



**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/...../2**

**LOT 2 WESTERN AND CENTRAL LOWER REGIONS**

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

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 -  
WESTERN & CENTRAL LOWER REGIONS**

**GRAND SUMMARY**

Bill/ Scheme No.	Description			Amount (UGx.)
	GENERAL			
PG	Preliminaries and General Items			
GI.1	Method Related Charges			
DW	Dayworks			
SUB TOTAL 1				
	WORK ITEMS			
	Scheme Name	District	Region	
1.1	Bugogo	Kyegegwa	West	
1.2	Kisigare	Kagadi	Central	
1.3	Kitaihuka	Kakumiro	Central	
1.4	Bukuya	Kasanda	Central	
1.5	Bucuuhya	Kibale	Central	
1.6	Kyomya	Kiboga	Central	
1.7	Lubiri	Kyankwanzi	Central	
2.1	Kakunyu	Kyotera	West	
2.2	Kabusa	Rakai	West	
2.3	Ndibulungi	Butambala	Central	
2.4	Lwabenge	Kalungu	Central	
2.5	Bugere	Masaka	Central	
2.6	Kyomya	Mpigi	Central	
2.7	Nalyamagonja	Kalangala	Central	
2.8	Gayaza	Bukomansimbi	Central	
2.9	Kyawamala	Bukomansimbi	Central	
3.1	Kikutsi	Isingiro	West	
3.2	Kikatsi	Kiruhura	West	
3.4	Mirama	Ntungamo	West	
3.3	Rwentamu	Lyantonde	West	
3.5	Kanyogoga	Sembabule	West	
3.6	Rurama	Sheema	West	

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 -  
WESTERN & CENTRAL LOWER REGIONS**

**GRAND SUMMARY**

<b>Bill/ Scheme No.</b>	<b>Description</b>			<b>Amount (UGx.)</b>
4.1	Kabumba	Kabale	West	
4.2	Nyaruhungye	Kanungu	West	
4.3	Bugara	Kisoro	West	
4.4	Kyondo	Rukiga	West	
4.5	Runkonkoma	Rukungiri	West	
4.6	Nyamasizi	Rubanda	West	
5.1	Kyakuhanda	Buhweju	West	
5.2	Kanyamukale	Bunyangabu	West	
5.3	Kashozi	Bushenyi	West	
5.4	Rwanshetsyia	Bushenyi	West	
5.5	Karuhusi	Ibanda	West	
5.6	Nyacwamba	Kamwenge	West	
5.7	Rwenkurijo	Mitooma	West	
5.8	Katonya	Rubirizi	West	
<b>SUB TOTAL 2</b>				
SUB TOTAL 1 + 2				
Add 10% Contingencies				
<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 2 - WESTERN & CENTRAL LOWER 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 Commissioningat 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 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**BILL No. GI.1 : METHOD RELATED CHARGES**

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE (UGX)	AMOUNT (UGX)
	<b>Method-Related Charges</b> <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>				
	<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 2 - WESTERN & CENTRAL LOWER 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.	m³	1		
DW-.10	Fine aggregate for concrete.	m³	0.5		
DW-.11	Water for concrete	litres	10		
DW-.12	Sand for building	m³	0.5		
DW-.13	Sand for plaster	m³	0.5		
DW-.14	Fired Clay bricks for building.	nr	5,000		
DW-.15	Concrete blocks for building, 225mm for building,150mm thick	m²	0.5		
DW-.16	Concrete blocks for building, 225mm for building, 200 mm thick.	m²	0.5		
DW-.17	Hydrated lime for building 150 mm thick.	kg	1		
DW-.18	Timber, sawn.	m³	0.5		
DW-.19	Timber wrot.	m³	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	m²	5		
DW-.23	Hardcore filling	m³	10		
DW-.24	Topsoil delivered to site and spread	m³	50		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL LOWER REGIONS**

**BILL No. DW : DAY WORKS**

<b>CONTRACTOR'S EQUIPMENT</b>					
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 2 - WESTERN & CENTRAL LOWER REGIONS**

**BILL No. DW : DAY WORKS**

	<b><u>Concrete mixers with weigh batchers and loading hoppers:</u></b>				
DW-.40	300 litre capacity.	hr	20		
DW-.41	400 litre capacity.	hr	20		
	<b><u>Concrete vibrator, pneumatic with hoses:</u></b>				
DW-.42	poker type, 50 mm	hr	10		
	<b><u>Air compressor, mobile with 5m of hose and steels with:</u></b>				
DW-.43	1 breaker.	hr	10		
DW-.44	2 breakers.	hr	10		
	<b><u>Mobile electricity generating sets, 240v, 1 ph, 50 Hz:</u></b>				
DW-.45	5 kVA	hr	2		
DW-.46	10 kVA	hr	2		
	<b><u>Dewatering Pumps with motor and 5m suction, 3m delivery hose</u></b>				
DW-.47	Nominal size 50mm.	hr	20		
DW-.48	Nominal size 100mm.	hr	20		
	<b><u>Mobile Cranes: including slings chains, dogs and nips</u></b>				
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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.1: BUGOGO IN KYEGEGWA DISTRICT.

Region: West

**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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.1: BUGOGO IN KYEGEGWA DISTRICT.**

**Region: West**

**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>BOREHOLE SITING, DRILLING AND TEST PUMPING</u></b>				
2.1	Inception (Desk Studies), field reconnaissance surveys and siting of suitable borehole site within the <u>vicinity of the proposed water source</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-W.	Item	1		
4	Single layer of geotextile laid to manufacturer's specifications	m <sup>2</sup>	56.5		
	<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><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 <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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.1: BUGOGO IN KYEGEGWA DISTRICT.**

**Region: West**

**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 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		
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	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		
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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.1: BUGOGO IN KYEGEGWA DISTRICT.**

**Region: West**

**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>
ME16	<b>Alarm System</b> 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><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>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.1: BUGOGO IN KYEGEGWA DISTRICT.**

**Region: West**

<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> 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> 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> 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				
<b>Total Bill No. 1 Carried to Bill Summary</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.1: BUGOGO IN KYEGEGWA DISTRICT.

Region: West

**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	280		
	<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	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	OD75 female adapter	No.	2		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.1: BUGOGO IN KYEGEGWA DISTRICT.

Region: West

**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.	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>				
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	12		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.1: BUGOGO IN KYEGEGWA DISTRICT.**

**Region: West**

**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	30		
	<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	24		
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	18		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.1: BUGOGO IN KYEGEGWA DISTRICT.

Region: West

**BILL No. 4.3 : 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; 9.0m 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/ 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	DN65mm, 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	DN65mm, PN10	No.	1		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.1: BUGOGO IN KYEGEGWA DISTRICT.

Region: West

**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 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> <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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.1: BUGOGO IN KYEGEGWA DISTRICT.

Region: West

**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>				
	HDPE pressure pipes to BS 3505, include unions / sockets, all to be laid in trench to the bottom of the trench and covered with 4.5m				
2.1	OD63mm PN10	m	182		
2.2	OD75mm PN10	m	103		
	<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>				
3.8	OD75 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.	4		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.1: BUGOGO IN KYEGEGWA DISTRICT.

Region: West

**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 Vaves</u></b>				
	<u>Flanged CI double orifice air relief valve, DN50mm, as specified</u>				
	<u>,flanges to ISO 2441, complete with isolating gate valve to ISO 7259,</u>				
	<u>flange adaptors, distance pieces, and all fittings necessary to make</u>				
	<u>the installation on pipes of the following sizes, all to PN10, include</u>				
	<u>chamber as specified.</u>				
6.1	OD75mm	No.	1		
<b>7</b>	<b><u>Washouts</u></b>				
	<u>Washout as specified in the drawings, complete with plastic</u>				
	<u>compression pipe fittings; tee, drainage pipes, PVC union ball valve,</u>				
	<u>flap valve and all other fittings necessary to make the complete</u>				
	<u>installation on pipes of the following sizes; all to PN10 including valve</u>				
	<u>surface box and stone masonry outfall structure to detail as per</u>				
	<u>Drawing No. OIS/NUC/SD/004.</u>				
7.1	DN65mm	No.	4		
<b>8</b>	<b><u>Farm Gate Connections</u></b>				
	<u>Make DN50mm Irrigation Water Supply Hydrant connection to the</u>				
	<u>distribution main, inclusive of PVC compressive ball valve and end</u>				
	<u>cap complete with connector pipes and locakable chamber as detailed</u>				
	<u>on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all</u>				
	<u>to PN10: -</u>				
8.1	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	nr	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.2: KISIGARE IN KAGADI DISTRICT  
BILL SUMMARY**

**Region: Central**

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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.2: KISIGARE IN KAGADI 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>				
	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>	76		
2.5	Soft / decomposed rock soils	m <sup>3</sup>	19		
	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.2: KISIGARE IN KAGADI DISTRICT**

**Region:**

**Central**

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
4	<b>Landscaping</b> 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> <b>Provision and Placing of Concrete</b> <b>Ordinary Design Mix Concrete</b> 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> 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> <b>Pump Well/ Sump</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	Internal diameter ; 1200mm	Item	1		
	<b>Concrete Inserts</b> <b>Cast or Spum Iron Pipe Fittings.</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>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>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.2: KISIGARE IN KAGADI 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>
11	<b>Bellmouths</b> 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 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.2: KISIGARE IN KAGADI 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	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	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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.2: KISIGARE IN KAGADI 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	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		
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><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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.2: KISIGARE IN KAGADI 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	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	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.2: KISIGARE IN KAGADI 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		
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	250		
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, toBS 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	OD75 female adapter	No.	2		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.2: KISIGARE IN KAGADI 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.	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>				
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	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	10		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.2: KISIGARE IN KAGADI 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> Not exceeding DN200mm	m	20		
12.3	<u>Pipe surrounds, of mass concrete, for the following pipe sizes</u> Not exceeding DN200mm	m	10		
	<b><u>Concrete Stools and Thrust Blocks</u></b>				
	<b><i>Thrust Blocks</i></b>				
13	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	nr	12		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.2: KISIGARE IN KAGADI DISTRICT**  
**BILL No. 4.3 : STORAGE RESERVOIR WORKS**

**Region: Central**

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; 1.0m 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/ 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.	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]				
5.2	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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.2: KISIGARE IN KAGADI DISTRICT**

**Region:**

**Central**

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
6.1	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>Provision and Placing of Concrete 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.2: KISIGARE IN KAGADI 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> 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	200		
2.2	OD75mm PN10	m	60		
2.3	OD90mm PN10	m	110		
	<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		
3.4	OD63mm	No.	3		
	<b><u>Unequal tees</u></b>				
3.6	OD90 x 75mm	No.	2		
3.7	OD90 x 63mm	No.	1		
3.8	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>				
5.1	OD63mm	No.	4		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.2: KISIGARE IN KAGADI 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 Vaves</u></b>				
	<u>Flanged CI double orifice air relief valve, DN50mm, as specified</u>				
	<u>.flanges to ISO 2441, complete with isolating gate valve to ISO 7259,</u>				
	<u>flange adaptors, distance pieces, and all fittings necessary to make the</u>				
	<u>installation on pipes of the following sizes, all to PN10, include chamber</u>				
	<u>as specified.</u>				
6.1	OD75mm	No.	1		
<b>7</b>	<b><u>Washouts</u></b>				
	<u>Washout as specified in the drawings, complete with plastic</u>				
	<u>compression pipe fittings; tee, drainage pipes, PVC union ball valve,</u>				
	<u>flap valve and all other fittings necessary to make the complete</u>				
	<u>installation on pipes of the following sizes: all to PN10 including valve</u>				
	<u>surface box and stone masonry outfall structure to detail as per</u>				
	<u>Drawing No. OIS/NUC/SD/004.</u>				
7.1	DN75mm	No.	1		
<b>8</b>	<b><u>Farm Gate Connections</u></b>				
	<u>Make DN50mm Irrigation Water Supply Hydrant connection to the</u>				
	<u>distribution main, inclusive of PVC compressive ball valve and end</u>				
	<u>cap complete with connector pipes and locakable chamber as detailed</u>				
	<u>on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all</u>				
	<u>to PN10: -</u>				
8.1	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	nr	20		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.3: KITAIHUKA IN KAKUMIRO 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.3: KITAIHUKA IN KAKUMIRO 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>	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><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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.3: KITAIHUKA IN KAKUMIRO DISTRICT**

**Region: Central**

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
4	<b>Landscaping</b> 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> <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 , maximum aggregate size : 20mm for the following structures: -</u>				
5	<b>Insitu Concrete</b> 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> <b>Pump Well/ Sump</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	Internal diameter ; 1200mm	Item	1		
	<b>Concrete Inserts</b> <b>Cast or Spum Iron Pipe Fittings.</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>Adaptors</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>					
<b>BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b>					
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		

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.3: KITAIHUKA IN KAKUMIRO DISTRICT**

**Region: Central**

11	<b>Bellmouths</b> Flanged bellmouth to ISO 2531, flanges to ISO 2441, of the following sizes all to PN 6 200 mm ND	No.	1		
12	<b>PIPEWORK - FITTINGS AND VALVES</b> <b>Gate Valves: Hand Operated</b> 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				
13	<b>MISCELLANEOUS WORK</b> <b>Ladders</b> 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		
14.1	<b>Steel grating</b> 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> 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.  Internal diameter ; 1200x200mm	Item	Rate Only		
16	<b>Stone pitched Channel.</b> 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> 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.3: KITAIHUKA IN KAKUMIRO DISTRICT**

**Region: Central**

<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 = 75m 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	10mm <sup>2</sup> Borehole drop cable,	m	5		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.3: KITAIHUKA IN KAKUMIRO 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>
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><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	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		
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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.3: KITAIHUKA IN KAKUMIRO 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>
	<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><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	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		
<b>Total Carried to Collection</b>					



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.3: KITAIHUKA IN KAKUMIRO 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>				
3.3	OD90mm HDPE PN10	m	420		
	<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, 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 PN10	No.	1		
<b>Total Carried to Collection</b>					<b>0</b>

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.3: KITAIHUKA IN KAKUMIRO 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>				
	<u>Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges</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.	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.	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>				
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><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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.3: KITAIHUKA IN KAKUMIRO 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> Not exceeding DN200mm	m	30		
12.3	<u>Pipe surrounds, of mass concrete, for the following pipe sizes</u> 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><u>Reinforced concrete pipe supports, complete including foundation bases, straps and bolting, for DN100 - 150 mm pipe to the following heights</u></b>				
15.1	Height not exceeding 1 m		22		
15.2	Height 1 - 1.5 m		8		

**Total Carried to Collection**

**BILL No. 2 : TRANSMISSION MAINS**

Item	Description	Unit	Qty.	Rate (UGx.)	Amount
	<b>Bill No. 2 Collection</b>				
	Page 9				
	Page 10				
	Page 11				

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

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.3: KITAIHUKA IN KAKUMIRO DISTRICT**

**Region: Central**

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

Item	Description	Unit	Qty.	Rate (UGx.)	Amount
	<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; 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/ 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]				
5.2	DN75mm, PN10	No.	1		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.3: KITAIHUKA IN KAKUMIRO 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 and including 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> <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	Description	Unit	Qty.	Rate (UGx.)	Amount
	<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.3: KITAIHUKA IN KAKUMIRO DISTRICT

Region: Central

**BILL No.4 : DISTRIBUTION NETWORK**

Item	Description	Unit	Qty.	Rate (UGx.)	Amount
	<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> 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	278		
2.2	OD75mm PN10	m	100		
2.3	OD90mm PN10	m	142		
	<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.	1		
3.3	OD63mm	No.	3		
	<b><u>Unequal tees</u></b>				
3.4	OD90 x 75mm	No.	2		
3.5	OD90 x 63mm	No.	2		
3.6	OD75 x 63mm	No.	8		
	<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.3: KITAIHUKA IN KAKUMIRO DISTRICT

Region: Central

**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.	8		
<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.				
6.1	OD90mm	No.	Rate Only		
6.2	OD75mm	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	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 locakable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -				
8.1	DN50mm	No.	8		
	<b><u>Other Pipework Ancillaries</u></b>				
	<b><u>Marker Posts</u></b>				
9	Marker posts for pipes, gate valves, air valves, washouts	nr	22		
	<b><u>Reinstatement</u></b>				
	<b><u>Roads</u></b>				
	Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes				
10	Not exceeding DN200mm	m	12		
<b>Total Carried to Collection</b>					

**Scheme ID. 1.3: KITAIHUKA IN KAKUMIRO DISTRICT**

	<p><b>Bill No. 4 Collection</b></p> <p>Page 14</p> <p>Page 15</p>				
<b>Total Bill No. 4 Carried to Bill Summary</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.4: BUKUYA IN KASANDA 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.4: BUKUYA IN KASANDA 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>Landscaping</u></b>				
5	Turfing for lawns inside fenced off compound, including filling with excavated topsoil and the preparation of surfaces;	m <sup>2</sup>	2,725		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.4: BUKUYA IN KASANDA 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>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 <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	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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.4: BUKUYA IN KASANDA 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	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		
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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.4: BUKUYA IN KASANDA 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	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	130		
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		
	<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 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.4: BUKUYA IN KASANDA 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	OD75mm HDPE PN10	m	646		
	<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, toBS 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>				
6.3	DN65mm PN10	No.	1		
<b>Total Carried to Collection</b>					



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.4: BUKUYA IN KASANDA 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	OD75 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.	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>				
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 DN200mm	m	12		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.4: BUKUYA IN KASANDA DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
12.1	<b><u>Surrounds</u></b> Pipe surrounds, of selected excavated granular material, for the following pipe sizes Not exceeding DN200mm	m	Rate Only		
12.2	Pipe surrounds, of imported granular material, for the following pipe sizes Not exceeding DN200mm	m	25		
12.3	Pipe surrounds, of mass concrete, for the following pipe sizes Not exceeding DN200mm	m	15		
13	<b><u>Concrete Stools and Thrust Blocks</u></b>				
13.1	<b><u>Thrust Blocks</u></b> Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m <sup>3</sup> , for the following pipe sizes Diameter not exceeding DN200mm	No.	Rate Only		
14	<b><u>Other Pipework Ancillaries</u></b> <b><u>Marker Posts</u></b> Marker posts for pipes, gate valves, air valves, washouts	nr	18		

**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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.4: BUKUYA IN KASANDA DISTRICT

Region: Central

**BILL No. 4.3 : 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</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/ 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.	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]				
5.2	DN75mm, PN10	No.	1		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.4: BUKUYA IN KASANDA 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 and including 200mm thick murram fill.	No.	Rate Only		
<b>7</b>	<b><u>Fences</u></b>				
7.1	Galvanised 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> <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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.4: BUKUYA IN KASANDA 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> 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	134		
2.2	OD75mm PN10	m	230		
2.3	OD90mm PN10	m	245		
	<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		
3.2	OD75mm	No.	1		
3.3	OD63mm	No.	2		
	<b><u>Unequal tees</u></b>				
3.4	OD90 x 63mm	No.	1		
3.5	OD750 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.	4		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.4: BUKUYA IN KASANDA 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 Vaves</u></b>				
	<u>Flanged CI double orifice air relief valve, DN50mm, as specified</u>				
	<u>,flanges to ISO 2441, complete with isolating gate valve to ISO 7259,</u>				
	<u>flange adaptors, distance pieces, and all fittings necessary to make</u>				
	<u>the installation on pipes of the following sizes, all to PN10, include</u>				
	<u>chamber as specified.</u>				
6.1	OD75mm	No.	1		
6.2	OD63mm	No.	1		
<b>7</b>	<b><u>Washouts</u></b>				
	<u>Washout as specified in the drawings, complete with plastic</u>				
	<u>compression pipe fittings; tee, drainage pipes, PVC union ball valve,</u>				
	<u>flap valve and all other fittings necessary to make the complete</u>				
	<u>installation on pipes of the following sizes; all to PN10 including valve</u>				
	<u>surface box and stone masonry outfall structure to detail as per</u>				
	<u>Drawing No. OIS/NUC/SD/004.</u>				
7.1	DN65mm	No.	Rate Only		
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</u>				
	<u>distribution main, inclusive of PVC compressive ball valve and end</u>				
	<u>cap complete with connector pipes and locakable chamber as detailed</u>				
	<u>on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all</u>				
	<u>to PN10: -</u>				
8.1	DN50mm	No.	12		
	<b><u>Other Pipework Ancillaries</u></b>				
	<b><u>Marker Posts</u></b>				
9	Marker posts for pipes, gate valves, air valves, washouts	nr	26		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.5: BUCHUYA IN KIBALE 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.5: BUCHUYA IN KIBALE 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>				
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 murram.	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.5: BUCHUYA IN KIBALE DISTRICT

Region: Central

**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 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>				
	<b>Formwork-Fair Finish</b>				
7.1	<b>Fair Finish Plane Horizontal</b> 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> 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		
	<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.5: BUCHUYA IN KIBALE DISTRICT**

**Region: Central**

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
8.1	<b>Reinforcement</b> <b>Deformed High Yield Steel</b> <u>High yield square twisted bars to BS 4449 and of the following sizes</u> Nominal size, 12mm	t	1.2		
8.2	<b>Inserts</b> 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> <b>Cast or Spum Iron Pipe Fittings.</b>  <b>Flanged Reducers</b> DN250 x 150mm	No.	Rate Only		
9.2	<b>Flange Adaptors</b> 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> <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> DN 250 mm	No.	Rate Only		
9.4	<b>End Caps</b> DN250mm flanged end cap.	No.	Rate Only		
9.5	<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 metres long, and of the following sizes:-</u> 150 mm ND	No.	Rate Only		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.5: BUCHUYA IN KIBALE DISTRICT

