b><br>6.1 50mm thick blinding concrete, for base slabs, toes, key and heel; grade C15, of the following thickness  | m <sup>3</sup> | 1.1  |             |               |
|                                    | <b>Grade C25/10</b><br><b>Reinforced Concrete Base Slabs, Toe and Heel</b><br>6.2 200mm thick toe.   | m <sup>3</sup> | 0.3  |             |               |
|                                    | 6.3 200mm thick base slab.   | m <sup>3</sup> | 2.4  |             |               |
|                                    | 6.4 350/ 200mm thick retaining wall/ weir stem.  | m <sup>3</sup> | 0    |             |               |
|                                    | 6.5 200mm thick sump walls.  | m <sup>3</sup> | 13.5 |             |               |
|                                    | 6.6 200mm thick top slab.  | m <sup>3</sup> | 1.2  |             |               |
|                                    | <b>Formwork</b><br><b>Formwork-Fair Finish</b>   |                |      |             |               |
|                                    | <b>Fair Finish Plane Horizontal</b><br>7.1 Plane fair finish horizontal formwork to the tops slab including chamfering and / or filleting of all exposed concrete corners.   | m <sup>2</sup> | 4.0  |             |               |
|                                    | <b>Fair Finish Plane Vertical</b><br>7.2 Plane fair finish vertical and / or slightly sloping formwork to walls including chamfering and / or filleting of all exposed concrete corners.   | m <sup>2</sup> | 140  |             |               |
|                                    | <b>Finishing of top surfaces</b><br>7.3 Steel trowel finishing of top surfaces.  | m <sup>2</sup> | 11   |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 5.5: CEKE IN NWOYA DSTRIC**

**Region: North**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| 8.1                                | <b>Reinforcement</b><br><b>Deformed High Yield Steel</b><br><u>High yield square twisted bars to BS 4449 and of the following sizes</u><br>Nominal size, 12mm  | t    | 1.2       |             |               |
| 8.2                                | <b>Inserts</b><br>DN 250 CI / ST flanged, puddled pipe insert pipe inserts projecting from two faces of the concrete wall and of the following sizes, excluding supply of pipe.  | No.  | Rate Only |             |               |
|                                    | <b>PIPEWORK - FITTINGS AND VALVES</b><br><b>Cast or Spun Iron Pipe Fittings.</b>   |      |           |             |               |
| 9.1                                | <b>Flanged Reducers</b><br>DN250 x 150mm   | No.  | Rate Only |             |               |
| 9.2                                | <b>Flange Adaptors</b><br>DN 150mm Maxi Type or similar wide range adaptor to fit pipe spigots, flanges to BS 4505, all to PN6.  | No.  | Rate Only |             |               |
| 9.3                                | <b>Strainers</b><br><u>Flanged outlet pipe strainer, to BS 4772, flanges to BS 4504, all to PN 10, cement mortar lined, and of the following sizes: -</u><br>DN 250 mm   | No.  | Rate Only |             |               |
| 9.4                                | <b>End Caps</b><br>DN250mm flanged end cap.  | No.  | Rate Only |             |               |
| 9.5                                | <b>Valves and Penstocks</b><br><b>Gate Valves: Hand Operated</b><br><u>All flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 10 for operation by tee key, with extension spindle not exceeding 1.5 m long, and of the following sizes:-</u><br>150 mm ND | No.  | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 5.5: CEKE IN NWOYA DSTRIC**

**Region: North**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| 9.6                                | <u>Penstocks; hand operated including head stock and distance spindle, as specified in drawings of the following size: -</u><br>300mm wide x 1000mm high, stainless steel.   | No.  | 1         |             |               |
|                                    | <b>MISCELLANEOUS METAL WORK</b>  |      |           |             |               |
|                                    | <b>Ladders</b>   |      |           |             |               |
| 10.1                               | External galvanized mild steel ladder to BS 4211, galvanized to BS 729, complete and as shown in the drawings including fixing to precast concrete units..   | m    | 8         |             |               |
|                                    | <b>Access Manhole Cover</b>  |      |           |             |               |
| 10.2                               | 600 x 600mm clear opening painted mild steel cover and frame include fixing and locking arrangement.   | No.  | 2         |             |               |
|                                    | <b>Pump Protection System</b>  |      |           |             |               |
| 10.3                               | Vertical pipe pump stilling tube/ anti-vandal protection sleeve structure to detail as per Drawing No. OIS/NUC/SD/010, including 1.5x1.5x0.3m support base.  | No.  | 0         |             |               |
|                                    | <b>Valve Surface Boxes</b>   |      |           |             |               |
| 10.4                               | Valve surface box with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to a depth not exceeding 4.5 m.   | No.  | Rate Only |             |               |
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>   |      |           |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)  |      |           |             |               |
| ME1                                | 7.5kW Submersible Pump Set with 11.0kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 70m total head; set to not more than <u>5m</u> below ground including Dry- run protection, Motor and Pump End. | No.  | 1         |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item | 1         |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings including foundations, vandal proofing mounting to the Engineer's approval     | Sum  | 1         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 5.5: CEKE IN NWOYA DSTRIC**

**Region: North**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| <b>Item No.</b>                    | <b>Description</b>   | <b>Unit</b> | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
|------------------------------------|--|-------------|-------------|--------------------|----------------------|
| ME4                                | PV Disconnect 1000-40-2  | No.         | 1           |                    |                      |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.         | 1           |                    |                      |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item        | 1           |                    |                      |
| ME7                                | PV Combiner  | No.         | 1           |                    |                      |
| ME7a                               | Pressure Switch and Gauge - P5/8   | No.         | 1           |                    |                      |
| ME8                                | Sinewave filter - SWAP0017D.   | No.         | 1           |                    |                      |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,   | m           | 5           |                    |                      |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m           | 100         |                    |                      |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m           | 60          |                    |                      |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.         | 2           |                    |                      |
| ME11a                              | Adapter box  | No.         | 1           |                    |                      |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item        | 1           |                    |                      |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm | Sum         | 1           |                    |                      |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                   | Sum         | 1           |                    |                      |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.         | 5           |                    |                      |
|                                    | <b>Alarm System</b>  |             |             |                    |                      |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item        | 1           |                    |                      |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item        | 1           |                    |                      |
| <b>Total Carried to Collection</b> |  |             |             |                    |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.5: CEKE IN NWOYA DSTRIC

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|----------------|------|-------------|---------------|
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>   |                |      |             |               |
|                                    | <b><u>Pump Protection System</u></b>  |                |      |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base.              | No.            | 1    |             |               |
|                                    | <b><u>Kerbs</u></b>   |                |      |             |               |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>  |                |      |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m   | m              | 70   |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a gauge 500 polythene sheet.   | m <sup>2</sup> | 220  |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert  | m              | 2    |             |               |
|                                    | <b><u>Pump House</u></b>  |                |      |             |               |
| X5                                 | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.   | Sum            | 1    |             |               |
|                                    | <b><u>Fences</u></b>  |                |      |             |               |
| X6a                                | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds" to the Engineer's approval.</u> | m              | 40   |             |               |
| X6b                                | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m              | 120  |             |               |
|                                    | <b><u>Gates</u></b>   |                |      |             |               |
| X7                                 | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 2    |             |               |
|                                    | <b><u>Training of Operator's staff</u></b>  |                |      |             |               |
| X8                                 | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval  | Sum            | 1    |             |               |
|                                    | <b><u>Operation and Maintenance Manuals</u></b>   |                |      |             |               |
| X9                                 | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum            | 1    |             |               |
| <b>Total Carried to Collection</b> |   |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 5.5: CEKE IN NWOYA DSTRIC**

