REPUBLIC OF KENYA

MINISTRY OF LANDS, PUBLIC WORKS, HOUSING AND URBAN DEVELOPMENT

STATE DEPARTMENT OF PUBLIC WORKS

BILL OF QUANTITIES

FOR

PROPOSED DRILLING ANG EQUIPPING OF BOREHOLE AT MGALLA PRIMARY SCHOL

NG-CDF RABAI
(ESTIMATE)

REGIONAL QUANTITY SURVEYOR
MOMBASA REGION
P.O. BOX 90350
MOMBASA

REGIONAL WORKS OFFICER
MOMBASA REGION
P.O. BOX 90350
MOMBASA

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Regional Works Officer
Mombasa

NOVEMBER, 2024

S0LAR POWERED BOREHOLE
FOR THE RABAI NG-CDF

No.	Item description	Unit	Qty	Rate (Kshs)	Amount (Kshs)
A	**Geophysical Survey and Drilling**				
2	Conduct hydrological survey from a registred and Licenced Hydrogeological surveyor by the ministry of Water, and submitt the report to the Engineer.	L/s		85,000	85,000.00
3	Mobilization &regulatory costs including permit	L/s		200,000	200,000.00
4	Site preparation	L/s		85,000	85,000.00
5	Carry out air Drilling,approxiamately 160m.	M	160	6,000	960,000.00
6	Procure, deliver to site and install Casings,6-inch UPVC casings as approved by the Engineer.	M	160	1,500	240,000.00
7	Gravel pack	Kg	300	400	120,000.00
8	Carry out Test pumping and Water Quality analysis, document and submitt to the Engineer	L/s		80,000	80,000.00
9	Allow for project signboard to be maintained during the project duration, all as directed by the Engineer.	LS		32,000	32,000.00
	SUBTOTAL FOR DRILLING,CASTING, TEST PUMPING				**1,802,000.00**

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SOLAR POWERED BOREHOLE FOR NG CDF RABAI IN RABAI SUB COUNTY				
DESCRIPTION	**QTY**	**UNIT**	**RATE**	**TOTAL (Kshs)**
WATER KIOSK AND TANK SUPPORT **ELEMENT NO 1.** **SUBSTRUCTURE (ALL PROVISIONAL)** ***All Substructure works SHALL be remeasured on execution*** ***Note: All excavations are measured nett and NO working space is allowed***				
Excavate oversite average 200mm deep to clear site, remove shrubs, small trees, grub up roots and cart away as directed	25	sm	1000	25,000
Excavate oversite average 200mm deep remove vegetable soil and to make up levels and cart away where directed	25	sm	1000	25,000
Excavate trench for strip foundation not exceeding 1.5m deep in soft coral	11	cm	900	9,900
Ditto but column bases	9	cm	1500	13,500
Extra over all descriptions of excavations and removal from site for breaking up rocks: irrespective of class	4	cm	900	3,600
Return fill and ram	20	cm	500	10,000
Cart away surplus excavated material and rock	20	cm	500	10,000
Hardcore Filling -				
300mm Thick layer of imported hardcore filling including hand packing, levelling and consolidating in 150mm layers all to Architects approval	7	sm	1000	7,000
50mm Thick Quarry dust blinding to the surface of hardcore rolled smooth to receive polythene sheeting	7	sm	900	6,300
Carried to collection				**110,300**
DEB/4				

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No	Description	QTY	UNIT	RATE	TOTAL
	Insecticide treatment				
	Premise SC or other equal and approved termiticide 0.5% solution to be applied at the rate of 4 litres per square metre on top of hardcore filling over foundation walls				
A	To Quarry dust surface and on top of walls	9	sm	1000	9,000
	MASS CONCRETE (1:3:6) IN:				
	-				
B	50 mm blinding under strip footing	7	sm	3000	21,000
C	Ditto but under column bases	6	sm	3000	18,000
	REINFORCED CONCRETE(1:2:4) IN				
	-				
D	Strip Foundation	2	cm	9,000	18,000
E	Column bases	2	cm	9,500	19,000
F	Columns	1	cm	9,500	9,500
G	Ground beam	1	cm	12,000	12,000
H	150mm surface bed	9	sm	2,500	22,500
	Sawn formwork to:-				
I	Sides of columns	6	sm	3000	18,000
J	Sides of ground beams	4	sm	4000	16,000
K	sawn form work to edges of surface bed 75-150mm high	12	lm	3500	42,000
	Carried to collection				**205,000**
	DEB/5				