Region: Central

**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> 300mm wide x 1000mm high.	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>Valve Surface Boxes</b>				
10.3	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	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 1000-40-5	No.	1		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.5: BUCHUYA IN KIBALE 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>
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	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		
	<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	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		
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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.5: BUCHUYA IN KIBALE 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>
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 Solar Array laid onto a guage 500 polythene sheet.	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><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>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.5: BUCHUYA IN KIBALE 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>
	<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>					
	<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> <p align="center">Page 6</p> <p align="center">Page 7</p> <p align="center">Page 8</p>				
<b>Total Bill No. 1 Carried to Bill Summary</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.5: BUCHUYA IN KIBALE 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, grubbing 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>				
2.6	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</u>				
3.1	OD90mm HDPE PN10	m	640		
	<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	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	DN65mm PN10	No.	1		
7	<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.5: BUCHUYA IN KIBALE 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	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.	4		
	<b><u>PIPEWORK-MANHOLE 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.	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>				
10.2	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	Rate Only		
<b>Total Carried to Collection</b>					



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.5: BUCHUYA IN KIBALE DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
12.1	<b>Surrounds</b> <u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u> Not exceeding DN200mm	m	30		
12.2	<u>Pipe surrounds, of imported granular material, for the following pipe sizes</u> Not exceeding DN200mm	m	50		
12.3	<u>Pipe surrounds, of mass concrete, for the following pipe sizes</u> Not exceeding DN200mm	m	20		
13	<b>Concrete Stools and Thrust Blocks</b>				
13.1	<b>Thrust Blocks</b> <u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes</u> Diameter not exceeding DN200mm	No.	Rate Only		
14	<b>Other Pipework Ancillaries</b> <b>Marker Posts</b> Marker posts for pipes, gate valves, air valves, washouts	nr	26		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.5: BUCHUYA IN KIBALE DISTRICT**

**Region: Central**

**BILL No. 4.3 : 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; 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/ 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.5: BUCHUYA IN KIBALE 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 and including 200mm thick murram fill.	No.	Rate Only		
<b>7</b>	<b><u>Fences</u></b>				
7.1	Galvanised 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> <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		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.5: BUCHUYA IN KIBALE 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> 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 PN10	m	30		
2.2	OD75mm PN10	m	470		
2.3	OD90mm PN10	m	96		
	<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.	Rate Only		
3.2	OD63mm	No.	Rate Only		
	<b><u>Unequal tees</u></b>				
3.3	OD75 x 63mm	No.	1		
3.4	OD75 x 63mm Bend	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	OD75mm	No.	Rate Only		
4.2	OD63mm	No.	Rate Only		
5	<b><u>End caps</u></b>				
5.1	OD75mm	No.	Rate Only		
5.2	OD63mm	No.	2		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.5: BUCHUYA IN KIBALE DISTRICT**

**Region: Central**

<b>BILL No.4 : DISTRIBUTION NETWORK</b>					
<b>Item No.</b>	<b>Description</b>	<b>Unit</b>	<b>Qty.</b>	<b>Rate (UGx.)</b>	<b>Amount (UGx.)</b>
<b>6</b>	<b><u>Valves and Penstocks</u></b>				
	<b><u>Air Vaves</u></b>				
	<u>Flanged CI double orifice air relief valve, DN50mm, as specified</u>				
	<u>,flanges to ISO 2441, complete with isolating gate valve to ISO 7259,</u>				
	<u>flange adaptors, distance pieces, and all fittings necessary to make</u>				
	<u>the installation on pipes of the following sizes, all to PN10, include</u>				
	<u>chamber as specified.</u>				
6.1	OD75mm	No.	Rate Only		
6.2	OD63mm	No.	1		
<b>7</b>	<b><u>Washouts</u></b>				
	<u>Washout as specified in the drawings, complete with plastic</u>				
	<u>compression pipe fittings; tee, drainage pipes, PVC union ball valve,</u>				
	<u>flap valve and all other fittings necessary to make the complete</u>				
	<u>installation on pipes of the following sizes; all to PN10 including valve</u>				
	<u>surface box and stone masonry outfall structure to detail as per</u>				
	<u>Drawing No. OIS/NUC/SD/004.</u>				
7.1.	DN65mm	No.	2		
7.2	DN50mm	No.	Rate Only		
<b>8</b>	<b><u>Farm Gate Connections</u></b>				
	<u>Make DN50mm Irrigation Water Supply Hydrant connection to the</u>				
	<u>distribution main, inclusive of PVC compressive ball valve and end</u>				
	<u>cap complete with connector pipes and locakable chamber as detailed</u>				
	<u>on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all</u>				
	<u>to PN10: -</u>				
8.1	DN50mm	No.	2		
	<b><u>Other Pipework Ancillaries</u></b>				
	<b><u>Marker Posts</u></b>				
9	Marker posts for pipes, gate valves, air valves, washouts	nr	24		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.6: KYOMYA IN KIBOGA 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.6: KYOMYA IN KIBOGA 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 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>	35		
2.2	Ditto but for the Intake Structure	m <sup>3</sup>	45		
2.3	Ditto but for the River Weir Structure	m <sup>3</sup>	3.5		
	<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, hand packed or compacted by the arm of an excavator.	m <sup>3</sup>	55		
3.2	Selected excavated material including topping with a 200mm thick layer of top/ vegetable soil.	m <sup>3</sup>	44		
3.3	Imported murram.	m <sup>3</sup>	18		
	<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>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.6: KYOMYA IN KIBOGA DISTRICT

Region: Central

**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>				
5.1	50mm thick blinding concrete, for base slabs, toes, key and heel; grade C15, of the following thickness	m <sup>3</sup>	1		
	<b>Grade C25/10</b>				
	<b>Reinforced Concrete Base Slabs, Toe, Key and Heel</b>				
5.2	200mm thick key and toe.	m <sup>3</sup>	2.5		
5.3	200mm thick base and heel slabs.	m <sup>3</sup>	5		
5.4	500/ 200mm thick retaining wall/ weir stem.	m <sup>3</sup>	19.0		
5.5	200mm thick sump walls.	m <sup>3</sup>	41		
5.6	200mm thick top slab.	m <sup>3</sup>	1.2		
	<b>Formwork</b>				
	<b>Formwork-Fair Finish</b>				
6.1	<b><i>Fair Finish Plane Horizontal</i></b> Plane fair finish horizontal formwork to the tops slab including charmfering and / or filleting of all exposed concrete corners.	m <sup>2</sup>	4.5		
6.2	<b><i>Fair Finish Plane Vertical</i></b> Plane fair finish vertical and / or slightly soping formwork to walls including charmfering and / or filleting of all exposed concrete corners.	m <sup>2</sup>	145		
6.3	<b><i>Finishing of top surfaces</i></b> Steel trowel finishing of top surfaces.	m <sup>2</sup>	20		
<b>Total Carried to Collection</b>					



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.6: KYOMYA IN KIBOGA DISTRICT

Region: Central

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
	<b>Reinforcement</b>				
	<b><i>Deformed High Yield Steel</i></b>				
	<u>High yield square twisted bars to BS 4449 and of the following sizes</u>				
7.1	Nominal size, 12mm	t	2.0		
	<b>MISCELLANEOUS METAL WORK</b>				
	<b>Ladders</b>				
8.1	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	5		
	<b>Pump Protection System</b>				
8.2	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.	Rate Only		
	<b>Access Manhole Cover</b>				
8.3	600 x 600mm clear opening painted mild steel cover and frame include fixing and locking arrangement.	No.	2		
	<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 = 75m 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 21x17No. 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 1000-40-5	No.	1		
ME5	PV Protect 1000-125	No.	Rate Only		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.6: KYOMYA IN KIBOGA 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>
ME6	PV Combiner	No.	1		
ME7a	Pressure switch	No.	1		
ME4	PV Disconnect 1000-40-1	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	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		
	<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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.6: KYOMYA IN KIBOGA 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>
ME14	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		
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 guage 500 polythene sheet.	m <sup>2</sup>	135		
X4	450mm diameter reinforced concrete pipe/ culvert	m	2		
	<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.6: KYOMYA IN KIBOGA 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>
	<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		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.6: KYOMYA IN KIBOGA 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	OD90mm HDPE PN10	m	644		
	<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, toBS EN 10242:1995, all</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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.6: KYOMYA IN KIBOGA 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	OD75 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</u>				
8.1	DN75mm	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.	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.	1		
	<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.	Rate Only		
	<b>Reinstatement Roads</b>				
	<u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>				
11	Not exceeding DN300mm	m	36		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.6: KYOMYA IN KIBOGA 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 Not exceeding DN200mm	m	20		
12.2	Pipe surrounds, of imported granular material, for the following pipe sizes Not exceeding DN200mm	m	60		
12.3	Pipe surrounds, of mass concrete, for the following pipe sizes Not exceeding DN200mm	m	40		
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 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><u>STRUCTURAL METALWORK</u></b>				
15.1	Fabrication and erection of rolled steel section pipe bridge complete as shown on drawings Span 3 - 5m at height not exceeding 2m.	No.	1		
15.2	Span 5.5 - 10m at height not exceeding 2m.	No.	Rate Only		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.6: KYOMYA IN KIBOGA DISTRICT

Region: Central

**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</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; 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/ 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.6: KYOMYA IN KIBOGA 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 and including 200mm thick murram fill.	No.	Rate Only		
<b>7</b>	<b><u>Fences</u></b>				
7.1	Galvanised 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> <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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.6: KYOMYA IN KIBOGA 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> 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	720		
2.2	OD75mm PN10	m	340		
2.3	OD90mm PN10	m	440		
	<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		
3.2	OD75mm	No.	1		
	<b><u>Unequal tees</u></b>				
3.3	OD90 x 63mm	No.	2		
3.4	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 1.6: KYOMYA IN KIBOGA 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 Vaves</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	OD63mm	No.	1		
<b>7</b>	<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>				
7.1	DN75mm	No.	3		
7.2	DN65mm	No.	2		
7.3	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 locakable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -				
8.1	DN50mm	No.	12		
	<b>Other Pipework Ancillaries</b>				
	<b>Marker Posts</b>				
9	Marker posts for pipes, gate valves, air valves, washouts	nr	26		
	<b>STRUCTURAL METALWORK</b>				
	<u>Fabrication and erection of rolled steel section pipe bridge complete as shown on drawings</u>				
10.1	Span 3 - 5m at height not exceeding 2m.	No.	1		
10.2	Span 5.5 - 10m at height not exceeding 2m.	No.	Rate Only		

**Total Carried to Collection**

**BILL No.4 : DISTRIBUTION NETWORK**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
	<b>Reinstatement Roads</b>				

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 1.6: KYOMYA IN KIBOGA DISTRICT**

**Region: Central**

11	<u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u> Not exceeding DN300mm	m	24		
<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				
	Page 14				
	Page 15				
<b>Total Bill No. 4 Carried to Bill Summary</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID No. 1.7: LUBIRI IN KYANKWANZI 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID No. 1.7: LUBIRI IN KYANKWANZI 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>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><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 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 = 55m total head; set to not more than <u>5m</u> 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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID No. 1.7: LUBIRI IN KYANKWANZI 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 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	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		
<b>Earthing and Lightening Protection</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	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		
ME15	60W Solar security light and battery complete with 6m steel pole and lockable battery box	No.	5		
<b>Total Carried to Collection</b>					
<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>Alarm System</b>					
ME16	GMS Alarm System complete with 1No. alarm horn and 2No.vibration sensors per array.	Item	1		

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID No. 1.7: LUBIRI IN KYANKWANZI DISTRICT**

**Region: Central**

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>				
	<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>	135		
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	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>Total Carried to Collection</b>					



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID No. 1.7: LUBIRI IN KYANKWANZI 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>
X7	<u><b>Gates</b></u> 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> 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> 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID No. 1.7: LUBIRI IN KYANKWANZI 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	OD75mm HDPE PN10	m	1,200		
	<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	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	OD75 female adapter	No.	2		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID No. 1.7: LUBIRI IN KYANKWANZI 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	DN75mm	No.	2		
<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.	3		
	<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>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID No. 1.7: LUBIRI IN KYANKWANZI 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 Not exceeding DN200mm	m	14		
12.2	Pipe surrounds, of imported granular material, for the following pipe sizes Not exceeding DN200mm	m	30		
12.3	Pipe surrounds, of mass concrete, for the following pipe sizes Not exceeding DN200mm	m	2		
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 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>					
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID No. 1.7: LUBIRI IN KYANKWANZI DISTRICT

Region: Central

**BILL No. 4.3 : 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/ 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID No. 1.7: LUBIRI IN KYANKWANZI 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 and including 200mm thick murram fill.	No.	Rate Only		
<b>7</b>	<b><u>Fences</u></b>				
7.1	Galvanised wire Gauge10 chain link fence to BS 1722 with triple raw	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> <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		
<b>Total Carried to Collection</b>					
	<b>Bill No. 3 Collection</b>  Page 19  Page 10				
<b>Total Bill No. 3 Carried to Bill Summary</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID No. 1.7: LUBIRI IN KYANKWANZI 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> 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	158		
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.	Rate Only		
3.2	OD63mm	No.	Rate Only		
	<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	OD75mm	No.	Rate Only		
4.2	OD63mm	No.	Rate Only		
5	<b><u>End caps</u></b>				
5.1	OD63mm	No.	3		
5.2	OD50mm	No.	Rate Only		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID No. 1.7: LUBIRI IN KYANKWANZI 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 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.				
6.3	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.				
7.3	DN65mm	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 locakable 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	20		
	<b><u>Reinstatement</u></b>				
	<b><u>Roads</u></b>				
	Breaking up, temporary and permanent reinstatement of gravel roads				
	for the following pipe sizes				
10	Not exceeding DN300mm	m	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.1: KAKUNYU IN KYOTERA DISTRICT**

**Region: West**

**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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.1: KAKUNYU IN KYOTERA DISTRICT**

**Region: West**

**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 both hands along the channel of excavated material to fair profiles				
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><u>Landscaping</u></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>					

## Region: West

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 , maximum aggregate size : 20mm for the following structures: -</u>				
5	<u><b>Insitu Concrete</b></u> 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> <b>Pump Well/ Sump</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	Internal diameter : 1200mm	Item	1		
	<b>Concrete Inserts</b> <b>Cast or Spun Iron Pipe Fittings.</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>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>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.1: KAKUNYU IN KYOTERA DISTRICT**

**Region: West**

<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>
11	<b>Bellmouths</b> 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 and as shown in the drawings including fixing to precast concrete	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.1: KAKUNYU IN KYOTERA DISTRICT**

**Region: West**

<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><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 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 Aarray in Item 2 above as per drawings, including foundations, vandal proofing mounting to the Engineer's approval	Sum	1		
ME4	PV Disconnect 1000-40-1	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	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.1: KAKUNYU IN KYOTERA DISTRICT**

**Region: West**

<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>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	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		
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>	135		
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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.1: KAKUNYU IN KYOTERA DISTRICT**

**Region: West**

<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	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		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 2.1: KAKUNYU IN KYOTERA DISTRICT

Region: West

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	350		
	<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	OD75 female adapter	No.	2		
<b>Total Carried to Collection</b>					



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.1: KAKUNYU IN KYOTERA DISTRICT**

**Region: West**

<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>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</u>				
	<u>,flanges to ISO 2441, complete with isolating gate valve to ISO 7259,</u>				
	<u>flange adaptors, distance pieces, and all fittings necessary to make</u>				
	<u>the installation on pipes of the following sizes, all to PN10, include</u>				
	<u>chamber as specified.</u>				
8.1	DN65mm	No.	2		
<b>9</b>	<b><u>Washouts</u></b>				
	<u>Washout as specified in the drawings, complete with plastic</u>				
9.1	DN65mm	No.	2		
	<b><u>PIPEWORK-MANHOLE AND PIPEWORK ANCILLARIES</u></b>				
	<b><u>Other Chambers</u></b>				
	<u>Masonry air valve chamber, complete as specified in the drawings, and</u>				
	<u>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</u>				
	<u>securely attached to main body of surface box by chain or bolt, include</u>				
	<u>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</u>				
	<u>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</u>				
	<u>following pipe sizes</u>				
12.1	Not exceeding DN200mm	m	36		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.1: KAKUNYU IN KYOTERA DISTRICT**

**Region: West**

<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>
12.2	<u>Pipe surrounds, of imported granular material, for the following pipe sizes</u> Not exceeding DN200mm	m	20		
12.3	<u>Pipe surrounds, of mass concrete, for the following pipe sizes</u> Not exceeding DN200mm	m	5		
13	<b><u>Concrete Stools and Thrust Blocks</u></b>				
	<b><i>Thrust Blocks</i></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> 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	nr	26		
<b>Total Carried to Collection</b>					
<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>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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.1: KAKUNYU IN KYOTERA DISTRICT**

**Region: West**

**BILL No. 4.3 : 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/ 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	DN65mm, 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	DN65mm, PN10	No.	1		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.1: KAKUNYU IN KYOTERA DISTRICT**

**Region: West**

<b>BILL No. 3 : STORAGE RESERVOIR WORKS</b>					
<b>Item No.</b>	<b>Description</b>	<b>Unit</b>	<b>Qty.</b>	<b>Rate (UGx.)</b>	<b>Amount (UGx.)</b>
<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	No.	1		
	<b><u>Provision and Placing of Concrete</u></b> <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 : STORAGE RESERVOIR WORKS</b>					
<b>Item No.</b>	<b>Description</b>	<b>Unit</b>	<b>Qty.</b>	<b>Rate (UGx.)</b>	<b>Amount (UGx.)</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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.1: KAKUNYU IN KYOTERA DISTRICT**

**Region: West**

<b>BILL No.4 : DISTRIBUTION NETWORK</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>PIPEWORK-PIPES</u></b>				
2	<b><u>Plastic Pressure Pipes- Distribution</u></b> 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	420		
2.2	OD75mm PN10	m	175		
2.3	OD90mm PN10	m	55		
	<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>				
3.3	OD75mm	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>				
4.3	OD75mm	No.	Rate Only		
4.4	OD63mm	No.	Rate Only		
5	<b><u>End caps</u></b>				
5.1	OD63mm	No.	3		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.1: KAKUNYU IN KYOTERA DISTRICT**

**Region: West**

<b>BILL No.4 : DISTRIBUTION NETWORK</b>					
<b>Item No.</b>	<b>Description</b>	<b>Unit</b>	<b>Qty.</b>	<b>Rate (UGx.)</b>	<b>Amount (UGx.)</b>
<b>6</b>	<b><u>Valves and Penstocks</u></b>				
	<b><u>Air Vaves</u></b>				
	<u>Flanged CI double orifice air relief valve, DN50mm, as specified</u>				
	<u>,flanges to ISO 2441, complete with isolating gate valve to ISO 7259,</u>				
	<u>flange adaptors, distance pieces, and all fittings necessary to make</u>				
	<u>the installation on pipes of the following sizes, all to PN10, include</u>				
	<u>chamber as specified.</u>				
6.1	OD63mm	No.	2		
<b>7</b>	<b><u>Washouts</u></b>				
	<u>Washout as specified in the drawings, complete with plastic</u>				
	<u>compression pipe fittings; tee, drainage pipes, PVC union ball valve,</u>				
	<u>flap valve and all other fittings necessary to make the complete</u>				
	<u>installation on pipes of the following sizes; all to PN10 including valve</u>				
	<u>surface box and stone masonry outfall structure to detail as per</u>				
	<u>Drawing No. OIS/NUC/SD/004.</u>				
7.1	DN65mm	No.	3		
<b>8</b>	<b><u>Farm Gate Connections</u></b>				
	<u>Make DN50mm Irrigation Water Supply Hydrant connection to the</u>				
	<u>distribution main, inclusive of PVC compressive ball valve and end</u>				
	<u>cap complete with connector pipes and locakable chamber as detailed</u>				
	<u>on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all</u>				
	<u>to PN10: -</u>				
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	26		
	<b><u>Reinstatement</u></b>				
	<b><u>Roads</u></b>				
	<u>Breaking up, temporary and permanent reinstatement of gravel roads</u>				
	<u>for the following pipe sizes</u>				
10	Not exceeding DN300mm	m	12		
<b>Total Carried to Collection</b>					
<b>BILL No. 4 : DISTRIBUTION NETWORK</b>					
<b>Item No.</b>	<b>Description</b>	<b>Unit</b>	<b>Qty.</b>	<b>Rate (UGx.)</b>	<b>Amount (UGx.)</b>
	<b>Bill No. 4 Collection</b>				

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.1: KAKUNYU IN KYOTERA DISTRICT**

**Region: West**

	Page 13				
	Page 14				
<b>Total Bill No. 4 Carried to Bill Summary</b>					

CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL LOWER REGIONS

Scheme ID No. 2.2: KABUSA IN RAKAI DISTRICT

Region: West

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: Lot 2 - WESTERN & CENTRAL LOWER REGIONS

Scheme ID No. 2.2: KABUSA IN RAKAI DISTRICT

Region: West

**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, grubbing 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		
	<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>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 , maximum aggregate size , 20mm for the following structures: -</u>				
	<b>In situ Concrete</b>				
5	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		
<b>Total Carried to Collection</b>					

CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL LOWER REGIONS

Scheme ID No. 2.2: KABUSA IN RAKAI DISTRICT

Region: West

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
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> <b>Pump Well/ Sump</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	Internal diameter ; 1200mm	Item	1		
	<b>Concrete Inserts</b> <b>Cast or Spun Iron Pipe Fittings.</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>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> Flanged bellmouth to ISO 2531, flanges to ISO 2441, of the following sizes all to PN 6 200 mm ND				
11		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.				
15	Internal diameter ; 1200x200mm	Item	Rate Only		
<b>Total Carried to Collection</b>					

CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL LOWER REGIONS

Scheme ID No. 2.2: KABUSA IN RAKAI DISTRICT

Region: West

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
16	Stone pitched Channel. 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> 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><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 <u>5m</u> 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 1000-40-1	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	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: Lot 2 - WESTERN & CENTRAL LOWER REGIONS

Scheme ID No. 2.2: KABUSA IN RAKAI DISTRICT

Region: West

**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 16mm2 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	Earthing at solar array and borehole installation by 16mm2 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		
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 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 guage 500 polythene sheet.	m²	135		
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: Lot 2 - WESTERN & CENTRAL LOWER REGIONS

Scheme ID No. 2.2: KABUSA IN RAKAI DISTRICT

Region: West

BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS					
Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
	<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	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>					
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				
<b>Total Bill No. 1 Carried to Bill Summary</b>					

## CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN &amp; CENTRAL LOWER REGIONS

Scheme ID No. 2.2: KABUSA IN RAKAI DISTRICT

Region: West

## 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>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		
	<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 PN10	m	590		
	<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	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>PN16 HDPE Compression fitting to DIN 8074/BS 5114</b>				
	<b>Equal Adapters</b>				
7.1	OD75 female adapter	No.	2		
Total Carried to Collection					

## CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN &amp; CENTRAL LOWER REGIONS

Scheme ID No. 2.2: KABUSA IN RAKAI DISTRICT

Region: West

## 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.	2		
<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><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	36		
	<u>Pipe surrounds, of imported granular material, for the following pipe sizes</u>				
12.2	Not exceeding DN200mm	m	20		
<b>Total Carried to Collection</b>					

CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL LOWER REGIONS

Scheme ID No. 2.2: KABUSA IN RAKAI DISTRICT

Region: West

**BILL No. 2 : TRANSMISSION MAINS**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
12.3	Pipe surrounds, of mass concrete, for the following pipe sizes Not exceeding DN200mm	m	5		
13	<b>Concrete Stools and Thrust Blocks</b>  <b>Thrust Blocks</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>Other Pipework Ancillaries</b> <b>Marker Posts</b>				
14	Marker posts for pipes, gate valves, air valves, washouts	nr	26		
<b>Total Carried to Collection</b>					

**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				
<b>Total Bill No. 2 Carried to Bill Summary</b>					



CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL LOWER REGIONS

Scheme ID No. 2.2: KABUSA IN RAKAI DISTRICT

Region: West

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		
	<b>2 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; 9.0m for (4No. x 10m <sup>3</sup> Tanks)	No.	1		
	<b>3 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		
	<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	DN65mm, PN10	No.	1		
	<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>				
	[OPTIONAL]				
5.1	DN65mm, PN10	No.	1		
	<b>6 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 and including 200mm thick murrum fill.	No.	Rate Only		
	<b>7 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		
Total Carried to Collection					

CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL LOWER REGIONS

Scheme ID No. 2.2: KABUSA IN RAKAI DISTRICT

Region: West

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
7.2	<b>Gates</b> 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> <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		

**Total Carried to Collection**

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
	<p align="center"><b>Bill No. 3 Collection</b></p> <p align="center">Page 10</p> <p align="center">Page 11</p>				
<b>Total Bill No. 3 Carried to Bill Summary</b>					

CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL LOWER REGIONS

Scheme ID No. 2.2: KABUSA IN RAKAI DISTRICT

Region: West

**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> 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	90		
2.2	OD75mm PN10	m	308		
	<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>				
3.3	OD75mm	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>				
4.3	OD75mm	No.	Rate Only		
4.4	OD63mm	No.	Rate Only		
5	<b><u>End caps</u></b>				
5.1	OD63mm	No.	3		
6	<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.				
6.1	OD63mm	No.	2		
7	<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	DN65mm	No.	3		
<b>Total Carried to Collection</b>					

CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL LOWER REGIONS

Scheme ID No. 2.2: KABUSA IN RAKAI DISTRICT

Region: West

**BILL No.4 : DISTRIBUTION NETWORK**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
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 locakable 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>Other Pipework Ancillaries</b>				
	<b>Marker Posts</b>				
9	Marker posts for pipes, gate valves, air valves, washouts	nr	26		
	<b>Reinstatement Roads</b>				
	Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes				
10	Not exceeding DN300mm	m	12		

**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 12				
	Page 13				

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

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.3: NDIBULUNGI IN BUTAMBALA 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.3: NDIBULUNGI IN BUTAMBALA 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>				
	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><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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.3: NDIBULUNGI IN BUTAMBALA 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>
4	<b>Landscaping</b> Turfing for lawns inside fenced off compound; including filling with  <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 , maximum aggregate size ; 20mm for the following structures: -</u>	m <sup>2</sup>	40		
5	<b>Insitu Concrete</b> 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		
7	<b>Pre-cast Concrete</b> <b>Pump Well/ Sump</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.  Internal diameter ; 1200mm	Item	1		
8	<b>Concrete Inserts</b> <b>Cast or Spum Iron Pipe Fittings.</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.  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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.3: NDIBULUNGI IN BUTAMBALA 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>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 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>					
	<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)				



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.3: NDIBULUNGI IN BUTAMBALA DISTRICT**

**Region: Central**

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 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	100		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.3: NDIBULUNGI IN BUTAMBALA 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>
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	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		
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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.3: NDIBULUNGI IN BUTAMBALA 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 guage 500 polythene sheet.	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><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	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 2.3: NDIBULUNGI IN BUTAMBALA 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		
	<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	621		
	<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	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 2.3: NDIBULUNGI IN BUTAMBALA 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>				
9.2	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>				
10.1	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>				
10.2	Depth not exceeding 1.5m	No.	1		
	<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>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.3: NDIBULUNGI IN BUTAMBALA 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 Not exceeding DN200mm	m	30		
12.2	Pipe surrounds, of imported granular material, for the following pipe sizes Not exceeding DN200mm	m	40		
12.3	Pipe surrounds, of mass concrete, for the following pipe sizes Not exceeding DN200mm	m	2		
	<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 m <sup>3</sup> , for the following pipe sizes 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	26		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.3: NDIBULUNGI IN BUTAMBALA DISTRICT**

**Region: Central**

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
	<b><u>DEMOLITION AND SITE CLEARANCE</u></b>				
1	<b><u>General Site Clearance</u></b> 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/ 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.3: NDIBULUNGI IN BUTAMBALA 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 and including 200mm thick murram fill.	No.	Rate Only		
<b>7</b>	<b><u>Fences</u></b>				
7.1	Galvanised 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> <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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 2.3: NDIBULUNGI IN BUTAMBALA 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> HDPE pressure pipes to BS 3505, include unions / sockets, all to be laid in trench to the following depths not exceeding 1.5m				
2.2	OD75mm PN10	m	380		
2.3	OD63mm PN10	m	480		
	<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>				
3.4	OD63mm	No.	2		
	<b><u>Unequal tees</u></b>				
3.8	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	OD63mm	No.	4		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.3: NDIBULUNGI IN BUTAMBALA 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 Vaves</u></b>				
	<u>Flanged CI double orifice air relief valve, DN50mm, as specified</u>				
	<u>,flanges to ISO 2441, complete with isolating gate valve to ISO 7259,</u>				
	<u>flange adaptors, distance pieces, and all fittings necessary to make</u>				
	<u>the installation on pipes of the following sizes, all to PN10, include</u>				
	<u>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</u>				
	<u>compression pipe fittings; tee, drainage pipes, PVC union ball valve,</u>				
	<u>flap valve and all other fittings necessary to make the complete</u>				
	<u>installation on pipes of the following sizes; all to PN10 including valve</u>				
	<u>surface box and stone masonry outfall structure to detail as per</u>				
	<u>Drawing No. OIS/NUC/SD/004.</u>				
7.1	DN65mm	No.	2		
<b>8</b>	<b><u>Farm Gate Connections</u></b>				
	<u>Make DN50mm Irrigation Water Supply Hydrant connection to the</u>				
	<u>distribution main, inclusive of PVC compressive ball valve and end</u>				
	<u>cap complete with connector pipes and locakable chamber as detailed</u>				
	<u>on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all</u>				
	<u>to PN10: -</u>				
8.1	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	nr	42		
	<b><u>Reinstatement</u></b>				
	<u>Breaking up, temporary and permanent reinstatement of gravel roads</u>				
	<u>for the following pipe sizes</u>				
10	Not exceeding DN300mm	m	36		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.4: LWABENGE IN KALUNGU 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.4: LWABENGE IN KALUNGU 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, grubbing 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>				
	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.4: LWABENGE IN KALUNGU DISTRICT**

**Region: Central**

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
4	<b>Landscaping</b> 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> <b>Provision and Placing of Concrete</b> <b>Ordinary Design Mix Concrete</b> 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> 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> <b>Pump Well/ Sump</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	Internal diameter ; 1200mm	Item	1		
	<b>Concrete Inserts</b> <b>Cast or Spum Iron Pipe Fittings.</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>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.4: LWABENGE IN KALUNGU DISTRICT**

**Region: Central**

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
	<b>Adaptors</b>				
9	Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:- 200 mm ND	No.	2		
10	OD225mm PN10 plain end of PVC 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 DN 6 200 mm ND	No.	1		
	<b>PIPEWORK - FITTINGS AND VALVES</b>				
	<b>Gate Valves: Hand Operated</b>				
12	DIN 200 mm all flanged G gate valves to BS 5130, flanges to BS 4303, all to DN 6 for operation by top lever with extension spindle not exceeding 4.5				
	<b>MISCELLANEOUS WORK</b>				
	<b>Ladders</b>				
13	Internal galvanized mild steel ladder to BS 4211, galvanized to BS 729,	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>				
15	Supply and install 8.0m long HDPE vertical culverts on concrete base slab Internal diameter ; 1200x200mm	Item	Rate Only		
	<b>Stone pitched Channel.</b>				
16	3.0 x 1.5 top x bottom width x 1.5m deep maximum trapezoidal lined drain as	m	5		
	<b>Gabion boxes</b>				
17	PVC coated gabion boxes ; size 1m x 1m x 1m; including rockfill of size 100 -	nr	Rate Only		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.4: LWABENGE IN KALUNGU 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 = 75m 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	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.4: LWABENGE IN KALUNGU 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	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		
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		
<b>Total Carried to Collection</b>					



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.4: LWABENGE IN KALUNGU 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> 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> 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		
X7	<b><u>Gates</u></b> 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> Train Operator's staff in basic operation and maintenance procedures of all	Sum	1		
X9	<b><u>Operation and Maintenance Manuals</u></b> 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 2.4: LWABENGE IN KALUNGU 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, not in trenches;	m	Rate Only		
2.2	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	OD790mm HDPE PN10	m	585		
	<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 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 2.4: LWABENGE IN KALUNGU 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	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.	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.	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>				
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	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	30		
<b>Total Carried to Collection</b>					<b>0</b>

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL LOWER REGIONS**

**Scheme ID. 2.4: LWABENGE IN KALUNGU 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> Not exceeding DN200mm	m	48		
12.3	<u>Pipe surrounds, of mass concrete, for the following pipe sizes</u> Not exceeding DN200mm	m	24		
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		
14	<b><u>Other Pipework Ancillaries</u></b> <b><i>Marker Posts</i></b> Marker posts for pipes, gate valves, air valves, washouts	nr	28		

**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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.4: LWABENGE IN KALUNGU DISTRICT**

**Region: Central**

**BILL No. 4.3 : 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>				
	<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		
	<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		
	<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.4: LWABENGE IN KALUNGU 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 and including 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> <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		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.4: LWABENGE IN KALUNGU 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> <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	254		
2.2	OD75mm PN10	m	140		
2.3	OD90mm PN10	m	134		
	<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 75mm	No.	1		
3.5	OD90 x 63mm	No.	2		
3.6	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>				
4.1	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.	4		

**Total Carried to Collection**

**BILL No.4 : DISTRIBUTION NETWORK**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.4: LWABENGE IN KALUNGU DISTRICT**

**Region: Central**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
6	<b>Valves and Penstocks</b> <b>Air Vaves</b> <u>Flanged CI double orifice air relief valve, DN50mm, as specified</u> <u>flanges to ISO 2441, complete with isolating gate valve to ISO 7259,</u> <u>flange adaptors, distance pieces, and all fittings necessary to make the</u> <u>installation on pipes of the following sizes, all to PN10, include chamber</u> <u>as specified.</u>				
6.1	OD75mm	No.	1		
7	<b>Washouts</b> <u>Washout as specified in the drawings, complete with plastic</u> <u>compression pipe fittings; tee, drainage pipes, PVC union ball valve,</u> <u>flap valve and all other fittings necessary to make the complete</u> <u>installation on pipes of the following sizes; all to PN10 including valve</u> <u>surface box and stone masonry outfall structure to detail as per</u> <u>Drawing No. OIS/NUC/SD/004.</u>				
7.1	DN75mm	No.	1		
7.2	DN65mm	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 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>Other Pipework Ancillaries</b>				
	<b>Marker Posts</b>				
9	Marker posts for pipes, gate valves, air valves, washouts	nr	20		
	<b>Reinstatement</b>				
	<b>Roads</b> <u>Breaking up, temporary and permanent reinstatement of gravel roads</u> <u>for the following pipe sizes</u>				
10	Not exceeding DN300mm	m	36		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.5: BUGERE IN MASAKA 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.5: BUGERE IN MASAKA 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>				
	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><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>					
<b>BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b>					
Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
	<b>Landscaping</b>				

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.5: BUGERE IN MASAKA DISTRICT**

**Region: Central**

4	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> <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 , maximum aggregate size ; 20mm for the following structures: -</u>					
5	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> <b>Pump Well/ Sump</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	Internal diameter ; 1200mm	Item	1		
<b>Concrete Inserts</b> <b>Cast or Spum Iron Pipe Fittings.</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>Total Carried to Collection</b>					<b>0</b>

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.5: BUGERE IN MASAKA 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>
	<b>Adaptors</b>				
9	Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:- 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 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>					<b>0</b>

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.5: BUGERE IN MASAKA DISTRICT**

**Region: Central**

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

Item	Description	Unit	Qty.	Rate (UGx.)	Amount
	<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 = 75m 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	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>					<b>0</b>

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.5: BUGERE IN MASAKA 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	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		
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><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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.5: BUGERE IN MASAKA 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	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		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 2.5: BUGERE IN MASAKA DISTRICT

Region: Central

**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>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 PN10	m	330		
	<b>PIPEWORK - FITTINGS AND VALVES</b>				
	<b>Cast or Spun Iron Pipe Fittings</b>				
	<b>Bends</b>				
	<u>Galvanized iron threaded socket 45° bends, to BS EN 10242:1995, all</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	DN65mm PN10	No.	1		
	<b>PN16 HDPE Compression fitting to DIN 8074/BS 5114</b>				
	<b>Equal Adapters</b>				
7.1	OD90 female adapter	No.	2		
	<b>Valves and Penstocks</b>				
	<b>Air Valves</b>				
	<u>Flanged CI double orifice air relief valve, DN50mm, as specified</u>				
8.1	DN75mm	No.	1		
<b>Total Carried to Collection</b>					



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 2.5: BUGERE IN MASAKA DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
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.				
	<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.	Rate Only		
	<b><u>Reinstatement Roads</u></b> 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> Pipe surrounds, of selected excavated granular material, for the following pipe sizes				
12.1	Not exceeding DN200mm	m	20		
	Pipe surrounds, of imported granular material, for the following pipe sizes				
12.2	Not exceeding DN200mm	m	20		
	Pipe surrounds, of mass concrete, for the following pipe sizes				
12.3	Not exceeding DN200mm	m	10		
<b>Total Carried to Collection</b>					



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 2.5: BUGERE IN MASAKA DISTRICT

Region: Central

**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</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>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/ 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>					<b>0</b>

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.5: BUGERE IN MASAKA DISTRICT**

**Region: Central**

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

Item	Description	Unit	Qty.	Rate (UGx.)	Amount
<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 and including 200mm thick murram fill.	No.	Rate Only		
<b>7</b>	<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> <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	Description	Unit	Qty.	Rate (UGx.)	Amount
	<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 2.5: BUGERE IN MASAKA DISTRICT

Region: Central

**BILL No.4 : DISTRIBUTION NETWORK**

Item	Description	Unit	Qty.	Rate (UGx.)	Amount
	<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> 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 PN10	m	330		
2.2	OD75mm PN10	m	100		
2.3	OD90mm PN10	m	372		
	<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 75mm	No.	1		
3.3	OD90 x 63mm	No.	6		
3.4	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.5: BUGERE IN MASAKA 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 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.				
6.1	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	32		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.6: KYOMYA IN MPIGI 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.6: KYOMYA IN MPIGI 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>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>				
3	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.	m <sup>3</sup>	10		
<b>Total Carried to Collection</b>					



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.6: KYOMYA IN MPIGI DISTRICT**

**Region: Central**

<b>BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b>					
<b>Item</b>	<b>Description</b>	<b>Unit</b>	<b>Qty.</b>	<b>Rate (UGx.)</b>	<b>Amount</b>
4	<b>Landscaping</b> Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.  <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 , maximum aggregate size ; 20mm for the following structures: -</u>	m <sup>2</sup>	40		
5	<b>Insitu Concrete</b> 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		
7	<b>Pre-cast Concrete</b> <b>Pump Well/ Sump</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. Internal diameter ; 1200mm	Item	1		
8	<b>Concrete Inserts</b> <b>Cast or Spun Iron Pipe Fittings.</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. 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.6: KYOMYA IN MPIGI 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>Adaptors</b>				
9	Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:- 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 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>					
	<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)				

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.6: KYOMYA IN MPIGI DISTRICT**

**Region: Central**

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 = 75m 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	175		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.6: KYOMYA IN MPIGI 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>
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	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		
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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.6: KYOMYA IN MPIGI 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 guage 500 polythene sheet.	m <sup>2</sup>	220		
	<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	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		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 2.6: KYOMYA IN MPIGI 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 PN10	m	422		
	<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	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>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 2.6: KYOMYA IN MPIGI 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	OD75 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</u>				
	<u>,flanges to ISO 2441, complete with isolating gate valve to ISO 7259,</u>				
	<u>flange adaptors, distance pieces, and all fittings necessary to make</u>				
	<u>the installation on pipes of the following sizes, all to PN10, include</u>				
	<u>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</u>				
	<u>compression pipe fittings; tee, drainage pipes, union ball valve, flap</u>				
	<u>valve, stone masonry outfall structure and all other fittings necessary to</u>				
	<u>make the complete installation on pipes of the following sizes; all to</u>				
	<u>PN10 including valve surface box to detail.</u>				
9.1	DN65mm	No.	4		
	<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</u>				
	<u>of the following depths</u>				
10.1	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</u>				
	<u>securely attached to main body of surface box by chain or bolt, include</u>				
	<u>down pipe, complete as specified and to the following depths</u>				
10.2	Depth not exceeding 1.5m	No.	4		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 2.6: KYOMYA IN MPIGI DISTRICT

Region: Central

**BILL No. 2 : TRANSMISSION MAINS**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
	<b><u>Reinstatement Roads</u></b>				
11	<u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u> Not exceeding DN300mm	m	Rate Only		
	<b><u>Surrounds</u></b>				
12.1	<u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u> Not exceeding DN200mm	m	10		
12.2	<u>Pipe surrounds, of imported granular material, for the following pipe sizes</u> Not exceeding DN200mm	m	40		
12.3	<u>Pipe surrounds, of mass concrete, for the following pipe sizes</u> Not exceeding DN200mm	m	24		
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> Diameter not exceeding DN200mm	No.	8		
	<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		

**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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 2.6: KYOMYA IN MPIGI DISTRICT

Region: Central

**BILL No. 4.3 : 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/ 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.	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]				
5.2	DN75mm, PN10	No.	1		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.6: KYOMYA IN MPIGI DISTRICT**  
**BILL No. 3 : STORAGE RESERVOIR WORKS**

**Region: Central**

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 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> <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		

**Total Carried to Collection**

**0**

**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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 2.6: KYOMYA IN MPIGI DISTRICT

Region: Central

**BILL No.4 : DISTRIBUTION NETWORK**

Item	Description	Unit	Qty.	Rate (UGx.)	Amount
<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> 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	320		
2.2	OD63mm PN10	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.	Rate Only		
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.	1		
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>				
4.1	OD90mm	No.	Rate Only		
4.2	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.6: KYOMYA IN MPIGI 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 Vaves</u></b>				
	<u>Flanged CI double orifice air relief valve, DN50mm, as specified</u>				
	<u>,flanges to ISO 2441, complete with isolating gate valve to ISO 7259,</u>				
	<u>flange adaptors, distance pieces, and all fittings necessary to make</u>				
	<u>the installation on pipes of the following sizes, all to PN10, include</u>				
	<u>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</u>				
	<u>compression pipe fittings; tee, drainage pipes, PVC union ball valve,</u>				
	<u>flap valve and all other fittings necessary to make the complete</u>				
	<u>installation on pipes of the following sizes; all to PN10 including valve</u>				
	<u>surface box and stone masonry outfall structure to detail as per</u>				
	<u>Drawing No. OIS/NUC/SD/004.</u>				
7.1	DN75mm	No.	Rate Only		
7.2	DN65mm	No.	Rate Only		
<b>8</b>	<b><u>Farm Gate Connections</u></b>				
	<u>Make DN50mm Irrigation Water Supply Hydrant connection to the</u>				
	<u>distribution main, inclusive of PVC compressive ball valve and end</u>				
	<u>cap complete with connector pipes and locakable chamber as detailed</u>				
	<u>on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all</u>				
	<u>to PN10: -</u>				
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	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>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.7: NALYAMAGONJA IN KALANGALA 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.7: NALYAMAGONJA IN KALANGALA 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>				
	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>	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		
	<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.7: NALYAMAGONJA IN KALANGALA DISTRICT**

