MUUONI - MBITINI WATER DISTRIBUTION FOR AGRICULTURE AND LIVELIHOOD RESTORATION PROJECT - MBITINI WARD BoQ					
ALL PRICES ARE INCLUSIVE OF TRANSPORT, LABOUR COSTS, PROFITS & OVERHEADS					
BILL OF QUANTITIES					
Item	**Description**	**Unit**	**Qty**	**Rate (Ksh)**	**Amount (Kshs)**
Bill 1	**General Items/ Preliminaries**				
1.1	Supply and erect publicity sign board on 1.5m x 1.2m metal sheet approximately secured on a 40 mm x 3mm thick steel frame at least 2m above the ground level and leveled as directed	No	2		
	Sub total carried for collection in the summary page				
Bill 2	**100 CUBIC METER RC SUMP**				
Item	**Item Description**	**Unit**	**Qty**	**Rate**	**Amount**
2.1	**Earth works**				
2.12	Allow for setting out and probing for water sump by the supervising engineer	Item	1	25,000.00	25,000.00
2.13	Excavate wet sand and soil to reduce levels to create adequate working area	CM	200		
2.14	Ditto e.o excavations in hard rock including making good	CM	5		
2.15	Keep all ecavations free of water by either bailing, pumping, diverting river flow or other means including during excavation and construction	Item	1		
2.16	Allow for planking and strutting	SM	96		
2.17	Backfill and ram as directed externall sides of wall	CM	150		
2.18	Spread/ load and cart away surplus excavated materials from site as directed	CM	100		
2.2	**Reinforcement bars (rate to include binding wires)**				
	Provided handle, cut, bend and fix the following reinforcement bars as stated in the bending schedule or as directed by the Engineer (rate to include binding wires and drilling in rock)				
2.21	16mm diameter bars in beams and column	Kgs	860		
2.22	12 mm diameter for slabs (top and bottom mesh both ways for top slab) and walling	Kgs	1100		

2.23	10mm diameter bars as stir ups, walling and top bar for top slab	Kgs	1399		
2.3	**Concrete work: Use rapid hardening cement**				
2.31	Construct circular/rectangular, vibrated concrete class 25 ring beam and cross beams as footing as per the provided drawing	CM	4		
2.32	Pack 250-300mm approved hardcore to make up levels	SM	50		
2.33	Construct reinforced concrete column (pillar) 450x450mm with 8 No D16 rebars at the centre of the sump floor as per the provided drawing	CM	1		
2.34	Reinforced concrete Class 20 mix 1:2:4 for tank 200 mm slab, 200 mm walling, 8 No 200 x 200 mm columns and beams with provisions for water seepage/penetration on walls as directed	CM	34		
2.4	**Formwork**				
2.41	Sawn timber formwork for rc walling	SM	112		
2.42	Allow for cost of formwork for roof slab	SM	52		
2.43	Extra over ditto for manhole size 600 x 600mm in roof slab	No.	2		
2.44	Formwork for columns and beams	SM	12		
2.5	**Miscellaneous works**				
2.51	Construct and install reinforced concrete manhole cover 600mm x 600 mm of the roof slab reinforced concrete class 25 as directed. Use D10mm c/c 150mm for main both main and distribution bars as directed	No.	2		
2.52	1500mm x 300mm internal stainless steel ladder anchored in wall or as shall be directed	No.	1		
2.6	**Repair of sand dam**				
2.61	Provide and mix materials needed for designed boulder cyclopean concrete Class 25/20 mix 1:1.5:3 for sand dam wall	CM	7.0		
2.62	Formwork for external surface of wall	SM	14.0		
2.63	Reinforcement bars D12	Kgs	119.875		
	Sub Total carried for collection in the summary page				