**Region: North**

| <b>BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b> |                              |  |  |  |                      |
|---|------------------------------|--|--|--|----------------------|
| <b>Item No.</b>   | <b>Description</b>           |  |  |  | <b>Amount (UGx.)</b> |
|   | <b>Bill No. 1 Collection</b> |  |  |  |                      |
|   | Page 2                       |  |  |  |                      |
|   | Page 3                       |  |  |  |                      |
|   | Page 4                       |  |  |  |                      |
|   | Page 5                       |  |  |  |                      |
|   | Page 6                       |  |  |  |                      |
|   | Page 7                       |  |  |  |                      |
| <b>Total Bill No. 1 Carried to Bill Summary</b>             |                              |  |  |  |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.5: CEKE IN NWOYA DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.  | Item | 1         |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Steel Pipes</u></b>   |      |           |             |               |
|                                    | <u>Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes;</u>  |      |           |             |               |
| 2.1                                | DN75mm, not in trenches;  | m    | Rate Only |             |               |
| 2.2                                | DN75mm, in trenches; depths not exceeding 1.5m  | m    | 12        |             |               |
| 3                                  | <b><u>HDPE Pipes</u></b>  |      |           |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>  |      |           |             |               |
| 3.1                                | OD75mm HDPE PN16  | m    | 300       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>   |      |           |             |               |
| 5                                  | <b><u>Bends</u></b>   |      |           |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |           |             |               |
| 5.1                                | DN65mm  | No.  | 4         |             |               |
| 6                                  | <b><u>Bulk Flow Meters</u></b>  |      |           |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |           |             |               |
| 6.1                                | DN65mm PN10   | No.  | 1         |             |               |
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
| 7                                  | <b><u>Equal Adapters</u></b>  |      |           |             |               |
| 7.1                                | OD90 female adapter   | No.  | 2         |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.5: CEKE IN NWOYA DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| <b>8</b>                           | <b><u>Valves and Penstocks</u></b>   |      |           |             |               |
|                                    | <b><u>Air Valves</u></b>   |      |           |             |               |
|                                    | <u>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                          |      |           |             |               |
| 8.1                                | DN65mm   | No.  | Rate Only |             |               |
| <b>9</b>                           | <b><u>Washouts</u></b>   |      |           |             |               |
|                                    | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |           |             |               |
| 9.1                                | DN65mm   | No.  | Rate Only |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b>   |      |           |             |               |
|                                    | <b><u>Other Chambers</u></b>   |      |           |             |               |
|                                    | <u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>   |      |           |             |               |
| 10.1                               | Depth not exceeding 1.5m   | No.  | 2         |             |               |
|                                    | <b><u>Valve Surface Boxes</u></b>  |      |           |             |               |
|                                    | <u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u>  |      |           |             |               |
| 10.2                               | Depth not exceeding 1.5m   | No.  | 2         |             |               |
|                                    | <b><u>Reinstatement</u></b>  |      |           |             |               |
|                                    | <b><u>Roads</u></b>  |      |           |             |               |
|                                    | <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>   |      |           |             |               |
| 11                                 | Not exceeding DN300mm  | m    | 24        |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.5: CEKE IN NWOYA DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.  | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|--|------|-----------|-------------|---------------|
|   | <b><u>Surrounds</u></b>  |      |           |             |               |
| 12.1  | <u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u><br>Not exceeding DN200mm                                  | m    | Rate Only |             |               |
| 12.2  | <u>Pipe surrounds, of imported granular material, for the following pipe sizes</u><br>Not exceeding DN200mm  | m    | Rate Only |             |               |
| 12.3  | <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u><br>Not exceeding DN200mm   | m    | 24        |             |               |
|   | <b><u>Concrete Stools and Thrust Blocks</u></b>  |      |           |             |               |
|   | <b><u>Thrust Blocks</u></b>  |      |           |             |               |
| 13.1  | <u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes</u><br>Diameter not exceeding DN200mm | No.  | Rate Only |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>   |      |           |             |               |
|   | <b><u>Marker Posts</u></b>   |      |           |             |               |
| 14  | Marker posts for pipes, gate valves, air valves, washouts.   | No.  | 14        |             |               |
| <b>Total Carried to Collection</b>              |  |      |           |             |               |
|   | <b>Bill No. 2 Collection</b>   |      |           |             |               |
|   | Page 9   |      |           |             |               |
|   | Page 10  |      |           |             |               |
|   | Page 11  |      |           |             |               |
| <b>Total Bill No. 2 Carried to Bill Summary</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.5: CEKE IN NWOYA DSTRIC

Region: North

**BILL No. 14.3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.  | Item | 1    |             |               |
|                                    | <b><u>Reservoir Tower</u></b>  |      |      |             |               |
| 2                                  | Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc, painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.   |      |      |             |               |
| 2.1                                | Height; 6.0m for 30m <sup>3</sup> Tank.  | No.  | 1    |             |               |
|                                    | <b><u>Tanks</u></b>  |      |      |             |               |
| 3                                  | Supply and Install a fabricated 6.0mm thick mild steel plate horizontal cylindrical tank with 1No. 0.6m wide access man way, water level indicator (scale in cubic metres), with inlet, outlet, washout and overflow connection complete with access points, ventilators (2 nr), and internal access ladders, inclusive of anti-rust painting internally, finishes and all necessary accessories to installation complete as specified and detailed in the drawings; to the Engineer's satisfaction. All tank accessories shall be of hot dipped galvanised steel. |      |      |             |               |
| 3.1                                | Reservoir: 30m <sup>3</sup> nominal capacity erected on a 6m high tower  | No.  | 1    |             |               |
| 4                                  | 150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-   |      |      |             |               |
| 4.2                                | DN75mm, PN10   | No.  | 1    |             |               |
| 5                                  | 150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-   |      |      |             |               |
|                                    | [OPTIONAL]   |      |      |             |               |
| 5.2                                | DN75mm, PN10   | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.5: CEKE IN NWOYA DSTRIC

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|----------|---|----------------|-----------|-------------|---------------|
| <b>6</b> | <b><u>Landscaping and Walkways</u></b>  |                |           |             |               |
| 6.1      | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2      | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill. | No.            | Rate Only |             |               |
| <b>7</b> | <b><u>Fences</u></b>  |                |           |             |               |
| 7.1      | Galvanized wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|          | <b><u>Gates</u></b>   |                |           |             |               |
| 7.2      | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|          | <b>Provision and Placing of Concrete</b><br><b>Ordinary Designed Mix Concrete</b>   |                |           |             |               |
| <b>8</b> | <u>Designed mix concrete, to BS 5328, with ordinary Portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u>                |                |           |             |               |
| 8.1      | Grade C15   | m <sup>3</sup> | 2         |             |               |
| 8.2      | Grade C20   | m <sup>3</sup> | Rate Only |             |               |
| 8.3      | Grade C25   | m <sup>3</sup> | Rate Only |             |               |
| 8.4      | Grade C30   | m <sup>3</sup> | Rate Only |             |               |

**Total Carried to Collection**

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No. | Description                  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|----------|------------------------------|------|------|-------------|---------------|
|          | <b>Bill No. 3 Collection</b> |      |      |             |               |
|          | Page 12                      |      |      |             |               |
|          | Page 13                      |      |      |             |               |

**Total Bill No. 3 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.5: CEKE IN NWOYA DSTRIC

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                            | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>  |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br><u>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m</u> |      |           |             |               |
| 2.1                                | OD63mm PN6  | m    | 200       |             |               |
| 2.2                                | OD90mm PN6  | m    | 205       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>  |      |           |             |               |
| 3.1                                | OD90mm  | No.  | 2         |             |               |
| 3.2                                | OD75mm  | No.  | Rate Only |             |               |
|                                    | <b><u>Unequal tees</u></b>  |      |           |             |               |
| 3.3                                | OD90 x 75mm   | No.  | Rate Only |             |               |
| 3.4                                | OD90 x 63mm   | No.  | 4         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>   |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>  |      |           |             |               |
| 4.1                                | OD90mm  | No.  | Rate Only |             |               |
| 4.2                                | OD75mm  | No.  | Rate Only |             |               |
| 4.3                                | OD63mm  | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>  |      |           |             |               |
| 5.1                                | OD50mm  | No.  | 5         |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.5: CEKE IN NWOYA DSTRIC