**Region: Central**

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
4	<b>Landscaping</b> 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> <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 , maximum aggregate size ; 20mm for the following structures: -</u>				
5	<b>Insitu Concrete</b> 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> <b>Pump Well/ Sump</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	Internal diameter ; 1200mm	Item	1		
	<b>Concrete Inserts</b> <b>Cast or Spum Iron Pipe Fittings.</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>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.7: NALYAMAGONJA IN KALANGALA 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>
	<b>Adaptors</b>				
9	Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:- 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 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.7: NALYAMAGONJA IN KALANGALA 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 = 75m 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	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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.7: NALYAMAGONJA IN KALANGALA 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	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		
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><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>					
<b>BILL No.1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b>					
Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
	<b><u>Fences</u></b>				

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.7: NALYAMAGONJA IN KALANGALA DISTRICT**

**Region: Central**

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		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.7: NALYAMAGONJA IN KALANGALA 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	OD90mm HDPE PN10	m	750		
	<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>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</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 PN10	No.	1		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.7: NALYAMAGONJA IN KALANGALA 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</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.	1		
	<b><u>PIPEWORK-MANHOLE 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.	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>				
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	Not exceeding DN300mm	m	24		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.7: NALYAMAGONJA IN KALANGALA DISTRICT**

**Region: Central**

**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> Not exceeding DN200mm	m	40		
12.2	<u>Pipe surrounds, of imported granular material, for the following pipe sizes</u> Not exceeding DN200mm	m	70		
12.3	<u>Pipe surrounds, of mass concrete, for the following pipe sizes</u> Not exceeding DN200mm	m	36		
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> 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. 2 Carried to Bill Summary**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.7: NALYAMAGONJA IN KALANGALA DISTRICT**

**Region: Central**

**BILL No. 4.3 : 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; 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	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.7: NALYAMAGONJA IN KALANGALA 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> 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 PN10	m	148		
2.2	OD75mm PN10	m	400		
2.3	OD90mm PN10	m	35		
	<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.	3		
3.9	OD75 x 63mm, Bend	No.	1		
4.0	OD63mm, Bend	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	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.7: NALYAMAGONJA IN KALANGALA 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 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.				
6.1	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.				
7.1	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: -				
8.1	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	27		
	<b><u>Reinstatement</u></b>				
	<b><u>Roads</u></b>				
	Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes				
10	Not exceeding DN300mm	m	24		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.8: GAYAZA IN BUKOMANSIMBI 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.8: GAYAZA IN BUKOMANSIMBI 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, grubbing 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 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 murram.	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 2.8: GAYAZA IN BUKOMANSIMBI DISTRICT

Region: Central

**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 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>				
	<b>Formwork-Fair Finish</b>				
7.1	<b>Fair Finish Plane Horizontal</b> 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> 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		
	<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 2.8: GAYAZA IN BUKOMANSIMBI DISTRICT

Region: Central

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
	<b>Reinforcement</b>				
	<b><i>Deformed High Yield Steel</i></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 Spum 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 metres 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.8: GAYAZA IN BUKOMANSIMBI DISTRICT**

**Region: Central**

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
9.6	Penstocks; hand operated including head stock and distance spindle, as specified in drawings of the following size: - 300mm wide x 1000mm high.	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.	Rate Only		
	<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>ELECTRO-MECHANICAL WORKS</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 = 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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.8: GAYAZA IN BUKOMANSIMBI 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>
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	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		
	<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	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		
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		
<b>Total Carried to Collection</b>					



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.8: GAYAZA IN BUKOMANSIMBI DISTRICT**

**Region: Central**

**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 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><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	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>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 2.8: GAYAZA IN BUKOMANSIMBI DISTRICT

Region: Central

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
	<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				
	Page 8				

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

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 2.8: GAYAZA IN BUKOMANSIMBI 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	OD75mm HDPE PN10	m	720		
	<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	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	OD75 female adapter	No.	2		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 2.8: GAYAZA IN BUKOMANSIMBI 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.	2		
<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.	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: Lot 2 - WESTERN & CENTRAL LOWER REGIONS**

### Scheme ID. 2.8: GAYAZA IN BUKOMANSIMBI DISTRICT

Region: Central

## 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> Not exceeding DN200mm	m	70		
12.2	<u>Pipe surrounds, of imported granular material, for the following pipe sizes</u> Not exceeding DN200mm	m	80		
12.3	<u>Pipe surrounds, of mass concrete, for the following pipe sizes</u> Not exceeding DN200mm	m	24		
13	<b><u>Concrete Stools and Thrust Blocks</u></b>				
	<b><i>Thrust Blocks</i></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> 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	nr	25		

**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 9</p> <p align="center">Page 10</p> <p align="center">Page 11</p>				
<b>Total Bill No. 2 Carried to Bill Summary</b>					<b>0</b>

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 2.8: GAYAZA IN BUKOMANSIMBI DISTRICT

Region: Central

**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</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; 9.0m 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/ 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: Lot 2 - WESTERN & CENTRAL LOWER REGIONS**

### Scheme ID. 2.8: GAYAZA IN BUKOMANSIMBI 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 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>Provision and Placing of Concrete</b> <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.)
	<p align="center"><b>Bill No. 3 Collection</b></p> <p align="center">Page 12</p> <p align="center">Page 13</p>				
<b>Total Bill No. 3 Carried to Bill Summary</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 2.8: GAYAZA IN BUKOMANSIMBI 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> 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	OD75mm PN10	m	1,200		
2.2	OD90mm PN10	m	680		
	<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.	4		
	<b><u>Unequal tees</u></b>				
3.3	OD90 x 75mm	No.	Rate Only		
3.4	OD90 x 63mm	No.	Rate Only		
3.5	OD75 x 63mm	No.	8		
	<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.	2		
5.2	OD75mm	No.	2		
<b>Total Carried to Collection</b>					



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.8: GAYAZA IN BUKOMANSIMBI 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 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.				
6.1	OD90mm	No.	2		
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	DN65mm	No.	6		
<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.	16		
	<b><u>Other Pipework Ancillaries</u></b>				
	<b><u>Marker Posts</u></b>				
9	Marker posts for pipes, gate valves, air valves, washouts	nr	75		
<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>					<b>0</b>

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.9: KYAWAMALA IN BUKOMANSIMBI 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.9: KYAWAMALA IN BUKOMANSIMBI 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>	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.9: KYAWAMALA IN BUKOMANSIMBI DISTRICT**

**Region: Central**

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
4	<b>Landscaping</b> 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> <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 , maximum aggregate size : 20mm for the following structures: -</u>				
5	<b>In situ Concrete</b> 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> <b>Pump Well/ Sump</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	Internal diameter ; 1200mm	Item	1		
	<b>Concrete Inserts</b> <b>Cast or Spun Iron Pipe Fittings.</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>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.9: KYAWAMALA IN BUKOMANSIMBI 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>
	<b>Adaptors</b>				
9	Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:- 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, 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>					<b>0</b>

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.9: KYAWAMALA IN BUKOMANSIMBI 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 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 Aarray in Item 2 above as per drawings, including foundations, vandal proofing mounting to the Engineer's approval	Sum	1		
ME4	PV Disconnect 1000-40-1	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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.9: KYAWAMALA IN BUKOMANSIMBI 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	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		
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>	135		
X4	450mm diameter reinforced concrete pipe/ culvert	m	0		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.9: KYAWAMALA IN BUKOMANSIMBI 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>
	<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	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		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 2.9: KYAWAMALA IN BUKOMANSIMBI 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	OD75mm HDPE PN10	m	480		
	<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>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 2.9: KYAWAMALA IN BUKOMANSIMBI 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	OD75 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.				
8.1	DN65mm	No.	Rate Only		
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.	Rate Only		
	<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.	Rate Only		
	<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.9: KYAWAMALA IN BUKOMANSIMBI DISTRICT**

**Region: Central**

**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> Not exceeding DN200mm	m	14		
12.2	<u>Pipe surrounds, of imported granular material, for the following pipe sizes</u> Not exceeding DN200mm	m	30		
12.3	<u>Pipe surrounds, of mass concrete, for the following pipe sizes</u> Not exceeding DN200mm	m	2		
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> 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>					
	<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.9: KYAWAMALA IN BUKOMANSIMBI DISTRICT**

**Region: Central**

**BILL No. 4.3 : 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.				
2.4	Height; 9.0m 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/ 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.9: KYAWAMALA IN BUKOMANSIMBI 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 and including 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> <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		
<b>Total Carried to Collection</b>					
<b>BILL No. 3 : STORAGE RESERVOIR WORKS</b>					
Item	Description	Unit	Qty.	Rate (UGx.)	Amount
	<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 2.9: KYAWAMALA IN BUKOMANSIMBI 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><i>Plastic Pressure Pipes- Distribution</i></b> 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	212		
2.2	OD75mm PN10	m	132		
2.3	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.	Rate Only		
3.2	OD75mm	No.	1		
	<b><u>Unequal tees</u></b>				
3.3	OD90 x 75mm	No.	2		
3.4	OD90 x 63mm	No.	3		
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>				
4.2	OD90mm	No.	Rate Only		
4.3	OD75mm	No.	Rate Only		
5	<b><u>End caps</u></b>				
5.1	OD63mm	No.	11		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 2.9: KYAWAMALA IN BUKOMANSIMBI 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 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.				
6.1	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.	3		
7.2	DN65mm	No.	2		
7.3	DN50mm	No.	3		
<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.	12		
	<b><u>Other Pipework Ancillaries</u></b>				
	<b><u>Marker Posts</u></b>				
9	Marker posts for pipes, gate valves, air valves, washouts	nr	68		
	<b><u>Reinstatement</u></b>				
	<b><u>Roads</u></b>				
	Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes				
10	Not exceeding DN300mm	m	24		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.1: KIKUTSI IN ISINGIRO DISTRICT  
BILL SUMMARY**

**Region: West**

<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.1: KIKUTSI IN ISINGIRO DISTRICT**

**Region: West**

**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>				
	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.1: KIKUTSI IN ISINGIRO DISTRICT**

**Region: West**

<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>
4	<b>Landscaping</b> Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.  <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 , maximum aggregate size ; 20mm for the following structures: -</u>	m <sup>2</sup>	40		
5	<b>Insitu Concrete</b> 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		
7	<b>Pre-cast Concrete</b> <b>Pump Well/ Sump</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.  Internal diameter ; 1200mm	Item	1		
8	<b>Concrete Inserts</b> <b>Cast or Spun Iron Pipe Fittings.</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.  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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.1: KIKUTSI IN ISINGIRO DISTRICT**

**Region: West**

<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>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 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.1: KIKUTSI IN ISINGIRO DISTRICT**

**Region: West**

**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	9.2kW Submersible Pump Set with 11.0kW Pumping Inverter with Data Module, rated flow Q = 15 m <sup>3</sup> /hr., rated head H = 140m 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	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		
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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.1: KIKUTSI IN ISINGIRO DISTRICT**

**Region: West**

**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>
	<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	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		
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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.1: KIKUTSI IN ISINGIRO DISTRICT**

**Region: West**

**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>
	<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	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	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 3.1: KIKUTSI IN ISINGIRO DISTRICT

Region: West

**BILL No. 2 : TRANSMISSION MAINS**

Item	Description	Unit	Qty.	Rate (UGx.)	Amount
	<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	1,150		
	<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 3.1: KIKUTSI IN ISINGIRO DISTRICT

Region: West

**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.	1		
	<b><u>PIPEWORK-MANHOLE 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>				
1.01	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>				
10.2	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		
<b>Total Carried to Collection</b>					



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 3.1: KIKUTSI IN ISINGIRO DISTRICT

Region: West

**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> Not exceeding DN200mm	m	30		
12.3	<u>Pipe surrounds, of mass concrete, for the following pipe sizes</u> Not exceeding DN200mm	m	2		
13	<b><u>Concrete Stools and Thrust Blocks</u></b>				
	<b><i>Thrust Blocks</i></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> Diameter not exceeding DN200mm	No.	2		
	<b><u>Other Pipework Ancillaries</u></b>				
	<b><i>Marker Posts</i></b>				
14	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>				
	Page 8				
	Page 9				
	Page 10				

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

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.1: KIKUTSI IN ISINGIRO DISTRICT  
BILL No. 4.3 : STORAGE RESERVOIR WORKS**

**Region: West**

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; 1.0m 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/ 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.1: KIKUTSI IN ISINGIRO DISTRICT**

**Region: West**

**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 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> <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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 3.1: KIKUTSI IN ISINGIRO DISTRICT

Region: West

**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, grubbing tree stumps and disposal of arising materials.	Item	1		
	<b><u>PIPEWORK-PIPES</u></b>				
2	<b><u>Plastic Pressure Pipes- Distribution</u></b> 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 PN10	m	983		
2.2	OD63mm PN16	m	Rate Only		
2.3	OD75mm PN10	m	943		
2.4	OD75mm PN16	m	Rate Only		
	<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>				
3.3	OD75 x 63mm	No.	10		
	<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.	6		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.1: KIKUTSI IN ISINGIRO DISTRICT**

**Region: West**

**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 Vaves</u></b>				
	<u>Flanged CI double orifice air relief valve, DN50mm, as specified</u>				
	<u>,flanges to ISO 2441, complete with isolating gate valve to ISO 7259,</u>				
	<u>flange adaptors, distance pieces, and all fittings necessary to make</u>				
	<u>the installation on pipes of the following sizes, all to PN10, include</u>				
	<u>chamber as specified.</u>				
6.1	OD75mm	No.	1		
<b>7</b>	<b><u>Washouts</u></b>				
	<u>Washout as specified in the drawings, complete with plastic</u>				
	<u>compression pipe fittings; tee, drainage pipes, PVC union ball valve,</u>				
	<u>flap valve and all other fittings necessary to make the complete</u>				
	<u>installation on pipes of the following sizes; all to PN10 including valve</u>				
	<u>surface box and stone masonry outfall structure to detail as per</u>				
	<u>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</u>				
	<u>distribution main, inclusive of PVC compressive ball valve and end</u>				
	<u>cap complete with connector pipes and locakable chamber as detailed</u>				
	<u>on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all</u>				
	<u>to PN10: -</u>				
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	22		
<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: Lot 2 - WESTERN & CENTRAL LOWER REGIONS**

**Scheme ID. 3.2: KIKATSI IN KIRUHURA DISTRICT**  
**BILL SUMMARY**

**Region: West**

<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: Lot 2 - WESTERN & CENTRAL LOWER REGIONS**

**Scheme ID. 3.2: KIKATSI IN KIRUHURA DISTRICT**

**Region: West**

**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>	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		
	<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><u>Landscaping</u></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: Lot 2 - WESTERN & CENTRAL LOWER REGIONS**

**Scheme ID. 3.2: KIKATSI IN KIRUHURA DISTRICT**

**Region: West**

<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>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 , maximum aggregate size ; 20mm for the following structures: -</u>  <b>In situ Concrete</b>				
5	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> <b>Pump Well/ Sump</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	Internal diameter ; 1200mm	Item	1		
	<b>Concrete Inserts</b> <b>Cast or Spun Iron Pipe Fittings.</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>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>Total Carried to Collection</b>					



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL LOWER REGIONS**

**Scheme ID. 3.2: KIKATSI IN KIRUHURA DISTRICT**

**Region: West**

<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>
11	<b>Bellmouths</b> 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 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: Lot 2 - WESTERN & CENTRAL LOWER REGIONS**

**Scheme ID. 3.2: KIKATSI IN KIRUHURA DISTRICT**

**Region: West**

**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	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	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><u>Earthing and Lightening Protection</u></b>				
ME13	Earthing at solar array and borehole installation by 16mm2 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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL LOWER REGIONS**

**Scheme ID. 3.2: KIKATSI IN KIRUHURA DISTRICT**

**Region: West**

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
ME14	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		
ME15	60W Solar security light and battery complete with 6m steel pole and lockable battery box	No.	5		
ME16	<b>Alarm System</b> 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> <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><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: Lot 2 - WESTERN & CENTRAL LOWER REGIONS**

Scheme ID. 3.2: KIKATSI IN KIRUHURA DISTRICT

Region: West

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
	<b>Fences</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	10		
	<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	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		
<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: Lot 2 - WESTERN & CENTRAL LOWER REGIONS**

Scheme ID. 3.2: KIKATSI IN KIRUHURA DISTRICT

Region: West

**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	OD90mm HDPE PN10	m	860		
	<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, toBS EN 10242:1995, all to PN				
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><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>				
	Flanged CI double orifice air relief valve, DN50mm, as specified ,flanges to ISO				
8.1	DN75mm	No.	2		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL LOWER REGIONS**

Scheme ID. 3.2: KIKATSI IN KIRUHURA DISTRICT

Region: West

**BILL No. 2 : TRANSMISSION MAINS**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
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.	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.	1		
	<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	60		
	<u>Pipe surrounds, of mass concrete, for the following pipe sizes</u>				
12.3	Not exceeding DN200mm	m	40		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL LOWER REGIONS**

Scheme ID. 3.2: KIKATSI IN KIRUHURA DISTRICT

Region: West

**BILL No. 2 : TRANSMISSION MAINS**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
	<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				
13.1	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	nr	20		
	<b><u>Reinstatement Roads</u></b>				
	Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes				
11	Not exceeding DN300mm	m	24		

**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: Lot 2 - WESTERN & CENTRAL LOWER REGIONS**

Scheme ID. 3.2: KIKATSI IN KIRUHURA DISTRICT

Region: West

**BILL No. 4.3 : 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; 9.0m 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/ 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	DN65mm, 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]				
5.3	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: Lot 2 - WESTERN & CENTRAL LOWER REGIONS**

**Scheme ID. 3.2: KIKATSI IN KIRUHURA DISTRICT**

**Region: West**

**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 and including 200mm thick murram fill.	No.	Rate Only		
<b>7</b>	<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> <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: Lot 2 - WESTERN & CENTRAL LOWER REGIONS**

Scheme ID. 3.2: KIKATSI IN KIRUHURA DISTRICT

Region: West

**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> 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	1,170		
2.2	OD90mm PN10	m	648		
	<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.	1		
	<b><u>Unequal tees</u></b>				
3.3	OD90 x 75mm	No.	Rate Only		
3.4	OD90 x 63mm	No.	Rate Only		
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>				
4.2	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.	8		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL LOWER REGIONS**

Scheme ID. 3.2: KIKATSI IN KIRUHURA DISTRICT

Region: West

**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 Vaves</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	OD75mm	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.	3		
7.2	DN50mm	No.	3		
<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 locakable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -</u>				
8.1	DN50mm	No.	8		
	<b><u>Other Pipework Ancillaries</u></b> <b><u>Marker Posts</u></b>				
9	Marker posts for pipes, gate valves, air valves, washouts	nr	64		
	<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>				
10	Not exceeding DN300mm	m	24		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.3: RWENTAMU IN LYANTONDE DISTRICT**

**Region: West**

**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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.3: RWENTAMU IN LYANTONDE DISTRICT**

**Region: West**

**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>
	<b><u>General Site Clearance</u></b>				
1	General site clearance, felling trees, grubbing 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>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><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 Drawings	Item	1		
	<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><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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.3: RWENTAMU IN LYANTONDE DISTRICT**

**Region: West**

**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 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	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	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><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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.3: RWENTAMU IN LYANTONDE DISTRICT**

**Region: West**

**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>
ME14	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		
ME15	60W Solar security light and battery complete with 6m steel pole and lockable battery box	No.	5		
ME16	<b>Alarm System</b> 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> <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><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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.3: RWENTAMU IN LYANTONDE DISTRICT**

**Region: West**

**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	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		
<b>Total Carried to Collection</b>					
<b>BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b>					
Item	Description				Amount
	<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 3.3: RWENTAMU IN LYANTONDE DISTRICT

Region: West

**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>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>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 PN10	m	830		
	<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		
	<b>PN16 HDPE Compression fitting to DIN 8074/BS 5114</b>				
7	<b>Equal Adapters</b>				
7.1	OD75 female adapter	No.	2		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.3: RWENTAMU IN LYANTONDE DISTRICT**

**Region: West**

**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</u>				
	<u>,flanges to ISO 2441, complete with isolating gate valve to ISO 7259,</u>				
	<u>flange adaptors, distance pieces, and all fittings necessary to make</u>				
	<u>the installation on pipes of the following sizes, all to PN10, include</u>				
	<u>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</u>				
	<u>compression pipe fittings; tee, drainage pipes, union ball valve, flap</u>				
	<u>valve, stone masonry outfall structure and all other fittings necessary to</u>				
	<u>make the complete installation on pipes of the following sizes; all to</u>				
	<u>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</u>				
	<u>of the following depths</u>				
10.1	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</u>				
	<u>securely attached to main body of surface box by chain or bolt, include</u>				
	<u>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</u>				
	<u>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</u>				
	<u>following pipe sizes</u>				
12.1	Not exceeding DN200mm	m	14		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.3: RWENTAMU IN LYANTONDE DISTRICT**

**Region: West**

**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> Not exceeding DN200mm	m	30		
12.3	<u>Pipe surrounds, of mass concrete, for the following pipe sizes</u> Not exceeding DN200mm	m	35		
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> 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	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 6				
	Page 7				
	Page 8				

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

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.3: RWENTAMU IN LYANTONDE DISTRICT**

**Region: West**

**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</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; 9.0m 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/ 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	DN65mm, 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]				
5.3	DN65mm, PN10	No.	1		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.3: RWENTAMU IN LYANTONDE DISTRICT**

**Region: West**

**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 and including 200mm thick murram fill.	No.	Rate Only		
<b>7</b>	<b><u>Fences</u></b>				
7.1	Galvanised 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	No.	1		
	<b><u>Provision and Placing of Concrete</u></b> <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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 3.3: RWENTAMU IN LYANTONDE DISTRICT