BILL C) PUMPING SYSTEM					
S NO.	ITEM DESCRIPTION	UNIT	QTY	RATE	AMOUNT KSHS.
3.1	Fabricate a firm rust-free stand 300 mm height to hold pump and motor inside the sump	No	1		
3.2	Supply, Deliver, Install and Test a Submersible Multistage Centrifugal Pump Set of Duty Point: - 15 m3/hr at a Total Head of 50 meters and 4.4 kw motor. The pump Efficiency at duty point should not be less than 70%. The pump Impellers should be of Stainless Steel. Provide Copies of Pump Characteristic /Performance Curves (Brochures). Install DS 17 - 7 or equivalent as approved by the Supervising Engineer	No.	1		
3.3	Supply, Deliver & Install a AC/DC inverter for solar powered motor rated 4.4 kw Incorporating: - Hybrid capability with the option of DC solar power, generator or mains grid power inputs with the following functions Settable minimum and maximum frequency and open circuit voltage, Display of operating parameters including frequency, voltage, amperage, input power and pump speed, Protection against over and under voltage, over current, system overload and module over temperature, Fault detection with error code display and Selectable hybrid modes that prioritise solar supply as well as maximise output through optimal blending of both power supplies . Install SV3/5.5T or equivalent as approved	No.	1		
3.4	Circuit Disconnect Switch, 63Amps	No.	1		
3.5	Three phase 2.5 mm^2 X 4 core submersible Cable or armoured cable anchored appropriately	LM	120		
3.6	Sensor Cable, Twin, Double Insulated, 1.5mm^2	LM	120		
3.7	Adaptor Set	Set	1		
3.8	Cable Glands, 25mmL	No.	4		
3.9	Cable Glands, 20mmL	No.	2		
3.1	Splicing Kit, Medium Packet	No.	2		
3.11	Cable Ties, Large Packet, Manila	No.	2		

3.12	Insulating Tapes, Large	No.	20		
3.13	Non return valve 2.5" metallic only	No.	1		
	CCTV				
3.14	Supply, deliver, install, and test a waterproof 45OW 4G solar floodlight with CCTV camera with minimum 350 degrees rotation, night vision, full colour recording, motion sensor, and 4G sim card accessible remotely with 6 months subscription to be installed as approved by the supervising engineer	No	1		
3.15	Supply and instal on firm reinforced concrete foundation, use 2.5" G.I pipe 6 m length	No	1		
	SOLAR PANELS & STRUCTURE				
Non Vatable					
A	Supply, Deliver and Install on the steel tower, Solar Array System of total output 8,880 Watts, including high-efficiency tier 1 monocrystalline modules As JA Solar 555W panels in 1 string of 16 panels with maximum string voltage VOC ≤850 VDC as approved using 6 mm sq dc cable and MC4 terminated on both sides to be mounted on the structure	W	8880		
Vatable					
B	Supply, deliver and erect firmly on Concrete Anchors, Fabricated Steel Tower, use square tubes, 4" x 4" x 4mm, for solar Array System, minimum height 5 meters, solar controller box 1000mm by 500mm by 300mm well ventilated to be included and tower inclination angle 10-15 degrees. To be installed as directed by the supervising Engineer	NO	1		
C	Supply and install DC enclosure complete with inline 1100VDC fused isolator	NO	1		
D	Supply install, test and commission 6mm PV Cable Single Core1000VDC Tinnd Copper ; Insulation: XLPO ; Insulation Color: Red and black in a 25mm HG PVC conduit	M	60		
E	Supply and lay Armored Cable, 6 mm^2 X 4 core copper cable in a 25mm HG PVC Conduit	M	50		