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No	Description	QTY	UNIT	RATE	TOTAL
	Steel reinforcement as described including cutting to lengh,bending,hoisting and fixing including all necessary tying wires and spacing blocks.				
	High yield square twisted bars to B.S. 4461				
A	16mm diameter bars	46	kg	2000	92,000
					-
B	12mm ditto	44	kg	1800	79,200
					-
B	10mm ditto	26	kg	1500	39,000
					-
C	8mm ditto	57	kg	1400	79,800
					-
D	BRC Fabric mesh reinforcement Ref. A142; weighing 2.22kg per square metre(measured net no allowances made for laps) including bends tying wire and distance blocks.	9	sm	2000	18,000
					-
	Walling.				-
E	200mm thick machine cut coral block wall bedded and jointed in cement sand(1:3) mortar and reinforced every alternate course with hoop iron.	15	sm	4,000	60,000
					-
G	200mm wide Hessian based bituminous felt. Damp proof course bedded in cement sand (1:3) mortar including 150mm end taps	12	lm	3000	36,000
	DAMP PROOFING				-
	1000 Gauge polythene; 150mm laps; no allowances made for laps				-
H	Horizontal; over 300mm wide	9	sm	3000	27,000
					-
	Planking and strutting				-
I	Planking and strutting to sides of all excavations: keep excavations free from all fallen materials	1	item	15,000	15,000
	Carried to collection				**446,000**
				DEB/6	

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No.	Description	QTY	UNIT	RATE	TOTAL
	Disposal of Water				
J	Keep excavations free from all water including spring or running water.	1	item	40,000	40,000
	PLINTH				
A	12mm thick cement sand(1:3) rendering on plinth walls	4	sm	5000	20,000
B	Prepare and apply three coats first quality Bitumastic paint on plinth walls	4	sm	1000	4,000
	Carried to collection				**64,000**
	COLLECTION:-				
	Brought forward from page BL/1				110,300
	Brought forward from page BL/2				205,000
	Brought forward from page BL/3				446,000
	Brought down from page BL/4				64,000
	TOTAL OF SUBSTRUCTURE CARRIED TO SUMMARY				**825,300**

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NO	DESCRIPTION	QTY	UNIT	RATE	TOTAL
	ELEMENT No 2:- **SUPERSTRUCTURE REINFORCED CONCRETE STRUCTURE**				
	Vibrated Reinforced concrete 1;2;4 in				
A	Reinforced concrete (1:2:4) in ring beam	2	cm	450	900
					-
A	Ditto columns	3	cm	450	1,350
					-
B	100 mm thick suspended slab	9	sm	500	4,500
					-
C	200 mm thick suspended slab	13	sm	500	6,500
					-
	Sawn formwork to:-				-
C	Sawn formwork to sides and soffites of beam	30	sm	500	15,000
					-
D	Ditto but soffits of suspended slab	22	sm	500	11,000
					-
E	Edges of suspended slab 150 - 225mm high	26	lm	450	11,700
					-
F	Column sides	43	sm	350	15,050
					-
	Steel reinforcement as described including cutting to lengh,bending,hoisting and fixing including all necessary tying wires and spacing blocks.				-
	Square twisted high tensile bars				-
					-
E	16mm diameter high yield reinforcement bars	317	kg	230	72,910
					-
E	12mm diameter ditto	115	kg	250	28,750
					-
E	10mm diameter ditto	446	kg	200	89,200
					-
F	8mm diameter mild-steel bars	169	kg	230	38,870
	TOTAL OFSUPERSTRUCTURE REINFORCED CONCRETE STRUCTURE CARRIED TO SUMMARY				**295,730**