Region: West

**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> 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	1363		
2.2	OD75mm PN10	m	360		
	<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.	1		
	<b><u>Unequal tees</u></b>				
3.2	OD75 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	OD75mm	No.	Rate Only		
4.2	OD63mm	No.	Rate Only		
5	<b><u>End caps</u></b>				
5.1	OD75mm	No.	Rate Only		
5.2	OD63mm	No.	10		
<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> <b><u>Air Vaves</u></b>				

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.3: RWENTAMU IN LYANTONDE DISTRICT**

**Region: West**

6.1	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. OD75mm	No.	2		
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.	No.	3		
7.1	DN65mm	No.	Rate Only		
7.2	DN50mm	No.			
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 locakable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -				
8.1	DN50mm	No.	10		
	<b>Other Pipework Ancillaries</b>				
	<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 11				
	Page 12				
<b>Total Bill No. 4 Carried to Bill Summary</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.4: MIRAMA IN NTUNGAMO DISTRICT**

**Region: West**

**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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.4: MIRAMA IN NTUNGAMO DISTRICT**

**Region: West**

<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 murram.	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 3.4: MIRAMA IN NTUNGAMO DISTRICT

Region: West

**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 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>				
	<b>Formwork-Fair Finish</b>				
7.1	<b>Fair Finish Plane Horizontal</b> 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> 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		
	<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.4: MIRAMA IN NTUNGAMO DISTRICT**

**Region: West**

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
8.1	<b>Reinforcement</b> <b>Deformed High Yield Steel</b> <u>High yield square twisted bars to BS 4449 and of the following sizes</u> Nominal size, 12mm	t	1.2		
8.2	<b>Inserts</b> 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> <b>Cast or Spum Iron Pipe Fittings.</b>  <b>Flanged Reducers</b> DN250 x 150mm	No.	Rate Only		
9.2	<b>Flange Adaptors</b> 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> <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> DN 250 mm	No.	Rate Only		
9.4	<b>End Caps</b> DN250mm flanged end cap.	No.	Rate Only		
9.5	<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 metres long, and of the following sizes:-</u> 150 mm ND	No.	Rate Only		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.4: MIRAMA IN NTUNGAMO DISTRICT**

**Region: West**

**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> 300mm wide x 1000mm high.	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.	Rate Only		
	<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 7.5kW Pumping Inverter with Data Module, rated flow Q = 15 m <sup>3</sup> /hr., rated head H = 75m total head; set to not more than <u>5m</u> 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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.4: MIRAMA IN NTUNGAMO DISTRICT**

**Region: West**

**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 Aarray in Item 2 above as per drawings, including foundations, vandal proofing mounting to the Engineer's approval	Sum	1		
ME4	PV Disconnect 1000-40-1	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	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	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><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	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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.4: MIRAMA IN NTUNGAMO DISTRICT**

**Region: West**

**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>
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>	135		
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	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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.4: MIRAMA IN NTUNGAMO DISTRICT**

**Region: West**

**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>
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>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**

<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				

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

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 3.4: MIRAMA IN NTUNGAMO DISTRICT

Region: West

**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	OD63mm HDPE PN10	m	Rate Only		
3.2	OD75mm HDPE PN10	m	595		
3.3	OD90mm HDPE PN10	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, 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 3.4: MIRAMA IN NTUNGAMO DISTRICT

Region: West

**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.	Rate Only		
	<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>					
<b>BILL No. 2 : TRANSMISSION MAINS</b>					
Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
	<b><u>Surrounds</u></b>				
	Pipe surrounds, of selected excavated granular material, for the following pipe sizes				

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.4: MIRAMA IN NTUNGAMO DISTRICT**

**Region: West**

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><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.	2		
	<b><u>Other Pipework Ancillaries</u></b>				
	<b><i>Marker Posts</i></b>				
14	Marker posts for pipes, gate valves, air valves, washouts	nr	20		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.4: MIRAMA IN NTUNGAMO DISTRICT**

**Region: West**

**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</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; 9.0m 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/ 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]				
5.3	DN65mm, PN10	No.	1		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.4: MIRAMA IN NTUNGAMO DISTRICT**

**Region: West**

**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 and including 200mm thick murram fill.	No.	Rate Only		
<b>7</b>	<b><u>Fences</u></b>				
7.1	Galvanised 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> <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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.4: MIRAMA IN NTUNGAMO DISTRICT**

**Region: West**

**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, grubbing tree stumps and disposal of arising materials.	Item	1		
	<b><u>PIPEWORK-PIPES</u></b>				
2	<b><u>Plastic Pressure Pipes- Distribution</u></b> 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 PN10	m	460		
2.2	OD75mm PN10	m	498		
	<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.	4		
	<b><u>Unequal tees</u></b>				
3.2	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>				
4.1	OD75mm	No.	Rate Only		
4.2	OD63mm	No.	Rate Only		
5	<b><u>End caps</u></b>				
5.1	OD63mm	No.	12		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.4: MIRAMA IN NTUNGAMO DISTRICT**

**Region: West**

**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 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.				
6.1	OD75mm	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	DN65mm	No.	3		
7.2	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	DN50mm	No.	12		
	<b><u>Other Pipework Ancillaries</u></b>				
	<b><u>Marker Posts</u></b>				
9	Marker posts for pipes, gate valves, air valves, washouts	nr	24		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.5: KANYOGOGA IN SEMBABULE DISTRICT**

**Region: West**

**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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.5: KANYOGOGA IN SEMBABULE DISTRICT**

**Region: West**

**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>	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><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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.5: KANYOGOGA IN SEMBABULE DISTRICT**

**Region: West**

<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>
4	<b>Landscaping</b> Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.  <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 , maximum aggregate size : 20mm for the following structures: -</u>	m <sup>2</sup>	40		
5	<b>Insitu Concrete</b> 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		
7	<b>Pre-cast Concrete</b> <b>Pump Well/ Sump</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.  Internal diameter ; 1200mm	Item	1		
8	<b>Concrete Inserts</b> <b>Cast or Spum Iron Pipe Fittings.</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.  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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.5: KANYOGOGA IN SEMBABULE DISTRICT**

**Region: West**

<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>Adaptors</b>				
9	Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:- 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 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.5: KANYOGOGA IN SEMBABULE DISTRICT**

**Region: West**

<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><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 = 75m 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 Aarray in Item 2 above as per drawings, including foundations, vandal proofing mounting to the Engineer's approval	Sum	1		
ME4	PV Disconnect 1000-40-1	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	6mm <sup>2</sup> Borehole drop cable,	m	5		
ME10	6mm <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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.5: KANYOGOGA IN SEMBABULE DISTRICT**

**Region: West**

**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>
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 Lightning 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	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		
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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.5: KANYOGOGA IN SEMBABULE DISTRICT**

**Region: West**

**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 guage 500 polythene sheet.	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><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		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 3.5: KANYOGOGA IN SEMBABULE DISTRICT

Region: West

**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	370		
	<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</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><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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.5: KANYOGOGA IN SEMBABULE DISTRICT**

**Region: West**

**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>				
8.1	Flanged CI double orifice air relief valve, DN50mm, as specified DN65mm	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	DN65mm	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><u>Roads</u></b>				
	Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes				
11	Not exceeding DN300mm	m	48		
	<b><u>Surrounds</u></b>				
	Pipe surrounds, of selected excavated granular material, for the following pipe sizes				
12.1	Not exceeding DN200mm	m	12		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.5: KANYOGOGA IN SEMBABULE DISTRICT**

**Region: West**

**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> Not exceeding DN200mm	m	60		
12.3	<u>Pipe surrounds, of mass concrete, for the following pipe sizes</u> Not exceeding DN200mm	m	25		
13	<b><u>Concrete Stools and Thrust Blocks</u></b>				
	<b><i>Thrust Blocks</i></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> 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	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>				
	Page 8				
	Page 9				
	Page 10				

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



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.5: KANYOGOGA IN SEMBABULE DISTRICT**

**Region: West**

**BILL No. 4.3 : 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; 9.0m 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/ 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	DN65mm, 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	DN65mm, PN10	No.	1		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.5: KANYOGOGA IN SEMBABULE DISTRICT**

**Region: West**

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

Item	Description	Unit	Qty.	Rate (UGx.)	Amount
<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 and including 200mm thick murram fill.	No.	Rate Only		
<b>7</b>	<b>Fences</b>				
7.1	Galvanised 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 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 3.5: KANYOGOGA IN SEMBABULE DISTRICT

Region: West

**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> 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	398		
2.2	OD75mm PN10	m	495		
	<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.	6		
3.2	OD63mm	No.	2		
	<b><u>Unequal tees</u></b>				
3.3	OD75 x 63mm	No.	8		
	<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.	10		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.5: KANYOGOGA IN SEMBABULE DISTRICT**

**Region: West**

**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 Vaves</u></b>				
	<u>Flanged CI double orifice air relief valve, DN50mm, as specified</u>				
	<u>,flanges to ISO 2441, complete with isolating gate valve to ISO 7259,</u>				
	<u>flange adaptors, distance pieces, and all fittings necessary to make</u>				
	<u>the installation on pipes of the following sizes, all to PN10, include</u>				
	<u>chamber as specified.</u>				
6.1	OD75mm	No.	2		
<b>7</b>	<b><u>Washouts</u></b>				
	<u>Washout as specified in the drawings, complete with plastic</u>				
	<u>compression pipe fittings; tee, drainage pipes, PVC union ball valve,</u>				
	<u>flap valve and all other fittings necessary to make the complete</u>				
	<u>installation on pipes of the following sizes; all to PN10 including valve</u>				
	<u>surface box and stone masonry outfall structure to detail as per</u>				
	<u>Drawing No. OIS/NUC/SD/004.</u>				
7.1	DN65mm	No.	4		
<b>8</b>	<b><u>Farm Gate Connections</u></b>				
	<u>Make DN50mm Irrigation Water Supply Hydrant connection to the</u>				
	<u>distribution main, inclusive of PVC compressive ball valve and end</u>				
	<u>cap complete with connector pipes and locakable chamber as detailed</u>				
	<u>on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all</u>				
	<u>to PN10: -</u>				
8.1	DN50mm	No.	10		
	<b><u>Other Pipework Ancillaries</u></b>				
	<b><u>Marker Posts</u></b>				
9	Marker posts for pipes, gate valves, air valves, washouts	nr	22		
	<b><u>Reinstatement</u></b>				
	<b><u>Roads</u></b>				
	<u>Breaking up, temporary and permanent reinstatement of gravel roads</u>				
	<u>for the following pipe sizes</u>				
10	Not exceeding DN300mm	m	48		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.6: RURAMA IN SHEEMA DISTRICT**

**Region: West**

**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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.6: RURAMA IN SHEEMA DISTRICT**

**Region: West**

**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; 240m <sup>2</sup> at Intake Site and 800m <sup>2</sup> at Pump Station.	m <sup>2</sup>	1,050		
3	Reinforced concrete pipe support/ pedestal to detail as per Drawings	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>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><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 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 Aarray 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.6: RURAMA IN SHEEMA DISTRICT**

**Region: West**

**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-	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		
<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	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		
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>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.6: RURAMA IN SHEEMA DISTRICT**

**Region: West**

**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	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>				
	<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 guage 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	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		
<b>Total Carried to Collection</b>					



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL LOWER REGIONS**

### Scheme ID. 3.6: RURAMA IN SHEEMA DISTRICT

Region: West

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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 3.6: RURAMA IN SHEEMA DISTRICT

Region: West

**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	430		
	<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	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	OD75 female adapter	No.	2		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 3.6: RURAMA IN SHEEMA DISTRICT

Region: West

**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.	2		
<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.	4		
	<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.	3		
	<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.	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><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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 3.6: RURAMA IN SHEEMA DISTRICT

Region: West

**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> Not exceeding DN200mm	m	30		
12.3	<u>Pipe surrounds, of mass concrete, for the following pipe sizes</u> Not exceeding DN200mm	m	2		
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> Diameter not exceeding DN200mm	No.	2		
14	<b><u>Other Pipework Ancillaries</u></b> <b><i>Marker Posts</i></b> 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>  Page 6  Page 7  Page 8				

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

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 3.6: RURAMA IN SHEEMA DISTRICT

Region: West

**BILL No. 4.3 : 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; 9.0m 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/ 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.6: RURAMA IN SHEEMA DISTRICT**

**Region: West**

**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 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	No.	1		
	<b>Provision and Placing of Concrete</b> <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 : STORAGE RESERVOIR WORKS</b>					
Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
	<b>Bill No. 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 3.6: RURAMA IN SHEEMA DISTRICT

Region: West

**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> 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	446		
2.2	OD75mm PN10	m	642		
	<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>				
3.4	OD63mm	No.	4		
	<b><u>Unequal tees</u></b>				
3.7	OD75 x 63mm	No.	7		
	<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>				
5.3	OD75mm	No.	Rate Only		
5.4	OD63mm	No.	9		
6	<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.				
6.3	OD75mm	No.	2		
<b>Total Carried to Collection</b>					
<b>BILL No.4 : DISTRIBUTION NETWORK</b>					
Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
7	<b><u>Washouts</u></b>				

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 3.6: RURAMA IN SHEEMA DISTRICT**

**Region: West**

7.1	DN65mm	No.	4		
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 locakable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -				
8.1	DN50mm	No.	10		
	<b>Other Pipework Ancillaries</b>				
	<b>Marker Posts</b>				
9	Marker posts for pipes, gate valves, air valves, washouts	nr	34		
<b>Total Carried to Collection</b>					<b>0</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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.1: KABUMBA IN KABALE DISTRICT  
BILL SUMMARY**

**Region: West**

<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.1: KABUMBA IN KABALE DISTRICT**

**Region: West**

<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			
	<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>			
2.2	Ditto but for the Intake Structure	m <sup>3</sup>			
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>			
	<b><u>Filling Structures</u></b>				
	<b><u>Filling to precast concrete sump structure by methods specified and to depths as shown in the drawings with the following materials: -</u></b>				
3.1	Imported rock/ hardcore fill, size 75 to 300mm hand packed or compacted by the arm of an excavator.	m <sup>3</sup>			
3.2	Imported murram.	m <sup>3</sup>			
4	Single layer of geotextile laid to manufacturer's specifications	m <sup>2</sup>			
	<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>			
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 4.1: KABUMBA IN KABALE DISTRICT

Region: West

**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 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>				
	<b>Formwork-Fair Finish</b>				
7.1	<b>Fair Finish Plane Horizontal</b> 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> 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		
	<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.1: KABUMBA IN KABALE DISTRICT**

**Region: West**

**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>
8.1	<b>Reinforcement</b> <b>Deformed High Yield Steel</b> <u>High yield square twisted bars to BS 4449 and of the following sizes</u> Nominal size, 12mm	t	1.2		
8.2	<b>Inserts</b> 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> <b>Cast or Spum Iron Pipe Fittings.</b>  <b>Flanged Reducers</b> DN250 x 150mm	No.	Rate Only		
9.2	<b>Flange Adaptors</b> 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> <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> DN 250 mm	No.	Rate Only		
9.4	<b>End Caps</b> DN250mm flanged end cap.	No.	Rate Only		
9.5	<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 metres long, and of the following sizes:-</u> 150 mm ND	No.	Rate Only		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.1: KABUMBA IN KABALE DISTRICT**

**Region: West**

**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.	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.	Rate Only		
	<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>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	15.0kW Submersible Pump Set with 18.0kW Pumping Inverter with Data Module, rated flow Q = 20 m <sup>3</sup> /hr., rated head H = 140m total head; set to not more than <u>5m</u> below ground including Dry- run protection, Motor and Pump End.	No.	1		
ME2	3x17No. 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 3x17No. 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.1: KABUMBA IN KABALE DISTRICT**

**Region: West**

**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 1000-40-5	No.	1		
ME4	PV Disconnect 1000-40-3	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 - SWAP0035D.	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	90		
ME11	Wire kit array from solar array to controller with MC4 connectors	No.	3		
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	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		
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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.1: KABUMBA IN KABALE DISTRICT**

**Region: West**

**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>
ME16	<b>Alarm System</b> 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	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 Solar Array laid onto a guage 500 polythene sheet.	m <sup>2</sup>	295		
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	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>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.1: KABUMBA IN KABALE DISTRICT**

**Region: West**

<b>BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b>					
<b>Item No.</b>	<b>Description</b>				<b>Amount (UGx.)</b>
	<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 : 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 4.1: KABUMBA IN KABALE DISTRICT

Region: West

**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	Rate Only		
3.2	OD90mm HDPE PN16	m	555		
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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 4.1: KABUMBA IN KABALE DISTRICT

Region: West

**BILL No. 2 : TRANSMISSION MAINS**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
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	DN75mm PN10	No.	1		
	<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.	2		
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.	3		
	<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.	3		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 4.1: KABUMBA IN KABALE DISTRICT

Region: West

**BILL No. 2 : TRANSMISSION MAINS**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
10.2	<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>  Depth not exceeding 1.5m	No.	3		
11	<b><u>Reinstatement Roads</u></b> <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u> Not exceeding DN300mm	m	24		
12.1	<b><u>Surrounds</u></b> <u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u> Not exceeding DN200mm	m	30		
12.2	<u>Pipe surrounds, of imported granular material, for the following pipe sizes</u> Not exceeding DN200mm	m	30		
12.3	<u>Pipe surrounds, of mass concrete, for the following pipe sizes</u> Not exceeding DN200mm	m	40		
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> Diameter not exceeding DN200mm	No.	Rate Only		
14	<b><u>Other Pipework Ancillaries</u></b> <b><u>Marker Posts</u></b> Marker posts for pipes, gate valves, air valves, washouts	nr	20		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.1: KABUMBA IN KABALE DISTRICT**

**Region: West**

**BILL No. 4.3 : 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; 1.0m 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/ 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	DN65mm, 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	DN65mm, PN10	No.	1		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.1: KABUMBA IN KABALE DISTRICT**

**Region: West**

**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 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> <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 13				
	Page 14				

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

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 4.1: KABUMBA IN KABALE DISTRICT

Region: West

**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> 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 PN10	m	220		
2.2	OD75mm PN16	m	415		
	<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.	4		
	<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	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.	6		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.1: KABUMBA IN KABALE DISTRICT**

**Region: West**

**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 Vaves</u></b>				
	<u>Flanged CI double orifice air relief valve, DN50mm, as specified</u>				
	<u>,flanges to ISO 2441, complete with isolating gate valve to ISO 7259,</u>				
	<u>flange adaptors, distance pieces, and all fittings necessary to make</u>				
	<u>the installation on pipes of the following sizes, all to PN10, include</u>				
	<u>chamber as specified.</u>				
6.3	OD75mm	No.	Rate Only		
6.4	OD63mm	No.	Rate Only		
<b>7</b>	<b><u>Washouts</u></b>				
	<u>Washout as specified in the drawings, complete with plastic</u>				
	<u>compression pipe fittings; tee, drainage pipes, PVC union ball valve,</u>				
	<u>flap valve and all other fittings necessary to make the complete</u>				
	<u>installation on pipes of the following sizes; all to PN10 including valve</u>				
	<u>surface box and stone masonry outfall structure to detail as per</u>				
	<u>Drawing No. OIS/NUC/SD/004.</u>				
7.1	DN65mm	No.	3		
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</u>				
	<u>distribution main, inclusive of PVC compressive ball valve and end</u>				
	<u>cap complete with connector pipes and locakable chamber as detailed</u>				
	<u>on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all</u>				
	<u>to PN10: -</u>				
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	22		
	<b><u>Reinstatement</u></b>				
	<b><u>Roads</u></b>				
	<u>Breaking up, temporary and permanent reinstatement of gravel roads</u>				
	<u>for the following pipe sizes</u>				
10	Not exceeding DN300mm	m	12		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.2: NYARUHUNGYE IN KANUNGU DISTRICT**

**Region: West**

**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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.2: NYARUHUNGYE IN KANUNGU DISTRICT**

**Region: West**

**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>				
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>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>	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>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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.2: NYARUHUNGYE IN KANUNGU DISTRICT**

**Region: West**

**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 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	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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.2: NYARUHUNGYE IN KANUNGU DISTRICT**

**Region: West**

**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>
	<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	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		
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><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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.2: NYARUHUNGYE IN KANUNGU DISTRICT**

**Region: West**

**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	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	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				

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

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 4.2: NYARUHUNGYE IN KANUNGU DISTRICT

Region: West

**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	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</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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 4.2: NYARUHUNGYE IN KANUNGU DISTRICT

Region: West

**BILL No. 2 : TRANSMISSION MAINS**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
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>				
8.1	DN75mm	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	DN75mm	No.	1		
	<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.	1		
	<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.	Rate Only		
	<b>Reinstatement 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>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.2: NYARUHUNGYE IN KANUNGU DISTRICT**

**Region: West**

**BILL No. 2 : TRANSMISSION MAINS**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
12.1	<b><u>Surrounds</u></b> <u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u> Not exceeding DN200mm	m	14		
12.2	<u>Pipe surrounds, of imported granular material, for the following pipe sizes</u> Not exceeding DN200mm	m	30		
12.3	<u>Pipe surrounds, of mass concrete, for the following pipe sizes</u> 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		
14	<b><u>Other Pipework Ancillaries</u></b> <b><u>Marker Posts</u></b> Marker posts for pipes, gate valves, air valves, washouts	nr	20		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 4.2: NYARUHUNGYE IN KANUNGU DISTRICT

Region: West

**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</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>				
2.5	Height; 1.0m 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/ 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>				
4.3	DN65mm, 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]				
5.3	DN65mm, PN10	No.	1		
<b>Total Carried to Collection</b>					



## Region: West

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 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>Provision and Placing of Concrete 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	Description	Unit	Qty.	Rate (UGx.)	Amount
	<b>Bill No. 3 Collection</b>				
	Page 9				
	Page 10				
<b>Total Bill No. 3 Carried to Bill Summary</b>					<b>0</b>