F	Allow for system earthing, lightening arrestor and balance of system installation and equipotential bonding.	Lot	1		
	Sub Total Carried for collection in summary page				
BILL	**D) RISING MAIN**				
S	**ITEM DESCRIPTION**	**UNIT**	**QTY**	**RATE**	**AMOUNT**
NO.					**KSHS.**
	The rate quoted is for site clearance and demolition along construction wayleave. Rate shall be deemed to include removal of the material, natural and artificial articles, objects and obstructions which are above the original surface and carting away to tips, identified by the contractor in liaison with the Local Authority, supply and transport to site storage, transport from site storage, excavate, lay and joint pipes complete with all jointing materials. The rate is deemed to include excavation, bed lining, installation and backfilling of the pipe trenches. keep trenches and their excavations free of water.				
	RISING MAIN TO KAVUTHU				
4.1	Site clearance and excavation to pipe invert level as per engineer's specifications (trench minimum depth 750 mm), lay, test pipeline and backfill to ground level for item below	LM	800		
4.2	Supply, deliver, install and test O/D 75 mm (2.5") HDPE pipes PN12.5 as per KS ISO 4427:2007. To be laid in the same trench as item 4.1 above	LM	800		
4.3	Butt fusion for item 4.2 above	Item	1		
4.4	2.5" tee connection for installation of 1" air valve along the rising main (not clamp)	No	1		
4.5	Supply, deliver, install and test O/D 32 mm (1") air valves	No	1		
	RISING MAIN TO A.C.K CHURCH				
4.6	Site clearance and excavation to pipe invert level as per engineer's specifications (trench minimum depth 750 mm), lay, test pipeline and backfill to ground level for item below	LM	1000		

4.7	Supply, deliver, install and test O/D 75 mm (2.5") HDPE pipes PN12.5 as per KS ISO 4427:2007. To be laid in the same trench as item 4.6 above	LM	1000		
4.8	Butt fusion for item 4.7 above	Item	1		
4.9	Provide thirty thousand shillings for materials and on-site geometric positioning of all pipelines and fittings by the client's representative	ls	1	30,000.00	30,000.00
4.1	2.5" tee connection for installation of 1" air valve along the rising main (not clamp)	No	1		
4.11	Supply, deliver, install and test O/D 32 mm (1") air valves	No	1		
4.12	2.5" gate valve	No	2		
4.13	2.5" equal tee welded	No	1		
	Sub Total Carried for collection in summary page				
BILL E) 2NO X 20M3 PLASTIC TANK 12M TOWER					
No.	**DESCRIPTION**	**UNIT**	**QTY**	**RATE**	**AMOUNT**
				KShs.	**KShs.**
5.1	Fabricate and install 12m high tank platform to hold 2No. 10,000 litres plastic water tanks as per the provided drawing	No	1		
5.2	Supply and install 2 No. double layer 10,000 litres plastic water tanks on item 5.1 above.	No	2		
	piping and plumbing				
5.3	2.5" G.I Class B inlet pipe 6 m lengths c/w fittings, cutting and welding	LM	18		
5.4	3" G.I Class B G.I outlet pipe 6 m lengths c/w fittings, cutting and welding	LM	18		
5.5	2" G.I Class B G.I overflow pipe 6 m lengths c/w fittings, cutting and welding	LM	18		
5.6	Supply, deliver, install and test cast iron metallic sluice valve 3" metal PN16; with gaskets, bolts and nuts	No	1		
5.7	3" G.I equal tee	No	1		
5.8	Allow for publicity branding c/w logos,	Item	1		
	Sub total for 1 No tank structure				
	Sub total carried for collection in the summary page	**No**	**2**		