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NO	DESCRIPTION	QTY	UNIT	RATE	TOTAL
	ELEMENT No 3:-				
	WALLING				
	Coral stone machine dressed walling of the required minimum compressive strength of 10 N/mm2 bedded in cement sand (1:3) mortar reinforced with and including gauge 12 soft wire gauge hoop iron at every alternate course				
A	200mm thick machine -cut coral block walling Externally	23	sm	450	10,350
	TOTAL OF WALLING CARRIED TO SUMMARY				10,350
	ELEMENT No 4				
	-				
	DOORS:				
	Heavy duty mild steel grilled door in 25 x 25 x 3mm square hollow section vertical members butt welded and spaced at 75 mm centers and 25 x 37 x 3 mm rectangular hollow section framing and intermediate members including heavy duty hinges grouted to walls with fish tail lugs, locking system and painting in one coat of rust resistant red oxide primer before fixing and Two finishing gloss paint (m/s) to all metal surfaces all to Project Managers approval				
A	Door overall size 900 x 2100 mm high	1	No.	50,000	50,000
	Painting and Decoration				
	Prepare and apply three coats first quality gloss paint or other equal and approved to:-				
B	Metal surfaces measured nett internally and externally	4	sm	2,000	8,000
	TOTAL OF DOORS CARRIED TO SUMMARY				**58,000**

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NO	DESCRIPTION	QTY	UNIT	RATE	TOTAL
	ELEMENT No 5				
	WINDOWS:				
	Burglar proofing grilles				
B	Mild steel grill, overall size 2000x1500mm high, framed with 16 x 16 x 3mm thick RHS sections welded together at 200 mm centres bothways; including assembly and fixing to opening cutting and pinning lugs to concrete and bedding frame in cement and sand mortar (1:4)	1	NO	15,000	15,000
	Painting and Decoration				
	Prepare and apply three coats first quality gloss paint or other equal and approved to:-				
A	Metal surfaces measured nett internally and externally	6	sm	2,400	14,400
	TOTAL OF WINDOWS CARRIED TO SUMMARY				**29,400**
	ELEMENT No 6				
	FINISHES:				
	FLOOR FINISHES				
A	25mm thick cement sand(1:3) floor finishes steel trowelled smooth and finished in red oxide nyll to approval	9	sm	1500	13,500
					-
B	100 x 25mm skirting ditto	11	lm	500	5,500
A	25mm thick cement sand(1:3) floor finishes steel trowelled smooth to approval	13	sm	450	5,850
					-
	WALL FINISHES				-
C	12mm thick cement sand (1.3) plaster walls, columns and ring beam internally	48	sm	500	24,000
F	Ditto soffits of roof slab internally	22	sm	500	11,000
D	15mm thick cement sand (1.3) rendering walls, columns and ring beam externally	63	sm	500	31,500
E	300 X 300MM ceramic tiles of a bermuda blue theme on the front side of the tower as directed by the Engineer	20	sm	2000	40,000
	TOTAL OF FINISHES CARRIED TO SUMMARY				**131,350**

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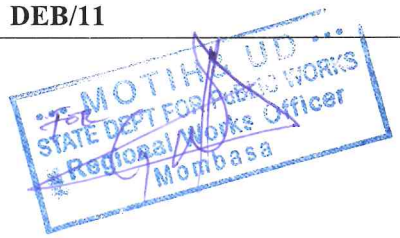
NO	DESCRIPTION	QTY	UNIT	RATE	TOTAL
	ELEMENT No 7				
	-				
	PAINTING AND DECORATING:				
	-				
	Prepare and apply three coats PVA based premium quality silk vinyl emulsion paint or other equal and approved to:-				
	-				
A	Plastered walls, columns and beam internally	48	sm	700	33,600
F	Ditto soffits of roof slab internally	22	sm	700	15,400
	Prepare and apply three coats high quality permaplast paint as "Crown Berger" paint or other equal and approved to:-				
B	Rendered surfaces externally	63	sm	800	50,400
	Branding				
	-				
C	Provide all materials and labour for printing the following labelling "FUNDED BY RABAI NG-CDF FY 2024/2025" on the front wall, including the NG-CDF logo. NOTE: Font stroke size to be not less than 20mm and letter height not less than 200mm or as directed by the Engineer.	1	No	25,000	25,000
	TOTAL OF PAINTING AND DECORATING CARRIED TO SUMMARY				**124,400**