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 4.2: NYARUHUNGYE IN KANUNGU DISTRICT

Region: West

**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> 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	187		
2.2	OD75mm PN10	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.	Rate Only		
3.2	OD63mm	No.	Rate Only		
	<b><u>Unequal tees</u></b>				
3.3	OD90 x 75mm	No.	Rate Only		
3.4	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	OD75mm	No.	Rate Only		
4	OD63mm	No.	Rate Only		
2					
5	<b><u>End caps</u></b>				
5.1	OD63mm	No.	2		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 4.2: NYARUHUNGYE IN KANUNGU DISTRICT

Region: West

**BILL No.4 : DISTRIBUTION NETWORK**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
6	<b>Valves and Penstocks</b>				
	<b>Air Vaves</b>				
	<u>Flanged CI double orifice air relief valve, DN50mm, as specified</u>				
	<u>,flanges to ISO 2441, complete with isolating gate valve to ISO 7259,</u>				
	<u>flange adaptors, distance pieces, and all fittings necessary to make</u>				
	<u>the installation on pipes of the following sizes, all to PN10, include</u>				
	<u>chamber as specified.</u>				
6.1	OD75mm	No.	1		
7	<b>Washouts</b>				
	<u>Washout as specified in the drawings, complete with plastic</u>				
	<u>compression pipe fittings; tee, drainage pipes, PVC union ball valve,</u>				
	<u>flap valve and all other fittings necessary to make the complete</u>				
	<u>installation on pipes of the following sizes; all to PN10 including valve</u>				
	<u>surface box and stone masonry outfall structure to detail as per</u>				
	<u>Drawing No. OIS/NUC/SD/004.</u>				
7.1	DN65mm	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 locakable 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	nr	15		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.3: BUGARA IN KISORO DISTRICT  
BILL SUMMARY**

**Region: West**

<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.3: BUGARA IN KISORO DISTRICT**

**Region: West**

**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	Marshy soils	m <sup>3</sup>	150		
2.5	Soft / decomposed rock soils	m <sup>3</sup>	6		
	<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>	2,725		
	<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 <u>5m</u> 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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.3: BUGARA IN KISORO DISTRICT**

**Region: West**

**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 Aarray in Item 2 above as per drawings, including foundations, vandal proofing mounting to the Engineer's approval	Sum	1		
ME4	PV Disconnect 1000-40-1	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		
	<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	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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.3: BUGARA IN KISORO DISTRICT**

**Region: West**

**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>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 guage 500 polythene sheet.	m <sup>2</sup>	135		
X4	450mm diameter reinforced concrete pipe/ culvert	m	0		
	<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	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	130		
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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.3: BUGARA IN KISORO DISTRICT**

**Region: West**

<b>BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b>					
<b>Item No.</b>	<b>Description</b>				<b>Amount (UGx.)</b>
X7	<b>Gates</b> Metal field gate to BS 3470; width 1.5m single leaf and height to match the fence.	No.	2		
X8	<b>Training of Operator's staff</b> Train Operator's staff in basic operation and maintenance procedures of all	Sum	1		
X9	<b>Operation and Maintenance Manuals</b> 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		
XXX	<b>Stone Pitching.</b> 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>  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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 4.3: BUGARA IN KISORO DISTRICT

Region: West

**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, not in trenches;	m	Rate Only		
2.2	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	250		
	<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, to BS EN 10242:1995, all				
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><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>				
	<b><u>Equal Adapters</u></b>				
7.1	OD75 female adapter	No.	2		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 4.3: BUGARA IN KISORO DISTRICT

Region: West

**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.	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>				
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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.3: BUGARA IN KISORO DISTRICT**

**Region: West**

**BILL No. 2 : TRANSMISSION MAINS**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
12.1	<b>Surrounds</b> <u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u> Not exceeding DN200mm	m	14		
12.2	<u>Pipe surrounds, of imported granular material, for the following pipe sizes</u> Not exceeding DN200mm	m	30		
12.3	<u>Pipe surrounds, of mass concrete, for the following pipe sizes</u> Not exceeding DN200mm	m	2		
13	<b>Concrete Stools and Thrust Blocks</b>				
13.1	<b>Thrust Blocks</b> <u>Mass concrete grade C15 thrust blocks for pipes and fittings, volume 0.1-0.2 m³, for the following pipe sizes</u> Diameter not exceeding DN200mm	No.	2		
14	<b>Other Pipework Ancillaries</b> <b>Marker Posts</b> 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>				
	Page 6				
	Page 7				
	Page 8				

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

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.3: BUGARA IN KISORO DISTRICT**

**Region: West**

**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</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; 1.0m 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/ 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]				
5.2	DN75mm, PN10	No.	1		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.3: BUGARA IN KISORO DISTRICT**

**Region: West**

**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 and including 200mm thick murram fill.	No.	Rate Only		
<b>7</b>	<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 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	Description	Unit	Qty.	Rate (UGx.)	Amount
	<b>Bill No. 3 Collection</b>				
	Page 19				
	Page 10				

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

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 4.3: BUGARA IN KISORO DISTRICT

Region: West

**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> 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	359		
2.2	OD75mm PN10	m	339		
	<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.	4		
	<b><u>Unequal tees</u></b>				
3.2	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>				
4.3	OD75mm	No.	Rate Only		
4.4	OD63mm	No.	Rate Only		
5	<b><u>End caps</u></b>				
5.1	OD63mm	No.	12		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.3: BUGARA IN KISORO DISTRICT**

**Region: West**

**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 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.				
6.1	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.				
7.3	DN65mm	No.	2		
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 locakable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -				
8.1	DN50mm	No.	12		
	<b><u>Other Pipework Ancillaries</u></b>				
	<b><u>Marker Posts</u></b>				
9	Marker posts for pipes, gate valves, air valves, washouts	nr	24		
	<b><u>Reinstatement</u></b>				
	<b><u>Roads</u></b>				
	Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes				
10	Not exceeding DN300mm	m	12		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.4: KYONDO IN RUKIGA DISTRICT  
BILL SUMMARY**

**Region: West**

<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.4: KYONDO IN RUKIGA DISTRICT**

**Region: West**

**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 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>Filling</b>				
	<b>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, hand packed or compacted by the arm of an excavator.	m <sup>3</sup>	55		
3.2	Selected excavated material including topping with a 200mm thick layer of top/ vegetable soil.	m <sup>3</sup>	44		
3.3	Imported murrum.	m <sup>3</sup>	18		
	<b>Landscaping</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>	2,725		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 4.4: KYONDO IN RUKIGA DISTRICT

Region: West

**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>				
5.1	50mm thick blinding concrete, for base slabs, toes, key and heel; grade C15, of the following thickness	m <sup>3</sup>	1		
	<b>Grade C25/10</b>				
	<b>Reinforced Concrete Base Slabs, Toe, Key and Heel</b>				
5.2	200mm thick key and toe.	m <sup>3</sup>	2.5		
5.3	200mm thick base and heel slabs.	m <sup>3</sup>	5		
5.4	500/ 200mm thick retaining wall/ weir stem.	m <sup>3</sup>	19.0		
5.5	200mm thick sump walls.	m <sup>3</sup>	41		
5.6	200mm thick top slab.	m <sup>3</sup>	1.2		
	<b>Formwork</b>				
	<b>Formwork-Fair Finish</b>				
6.1	<b><i>Fair Finish Plane Horizontal</i></b> Plane fair finish horizontal formwork to the tops slab including charmfering and / or filleting of all exposed concrete corners.	m <sup>2</sup>	4.5		
6.2	<b><i>Fair Finish Plane Vertical</i></b> Plane fair finish vertical and / or slightly soping formwork to walls including charmfering and / or filleting of all exposed concrete corners.	m <sup>2</sup>	145		
	<b><i>Finishing of top surfaces</i></b>				
6.3	Steel trowel finishing of top surfaces.	m <sup>2</sup>	20		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL LOWER REGIONS**

**Scheme ID. 4.4: KYONDO IN RUKIGA DISTRICT**

**Region: West**

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
	<b>Reinforcement</b>				
	<b><i>Deformed High Yield Steel</i></b>				
	<u>High yield square twisted bars to BS 4449 and of the following sizes</u>				
7.1	Nominal size, 12mm	t	2.0		
	<b>MISCELLANEOUS METAL WORK</b>				
	<b>Ladders</b>				
8.1	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	5		
	<b>Pump Protection System</b>				
8.2	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.	Rate Only		
	<b>Access Manhole Cover</b>				
8.3	600 x 600mm clear opening painted mild steel cover and frame include fixing and locking arrangement.	No.	2		
	<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 = 22 m <sup>3</sup> /hr., rated head H = 75m 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 1000-40-5	No.	1		
ME5	PV Protect 1000-125	No.	Rate Only		
ME6	PV Combiner	No.	1		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.4: KYONDO IN RUKIGA DISTRICT**

**Region: West**

**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	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		
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	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		
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>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.4: KYONDO IN RUKIGA DISTRICT**

**Region: West**

**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	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	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	130		
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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.4: KYONDO IN RUKIGA DISTRICT**

**Region: West**

<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>
XXX	<b>Stone Pitching.</b> 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> <p align="center">Page 6</p> <p align="center">Page 7</p>				
<b>Total Bill No. 1 Carried to Bill Summary</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 4.4: KYONDO IN RUKIGA DISTRICT

Region: West

**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	OD90mm HDPE PN10	m	350		
	<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				
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><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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 4.4: KYONDO IN RUKIGA DISTRICT

Region: West

**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.	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>				
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	Not exceeding DN300mm	m	36		
	<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.4: KYONDO IN RUKIGA DISTRICT**

**Region: West**

**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> Not exceeding DN200mm	m	40		
12.3	<u>Pipe surrounds, of mass concrete, for the following pipe sizes</u> Not exceeding DN200mm	m	25		
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> 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		

**Total Carried to Collection**

**0**

**BILL No. 2 : TRANSMISSION MAINS**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
	<b>Bill No. 2 Collection</b>				
	Page 8				0
	Page 9				0
	Page 10				0

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

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.4: KYONDO IN RUKIGA DISTRICT**

**Region: West**

**BILL No. 4.3 : 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; 1.0m 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/ 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	DN65mm, 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	DN65mm, PN10	No.	1		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.4: KYONDO IN RUKIGA DISTRICT**

**Region: West**

**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 and including 200mm thick murrum fill.	No.	Rate Only		
	<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> <b><u>Ordinary Designed Mix Concrete</u></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	Description	Unit	Qty.	Rate (UGx.)	Amount
	<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 4.4: KYONDO IN RUKIGA DISTRICT

Region: West

**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> 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	176		
2.2	OD75mm PN10	m	282		
	<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.	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		
5	<b><u>End caps</u></b>				
5.2	OD90mm	No.	Rate Only		
5.3	OD75mm	No.	Rate Only		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.4: KYONDO IN RUKIGA DISTRICT**

**Region: West**

**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 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.				
6.1	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.	Rate Only		
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 locakable 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	23		
	<b><u>Reinstatement</u></b>				
	<b><u>Roads</u></b>				
	Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes				
10	Not exceeding DN300mm	m	36		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.4: KYONDO IN RUKIGA DISTRICT**

**Region: West**

**BILL No. 4 : DISTRIBUTION NETWORK**

<b>Item No.</b>	<b>Description</b>	<b>Unit</b>	<b>Qty.</b>	<b>Rate (UGx.)</b>	<b>Amount (UGx.)</b>
	<p align="center"><b>Bill No. 4 Collection</b></p> <p align="center">Page 13</p> <p align="center">Page 14</p>				
<b>Total Bill No. 4 Carried to Bill Summary</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.5: RUNKONKOMA IN RUKUNGIRI DISTRICT**

**Region: West**

**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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.5: RUNKONKOMA IN RUKUNGIRI DISTRICT**

**Region: West**

**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 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>	35		
2.2	Ditto but for the Intake Structure	m <sup>3</sup>	45		
2.3	Ditto but for the River Weir Structure	m <sup>3</sup>	3.5		
	<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, hand packed or compacted by the arm of an excavator.	m <sup>3</sup>	55		
3.2	Selected excavated material including topping with a 200mm thick layer of top/ vegetable soil.	m <sup>3</sup>	44		
3.3	Imported murrum.	m <sup>3</sup>	18		
	<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>					



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.5: RUNKONKOMA IN RUKUNGIRI DISTRICT**

**Region: West**

**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>				
5.1	50mm thick blinding concrete, for base slabs, toes, key and heel; grade C15, of the following thickness	m <sup>3</sup>	1		
	<b>Grade C25/10</b>				
	<b>Reinforced Concrete Base Slabs, Toe, Key and Heel</b>				
5.2	200mm thick key and toe.	m <sup>3</sup>	2.5		
5.3	200mm thick base and heel slabs.	m <sup>3</sup>	5		
5.4	500/ 200mm thick retaining wall/ weir stem.	m <sup>3</sup>	19.0		
5.5	200mm thick sump walls.	m <sup>3</sup>	41		
5.6	200mm thick top slab.	m <sup>3</sup>	1.2		
	<b>Formwork</b>				
	<b>Formwork-Fair Finish</b>				
6.1	<b><i>Fair Finish Plane Horizontal</i></b> Plane fair finish horizontal formwork to the tops slab including charmfering and / or filleting of all exposed concrete corners.	m <sup>2</sup>	4.5		
6.2	<b><i>Fair Finish Plane Vertical</i></b> Plane fair finish vertical and / or slightly soping formwork to walls including charmfering and / or filleting of all exposed concrete corners.	m <sup>2</sup>	145		
	<b><i>Finishing of top surfaces</i></b>				
6.3	Steel trowel finishing of top surfaces.	m <sup>2</sup>	20		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.5: RUNKONKOMA IN RUKUNGIRI DISTRICT**

**Region: West**

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
	<b>Reinforcement</b>				
	<b><i>Deformed High Yield Steel</i></b>				
	<u>High yield square twisted bars to BS 4449 and of the following sizes</u>				
7.1	Nominal size, 12mm	t	2.0		
	<b>MISCELLANEOUS METAL WORK</b>				
	<b>Ladders</b>				
8.1	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	5		
	<b>Pump Protection System</b>				
8.2	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.	Rate Only		
	<b>Access Manhole Cover</b>				
8.3	600 x 600mm clear opening painted mild steel cover and frame include fixing and locking arrangement.	No.	2		
	<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 1000-40-5	No.	1		
ME5	PV Protect 1000-125	No.	Rate Only		
ME6	PV Combiner	No.	1		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.5: RUNKONKOMA IN RUKUNGIRI DISTRICT**

**Region: West**

**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	Item	1		
ME7	PV Combiner	No.	1		
ME7a	Pressure Switch and Gauge - P6/12	No.	1		
ME8	Sinewave filter - SWAP0022D.	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	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><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	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		
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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.5: RUNKONKOMA IN RUKUNGIRI DISTRICT**

**Region: West**

**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 guage 500 polythene sheet.	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><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	130		
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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.5: RUNKONKOMA IN RUKUNGIRI DISTRICT**

**Region: West**

<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>
	<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> <p align="center">Page 6</p>				
<b>Total Bill No. 1 Carried to Bill Summary</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.5: RUNKONKOMA IN RUKUNGIRI DISTRICT**

**Region: West**

**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	380		
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, 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.5: RUNKONKOMA IN RUKUNGIRI DISTRICT**

**Region: West**

**BILL No. 2 : TRANSMISSION MAINS**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
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	DN75mm PN10	No.	1		
	<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</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.	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.	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>				
10.2	Depth not exceeding 1.5m	No.	Rate Only		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.5: RUNKONKOMA IN RUKUNGIRI DISTRICT**

**Region: West**

**BILL No. 2 : TRANSMISSION MAINS**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
	<b><u>Reinstatement</u></b>				
	<b><u>Roads</u></b>				
11	<u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u> Not exceeding DN300mm	m	12		
	<b><u>Surrounds</u></b>				
12.1	<u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u> Not exceeding DN200mm	m	14		
12.2	<u>Pipe surrounds, of imported granular material, for the following pipe sizes</u> Not exceeding DN200mm	m	30		
12.3	<u>Pipe surrounds, of mass concrete, for the following pipe sizes</u> Not exceeding DN200mm	m	2		
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> 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>					
	<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.5: RUNKONKOMA IN RUKUNGIRI DISTRICT**

**Region: West**

**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</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>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/ 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	DN65mm, 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	DN65mm, PN10	No.	1		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.5: RUNKONKOMA IN RUKUNGIRI DISTRICT**

**Region: West**

**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 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> <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		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.5: RUNKONKOMA IN RUKUNGIRI DISTRICT**

**Region: West**

**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> 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	90		
2.2	OD75mm PN10	m	721		
	<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>				
3.3	OD75mm	No.	1		
3.4	OD63mm	No.	1		
	<b><u>Unequal tees</u></b>				
3.8	OD75 x 63mm	No.	8		
	<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.	10		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.5: RUNKONKOMA IN RUKUNGIRI DISTRICT**

**Region: West**

**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 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.				
6.1	OD75mm	No.	1		
6.2	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	DN65mm	No.	4		
7.2	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	DN50mm	No.	10		
	<b><u>Other Pipework Ancillaries</u></b>				
	<b><u>Marker Posts</u></b>				
9	Marker posts for pipes, gate valves, air valves, washouts	nr	26		
	<b><u>Reinstatement</u></b>				
	<b><u>Roads</u></b>				
	Breaking up, temporary and permanent reinstatement of gravel roads				
	for the following pipe sizes				
10	Not exceeding DN300mm	m	36		
<b>Total Carried to Collection</b>					
	<b>Bill No. 4 Collection</b>				
	Page 15				
	Page 16				
<b>Total Bill No. 4 Carried to Bill Summary</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.6: NYAMASIZI IN RUBANDA DISTRICT  
BILL SUMMARY**

**Region: West**

<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.6: NYAMASIZI IN RUBANDA DISTRICT**

**Region: West**

**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>Landscaping</u></b>				
4	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>	2,725		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 4.6: NYAMASIZI IN RUBANDA DISTRICT

Region: West

**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>				
5.1	50mm thick blinding concrete, for base slabs, toes, key and heel; grade C15, of the following thickness	m <sup>3</sup>	1		
	<b>Grade C25/10</b> <b>Reinforced Concrete Base Slabs, Toe, Key and Heel</b>				
5.2	200mm thick key and toe.	m <sup>3</sup>	2.5		
5.3	200mm thick base and heel slabs.	m <sup>3</sup>	5		
5.4	500/ 200mm thick retaining wall/ weir stem.	m <sup>3</sup>	19.0		
5.5	200mm thick sump walls.	m <sup>3</sup>	41		
5.6	200mm thick top slab.	m <sup>3</sup>	1.2		
	<b>Formwork</b> <b>Formwork-Fair Finish</b>				
6.1	<b>Fair Finish Plane Horizontal</b> Plane fair finish horizontal formwork to the tops slab including charmfering and / or filleting of all exposed concrete corners.	m <sup>2</sup>	4.5		
6.2	<b>Fair Finish Plane Vertical</b> Plane fair finish vertical and / or slightly soping formwork to walls including charmfering and / or filleting of all exposed concrete corners.	m <sup>2</sup>	145		
	<b>Finishing of top surfaces</b>				
6.3	Steel trowel finishing of top surfaces.	m <sup>2</sup>	20		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 4.6: NYAMASIZI IN RUBANDA DISTRICT

Region: West

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
7.1	<b>Reinforcement</b> <b>Deformed High Yield Steel</b> <u>High yield square twisted bars to BS 4449 and of the following sizes</u> Nominal size, 12mm	t	2.0		
8.1	<b>MISCELLANEOUS METAL WORK</b> <b>Ladders</b> 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	5		
8.2	<b>Pump Protection System</b> 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.	1		
8.3	<b>Access Manhole Cover</b> 600 x 600mm clear opening painted mild steel cover and frame include fixing and locking arrangement.	No.	2		
	<b><u>ELECTRO-MECHANICAL WORKS</u></b>				
ME1	<b>Solar Pumping System</b> (based on 550Wp panels; bidder to adjust numbers to match rating of panel offered) 9.2kW Submersible Pump Set with 11.0kW Pumping Inverter with Data Module, rated flow Q = 15 m <sup>3</sup> /hr., rated head H = 140m 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 1000-40-5	No.	1		
<b>Total Carried to Collection</b>					



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.6: NYAMASIZI IN RUBANDA DISTRICT**

**Region: West**

**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	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		
	<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	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		
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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.6: NYAMASIZI IN RUBANDA DISTRICT**

**Region: West**

**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> 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 guage 500 polythene sheet.	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><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	130		
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>					
<b>BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.6: NYAMASIZI IN RUBANDA DISTRICT**

**Region: West**

Item No.	Description				Amount (UGx.)
	<b><u>Training of Operator's staff</u></b>				
X8	Train Operator's staff in basic operation and maintenance procedures of all	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		
XXX	<b>Stone Pitching.</b> 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 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b>					
Item No.	Description	Unit	Qty.	Rate (UGx.)	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 4.6: NYAMASIZI IN RUBANDA DISTRICT

Region: West

**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	OD90mm HDPE PN16	m	480		
	<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, toBS EN 10242:1995, all				
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	DN50mm 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	OD75 female adapter	No.	2		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 4.6: NYAMASIZI IN RUBANDA DISTRICT

Region: West

**BILL No. 2 : TRANSMISSION MAINS**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
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>				
8.1	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.	1		
	<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.	Rate Only		
	<b>Reinstatement 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>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 4.6: NYAMASIZI IN RUBANDA DISTRICT