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
| <b>6</b>  | <b>Valves and Penstocks</b>   |      |           |             |               |
|   | <b>Air Valves</b>   |      |           |             |               |
|   | Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.  |      |           |             |               |
| 6.2   | OD90mm  | No.  | Rate Only |             |               |
| 6.3   | OD75mm  | No.  | Rate Only |             |               |
| <b>7</b>  | <b>Washouts</b>   |      |           |             |               |
|   | Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |           |             |               |
| 7.3   | DN65mm  | No.  | 1         |             |               |
| <b>8</b>  | <b>Farm Gate Connections</b>  |      |           |             |               |
|   | Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and lockable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -   |      |           |             |               |
| 8.1   | DN50mm  | No.  | 5         |             |               |
|   | <b>Other Pipework Ancillaries</b>   |      |           |             |               |
|   | <b>Marker Posts</b>   |      |           |             |               |
| 9   | Marker posts for pipes, gate valves, air valves, washouts.  | No.  | 18        |             |               |
| <b>Total Carried to Collection</b>              |   |      |           |             |               |
|   | <b>Bill No. 4 Collection</b>  |      |           |             |               |
|   | Page 16   |      |           |             |               |
|   | Page 17   |      |           |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 5.6: ONGAI IN NWOYA DSTRIC**  
**BILL SUMMARY**

**Region: North**

| <b>Bill No.</b>                       | <b>Description</b>                      | <b>Amount (UGx.)</b> |
|---------------------------------------|---|----------------------|
|                                       | <b>WORK ITEMS</b>                       |                      |
| 1                                     | Abstraction and Electromechanical Works |                      |
| 2                                     | Transmission Mains                      |                      |
| 3                                     | Storage Reservoir Works                 |                      |
| 4                                     | Distribution Network                    |                      |
| <b>Total Carried to Grand Summary</b> |   |                      |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 5.6: ONGAI IN NWOYA DSTRIC

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|-----------|-------------|---------------|
|                                    | <b><u>General Site Clearance</u></b>   |                |           |             |               |
| 1                                  | General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer. | Item           | 1         |             |               |
|                                    | <b>Earthworks</b>  |                |           |             |               |
| 2.1                                | Excavation to form river/ stream diversion towards the intake / abstraction structure in normal ground, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to receive hardcore fill. | m <sup>3</sup> | 57        |             |               |
| 2.2                                | Ditto but for the Intake Structure   | m <sup>3</sup> | 34        |             |               |
| 2.3                                | Excavation to form trapezoidal drain in marshy soils, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.                                     | m <sup>3</sup> | 175       |             |               |
|                                    | <b>Filling Structures</b>  |                |           |             |               |
|                                    | <u>Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -</u>  |                |           |             |               |
| 3.1                                | Imported rock/ hardcore fill, size 75 to 300mm hand packed or compacted by the arm of an excavator.  | m <sup>3</sup> | 12        |             |               |
| 3.2                                | Imported murram.   | m <sup>3</sup> | 10        |             |               |
| 4                                  | Single layer of geotextile laid to manufacturer's specifications   | m <sup>2</sup> | Rate Only |             |               |
|                                    | <b>Landscaping</b>   |                |           |             |               |
| 5                                  | Turfing for lawns inside fenced off compound, including filling with excavated topsoil and the preparation of surfaces; 240m <sup>2</sup> at Intake Site and 800m <sup>2</sup> at Pump Station.  | m <sup>2</sup> | 1,050     |             |               |
| <b>Total Carried to Collection</b> |  |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.6: ONGAI IN NWOYA DSTRIC

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
|                                    | <b>IN-SITU CONCRETE</b><br><b>Provision and Placing of Concrete</b><br><b>Ordinary Design Mix Concrete</b><br><u>Designed mix , concrete to BS 8500 and BS EN 206-1, with ordinary Portland cement to BS 12, aggregate to BS 882 for the following structures: -</u> |                |      |             |               |
|                                    | <b>Grade C15/10</b><br><b>Blinding</b>   |                |      |             |               |
| 6.1                                | 50mm thick blinding concrete, for base slabs, toes, key and heel; grade C15, of the following thickness  | m <sup>3</sup> | 1.1  |             |               |
|                                    | <b>Grade C25/10</b><br><b>Reinforced Concrete Base Slabs, Toe and Heel</b>   |                |      |             |               |
| 6.2                                | 200mm thick toe.   | m <sup>3</sup> | 0.3  |             |               |
| 6.3                                | 200mm thick base slab.   | m <sup>3</sup> | 2.4  |             |               |
| 6.4                                | 350/ 200mm thick retaining wall/ weir stem.  | m <sup>3</sup> | 0    |             |               |
| 6.5                                | 200mm thick sump walls.  | m <sup>3</sup> | 13.5 |             |               |
| 6.6                                | 200mm thick top slab.  | m <sup>3</sup> | 1.2  |             |               |
|                                    | <b>Formwork</b><br><b>Formwork-Fair Finish</b>   |                |      |             |               |
| 7.1                                | <b>Fair Finish Plane Horizontal</b><br>Plane fair finish horizontal formwork to the tops slab including chamfering and / or filleting of all exposed concrete corners.   | m <sup>2</sup> | 4.0  |             |               |
| 7.2                                | <b>Fair Finish Plane Vertical</b><br>Plane fair finish vertical and / or slightly sloping formwork to walls including chamfering and / or filleting of all exposed concrete corners.   | m <sup>2</sup> | 140  |             |               |
|                                    | <b>Finishing of top surfaces</b>   |                |      |             |               |
| 7.3                                | Steel trowel finishing of top surfaces.  | m <sup>2</sup> | 11   |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.6: ONGAI IN NWOYA DSTRIC

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
|                                    | <b>Reinforcement</b>  |      |           |             |               |
|                                    | <b>Deformed High Yield Steel</b>  |      |           |             |               |
|                                    | <u>High yield square twisted bars to BS 4449 and of the following sizes</u>   |      |           |             |               |
| 8.1                                | Nominal size, 12mm  | t    | 1.2       |             |               |
|                                    | <b>Inserts</b>  |      |           |             |               |
| 8.2                                | DN 250 CI / ST flanged, puddled pipe insert pipe inserts projecting from two faces of the concrete wall and of the following sizes, excluding supply of pipe.                           | No.  | Rate Only |             |               |
|                                    | <b>PIPEWORK - FITTINGS AND VALVES</b>   |      |           |             |               |
|                                    | <b>Cast or Spun Iron Pipe Fittings.</b>   |      |           |             |               |
|                                    | <b>Flanged Reducers</b>   |      |           |             |               |
| 9.1                                | DN250 x 150mm   | No.  | Rate Only |             |               |
|                                    | <b>Flange Adaptors</b>  |      |           |             |               |
| 9.2                                | DN 150mm Maxi Type or similar wide range adaptor to fit pipe spigots, flanges to BS 4505, all to PN6.   | No.  | Rate Only |             |               |
|                                    | <b>Strainers</b>  |      |           |             |               |
|                                    | <u>Flanged outlet pipe strainer, to BS 4772, flanges to BS 4504, all to PN 10, cement mortar lined, and of the following sizes: -</u>   |      |           |             |               |
| 9.3                                | DN 250 mm   | No.  | Rate Only |             |               |
|                                    | <b>End Caps</b>   |      |           |             |               |
| 9.4                                | DN250mm flanged end cap.  | No.  | Rate Only |             |               |
|                                    | <b>Valves and Penstocks</b>   |      |           |             |               |
|                                    | <b>Gate Valves: Hand Operated</b>   |      |           |             |               |
|                                    | <u>All flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 10 for operation by tee key, with extension spindle not exceeding 1.5 m long, and of the following sizes:-</u> |      |           |             |               |
| 9.5                                | 150 mm ND   | No.  | Rate Only |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 5.6: ONGAI IN NWOYA DSTRIC