NO	DESCRIPTION	QTY	UNIT	RATE	TOTAL
	ELEMENT No 8				
	-				
	WATER TANK				
A	Supply, deliver and install vertical close end plastic moulded water tank of capacity 10,000 litre size 2400 diameter x 2800mm high connected to the main water supply line. The tank to be assembled complete with cover and having screwed connections for inlet, outlet and overflow, 32mm medium pressure ball valve, drain pipes and any other necessary item for its proper functioning. The tank shall be mounted on top of suspended roof slab of water kiosk and shall be as Toptank model or equal and approved by the Engineer.	1	NO	100,000	100,000
	-				
1	**Substructure**				825,300
2	**Superstructure concrete structure**				295,730
3	**Walling**				10,350
4	**Doors**				58,000
5	**windows**				29,400
6	**Finishes**				131,350
7	**Painting and decorating**				124,400
8	**Water tank**				100,000
	TOTAL OF WATER WORKS CARRIED TO MAIN SUMMARY				**1,574,530.00**
	DEB/12				

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No	Description	Unit	Qty.	Rate	Cost (kshs.)
A	**solar panels, pumps and accessories**				
(i)	**Pumping (Provisional)** Supply, install and test a Grundfos or its equivalent european standard submersible solar pump coupled with its motor. The discharge should not be less than $5m^3/hr$ against 150m head. Rates to include control panel and its associated cabling, floatswitch, a dipper tube (airline), flow meter and a measure to safe guard against power surge. The system should run on auto mode.				
ii	The pumping system shall include but not limited to;	Set	1	600,000.00	600,000.00
iii	1.5" uPVC threaded borehole pipes	Pc	30	4,000.00	120,000.00
iv	PVC Flat submersible drop cable	M	90	1,500.00	135,000.00
v	Dayliff SV2 Sunverter controller	Pc	1	230,000.00	230,000.00
vi	Provide and install solar module for electricity supply at the borehole site. The solar panels electricity supply should match the pump duty specified above or as directed by the Project Manager	Ls	1	300,000.00	300,000.00
vii	Airline pipes	M	90	200.00	18,000.00
viii	Float Switch	Ls	1	20,000.00	20,000.00
	Total Carried to Collection				**1,423,000.00**
	DEB/13				

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No	Description	Unit	Qty	Rate	Cost (Ksh)
ix	12mm Braided rope	M	90	200.00	18,000.00
x	Borehole Cover Provide and install one 2" master meter class B (type and make to be approved by the Project Manager) c/w Non Return Valve at the well head. Rate to include all pipe and	Pc	1	50,000.00	50,000.00
xi	fittings at the well head.	Pc	1	30,000.00	30,000.00
xii	Electrode cables complete for dry run protection	Ls	1	30,000.00	30,000.00
xiii	Solar support structure	Item		150,000.00	150,000.00
	Total Carried to Collection DEB/13				**1,423,000.00**
	TOTAL OF EQUIPPING CARRIED TO SUMMARY				**1,701,000.00**
	DEB/14				

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DRILLING!'BOREHOLE EQUIPPING'!

GRAND SUMMARY

ITEM	DESCRIPTION	FOR OFFICIAL USE ONLY K.SHS.	FOR TENDERER USE ONLY K.SHS.
A	BOREHOLE DRILLING	1,802,000.00	
B	EQUIPPING WORKS	1,701,000.00	
C	WATER TOWER WORKS	1,574,530.00	
	SUB-TOTAL	**5,077,530.00**	
	Allow for Project Management	**325,000.00**	**325,000**
	Add 5% Contigincies	253,876.50	
	Add 16% VAT	812,404.80	
	TOTAL CARRIED TO FORM OF TENDER	**6,468,811.30**	

Amount in words. Kenya shillings

.....

.....Cents .....

Tenderer's Signature and stamp.....

Address

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Date

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Witness Signature

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Address

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Date

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