BILL	F) IRRIGATION PIPELINES				
S NO.	ITEM DESCRIPTION	UNIT	QTY	RATE	AMOUNT KSHS.
	Construct 6 No Irrigation mains 1.5 km length each				
6.1	Clearing site and excavation to pipe invert level as per engineer's specifications (trench minimum depth 600 mm), lay, test pipeline and backfill to ground level for item below	LM	9000		
6.2	Supply, deliver, install and test O/D 90 mm (3") HDPE pipes PN10 100 m roll as per KS ISO 4427:2007. To be laid in the same trench as item above	LM	1800		
6.3	Supply, deliver, install and test O/D 63 mm (2") HDPE pipes PN10 100 m roll as per KS ISO 4427:2007. To be laid in the same trench as item above	LM	4200		
6.4	Supply, deliver, install and test O/D 50 mm (1.5") HDPE pipes PN10 100 m roll as per KS ISO 4427:2007. To be laid in the same trench as item above	LM	3000		
6.5	Supply, deliver, install and test O/D 90 mm (3") HDPE straight connectors	No	12		
6.6	Supply, deliver, install and test O/D 63 mm (2") HDPE straight connectors	No	36		
6.7	Supply, deliver, install and test O/D 50 mm (1.5") HDPE straight connectors	No	24		
6.8	3" gate valve	No	6		
6.9	90 mm x 63 mm reducer	No	6		
6.1	63 mm x 50 mm reducer	No	6		
6.11	40 mm tee c/w saddle clamps and end caps	No	96		
	Sub Total Carried for collection in summary page				

BILL	G) VALVE CHAMBER				
No.	ITEM DESCRIPTION	UNIT	QTY	RATE	AMOUNT
				KShs.	KShs.
	Supply materials and provide personnel to construct a gate valve chamber (as in the attached drawing)				
7.1	Cut the spoil upto 300mm below g.l. over the borehole chamber area and remove all vegetable soil to temporary spoil heap.	CM	0.3		

7.2	Excavate foundation from stripped level over the borehole chamber site to depth n.e. 0.6m deep 300 mm wide and dispose soil as directed	CM	1		
7.3	Mass concrete mix 1:4:8: in 50mm concrete slab	CM	0.1		
7.4	225mm thick dressed quarry stone walling	SM	5		
7.5	Provide and instal a lockable double steel Cover c/w padlock or a reinforced concrete cover as instructed	No.	1		
7.6	EXTERNAL PLASTER - 20mm thick 1:2 cement sand to exterior face of the valve chamber wall	SM	4		
	Total for 1 No valve chamber				
	Sub total carried for collection in the summary page (for 6 No)	**No.**	**6**		

BILL	**H) FORESTRY COMPONENT**				
Item	**Description**	**Unit**	**Qty**	**Rate (Ksh)**	**Amount (Kshs)**
8.1	Purchase and supply of indeginous avocado tree seedlings; all potted, more than 2ft height not more than 2.5ft	No.	4500		
	Sub total carried for collection in the summary page				

	BILL I) AGRICULTURE				
Item	**Description**	**Unit**	**Qty**	**Rate (Ksh)**	**Amount (Kshs)**
9.1	Supply and Deliver Large Conical bags (120 seedlings capacity) of 6 polythene layers sheets of gauge 1mm, Bottom one with 4.71M diameter and the last apex layer/sheet of 30cm, All Sheets of 20 cm Width/height pinned and screwed with 2inch long screws as shall be instructed by the agriculture officer	No.	60		
	Sub total carried for collection in the summary page				

BILL	**PROVISIONAL SUMS**	**UNIT**	**QTY**	**RATE**	**AMOUNT**
J					**KSHS.**
10.1	Allow a Provisional sum of Kshs 150,000 for Contingencies to be expended by project manager				150,000.00

	Sub Total carried for collection in the summary page				

BILL	GRAND SUMMARY	UNIT	QTY	RATE	AMOUNT
					KSHS
A	GENERAL ITEMS/PRELIMINARIES				
B	100 CUBIC METER RC SUMP				
C	PUMPING SYSTEM				
D	RISING MAIN				
E	2NO X 20 M3 PLASTIC TANK 12M TOWER				
F	IRRIGATION PIPELINES				
G	VALVE CHAMBER				
H	FORESTRY				
I	AGRICULTURE				
J	PROVISIONAL SUMS				
	SUB TOTAL				
	Public Procurement Capacity Building Levy order 2023 which is 0.03% of the total cost before tax (Pursuant to PPRA Circular No. 1 of 2024)				
	Add 16% of Sub-Total 2 for Value Added Tax				
	TOTAL TAKEN TO TENDER FORM				