Region: North

## BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| 9.6                                | <p><u>Penstocks; hand operated including head stock and distance spindle, as specified in drawings of the following size: -</u></p> <p>300mm wide x 1000mm high, stainless steel.</p>  | No.  | 1         |             |               |
|                                    | <b>MISCELLANEOUS METAL WORK</b>  |      |           |             |               |
|                                    | <b>Ladders</b>   |      |           |             |               |
| 10.1                               | External galvanized mild steel ladder to BS 4211, galvanized to BS 729, complete and as shown in the drawings including fixing to precast concrete units..   | m    | 8         |             |               |
|                                    | <b>Access Manhole Cover</b>  |      |           |             |               |
| 10.2                               | 600 x 600mm clear opening painted mild steel cover and frame include fixing and locking arrangement.   | No.  | 2         |             |               |
|                                    | <b>Pump Protection System</b>  |      |           |             |               |
| 10.3                               | Vertical pipe sleeve pump anti-vandal protection structure to detail as per Drawings.  | No.  | 0         |             |               |
|                                    | <b>Valve Surface Boxes</b>   |      |           |             |               |
| 10.4                               | Valve surface box with lockable cover securely attached to main body of  | No.  | Rate Only |             |               |
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>   |      |           |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)  |      |           |             |               |
| ME1                                | 7.5kW Submersible Pump Set with 11.0kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 70m total head; set to not more than <u>5m</u> below ground including Dry- run protection, Motor and Pump End. | No.  | 1         |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item | 1         |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings including foundations, vandal proofing mounting to the Engineer's approval     | Sum  | 1         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |



# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 5.6: ONGAI IN NWOYA DSTRIC**

**Region: North**

## **BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| <b>Item No.</b>                    | <b>Description</b>   | <b>Unit</b> | <b>Qty.</b> | <b>Rate (UGx.)</b> | <b>Amount (UGx.)</b> |
|------------------------------------|--|-------------|-------------|--------------------|----------------------|
| ME4                                | PV Disconnect 1000-40-2  | No.         | 1           |                    |                      |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.         | 1           |                    |                      |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item        | 1           |                    |                      |
| ME7                                | PV Combiner  | No.         | 1           |                    |                      |
| ME7a                               | Pressure Switch and Gauge - P5/8   | No.         | 1           |                    |                      |
| ME8                                | Sinewave filter - SWAP0017D.   | No.         | 1           |                    |                      |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,   | m           | 5           |                    |                      |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m           | 100         |                    |                      |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m           | 60          |                    |                      |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.         | 2           |                    |                      |
| ME11a                              | Adapter box  | No.         | 1           |                    |                      |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No.  | Item        | 1           |                    |                      |
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm | Sum         | 1           |                    |                      |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                   | Sum         | 1           |                    |                      |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable  | No.         | 5           |                    |                      |
|                                    | <b>Alarm System</b>  |             |             |                    |                      |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors   | Item        | 1           |                    |                      |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item        | 1           |                    |                      |
| <b>Total Carried to Collection</b> |  |             |             |                    |                      |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.6: ONGAI IN NWOYA DSTRIC

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description   | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|----------------|------|-------------|---------------|
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>   |                |      |             |               |
|                                    | <b><u>Pump Protection System</u></b>  |                |      |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base.              | No.            | 1    |             |               |
|                                    | <b><u>Kerbs</u></b>   |                |      |             |               |
|                                    | Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m <sup>2</sup> to the following alignment: -  |                |      |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m   | m              | 70   |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a gauge 500 polythene sheet.   | m <sup>2</sup> | 220  |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert  | m              | 2    |             |               |
|                                    | <b><u>Pump House</u></b>  |                |      |             |               |
| X5                                 | Construct a 12.0m superficial area Pump House to detail as per Drawing  | Sum            | 1    |             |               |
|                                    | <b><u>Fences</u></b>  |                |      |             |               |
| X6a                                | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m              | 40   |             |               |
| X6b                                | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m              | 120  |             |               |
|                                    | <b><u>Gates</u></b>   |                |      |             |               |
| X7                                 | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1    |             |               |
|                                    | <b><u>Training of Operator's staff</u></b>  |                |      |             |               |
| X8                                 | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval  | Sum            | 1    |             |               |
|                                    | <b><u>Operation and Maintenance Manuals</u></b>   |                |      |             |               |
| X9                                 | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum            | 1    |             |               |
| <b>Total Carried to Collection</b> |   |                |      |             |               |

**Scheme ID. 5.6: ONGAI IN NWOYA DSTRIC**

**BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

Scheme ID. 5.6 Pg. 490 of 511

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.6: ONGAI IN NWOYA DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.   | Item | 1         |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>  |      |           |             |               |
| 2                                  | <b><u>Steel Pipes</u></b>  |      |           |             |               |
|                                    | Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes:  |      |           |             |               |
| 2.1                                | DN75mm, not in trenches;   | m    | Rate Only |             |               |
| 2.2                                | DN75mm, in trenches; depths not exceeding 1.5m   | m    | 12        |             |               |
| 3                                  | <b><u>HDPE Pipes</u></b>   |      |           |             |               |
|                                    | HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m  |      |           |             |               |
| 3.1                                | OD75mm HDPE PN16   | m    | 450       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>  |      |           |             |               |
| 5                                  | <b><u>Bends</u></b>  |      |           |             |               |
|                                    | Galvanized iron threaded socket 45° bends, EN 10242:1995, all to PN 10, and of the following sizes   |      |           |             |               |
| 5.1                                | DN65mm   | No.  | 4         |             |               |
| 6                                  | <b><u>Bulk Flow Meters</u></b>   |      |           |             |               |
|                                    | Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes |      |           |             |               |
| 6.1                                | DN65mm PN10  | No.  | 1         |             |               |
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
| 7                                  | <b><u>Equal Adapters</u></b>   |      |           |             |               |
| 7.1                                | OD90 female adapter  | No.  | 2         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.6: ONGAI IN NWOYA DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
| <b>8</b>                           | <b><u>Valves and Penstocks</u></b>   |      |           |             |               |
|                                    | <b><u>Air Valves</u></b>   |      |           |             |               |
|                                    | <u>Flanged CI double orifice air relief valve, DN50mm, as specified, flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>                          |      |           |             |               |
| 8.1                                | DN65mm   | No.  | 1         |             |               |
| <b>9</b>                           | <b><u>Washouts</u></b>   |      |           |             |               |
|                                    | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u> |      |           |             |               |
| 9.1                                | DN65mm   | No.  | 1         |             |               |
|                                    | <b><u>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</u></b>   |      |           |             |               |
|                                    | <b><u>Other Chambers</u></b>   |      |           |             |               |
|                                    | <u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u>   |      |           |             |               |
| 10.1                               | Depth not exceeding 1.5m   | No.  | 2         |             |               |
|                                    | <b><u>Valve Surface Boxes</u></b>  |      |           |             |               |
|                                    | <u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u>  |      |           |             |               |
| 10.2                               | Depth not exceeding 1.5m   | No.  | 2         |             |               |
|                                    | <b><u>Reinstatement</u></b>  |      |           |             |               |
|                                    | <b><u>Roads</u></b>  |      |           |             |               |
|                                    | <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>   |      |           |             |               |
| 11                                 | Not exceeding DN300mm  | m    |           |             |               |
|                                    | <b><u>Surrounds</u></b>  |      |           |             |               |
|                                    | <u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u>   |      |           |             |               |
| 12.1                               | Not exceeding DN200mm  | m    | Rate Only |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.6: ONGAI IN NWOYA DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.  | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|--|------|-----------|-------------|---------------|
| 12.2  | <u>Pipe surrounds, of imported granular material, for the following pipe sizes</u><br>Not exceeding DN200mm  | m    | Rate Only |             |               |
| 12.3  | <u>Pipe surrounds, of mass concrete, for the following pipe sizes</u><br>Not exceeding DN200mm   | m    | Rate Only |             |               |
|   | <b><u>Concrete Stools and Thrust Blocks</u></b>  |      |           |             |               |
|   | <b><i>Thrust Blocks</i></b>  |      |           |             |               |
| 13  | <u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes</u><br>Diameter not exceeding DN200mm | No.  | Rate Only |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>   |      |           |             |               |
|   | <b><u>Marker Posts</u></b>   |      |           |             |               |
| 14  | Marker posts for pipes, gate valves, air valves, washouts.   | No.  | 14        |             |               |
| <b>Total Carried to Collection</b>              |  |      |           |             |               |
|   | <b>Bill No. 2 Collection</b>   |      |           |             |               |
|   | Page 9   |      |           |             |               |
|   | Page 10  |      |           |             |               |
|   | Page 11  |      |           |             |               |
| <b>Total Bill No. 2 Carried to Bill Summary</b> |  |      |           |             |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 5.6: ONGAI IN NWOYA DSTRIC