Region: West

**BILL No. 2 : TRANSMISSION MAINS**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
12.1	<b>Surrounds</b> <u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u> Not exceeding DN200mm	m	14		
12.2	<u>Pipe surrounds, of imported granular material, for the following pipe sizes</u> Not exceeding DN200mm	m	30		
12.3	<u>Pipe surrounds, of mass concrete, for the following pipe sizes</u> Not exceeding DN200mm	m	2		
13	<b>Concrete Stools and Thrust Blocks</b>				
	<b>Thrust Blocks</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>Other Pipework Ancillaries</b>				
	<b>Marker Posts</b>				
14	Marker posts for pipes, gate valves, air valves, washouts	nr	20		

**Total Carried to Collection**

**BILL No. 2 : TRANSMISSION MAINS**

Item	Description	Unit	Qty.	Rate (UGx.)	Amount
	<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 4.6: NYAMASIZI IN RUBANDA DISTRICT

Region: West

**BILL No. 4.3 : 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; 1.0m for (4No. x 10m <sup>3</sup> Tanks)	No.	1		
3	<b><u>Plastic Tanks</u></b>				
	<u>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.</u>				
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	DN65mm, 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	DN65mm, PN10	No.	1		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.6: NYAMASIZI IN RUBANDA DISTRICT**

**Region: West**

**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 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> <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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 4.6: NYAMASIZI IN RUBANDA DISTRICT

Region: West

**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> 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	60		
2.2	OD75mm PN6	m	150		
	<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.	Rate Only		
	<b><u>Unequal tees</u></b>				
3.3	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	OD75mm	No.	Rate Only		
4.2	OD63mm	No.	Rate Only		
5	<b><u>End caps</u></b>				
5.1	OD75mm	No.	Rate Only		
5.2	OD63mm	No.	6		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 4.6: NYAMASIZI IN RUBANDA DISTRICT**

**Region: West**

**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 Vaves</u></b>				
	<u>Flanged CI double orifice air relief valve, DN50mm, as specified</u>				
	<u>,flanges to ISO 2441, complete with isolating gate valve to ISO 7259,</u>				
	<u>flange adaptors, distance pieces, and all fittings necessary to make</u>				
	<u>the installation on pipes of the following sizes, all to PN10, include</u>				
	<u>chamber as specified.</u>				
6.1	OD75mm	No.	1		
6.2	OD63mm	No.	Rate Only		
<b>7</b>	<b><u>Washouts</u></b>				
	<u>Washout as specified in the drawings, complete with plastic</u>				
	<u>compression pipe fittings; tee, drainage pipes, PVC union ball valve,</u>				
	<u>flap valve and all other fittings necessary to make the complete</u>				
	<u>installation on pipes of the following sizes; all to PN10 including valve</u>				
	<u>surface box and stone masonry outfall structure to detail as per</u>				
	<u>Drawing No. OIS/NUC/SD/004.</u>				
7.1	DN65mm	No.	2		
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</u>				
	<u>distribution main, inclusive of PVC compressive ball valve and end</u>				
	<u>cap complete with connector pipes and locakable chamber as detailed</u>				
	<u>on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all</u>				
	<u>to PN10: -</u>				
8.4	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	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.1: KYAKUHANDA IN BUHWEJU DISTRICT**  
**BILL SUMMARY**

**Region: West**

<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.1: KYAKUHANDA IN BUHWEJU DISTRICT**

**Region: West**

**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>
	<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 reservior 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>Landscaping</u></b>				
4	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>	2,725		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.1: KYAKUHANDA IN BUHWEJU DISTRICT

Region: West

**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>				
5.1	50mm thick blinding concrete, for base slabs, toes, key and heel; grade C15, of the following thickness	m <sup>3</sup>	1		
	<b>Grade C25/10</b>				
	<b>Reinforced Concrete Base Slabs, Toe, Key and Heel</b>				
5.2	200mm thick key and toe.	m <sup>3</sup>	2.5		
5.3	200mm thick base and heel slabs.	m <sup>3</sup>	5		
5.4	500/ 200mm thick retaining wall/ weir stem.	m <sup>3</sup>	19.0		
5.5	200mm thick sump walls.	m <sup>3</sup>	41		
5.6	200mm thick top slab.	m <sup>3</sup>	1.2		
	<b>Formwork</b>				
	<b>Formwork-Fair Finish</b>				
6.1	<b>Fair Finish Plane Horizontal</b> Plane fair finish horizontal formwork to the tops slab including charmfering and / or filleting of all exposed concrete corners.	m <sup>2</sup>	4.5		
6.2	<b>Fair Finish Plane Vertical</b> Plane fair finish vertical and / or slightly soping formwork to walls including charmfering and / or filleting of all exposed concrete corners.	m <sup>2</sup>	145		
6.3	<b>Finishing of top surfaces</b> Steel trowel finishing of top surfaces.	m <sup>2</sup>	20		
<b>Total Carried to Collection</b>					
<b>BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b>					
Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
	<b>Reinforcement</b>				
	<b>Deformed High Yield Steel</b>				

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.1: KYAKUHANDA IN BUHWEJU DISTRICT**

**Region: West**

7.1	High yield square twisted bars to BS 4449 and of the following sizes Nominal size, 12mm	t	2.0		
<b>MISCELLANEOUS METAL WORK</b>					
<b>Ladders</b>					
8.1	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	5		
<b>Pump Protection System</b>					
8.2	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.	1		
<b>Access Manhole Cover</b>					
8.3	600 x 600mm clear opening painted mild steel cover and frame include fixing and locking arrangement.	No.	2		
<b>ELECTRO-MECHANICAL WORKS</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 = 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 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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.1: KYAKUHANDA IN BUHWEJU DISTRICT**

**Region: West**

**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>
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	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		
	<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	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		
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>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.1: KYAKUHANDA IN BUHWEJU DISTRICT**

**Region: West**

**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>
	<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><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	130		
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		
<b>Total Carried to Collection</b>					



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.1: KYAKUHANDA IN BUHWEJU DISTRICT**

**Region: West**

<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> 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 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.1: KYAKUHANDA IN BUHWEJU DISTRICT**

**Region: West**

**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	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	165		
	<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	OD75 female adapter	No.	2		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.1: KYAKUHANDA IN BUHWEJU DISTRICT**

**Region: West**

**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.	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>				
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><u>Surrounds</u></b>				
	<u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u>				
12.1	Not exceeding DN200mm	m	30		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.1: KYAKUHANDA IN BUHWEJU DISTRICT**

**Region: West**

**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 Not exceeding DN200mm	m	20		
12.3	Pipe surrounds, of mass concrete, for the following pipe sizes Not exceeding DN200mm	m	28		
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	16		

**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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.1: KYAKUHANDA IN BUHWEJU DISTRICT**

**Region: West**

**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</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; 1.0m 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	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	DN50mm, 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]				
5.4	DN50mm, 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.1: KYAKUHANDA IN BUHWEJU DISTRICT**

**Region: West**

**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 and including 200mm thick murram fill.	No.	Rate Only		
<b>7</b>	<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> <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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.1: KYAKUHANDA IN BUHWEJU DISTRICT

Region: West

**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> 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	196		
	<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.	Rate Only		
	<b><u>Unequal tees</u></b>				
3.2	OD75 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	OD63mm	No.	Rate Only		
5	<b><u>End caps</u></b>				
5.1	OD63mm	No.	8		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.1: KYAKUHANDA IN BUHWEJU DISTRICT**

**Region: West**

**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 Vaves</u></b>				
	<u>Flanged CI double orifice air relief valve, DN50mm, as specified</u>				
	<u>,flanges to ISO 2441, complete with isolating gate valve to ISO 7259,</u>				
	<u>flange adaptors, distance pieces, and all fittings necessary to make</u>				
	<u>the installation on pipes of the following sizes, all to PN10, include</u>				
	<u>chamber as specified.</u>				
6.4	OD63mm	No.	Rate Only		
<b>7</b>	<b><u>Washouts</u></b>				
	<u>Washout as specified in the drawings, complete with plastic</u>				
	<u>compression pipe fittings; tee, drainage pipes, PVC union ball valve,</u>				
	<u>flap valve and all other fittings necessary to make the complete</u>				
	<u>installation on pipes of the following sizes; all to PN10 including valve</u>				
	<u>surface box and stone masonry outfall structure to detail as per</u>				
	<u>Drawing No. OIS/NUC/SD/004.</u>				
7.1	DN50mm	No.	1		
<b>8</b>	<b><u>Farm Gate Connections</u></b>				
	<u>Make DN50mm Irrigation Water Supply Hydrant connection to the</u>				
	<u>distribution main, inclusive of PVC compressive ball valve and end</u>				
	<u>cap complete with connector pipes and locakable chamber as detailed</u>				
	<u>on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all</u>				
	<u>to PN10: -</u>				
8.1	DN50mm	No.	8		
	<b><u>Other Pipework Ancillaries</u></b>				
	<b><u>Marker Posts</u></b>				
9	Marker posts for pipes, gate valves, air valves, washouts	nr	16		
	<b><u>Reinstatement</u></b>				
	<b><u>Roads</u></b>				
	<u>Breaking up, temporary and permanent reinstatement of gravel roads</u>				
	<u>for the following pipe sizes</u>				
10	Not exceeding DN300mm	m	36		
<b>Total Carried to Collection</b>					



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.1: KYAKUHANDA IN BUHWEJU DISTRICT**

**Region: West**

**BILL No. 4 : DISTRIBUTION NETWORK**

<b>Item No.</b>	<b>Description</b>	<b>Unit</b>	<b>Qty.</b>	<b>Rate (UGx.)</b>	<b>Amount (UGx.)</b>
	<p align="center"><b>Bill No. 4 Collection</b></p> <p align="center">Page 13</p> <p align="center">Page 14</p>				
<b>Total Bill No. 4 Carried to Bill Summary</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.2: KANYAMUKALE IN BUNYANGABU DISTRICT**  
**BILL SUMMARY**

**Region: West**

<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.2: KANYAMUKALE IN BUNYANGABU DISTRICT**

**Region: West**

<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 murram.	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.2: KANYAMUKALE IN BUNYANGABU DISTRICT**

**Region: West**

**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>
	<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 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> <b>Formwork-Fair Finish</b>				
7.1	<b>Fair Finish Plane Horizontal</b> 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> 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		
	<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.2: KANYAMUKALE IN BUNYANGABU DISTRICT**

**Region: West**

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
8.1	<b>Reinforcement</b> <b>Deformed High Yield Steel</b> <u>High yield square twisted bars to BS 4449 and of the following sizes</u> Nominal size, 12mm	t	1.2		
8.2	<b>Inserts</b> 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> <b>Cast or Spum Iron Pipe Fittings.</b>  <b>Flanged Reducers</b> DN250 x 150mm	No.	Rate Only		
9.2	<b>Flange Adaptors</b> 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> <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> DN 250 mm	No.	Rate Only		
9.4	<b>End Caps</b> DN250mm flanged end cap.	No.	Rate Only		
9.5	<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 metres long, and of the following sizes:-</u> 150 mm ND	No.	Rate Only		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.2: KANYAMUKALE IN BUNYANGABU DISTRICT**

**Region: West**

**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> 300mm wide x 1000mm high.	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.	Rate Only		
	<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 = 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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.2: KANYAMUKALE IN BUNYANGABU DISTRICT**

**Region: West**

**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		
	<b>Earthing and Lightening Protection</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	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		
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	Item	1		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.2: KANYAMUKALE IN BUNYANGABU DISTRICT**

**Region: West**

**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"</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		
<b>Total Carried to Collection</b>					



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.2: KANYAMUKALE IN BUNYANGABU DISTRICT**

**Region: West**

<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.2: KANYAMUKALE IN BUNYANGABU DISTRICT

Region: West

**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	361		
	<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, to BS 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><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>				
	<b><u>Equal Adapters</u></b>				
7.1	OD75 female adapter	No.	2		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.2: KANYAMUKALE IN BUNYANGABU DISTRICT**

**Region: West**

**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-MANHOLE 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.	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>				
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><u>Surrounds</u></b>				
	<u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u>				
12.1	Not exceeding DN200mm	m	20		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.2: KANYAMUKALE IN BUNYANGABU DISTRICT**

**Region: West**

**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> Not exceeding DN200mm	m	52		
12.3	<u>Pipe surrounds, of mass concrete, for the following pipe sizes</u> 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		
14	<b><u>Other Pipework Ancillaries</u></b> <b><i>Marker Posts</i></b> 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>  Page 9  Page 10  Page 11				

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

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.2: KANYAMUKALE IN BUNYANGABU DISTRICT**

**Region: West**

**BILL No. 4.3 : 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; 9.0m 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/ 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	DN65mm, 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.2: KANYAMUKALE IN BUNYANGABU DISTRICT**

**Region: West**

**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 and including 200mm thick murram fill.	No.	Rate Only		
<b>7</b>	<b><u>Fences</u></b>				
7.1	Galvanised 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> <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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.2: KANYAMUKALE IN BUNYANGABU DISTRICT

Region: West

**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> 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	457		
2.2	OD75mm PN10	m	620		
	<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.	Rate Only		
3.2	OD63mm	No.	Rate Only		
	<b><u>Unequal tees</u></b>				
3.3	OD75 x 63mm	No.	10		
	<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.	9		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.2: KANYAMUKALE IN BUNYANGABU DISTRICT**

**Region: West**

**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 Vaves</u></b>				
	<u>Flanged CI double orifice air relief valve, DN50mm, as specified</u>				
	<u>,flanges to ISO 2441, complete with isolating gate valve to ISO 7259,</u>				
	<u>flange adaptors, distance pieces, and all fittings necessary to make</u>				
	<u>the installation on pipes of the following sizes, all to PN10, include</u>				
	<u>chamber as specified.</u>				
6.1	OD75mm	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</u>				
	<u>compression pipe fittings; tee, drainage pipes, PVC union ball valve,</u>				
	<u>flap valve and all other fittings necessary to make the complete</u>				
	<u>installation on pipes of the following sizes; all to PN10 including valve</u>				
	<u>surface box and stone masonry outfall structure to detail as per</u>				
	<u>Drawing No. OIS/NUC/SD/004.</u>				
7.1	DN65mm	No.	1		
7.2	DN50mm	No.	Rate Only		
<b>8</b>	<b><u>Farm Gate Connections</u></b>				
	<u>Make DN50mm Irrigation Water Supply Hydrant connection to the</u>				
	<u>distribution main, inclusive of PVC compressive ball valve and end</u>				
	<u>cap complete with connector pipes and locakable chamber as detailed</u>				
	<u>on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all</u>				
	<u>to PN10: -</u>				
8.1	DN50mm	No.	9		
	<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 14				
	Page 15				
<b>Total Bill No. 4 Carried to Bill Summary</b>					<b>0</b>



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.3: KASHOGI IN BUSHENYI DISTRICT  
BILL SUMMARY**

**Region: West**

<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.3: KASHOGI IN BUSHENYI DISTRICT**

**Region: West**

**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>
	<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 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>	35		
2.2	Ditto but for the Intake Structure	m <sup>3</sup>	45		
2.3	Ditto but for the River Weir Structure	m <sup>3</sup>	3.5		
	<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, hand packed or compacted by the arm of an excavator.	m <sup>3</sup>	55		
3.2	Selected excavated material including topping with a 200mm thick layer of top/ vegetable soil.	m <sup>3</sup>	44		
3.3	Imported murrum.	m <sup>3</sup>	18		
	<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>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL LOWER REGIONS**

### Scheme ID. 5.3: KASHOGI IN BUSHENYI DISTRICT

Region: West

## 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>				
5.1	50mm thick blinding concrete, for base slabs, toes, key and heel; grade C15, of the following thickness	m <sup>3</sup>	1		
	<b>Grade C25/10</b>				
	<b>Reinforced Concrete Base Slabs, Toe, Key and Heel</b>				
5.2	200mm thick key and toe.	m <sup>3</sup>	2.5		
5.3	200mm thick base and heel slabs.	m <sup>3</sup>	5		
5.4	500/ 200mm thick retaining wall/ weir stem.	m <sup>3</sup>	19.0		
5.5	200mm thick sump walls.	m <sup>3</sup>	41		
5.6	200mm thick top slab.	m <sup>3</sup>	1.2		
	<b>Formwork</b>				
	<b>Formwork-Fair Finish</b>				
6.1	<b>Fair Finish Plane Horizontal</b> Plane fair finish horizontal formwork to the tops slab including charmfering and / or filleting of all exposed concrete corners.	m <sup>2</sup>	4.5		
6.2	<b>Fair Finish Plane Vertical</b> Plane fair finish vertical and / or slightly soping formwork to walls including charmfering and / or filleting of all exposed concrete corners.	m <sup>2</sup>	145		
6.3	<b>Finishing of top surfaces</b> Steel trowel finishing of top surfaces.	m <sup>2</sup>	20		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.3: KASHOGI IN BUSHENYI DISTRICT**

**Region: West**

**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>
	<b>Reinforcement</b>				
	<b><i>Deformed High Yield Steel</i></b>				
	<u>High yield square twisted bars to BS 4449 and of the following sizes</u>				
7.1	Nominal size, 12mm	t	2.0		
	<b>MISCELLANEOUS METAL WORK</b>				
	<b>Ladders</b>				
8.1	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	5		
	<b>Pump Protection System</b>				
8.2	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.	Rate Only		
	<b>Access Manhole Cover</b>				
8.3	600 x 600mm clear opening painted mild steel cover and frame include fixing and locking arrangement.	No.	2		
	<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 = 75m 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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.3: KASHOGI IN BUSHENYI DISTRICT**

**Region: West**

**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>
ME6	Surge Protection Devices - SPDs for all; Pressure Sensors, Low Water Level	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><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	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		
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>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.3: KASHOGI IN BUSHENYI DISTRICT**

**Region: West**

**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>
	<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>				
	<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></b>				
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><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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.3: KASHOGI IN BUSHENYI DISTRICT**

**Region: West**

<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				
<b>Total Bill No. 1 Carried to Bill Summary</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.3: KASHOGI IN BUSHENYI DISTRICT**

**Region: West**

**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>				
2.5	DN75mm, not in trenches;	m	Rate Only		
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>				
3.2	OD75mm HDPE PN10	m	560		
	<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, toBS EN 10242:1995, all</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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.3: KASHOGI IN BUSHENYI DISTRICT

Region: West

**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	OD75 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.	1		
	<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.	1		
	<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.	Rate Only		
	<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>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.3: KASHOGI IN BUSHENYI DISTRICT**

**Region: West**

**BILL No. 2 : TRANSMISSION MAINS**

<b>Item No.</b>	<b>Description</b>	<b>Unit</b>	<b>Qty.</b>	<b>Rate (UGx.)</b>	<b>Amount (UGx.)</b>
	<b><u>Surrounds</u></b>				
12.1	<u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u> Not exceeding DN200mm	m	14		
12.2	<u>Pipe surrounds, of imported granular material, for the following pipe sizes</u> Not exceeding DN200mm	m	30		
12.3	<u>Pipe surrounds, of mass concrete, for the following pipe sizes</u> 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>					
	<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.3: KASHOGI IN BUSHENYI DISTRICT**

**Region: West**

**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</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; 9.0m 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/ 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.3: KASHOGI IN BUSHENYI DISTRICT**

**Region: West**

**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 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> <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		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.3: KASHOGI IN BUSHENYI DISTRICT

Region: West

**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> 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	364		
2.2	OD75mm PN10	m	420		
	<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		
3.3	OD63mm	No.	2		
	<b><u>Unequal tees</u></b>				
3.4	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	OD75mm	No.	Rate Only		
4.2	OD63mm	No.	Rate Only		
5	<b><u>End caps</u></b>				
5.1	OD63mm	No.	6		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.3: KASHOGI IN BUSHENYI DISTRICT**

**Region: West**

**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 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.				
6.1	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	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: -				
8.1	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	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.4: RWANSHETYA IN BUSHENYI DISTRICT  
BILL SUMMARY**

**Region: West**

<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.4: RWANSHETYA IN BUSHENYI DISTRICT**

**Region: West**

**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, grubbing 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 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>	35		
2.2	Ditto but for the Intake Structure	m <sup>3</sup>	45		
2.3	Ditto but for the River Weir Structure	m <sup>3</sup>	3.5		
	<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, hand packed or compacted by the arm of an excavator.	m <sup>3</sup>	55		
3.2	Selected excavated material including topping with a 200mm thick layer of top/ vegetable soil.	m <sup>3</sup>	44		
3.3	Imported murram.	m <sup>3</sup>	18		
	<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>					



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.4: RWANSHETYA IN BUSHENYI DISTRICT**

**Region: West**

**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>
	<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>				
5.1	50mm thick blinding concrete, for base slabs, toes, key and heel; grade C15, of the following thickness	m <sup>3</sup>	1		
	<b>Grade C25/10</b>				
	<b>Reinforced Concrete Base Slabs, Toe, Key and Heel</b>				
5.2	200mm thick key and toe.	m <sup>3</sup>	2.5		
5.3	200mm thick base and heel slabs.	m <sup>3</sup>	5		
5.4	500/ 200mm thick retaining wall/ weir stem.	m <sup>3</sup>	19.0		
5.5	200mm thick sump walls.	m <sup>3</sup>	41		
5.6	200mm thick top slab.	m <sup>3</sup>	1.2		
	<b>Formwork</b>				
	<b>Formwork-Fair Finish</b>				
6.1	<b><i>Fair Finish Plane Horizontal</i></b> Plane fair finish horizontal formwork to the tops slab including charmfering and / or filleting of all exposed concrete corners.	m <sup>2</sup>	4.5		
6.2	<b><i>Fair Finish Plane Vertical</i></b> Plane fair finish vertical and / or slightly soping formwork to walls including charmfering and / or filleting of all exposed concrete corners.	m <sup>2</sup>	145		
6.3	<b><i>Finishing of top surfaces</i></b> Steel trowel finishing of top surfaces.	m <sup>2</sup>	20		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.4: RWANSHETYA IN BUSHENYI DISTRICT**