Region: North

## BILL No. 3 : STORAGE RESERVOIR WORKS

| Item No.                    | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|-----------------------------|--|------|------|-------------|---------------|
|                             | <b>DEMOLITION AND SITE CLEARANCE</b>   |      |      |             |               |
|                             | <b>General Site Clearance</b>  |      |      |             |               |
| 1                           | General site clearance including trees, stumps and disposal of arising materials.  | Item | 1    |             |               |
| 2                           | <b>Reservoir Tower</b>   |      |      |             |               |
|                             | Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc, painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.   |      |      |             |               |
| 2.1                         | Height; 6.0m for 30m <sup>3</sup> Tank.  | No.  | 1    |             |               |
| 3                           | <b>Tanks</b>   |      |      |             |               |
|                             | Supply and Install a fabricated 6.0mm thick mild steel plate horizontal cylindrical tank with 1No. 0.6m wide access man way, water level indicator (scale in cubic metres), with inlet, outlet, washout and overflow connection complete with access points, ventilators (2 nr), and internal access ladders, inclusive of anti-rust painting internally, finishes and all necessary accessories to installation complete as specified and detailed in the drawings; to the Engineer's satisfaction. All tank accessories shall be of hot dipped galvanised steel. |      |      |             |               |
| 3.1                         | Reservoir: 30m <sup>3</sup> nominal capacity erected on a 6m high tower  | No.  | 1    |             |               |
| 4                           | 150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-   |      |      |             |               |
| 4.1                         | DN75mm, PN10   | No.  | 1    |             |               |
| 5                           | 150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-   |      |      |             |               |
|                             | [OPTIONAL]   |      |      |             |               |
| 5.1                         | DN75mm, PN10   | No.  | 1    |             |               |
| Total Carried to Collection |  |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.6: ONGAI IN NWOYA DSTRIC

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.  | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|----------------|-----------|-------------|---------------|
| <b>6</b>  | <b><u>Landscaping and Walkways</u></b>  |                |           |             |               |
| 6.1   | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2   | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill. | No.            | Rate Only |             |               |
| <b>7</b>  | <b><u>Fences</u></b>  |                |           |             |               |
| 7.1   | Galvanized wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|   | <b><u>Gates</u></b>   |                |           |             |               |
| 7.2   | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|   | <b>Provision and Placing of Concrete</b><br><b><i>Ordinary Designed Mix Concrete</i></b>  |                |           |             |               |
| <b>8</b>  | <u>Designed mix concrete, to BS 5328, with ordinary Portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u>                |                |           |             |               |
| 8.1   | Grade C15   | m <sup>3</sup> | 2         |             |               |
| <b>Total Carried to Collection</b>              |   |                |           |             |               |
| <b>BILL No. 3 : STORAGE RESERVOIR WORKS</b>     |   |                |           |             |               |
| Item No.  | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|   | <b>Bill No. 3 Collection</b>  |                |           |             |               |
|   | Page 12   |                |           |             |               |
|   | Page 13   |                |           |             |               |
| <b>Total Bill No. 3 Carried to Bill Summary</b> |   |                |           |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.6: ONGAI IN NWOYA DSTRIC

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                     | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m |      |           |             |               |
| 2.1                                | OD63mm PN6   | m    | 105       |             |               |
| 2.3                                | OD90mm PN6   | m    | 225       |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>   |      |           |             |               |
| 3.1                                | OD90mm   | No.  | 1         |             |               |
|                                    | <b><u>Unequal tees</u></b>   |      |           |             |               |
| 3.2                                | OD90 x 63mm  | No.  | 5         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>   |      |           |             |               |
| 4.1                                | OD90mm   | No.  | Rate Only |             |               |
| 4.2                                | OD63mm   | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>   |      |           |             |               |
| 5.4                                | OD63mm   | No.  | 5         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.6: ONGAI IN NWOYA DSTRIC

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.  | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|---|--|------|------|-------------|---------------|
| <b>6</b>  | <b><u>Valves and Penstocks</u></b>   |      |      |             |               |
|   | <b><u>Air Valves</u></b>   |      |      |             |               |
|   | <u>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u>  |      |      |             |               |
| 6.1   | OD90mm   | No.  | 1    |             |               |
| <b>7</b>  | <b><u>Washouts</u></b>   |      |      |             |               |
|   | <u>Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004.</u> |      |      |             |               |
| 7.1   | DN65mm   | No.  | 1    |             |               |
| <b>8</b>  | <b><u>Farm Gate Connections</u></b>  |      |      |             |               |
|   | <u>Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and lockable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -</u>   |      |      |             |               |
| 8.4   | DN50mm   | No.  | 5    |             |               |
|   | <b><u>Other Pipework Ancillaries</u></b>   |      |      |             |               |
|   | <b><u>Marker Posts</u></b>   |      |      |             |               |
| 9   | Marker posts for pipes, gate valves, air valves, washouts.   | No.  | 18   |             |               |
| <b>Total Carried to Collection</b>              |  |      |      |             |               |
|   | <b>Bill No. 4 Collection</b>   |      |      |             |               |
|   | Page 14  |      |      |             |               |
|   | Page 15  |      |      |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |  |      |      |             |               |

# **CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.7: ONYOM TIL IN NWOYA DSTRIC

Region: North

## **BILL SUMMARY**

| Bill No.                              | Description                             | Amount (UGx.) |
|---------------------------------------|---|---------------|
|                                       | <b>WORK ITEMS</b>                       |               |
| 1                                     | Abstraction and Electromechanical Works |               |
| 2                                     | Transmission Mains                      |               |
| 3                                     | Storage Reservoir Works                 |               |
| 4                                     | Distribution Network                    |               |
| <b>Total Carried to Grand Summary</b> |   |               |

# CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES

Scheme ID. 5.7: ONYOM TIL IN NWOYA DSTRIC

Region: North

## BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS

| Item No.                    | Description   | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|-----------------------------|---|----------------|------|-------------|---------------|
| 1                           | <p><b>General Site Clearance</b></p> <p>General site clearance, felling trees, grabbing tree stamps and stripping of topsoil to depths not exceeding 0.25m for Water Abstraction Point/ Intake Works, Pump House and Solar Array Sites including stockpiling of topsoil for reuse and disposing off resultant materials as directed by the Engineer.</p> <p><b>Earthworks</b></p> <p>Excavation to form trapezoidal prism reservior in material other than topsoil, rock or other artificial hard material, depth not exceeding 6.0m including forming earth bands along the channel of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.</p> | Item           | 1    |             |               |
| 2.1                         | Marshy soils  | m <sup>3</sup> | 52   |             |               |
| 2.2                         | Soft / decomposed rock soils  | m <sup>3</sup> | 26   |             |               |
|                             | Excavation to form trapezoidal channel in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.   |                |      |             |               |
| 2.4                         | Marshy soils  | m <sup>3</sup> | 64   |             |               |
| 2.5                         | Soft / decomposed rock soils  | m <sup>3</sup> | 16   |             |               |
|                             | Excavation to form cylindrical sump well in material other than topsoil, rock or other artificial hard material, depth not exceeding 5.0m including disposal and spreading of excavated material to fair profiles on site as directed by the Engineer and preparation of excavated surfaces to slopes as indicated on the drawings.   |                |      |             |               |
| 2.6                         | Marshy soils  | m <sup>3</sup> | 16   |             |               |
| 2.7                         | Soft / decomposed rock soils  | m <sup>3</sup> | 8    |             |               |
|                             | <p><b>Filling Structures</b></p> <p><u>Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -</u></p>   |                |      |             |               |
| 3                           | Selected excavated material including topping with a 200mm thick layer of top/ vegetable soil.  | m <sup>3</sup> | 10   |             |               |
| Total Carried to Collection |   |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.7: ONYOM TIL IN NWOYA DSTRIC

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|------|-------------|---------------|
| 4                                  | <b>Landscaping</b><br>Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.  | m <sup>2</sup> | 40   |             |               |
|                                    | <b>IN-SITU CONCRETE</b><br><b>Provision and Placing of Concrete</b><br><b>Ordinary Design Mix Concrete</b><br><u>Designed mix , concrete to BS 8500 and BS EN 206-1, with ordinary portland cement to BS 12, aggregate to BS 882 , maximum aggregate size ; 20mm for the following structures: -</u> |                |      |             |               |
| 5                                  | <b>Insitu Concrete</b><br>75mm thick Grade C15 concrete blinding to pump sump base   | m <sup>3</sup> | 0.25 |             |               |
| 6.1                                | 2200mm Diameter x 150mm thick Grade C25 concrete base slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float.  | Item           | 1    |             |               |
| 6.2                                | 2200mm Diameter x 150mm thick Grade C25 concrete top slab reinforced with H12 - 200 E.W (B) complete with all associated formwork, finishing with a steel float and forming a 600 x 600mm opening for the inspection cover (MS).   | Item           | 1    |             |               |
|                                    | <b>Pre-cast Concrete</b><br><b>Pump Well/ Sump</b><br>Supply and install 100mm thick precast reinforced concrete vertical culverts on concrete base slab (MS) ; complete with water tight jointing and finishing works to approval.  |                |      |             |               |
| 7                                  | 1200mm diameter ; height n.e 8m  | Item           | 1    |             |               |
|                                    | <b>Concrete Inserts</b><br><b>Cast or Spum Iron Pipe Fittings.</b><br>Flanged, puddled and plain end pipe insert projecting from one face of the concrete, all to PN6 and of the following sizes and lengths, including supply of the pipe and as shown in the drawings.                             |                |      |             |               |
| 8                                  | 200mm ND and not exceeding 0.5m length   | No.            | 2    |             |               |
| <b>Total Carried to Collection</b> |  |                |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.7: ONYOM TIL IN NWOYA DSTRIC

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b>Adaptors</b><br>Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:-  |      |           |             |               |
| 9                                  | 200 mm ND  | No.  | 2         |             |               |
| 10                                 | OD225mm PN10 plain end uPVC pipe connection between Silt Trap Basin and Pump Sump.   | m    | 8         |             |               |
|                                    | <b>Bellmouths</b><br>Flanged bellmouth to ISO 2531, flanges to ISO 2441, of the following sizes all to PN 6  |      |           |             |               |
| 11                                 | 200 mm ND  | No.  | 1         |             |               |
|                                    | <b>PIPEWORK - FITTINGS AND VALVES</b><br><i>Gate Valves: Hand Operated</i>   |      |           |             |               |
| 12                                 | DN 200 mm all flanged CI gate valves to BS 5150 ,flanges to BS 4505 , all to PN 6 for operation by tee key, with extension spindle not exceeding 4.5 metres long, and of the following sizes   |      |           |             |               |
|                                    | <b>MISCELLANEOUS WORK</b>  |      |           |             |               |
|                                    | <b>Ladders</b><br>Internal galvanized mild steel ladder to BS 4211, galvernized to BS 729, complete andas shown in the drawings including fixing to precast concrete units..   | m    | 8         |             |               |
|                                    | <b>Steel grating</b>   |      |           |             |               |
| 14.1                               | Galvanized iron Coarse Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
| 14.2                               | Galvanized iron Fine Trash Screen as detailed in the drawings.   | No.  | 1         |             |               |
|                                    | <b>Pump Well/ Sump</b><br>Supply and install 8.0m long HDPE vertical culverts on concrete base slab (MS) ; complete with a Single ND200mm flanged branch to receive a ND200 gate valve. Branch height/ positioning to be determined on site. | Item | Rate Only |             |               |
| 15                                 | Internal diameter ; 1200x200mm   |      |           |             |               |
|                                    | <b>Stone pitched Channel.</b>  |      |           |             |               |
| 16                                 | 3.0 x 1.5 top x bottom width x 1.5m deep maximum trapezoidal lined drain as detailed in the drawing.   | m    | 5         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.7: ONYOM TIL IN NWOYA DSTRIC

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|------|-------------|---------------|
|                                    | <b><u>ELECTRO-MECHANICAL WORKS</u></b>   |      |      |             |               |
|                                    | <b><u>Solar Pumping System</u></b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered)  |      |      |             |               |
| ME1                                | 7.5kW Submersible Pump Set with 11.0kW Pumping Inverter with Data Module, rated flow Q = 22 m <sup>3</sup> /hr., rated head H = 55m total head; set to not more than <b>5m</b> below ground including Dry- run protection, Motor and Pump End. | No.  | 1    |             |               |
| ME2                                | 2x17No. x 550Wp panels solar array to provide 18.7kW power to the pump system complete including wiring.   | Item | 1    |             |               |
| ME3                                | Mild steel welded structure for holding solar PV panels at 15° tilt angle and suitable for a 2x17No. x 550Wp panels Solar Array in Item 2 above as per drawings including foundations, vandal proofing mounting to the Engineer's approval     | Sum  | 1    |             |               |
| ME4                                | PV Disconnect 1000-40-2  | No.  | 1    |             |               |
| ME5                                | PV Protect 1000-15, SPD x 1 on incoming solar PV.  | No.  | 1    |             |               |
| ME6                                | Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level etc.  | Item | 1    |             |               |
| ME7                                | PV Combiner  | No.  | 1    |             |               |
| ME7a                               | Pressure Switch and Gauge - P5/8   | No.  | 1    |             |               |
| ME8                                | Sinewave filter - SWAP0017D.   | No.  | 1    |             |               |
| ME9                                | 10mm <sup>2</sup> Borehole drop cable,   | m    | 5    |             |               |
| ME10                               | 10mm <sup>2</sup> 3-Phase Power Armoured Cable and 1-Phase Cable for grounding.  | m    | 200  |             |               |
| ME10a                              | 6mm <sup>2</sup> UV Single Cable.  | m    | 60   |             |               |
| ME11                               | Wire kit array from solar array to controller with MC4 connectors  | No.  | 2    |             |               |
| ME11a                              | Adapter box  | No.  | 1    |             |               |
| ME12                               | Pump mechanical control fittings as detailed on the Pump House Drawings No. OIS/PH/001 - Sheets 3 & 4 of 4.  | Item | 1    |             |               |
| <b>Total Carried to Collection</b> |  |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

**Scheme ID. 5.7: ONYOM TIL IN NWOYA DSTRIC**

**Region: North**

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.                           | Description  | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|----------------|-----------|-------------|---------------|
| ME13                               | Earthing at solar array and borehole installation by 16mm <sup>2</sup> PVC-I cable in a manhole with pure copper electrodes and all accessories to attain an earth resistance of less than 1 ohm               | Sum            | 1         |             |               |
| ME14                               | Lightning Protection at solar array and borehole installation consisting of 25x3mm copper tape, air terminal, test block and earth electrode in a manhole and all accessories.                                 | Sum            | 1         |             |               |
| ME15                               | 60W Solar security light and battery complete with 6m steel pole and lockable battery box  | No.            | 5         |             |               |
|                                    | <b>Alarm System</b>  |                |           |             |               |
| ME16                               | GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.  | Item           | 1         |             |               |
| ME17                               | GMS Alarm System complete with 1No. alarm horn and 1No.vibration sensor for the pump protection as instructed by the Engineer.   | Item           | 1         |             |               |
|                                    | <b><u>MISCELLANEOUS WORKS</u></b>  |                |           |             |               |
|                                    | <b><u>Pump Protection System</u></b>   |                |           |             |               |
| X1                                 | Vertical pipe pump stilling tube/ anti-vandal protection sleeve including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/002a or OIS/ABS/003, including 1.5x1.5x0.3m support base. | No.            | 1         |             |               |
|                                    | <b><u>Kerbs</u></b>  |                |           |             |               |
|                                    | <u>Pre-cast concrete kerbs to BS 7263 of cross section area 0.05-0.1 m<sup>2</sup> to the following alignment: -</u>   |                |           |             |               |
| X2                                 | Straight or curved to a radius exceeding 12 m  | m              | 70        |             |               |
| X3                                 | 75mm thick of 12 - 25mm size machine crushed aggregate cover under the Solar Array laid onto a gauge 500 polythene sheet.  | m <sup>2</sup> | 220       |             |               |
| X4                                 | 450mm diameter reinforced concrete pipe/ culvert   | m              | Rate Only |             |               |
|                                    | <b><u>Pump House</u></b>   |                |           |             |               |
| X5                                 | Construct a 12.0m superficial area Pump House to detail as per Drawing No.OIS/NUC/PH/001.  | Sum            | 1         |             |               |
| <b>Total Carried to Collection</b> |  |                |           |             |               |