**Region: West**

<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>Reinforcement</b>				
	<b><i>Deformed High Yield Steel</i></b>				
	<u>High yield square twisted bars to BS 4449 and of the following sizes</u>				
7.1	Nominal size, 12mm	t	2.0		
	<b>MISCELLANEOUS METAL WORK</b>				
	<b>Ladders</b>				
8.1	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	5		
	<b>Pump Protection System</b>				
8.2	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.	1		
	<b>Access Manhole Cover</b>				
8.3	600 x 600mm clear opening painted mild steel cover and frame include fixing and locking arrangement.	No.	2		
	<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 = 75m 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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.4: RWANSHETYA IN BUSHENYI DISTRICT**

**Region: West**

**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>
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		
	<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	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		
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>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.4: RWANSHETYA IN BUSHENYI DISTRICT**

**Region: West**

**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 guage 500 polythene sheet.	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><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	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.4: RWANSHETYA IN BUSHENYI DISTRICT**

**Region: West**

<b>BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b>					
<b>Item No.</b>	<b>Description</b>				<b>Amount (UGx.)</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> <p align="center">Page 6</p>				
<b>Total Bill No. 1 Carried to Bill Summary</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.4: RWANSHETYA IN BUSHENYI DISTRICT

Region: West

**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>				
2.5	DN75mm, not in trenches;	m	Rate Only		
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>				
3.2	OD75mm HDPE PN10	m	540		
	<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</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>					
<b>BILL No. 2 : TRANSMISSION MAINS</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.4: RWANSHETYA IN BUSHENYI DISTRICT

Region: West

**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.	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>				
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	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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.4: RWANSHETYA IN BUSHENYI DISTRICT**

**Region: West**

**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 Not exceeding DN200mm	m	30		
12.3	Pipe surrounds, of mass concrete, for the following pipe sizes Not exceeding DN200mm	m	2		
13	<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 m <sup>3</sup> , for the following pipe sizes				
13.1	Diameter not exceeding DN200mm	No.	2		
	<b><u>Other Pipework Ancillaries</u></b>				
	<b><i>Marker Posts</i></b>				
14	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>				
	Page 8				
	Page 9				
	Page 10				

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



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.4: RWANSHETYA IN BUSHENYI DISTRICT**

**Region: West**

**BILL No. 4.3 : 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	1.0		
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/ 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	DN65mm, 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	DN65mm, PN10	No.	1		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.4: RWANSHETYA IN BUSHENYI DISTRICT**

**Region: West**

**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 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> <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 11  Page 12				
<b>Total Bill No. 3 Carried to Bill Summary</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.4: RWANSHETYA IN BUSHENYI DISTRICT**

**Region: West**

**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> 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 PN10	m	196		
2.2	OD75mm PN10	m	240		
	<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.	2		
3.2	OD63mm	No.	2		
	<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	OD63mm	No.	4		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.4: RWANSHETYA IN BUSHENYI DISTRICT**

**Region: West**

**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 Vaves</u></b>				
	<u>Flanged CI double orifice air relief valve, DN50mm, as specified</u>				
	<u>,flanges to ISO 2441, complete with isolating gate valve to ISO 7259,</u>				
	<u>flange adaptors, distance pieces, and all fittings necessary to make</u>				
	<u>the installation on pipes of the following sizes, all to PN10, include</u>				
	<u>chamber as specified.</u>				
6.1	OD75mm	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</u>				
	<u>compression pipe fittings; tee, drainage pipes, PVC union ball valve,</u>				
	<u>flap valve and all other fittings necessary to make the complete</u>				
	<u>installation on pipes of the following sizes; all to PN10 including valve</u>				
	<u>surface box and stone masonry outfall structure to detail as per</u>				
	<u>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</u>				
	<u>distribution main, inclusive of PVC compressive ball valve and end</u>				
	<u>cap complete with connector pipes and locakable chamber as detailed</u>				
	<u>on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all</u>				
	<u>to PN10: -</u>				
8.1	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	nr	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.5: KIRUHUSI IN IBANDA DISTRICT  
BILL SUMMARY**

**Region: West**

<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.5: KIRUHUSI IN IBANDA DISTRICT**

**Region: West**

**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>	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><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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.5: KIRUHUSI IN IBANDA DISTRICT**

**Region: West**

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
4	<b>Landscaping</b> 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> <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 , maximum aggregate size : 20mm for the following structures: -</u>				
5	<b>In situ Concrete</b> 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> <b>Pump Well/ Sump</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	Internal diameter ; 1200mm	Item	1		
	<b>Concrete Inserts</b> <b>Cast or Spum Iron Pipe Fittings.</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>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.5: KIRUHUSI IN IBANDA DISTRICT**

**Region: West**

**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>
	<b>Adaptors</b>				
9	Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:- 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, 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>				
15	Supply and install 8.0m long HDPE vertical culverts on concrete base slab (MS) ; Internal diameter ; 1200x200mm	Item	Rate		
	<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.5: KIRUHUSI IN IBANDA DISTRICT**

**Region: West**

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
	<b>ELECTRO-MECHANICAL WORKS</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, rated flow Q = 15 m <sup>3</sup> /hr., rated head H = 85m total head; set not to more than <b>5m</b> below ground including Dry- run protection, 15kW Inverter, Controller with Data Module , 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	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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.5: KIRUHUSI IN IBANDA DISTRICT**

**Region: West**

**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>
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/NUC/SD/010, 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.5: KIRUHUSI IN IBANDA DISTRICT**

**Region: West**

<b>BILL No. 1 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b>					
<b>Item No.</b>	<b>Description</b>				<b>Amount (UGx.)</b>
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	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		
	<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 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.5: KIRUHUSI IN IBANDA DISTRICT

Region: West

**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>				
	<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	600		
	<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, toBS EN 10242:1995, all to PN 10, and of the following sizes</u>				
5.1	DN65mm	No.	4		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.5: KIRUHUSI IN IBANDA DISTRICT**

**Region: West**

**BILL No. 2 : TRANSMISSION MAINS**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
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  <b><u>PN16 HDPE Compression fitting to DIN 8074/BS 5114</u></b>	No.	1		
7	<b>Equal Adapters</b>				
7.1	OD75 female adapter	No.	2		
8	<b>Valves and Penstocks</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>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.	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.	1		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.5: KIRUHUSI IN IBANDA DISTRICT**

**Region: West**

**BILL No. 2 : TRANSMISSION MAINS**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
	<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 Roads</u></b> <u>Breaking up, temporary and permanent reinstatement of gravel roads for the following pipe sizes</u>				
11	Not exceeding DN300mm	m	36		
	<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	20		
	<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	40		
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>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.5: KIRUHUSI IN IBANDA DISTRICT**

**Region: West**

**BILL No. 2 : TRANSMISSION MAINS**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
14	<b><u>Other Pipework Ancillaries</u></b> <b><u>Marker Posts</u></b> Marker posts for pipes, gate valves, air valves, washouts	No.	20		
	<b><u>STRUCTURAL METALWORK</u></b> <u>Fabrication and erection of rolled steel section pipe bridge complete as shown on drawings</u>				
15.1	Span 3 - 5m at height not exceeding 2m.	No.	Rate Only		
15.2	Span 5.5 - 10m at height not exceeding 2m.	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  Page 11				

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

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.5: KIRUHUSI IN IBANDA DISTRICT**

**Region: West**

**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> 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; 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	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.5: KIRUHUSI IN IBANDA DISTRICT**

**Region: West**

**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 row, laid onto and including 200mm thick murram fill.	No.	Rate Only		
<b>7</b>	<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> <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		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.5: KIRUHUSI IN IBANDA DISTRICT

Region: West

**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> 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 PN10	m	Rate Only		
2.2	OD75mm PN10	m	1,000		
2.3	OD90mm PN6	m	Rate Only		
	<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.	6		
	<b><u>Unequal tees</u></b>				
3.2	OD90 x 63mm	No.	30		
	<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.	30		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.5: KIRUHUSI IN IBANDA DISTRICT**

**Region: West**

**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 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.				
6.1	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.	3		
7.2	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 locakable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -				
8.1	DN50mm	No.	30		
	<b><u>Other Pipework Ancillaries</u></b>				
	<b><u>Marker Posts</u></b>				
9	Marker posts for pipes, gate valves, air valves, washouts	nr	26		
	<b><u>STRUCTURAL METALWORK</u></b>				
	Fabrication and erection of rolled steel section pipe bridge complete as shown on drawings				
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.5: KIRUHUSI IN IBANDA DISTRICT**

**Region: West**

**BILL No.4 : DISTRIBUTION NETWORK**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
10.1	Span 3 - 5m at height not exceeding 2m.	No.	Rate Only		
10.2	Span 5.5 - 10m at height not exceeding 2m.	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	32		

**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**

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.6: NYACWAMBA IN KAMWENG DISTRICT**

**Region: West**

**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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.6: NYACWAMBA IN KAMWENG DISTRICT**

**Region: West**

**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 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>	350		
2.5	Ditto but in marshy soils	m <sup>3</sup>	260		
2.6	Ditto but in soft / decomposed rock soils	m <sup>3</sup>	170		
	<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>	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>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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.6: NYACWAMBA IN KAMWENGE DISTRICT**

**Region: West**

**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 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	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		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.6: NYACWAMBA IN KAMWENG DISTRICT**

**Region: West**

**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	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		
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	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>				
	<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.6: NYACWAMBA IN KAMWENG DISTRICT**

**Region: West**

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
X5	<b><u>Pump House</u></b> 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> 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> 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> Train Operator's staff in basic operation and maintenance procedures of all	Sum	1		
X9	<b><u>Operation and Maintenance Manuals</u></b> 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>					
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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.6: NYACWAMBA IN KAMWENG DISTRICT

Region: West

**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>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		
	<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 PN10	m	248		
	<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 10</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>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.6: NYACWAMBA IN KAMWENG DISTRICT

Region: West

**BILL No. 2 : TRANSMISSION MAINS**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
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	DN75mm PN10 <b>PN16 HDPE Compression fitting to DIN 8074/BS 5114</b>	No.	1		
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>				
8.1	DN75mm	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>				
9.2	DN75mm	No.	1		
	<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.	1		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.6: NYACWAMBA IN KAMWENGE DISTRICT

Region: West

**BILL No. 2 : TRANSMISSION MAINS**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
	<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 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><u>Surrounds</u></b> <u>Pipe surrounds, of selected excavated granular material, for the following pipe sizes</u>				
12.1	Not exceeding DN200mm	m	30		
	<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	15		
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	20		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.6: NYACWAMBA IN KAMWENG DISTRICT

Region: West

**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				
<b>Total Bill No. 2 Carried to Bill Summary</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.6: NYACWAMBA IN KAMWENG DISTRICT

Region: West

**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</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; 9.0m 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/ 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	DN65mm, 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	DN65mm, PN10	No.	1		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.6: NYACWAMBA IN KAMWENG DISTRICT

Region: West

**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	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 and including 200mm thick murram fill.	No.	Rate Only		
<b>7</b>	<b>Fences</b>				
7.1	Galvanised 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>				
	<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 10				
	Page 11				

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

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.6: NYACWAMBA IN KAMWENG DISTRICT

Region: West

**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, grubbing tree stumps and disposal of arising materials.	Item	1		
	<b><u>PIPEWORK-PIPES</u></b>				
2	<b><u>Plastic Pressure Pipes- Distribution</u></b> 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 PN10	m	318		
2.2	OD75mm PN10	m	100		
	<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.	3		
	<b><u>Unequal tees</u></b>				
3.2	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	OD75mm	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.6: NYACWAMBA IN KAMWENG DISTRICT

Region: West

**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 Vaves</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	OD63mm	No.	2		
<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	DN50mm	No.	3		
<b>8</b>	<b><u>Farm Gate Connections</u></b>				
	<u>Make DN50mm Irrigation Water Supply Hydrant connection to the</u>				
8.1	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	nr	10		
	<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>				
10	Not exceeding DN300mm	m	24		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.7: RWENKUGIRO IN MITOOMA DISTRICT

Region: West

**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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.7: RWENKUGIRO IN MITOOMA DISTRICT**

**Region: West**

**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>
	<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 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>	35		
2.2	Ditto but for the Intake Structure	m <sup>3</sup>	45		
2.3	Ditto but for the River Weir Structure	m <sup>3</sup>	3.5		
	<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, hand packed or compacted by the arm of an excavator.	m <sup>3</sup>	55		
3.2	Selected excavated material including topping with a 200mm thick layer of top/ vegetable soil.	m <sup>3</sup>	44		
3.3	Imported murrum.	m <sup>3</sup>	18		
	<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>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.7: RWENKUGIRO IN MITOOMA DISTRICT

Region: West

**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>				
5.1	50mm thick blinding concrete, for base slabs, toes, key and heel; grade C15, of the following thickness	m <sup>3</sup>	1		
	<b>Grade C25/10</b>				
	<b>Reinforced Concrete Base Slabs, Toe, Key and Heel</b>				
5.2	200mm thick key and toe.	m <sup>3</sup>	2.5		
5.3	200mm thick base and heel slabs.	m <sup>3</sup>	5		
5.4	500/ 200mm thick retaining wall/ weir stem.	m <sup>3</sup>	19.0		
5.5	200mm thick sump walls.	m <sup>3</sup>	41		
5.6	200mm thick top slab.	m <sup>3</sup>	1.2		
	<b>Formwork</b>				
	<b>Formwork-Fair Finish</b>				
6.1	<b>Fair Finish Plane Horizontal</b> Plane fair finish horizontal formwork to the tops slab including charmfering and / or filleting of all exposed concrete corners.	m <sup>2</sup>	4.5		
6.2	<b>Fair Finish Plane Vertical</b> Plane fair finish vertical and / or slightly soping formwork to walls including charmfering and / or filleting of all exposed concrete corners.	m <sup>2</sup>	145		
	<b>Finishing of top surfaces</b>				
6.3	Steel trowel finishing of top surfaces.	m <sup>2</sup>	20		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.7: RWENKUGIRO IN MITOOMA DISTRICT**

**Region: West**

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

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
	<b>Reinforcement</b>				
	<b><i>Deformed High Yield Steel</i></b>				
	<u>High yield square twisted bars to BS 4449 and of the following sizes</u>				
7.1	Nominal size, 12mm	t	2.0		
	<b>MISCELLANEOUS METAL WORK</b>				
	<b>Ladders</b>				
8.1	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	5		
	<b>Pump Protection System</b>				
8.2	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.	Rate Only		
	<b>Access Manhole Cover</b>				
8.3	600 x 600mm clear opening painted mild steel cover and frame include fixing and locking arrangement.	No.	2		
	<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	Item	1		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.7: RWENKUGIRO IN MITOOMA DISTRICT**

**Region: West**

**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>
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		
	<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	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		
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>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.7: RWENKUGIRO IN MITOOMA DISTRICT

Region: West

**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	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>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.7: RWENKUGIRO IN MITOOMA DISTRICT**

**Region: West**

**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 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.7: RWENKUGIRO IN MITOOMA DISTRICT

Region: West

**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	OD90mm HDPE PN10	m	380		
	<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, to BS EN 10242:1995, all				
5.1	DN75mm	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	DN75mm 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><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>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.7: RWENKUGIRO IN MITOOMA DISTRICT

Region: West

**BILL No. 2 : TRANSMISSION MAINS**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
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.	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>				
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	36		
	<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	36		
	<u>Pipe surrounds, of imported granular material, for the following pipe sizes</u>				
12.2	Not exceeding DN200mm	m	72		
	<u>Pipe surrounds, of mass concrete, for the following pipe sizes</u>				
12.3	Not exceeding DN200mm	m	20		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.7: RWENKUGIRO IN MITOOMA DISTRICT

Region: West

**BILL No. 2 : TRANSMISSION MAINS**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
13	<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				
13.1	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	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>				
	Page 8				
	Page 9				
	Page 10				

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

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.7: RWENKUGIRO IN MITOOMA DISTRICT

Region: West

**BILL No. 4.3 : 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>				
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 (4No. x 10m <sup>3</sup> Tanks)	No.	1		
	<b><u>Plastic Tanks</u></b>				
3	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/ 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	DN65mm, 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	DN65mm, PN10	No.	1		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.7: RWENKUGIRO IN MITOOMA DISTRICT

Region: West

**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 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> <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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.7: RWENKUGIRO IN MITOOMA DISTRICT

Region: West

**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> <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	392		
2.2	OD75mm PN6	m	264		
	<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.	4		
	<b><u>Unequal tees</u></b>				
3.2	OD75 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	OD75mm	No.	Rate Only		
4.2	OD63mm	No.	Rate Only		
5	<b><u>End caps</u></b>				
5.1	OD63mm	No.	10		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.7: RWENKUGIRO IN MITOOMA DISTRICT

Region: West

**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 Vaves</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	OD75mm	No.	2		
<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.	3		
<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 locakable chamber as detailed on Drawing No. OIS/NUC/SD/008, for the following mains sizes and all to PN10: -</u>				
8.1	DN50mm	No.	10		
	<b><u>Other Pipework Ancillaries</u></b>				
	<b><u>Marker Posts</u></b>				
9	Marker posts for pipes, gate valves, air valves, washouts	nr	26		
	<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>				
10	Not exceeding DN300mm	m	24		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.8: FOR KATONYA IN RUBIRIZI DISTRICT

Region: West

**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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.8: FOR KATONYA IN RUBIRIZI DISTRICT**

**Region: West**

**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>	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><u>Fillinn 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.8: FOR KATONYA IN RUBIRIZI DISTRICT**

**Region: West**

<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>
4	<b>Landscaping</b> Turfing for lawns inside fenced off compound; including filling with excavated topsoil and preparation of surfaces.  <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 , maximum aggregate size : 20mm for the following structures: -</u>	m <sup>2</sup>	40		
5	<b>Insitu Concrete</b> 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		
7	<b>Pre-cast Concrete</b> <b>Pump Well/ Sump</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. Internal diameter ; 1200mm	Item	1		
8	<b>Concrete Inserts</b> <b>Cast or Spum Iron Pipe Fittings.</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. 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.8: FOR KATONYA IN RUBIRIZI DISTRICT**

**Region: West**

<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>Adaptors</b>				
9	Flange adaptor to fit ductile PVC to all to PN6 and of the following sizes:- 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, 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.8: FOR KATONYA IN RUBIRIZI DISTRICT**

**Region: West**

**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	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	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.8: FOR KATONYA IN RUBIRIZI DISTRICT**

**Region: West**

**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	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		
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><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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.8: FOR KATONYA IN RUBIRIZI DISTRICT**

**Region: West**

**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	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 : ABSTRACTION AND ELECTROMECHANICAL WORKS</b>					
Item No.	Description	Unit	Qty.	Rate (UGx.)	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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.8: FOR KATONYA IN RUBIRIZI DISTRICT

Region: West

**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 PN10	m	450		
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>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</u>				
5.1	DN75mm	No.	4		
	<b><u>PIPEWORK - FITTINGS AND VALVES</u></b>				
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>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.8: FOR KATONYA IN RUBIRIZI DISTRICT

Region: West

**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</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.	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.	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>				
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	Not exceeding DN300mm	m	Rate Only		
<b>Total Carried to Collection</b>					



**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.8: FOR KATONYA IN RUBIRIZI DISTRICT

Region: West

**BILL No. 2 : TRANSMISSION MAINS**

Item No.	Description	Unit	Qty.	Rate (UGx.)	Amount (UGx.)
12.1	<b><u>Surrounds</u></b> Pipe surrounds, of selected excavated granular material, for the following pipe sizes Not exceeding DN200mm	m	30		
12.2	Pipe surrounds, of imported granular material, for the following pipe sizes Not exceeding DN200mm	m	45		
12.3	Pipe surrounds, of mass concrete, for the following pipe sizes Not exceeding DN200mm	m	24		
13	<b><u>Concrete Stools and Thrust Blocks</u></b>				
13.1	<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 Diameter not exceeding DN200mm	No.	Rate Only		
14	<b><u>Other Pipework Ancillaries</u></b> <b><u>Marker Posts</u></b> Marker posts for pipes, gate valves, air valves, washouts	nr	21		
<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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

**Scheme ID. 5.8: FOR KATONYA IN RUBIRIZI DISTRICT**

**Region: West**

**BILL No. 4.3 : 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; 1.0m 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/ 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	DN65mm, 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	DN65mm, PN10	No.	1		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.8: FOR KATONYA IN RUBIRIZI DISTRICT

Region: West

**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 and including 200mm thick murram fill.	No.	Rate Only		
<b>7</b>	<b><u>Fences</u></b>				
7.1	Galvanised 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 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: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.8: FOR KATONYA IN RUBIRIZI DISTRICT

Region: West

**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> 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	468		
2.2	OD75mm PN10	m	660		
2.3	OD90mm PN10	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	OD75mm	No.	1		
3.2	OD63mm	No.	6		
	<b><u>Unequal tees</u></b>				
3.3	OD90 x 63mm	No.	1		
3.4	OD75 x 63mm	No.	1		
3.5	OD75 x 50mm	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	OD90mm	No.	Rate Only		
5.2	OD75mm	No.	Rate Only		
<b>Total Carried to Collection</b>					

**CIVIL WORKS FOR OFF- FARM IRRIGATION INFRASTRUCTURE AND FACILITIES: Lot 2 - WESTERN & CENTRAL  
LOWER REGIONS**

Scheme ID. 5.8: FOR KATONYA IN RUBIRIZI DISTRICT

Region: West

**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 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.				
6.1	OD75mm	No.	4		
6.2	OD63mm	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	DN65mm	No.	4		
<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.	12		
	<b><u>Other Pipework Ancillaries</u></b>				
	<b><u>Marker Posts</u></b>				
9	Marker posts for pipes, gate valves, air valves, washouts	nr	72		
<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>					