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.7: ONYOM TIL IN NWOYA DSTRIC

Region: North

**BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS**

| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
|   | <b><u>Fences</u></b>  |      |           |             |               |
| X6a   | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Intake Site, <u>including special erection methods in "marshy grounds"</u> to the Engineer's approval. | m    | 50        |             |               |
| X6b   | Galvanized wire Gauge10 chain link fence to BS 1722:2019 with triple raw of barbed wire on top; height 2-2.5m at the Pumping Station Site.  | m    | 10        |             |               |
|   | <b><u>Gates</u></b>   |      |           |             |               |
| X7  | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.  | 1         |             |               |
|   | <b><u>Training of Operator's staff</u></b>  |      |           |             |               |
| X8  | Train Operator's staff in basic operation and maintenance procedures of all plant and equipment supplied as per the technical specifications and to the Project Manager's approval  | Sum  | 1         |             |               |
|   | <b><u>Operation and Maintenance Manuals</u></b>   |      |           |             |               |
| X9  | Provide Operation and Maintenance Manuals as specified and to the Project Manager's approval  | Sum  | 1         |             |               |
| XX  | Horizontal pump installation option out of flanged/ sealed end HDPE culvert pipe mounted on fabricated GI support structure including a floating suction assembly structure to detail as per Drawing No. OIS/ABS/005.       | Item | Rate Only |             |               |
| <b>Total Carried to Collection</b>              |   |      |           |             |               |
|   | <b>Bill No. 1 Collection</b>  |      |           |             |               |
|   | Page 2  |      |           |             |               |
|   | Page 3  |      |           |             |               |
|   | Page 4  |      |           |             |               |
|   | Page 5  |      |           |             |               |
|   | Page 6  |      |           |             |               |
|   | Page 7  |      |           |             |               |
| <b>Total Bill No. 1 Carried to Bill Summary</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.7: ONYOM TIL IN NWOYA DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |      |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.  | Item | 1    |             |               |
|                                    | <b><u>PIPEWORKS - PIPES</u></b>   |      |      |             |               |
|                                    | <b><u>Steel Pipes</u></b>   |      |      |             |               |
|                                    | <u>Galvanized iron pipes (Class B) with threaded joints, include unions/sockets, all to ISO 2531 of the following sizes;</u>  |      |      |             |               |
| 2.1                                | DN75mm, in trenches; depths not exceeding 1.5m  | m    | 12   |             |               |
|                                    | <b><u>HDPE Pipes</u></b>  |      |      |             |               |
|                                    | <u>HDPE pressure pipes to BS 3505, include unions/sockets, laid in trenches to depths not exceeding 1.5m</u>  |      |      |             |               |
| 3.1                                | OD75mm HDPE PN16  | m    | 530  |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>  |      |      |             |               |
|                                    | <b><u>Cast or Spun Iron Pipe Fittings</u></b>   |      |      |             |               |
|                                    | <b><u>Bends</u></b>   |      |      |             |               |
|                                    | <u>Galvanized iron threaded socket 45° bends, EN 10242:1995, all to PN 10, and of the following sizes</u>   |      |      |             |               |
| 5.1                                | DN65mm  | No.  | 4    |             |               |
|                                    | <b><u>Bulk Flow Meters</u></b>  |      |      |             |               |
|                                    | <u>Bulk Flow Meter inclusive of all couplings, adaptors, distance pieces, valves, etc. and all other fittings to make the installation complete, as specified, all fittings to PN10 including a masonry chamber, and on the following main pipe sizes</u> |      |      |             |               |
| 6.3                                | DN65mm PN10   | No.  | 1    |             |               |
|                                    | <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>   |      |      |             |               |
|                                    | <b><u>Equal Adapters</u></b>  |      |      |             |               |
| 7.1                                | OD90 female adapter   | No.  | 2    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.7: ONYOM TIL IN NWOYA DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.                           | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|-----------|-------------|---------------|
| 8.1                                | <b>Air Valves</b><br><u>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.</u><br>DN65mm                          | No.  | 1         |             |               |
| 9.1                                | <b>9 Washouts</b><br><u>Washout as specified in the drawings, complete with plastic compression pipe fittings ; tee, drainage pipes, union ball valve, flap valve, stone masonry outfall structure and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box to detail.</u><br>DN65mm | No.  | 1         |             |               |
| 10.1                               | <b>PIPEWORK-MANHOLES AND PIPEWORK ANCILLARIES</b><br><b>Other Chambers</b><br><u>Masonry air valve chamber, complete as specified in the drawings, and of the following depths</u><br>Depth not exceeding 1.5m  | No.  | 2         |             |               |
| 10.2                               | <b>Valve Surface Boxes</b><br><u>Valve surface box for DN100 - DN300 valves, with lockable cover securely attached to main body of surface box by chain or bolt, include down pipe, complete as specified and to the following depths</u><br>Depth not exceeding 1.5m   | No.  | 3         |             |               |
| 11                                 | <b>Reinstatement</b><br><b>Roads</b><br><u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u><br>Not exceeding DN300mm   | m    | 12        |             |               |
| 12                                 | <b>Surrounds</b><br><u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u><br>Not exceeding DN200mm   | m    | Rate Only |             |               |
| <b>Total Carried to Collection</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.7: ONYOM TIL IN NWOYA DSTRIC

Region: North

**BILL No. 2 : TRANSMISSION MAINS**

| Item No.  | Description   | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|------|-----------|-------------|---------------|
| 12.2  | Pipe surrounds, of imported granular material, for the following pipe sizes<br>Not exceeding DN200mm          | m    | 60        |             |               |
| 12.3  | Pipe surrounds, of mass concrete, for the following pipe sizes<br>Not exceeding DN200mm                       | m    | 36        |             |               |
|   | <b><u>Concrete Stools and Thrust Blocks</u></b>   |      |           |             |               |
|   | <b><i>Thrust Blocks</i></b>   |      |           |             |               |
|   | Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes |      |           |             |               |
| 13  | Diameter not exceeding DN200mm  | No.  | Rate Only |             |               |
|   | <b>Other Pipework Ancillaries</b>   |      |           |             |               |
|   | <b>Marker Posts</b>   |      |           |             |               |
| 14  | Marker posts for pipes, gate valves, air valves, washouts.  | No.  | 24        |             |               |
| <b>Total Carried to Collection</b>              |   |      |           |             |               |
|   | <b>Bill No. 2 Collection</b>  |      |           |             |               |
|   | Page 8  |      |           |             |               |
|   | Page 9  |      |           |             |               |
|   | Page 10   |      |           |             |               |
| <b>Total Bill No. 2 Carried to Bill Summary</b> |   |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.7: ONYOM TIL IN NWOYA DSTRIC

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.                           | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|---|------|------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>   |      |      |             |               |
|                                    | <b><u>General Site Clearance</u></b>  |      |      |             |               |
| 1                                  | General site clearance including trees, stumps and disposal of arising materials.   | Item | 1    |             |               |
| 2                                  | <b><u>Reservoir Tower</u></b>   |      |      |             |               |
|                                    | <u>Erect a welded steel tower for reservoir support complete, include foundations, columns, beams, access ladders, plates, braces, walkway/ guardrail, base plates, anchor bolts, nuts, washers, etc, painting and finishes; complete as specified and detailed in the drawings , of the following height and reservoir capacities.</u>   |      |      |             |               |
| 2.1                                | Height; 6.0m for 30m <sup>3</sup> Tank.   | No.  | 1    |             |               |
| 3                                  | <b><u>Tanks</u></b>   |      |      |             |               |
|                                    | <u>Supply and Install a fabricated 6.0mm thick mild steel plate horizontal cylindrical tank with 1No. 0.6m wide access man way, water level indicator (scale in cubic metres), with inlet, outlet, washout and overflow connection complete with access points, ventilators (2 nr), and internal access ladders, inclusive of anti-rust painting internally, finishes and all necessary accessories to installation complete as specified and detailed in the drawings; to the Engineer's satisfaction. All tank accessories shall be of hot dipped galvanised steel.</u> |      |      |             |               |
| 3.1                                | Reservoir: 30m <sup>3</sup> nominal capacity erected on a 6m high tower   | No.  | 1    |             |               |
| 4                                  | <u>150-200 micron union/ compression type clear uPVC Y- Screen Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement screen element and seal ring :-</u>   |      |      |             |               |
| 4.1                                | DN75mm, PN10  | No.  | 1    |             |               |
| 5                                  | <u>150-200 micron union/ compression type clear uPVC Y- Disc Filter, non corrosive, complete with all fittings, installation on the following GI pipe sizes, pressure ratings and supply of a pair of replacement disk element and seal ring :-</u>   |      |      |             |               |
|                                    | [OPTIONAL]  |      |      |             |               |
| 5.2                                | DN75mm, PN10  | No.  | 1    |             |               |
| <b>Total Carried to Collection</b> |   |      |      |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.7: ONYOM TIL IN NWOYA DSTRIC

Region: North

**BILL No. 3 : STORAGE RESERVOIR WORKS**

| Item No.  | Description   | Unit           | Qty.      | Rate (UGx.) | Amount (UGx.) |
|---|---|----------------|-----------|-------------|---------------|
| <b>6</b>  | <b>Landscaping and Walkways</b>   |                |           |             |               |
| 6.1   | Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.   | m <sup>2</sup> | 150       |             |               |
| 6.2   | 500 x 500 x 50mm precast concrete paving slabs laid " Space out Stone method" between the gate, pump house and solar array in one raw, laid onto 200mm thick murram fill. | No.            | Rate Only |             |               |
| <b>7</b>  | <b>Fences</b>   |                |           |             |               |
| 7.1   | Galvanized wire Gauge10 chain link fence to BS 1722 with triple raw of barbed wire on top; height 2-2.5m.   | m              | 60        |             |               |
|   | <b>Gates</b>  |                |           |             |               |
| 7.2   | Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.  | No.            | 1         |             |               |
|   | <b>Provision and Placing of Concrete</b><br><b>Ordinary Designed Mix Concrete</b>   |                |           |             |               |
| <b>8</b>  | <u>Designed mix concrete, to BS 5328, with ordinary Portland cement to BS 12 , aggregate to BS882 , for 10mm aggregate sizes and the following grades:</u>                |                |           |             |               |
| 8.1   | Grade C15   | m <sup>3</sup> | 2         |             |               |
| <b>Total Carried to Collection</b>              |   |                |           |             |               |
|   | <b>Bill No. 3 Collection</b>  |                |           |             |               |
|   | Page 11   |                |           |             |               |
|   | Page 12   |                |           |             |               |
| <b>Total Bill No. 3 Carried to Bill Summary</b> |   |                |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.7: ONYOM TIL IN NWOYA DSTRIC

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.                           | Description  | Unit | Qty.      | Rate (UGx.) | Amount (UGx.) |
|------------------------------------|--|------|-----------|-------------|---------------|
|                                    | <b><u>DEMOLITION AND SITE CLEARANCE</u></b>  |      |           |             |               |
|                                    | <b><u>General Site Clearance</u></b>   |      |           |             |               |
| 1                                  | General site clearance 1.5m wide working corridor along the pipeline route, including felling trees, grabbing tree stumps and disposal of arising materials.                     | Item | 1         |             |               |
|                                    | <b><u>PIPEWORK-PIPES</u></b>   |      |           |             |               |
| 2                                  | <b><u>Plastic Pressure Pipes- Distribution</u></b><br>HDPE pressure pipes to BS 3505, include unions / sockets, all to laid in trench to the following depths not exceeding 1.5m |      |           |             |               |
| 2.1                                | OD75mm PN6   | m    | 250       |             |               |
| 2.2                                | OD90mm PN6   | m    | 40        |             |               |
|                                    | <b><u>PIPEWORK - FITTINGS AND VALVES</u></b>   |      |           |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 3                                  | <b><u>Equal tees</u></b>   |      |           |             |               |
| 3.1                                | OD90mm   | No.  | 2         |             |               |
|                                    | <b><u>Unequal tees</u></b>   |      |           |             |               |
| 3.2                                | OD90 x 75mm  | No.  | 1         |             |               |
| 3.3                                | OD90 x 63mm  | No.  | 3         |             |               |
|                                    | <b><u>PN10 HDPE Compression fitting to DIN 8074/BS 5114</u></b>  |      |           |             |               |
|                                    | <b><u>Plastic Pipe Fittings</u></b>  |      |           |             |               |
| 4                                  | <b><u>Couplers</u></b>   |      |           |             |               |
| 4.1                                | OD75mm   | No.  | Rate Only |             |               |
| 4.2                                | OD63mm   | No.  | Rate Only |             |               |
| 5                                  | <b><u>End caps</u></b>   |      |           |             |               |
| 5.4                                | OD63mm   | No.  | 2         |             |               |
| <b>Total Carried to Collection</b> |  |      |           |             |               |

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES**

Scheme ID. 5.7: ONYOM TIL IN NWOYA DSTRIC

Region: North

**BILL No.4 : DISTRIBUTION NETWORK**

| Item No.  | Description   | Unit | Qty. | Rate (UGx.) | Amount (UGx.) |
|---|---|------|------|-------------|---------------|
| 6   | <b>Valves and Penstocks</b>   |      |      |             |               |
|   | <b>Air Valves</b>   |      |      |             |               |
|   | Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO 2441, complete with isolating gate valve to ISO 7259, flange adaptors, distance pieces, and all fittings necessary to make the installation on pipes of the following sizes, all to PN10, include chamber as specified.  |      |      |             |               |
| 6.3   | OD75mm  | No.  | 1    |             |               |
| 7   | <b>Washouts</b>   |      |      |             |               |
|   | Washout as specified in the drawings, complete with plastic compression pipe fittings; tee, drainage pipes, PVC union ball valve, flap valve and all other fittings necessary to make the complete installation on pipes of the following sizes; all to PN10 including valve surface box and stone masonry outfall structure to detail as per Drawing No. OIS/NUC/SD/004. |      |      |             |               |
| 7.1   | DN50mm  | No.  | 1    |             |               |
| 8   | <b>Farm Gate Connections</b>  |      |      |             |               |
|   | Make DN50mm Irrigation Water Supply Hydrant connection to the distribution main, inclusive of PVC compressive ball valve and end cap complete with connector pipes and lockable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -   |      |      |             |               |
| 8.1   | DN50mm  | No.  | 2    |             |               |
|   | <b>Other Pipework Ancillaries</b>   |      |      |             |               |
|   | <b>Marker Posts</b>   |      |      |             |               |
| 9   | Marker posts for pipes, gate valves, air valves, washouts.  | No.  | 18   |             |               |
| <b>Total Carried to Collection</b>              |   |      |      |             |               |
|   | <b>Bill No. 4 Collection</b>  |      |      |             |               |
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|   | Page 114  |      |      |             |               |
| <b>Total Bill No. 4 Carried to Bill Summary</b> |   |      |      |             |               |