

BILL OF QUANTITIES FOR NDAU VILLAGE - WATER SUPPLY CONSTRUCTION.

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT KSHS
A.	CONSTRUCTION OF 8.305KM PIPELINE				
	Clearing of pipeline route				
1.0	Clear pipeline route of bushes, undergrowth, trees, debris and rubbish and dispose. Width of clearance to be 2.0m to accommodate for access road and trench and excavation of materials.	M ²	1,850		
	Excavation				
1.1	Excavate for pipe trench to a depth not exceeding 1000mm for 80mm diameter Pvc pipes class D, prepare bed on completion of excavation.	M	925		
1.2	Excavate for pipe trench to a depth not exceeding 1000mm for 50mm diameter Pvc pipes class D, prepare bed on completion of excavation.	M	680		
1.3	Excavate for pipe trench to a depth not exceeding 1000mm for 25mm diameter Pvc pipes class D, prepare bed on completion of excavation.	M	1,000		
1.4	Excavate for pipe trench to a depth not exceeding 1000mm for 20mm diameter Pvc pipes class D, prepare bed on completion of excavation.	M	3,000		
1.5	Excavate for pipe trench to a depth not exceeding 1000mm for 20mm diameter PPR pipes class D, prepare bed on completion of excavation.	M	2,700		
	<i>SUB-TOTAL</i>				

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
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NO.					KSHS
	<i>Balance Brought Forward</i>				
	Laying and jointing of pvc pipes.				
1.6	Distribute, lay and joint 80mm diameter Pvc pipes class D in trench including making provisions for appurtenances and pipe fittings as per specifications.	M	925		
1.7	Distribute, lay and joint 50mm diameter Pvc pipes class D in trench including making provisions for appurtenances and pipe fittings as per specifications.	M	680		
1.8	Distribute, lay and joint 25mm diameter Pvc pipes class D in trench including making provisions for appurtenances and pipe fittings as per specifications.	M	1,000		
1.9	Distribute, lay and joint 20mm diameter Pvc pipes class D in trench including making provisions for appurtenances and pipe fittings as per specifications.	M	3,000		
2.0	Distribute, lay and joint 20mm diameter PPR pipes for meter installation.	M	2,700		
	<i>SUB-TOTAL</i>				

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
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NO.					KSHS
	Balance Brought Forward				
	Backfilling				
2.1	Backfill trench using well selected excavated material after laying and jointing the 80mm, 50mm, 25mm and 20mm PVC and PPR pipes.	M	8,305		
	Installation of Consumer Water Meters				
2.2	Distribute and install No.576 of 15mm Kent Water Meters as directed by the Engineer.	No.	576		
	Road crossing				
2.3	Allow for provision of road crossing; culvert construction and casing for PVC pipes.	Lump sum	1		
	Construction of valve chambers				
2.4	Construct standard reinforced concrete valve chambers. Include for hardcore fill, boxing out for manhole and fixing of 1No. MS manhole cover and frame light duty 600x 450mm for water master meters, air valves and washout.	No.	3		
	Pressure Testing & Disinfection.				
2.5	Allow for carrying out pressure testing on pipeline.	M	1,605		
	Installation of Air Valves, Wash out and Water Master Meters.				
2.6	Install rising air valves wash out and water master meters and connect to pipeline as instructed on site.	No.	3		
	SUB-TOTAL				

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
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NO.					KSHS
	<i>Balance Brought Forward</i>				
2.7	INSTALLATION OF AIR VALVES, WASH OUT AND WATER METERS Provide and install 2” water meters at inter connection of the 80mm diameter PVC Pipeline.	No.	3		
2.8	CONSTRUCTION OF INTERCONNECTION CHAMBERS. Supply all materials, construct chambers for interconnection of the gravity main of 80mm diameter and the extension distribution mains of 50mm	No.	5		
2.9	Install and connect to pipeline sluice valve and all other fittings.	No.	3		
3.0	Miscellaneous Provide concrete class 15 include for the required formwork and additional excavation for anchor blocks and surrounding of pipeline as directed by the Engineer (Provisional).	No.	10		
3.1	MARK POST Provide, lay and fix in place and paint pre-cast reinforced concrete marker posts along the pipeline at 200m interval, the posts to be with letter 100mm, 80mm and 50mm posts be painted blue. The size to be 75mm x100mm x 150mm long.	No.	18		
	<i>SUB-TOTAL</i>				

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
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NO.					KSHS
	<i>Balance Brought Forward</i>				
B.	MATERIALS FOR PIPELINE.				
1.	PVC 80mm Diameter pipes class D	No.	155		
2.	PVC 50mm Diameter pipes class D	No.	114		
3.	PVC 25mm Diameter pipes class D	No.	167		
4.	PVC 20mm Diameter pipes class D	No.	650		
5.	PPR 20mm Diameter pipes class D	No.	450		
6.	2" PVC Tee	No.	20		
7.	1" PVC Tee	No.	168		
8.	3/4" PVC Tee	No.	150		
9.	3" x 2" PVC Reducing socket	No.	4		
10.	2" x 1" PVC Reducing socket	No.	100		
11.	1" x 3/4" PVC Reducing socket	No.	100		
12.	2" Gate valve	No.	3		
13.	1" Gate valve	No.	50		
14.	3/4" Gate valve	No.	900		
15.	3/4" G.I Elbow	No.	750		
16.	3/4" G.I Bend	No.	900		
	<i>SUB-TOTAL</i>				

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
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NO.					KSHS
	<i>Balance Brought Forward</i>				
17.	3/4" x 1/2" G.I Reducing Bush	No.	1,350		
18.	1/2" Tap (Pegler)	No.	450		
19.	1/2" Water Meter (Kent)	No.	120		
20.	2" PVC Cap	No.	4		
21.	2" PVC Adaptor	No.	10		
22.	1" PVC Adaptor	No.	200		
23.	3/4" PVC Adaptor	No.	1,350		
24.	Solfix cement	LTR.	100		
25.	Thread Seal/Tape	No.	3,000		
	<i>SUB-TOTAL</i>				

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
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NO.					KSHS
	<i>Balance Brought Forward</i>				
	MATERIALS FOR VALVE CHAMBERS.				
1.	Water meter 3" (Kent) Flanged	No.	1		
2.	Water meter 2" Flanged	No.	4		
3.	Air valve 3" Female screwed	No.	3		
4.	Wash out valve 3" Flanged	No.	1		
5.	Air valve 2" Female screwed	No.	3		
6.	Gate valve 2" U.K	No.	3		
7.	G.I Nipple 2"	No.	10		
8.	G.I Plain socket 2"	No.	15		
9.	G.I Tee 2"	No.	5		
10.	G.I Tee Flanged 3" (both sides)	No.	3		
11.	G.I Plain socket 3"	No.	6		
12.	PVC Adaptor 3"	No.	22		
13.	G.I Nipple 3"	No.	10		
	<i>SUB-TOTAL</i>				

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
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NO.					KSHS
	<i>Balance Brought Forward</i>				
14.	G.I Flange 3"	No.	12		
15.	PVC Reducing Socket 3" x 2"	No.	3		
16.	Bolts, Nuts and Washers of 16mm Diameter of 3" length	No.	32		
17.	Bolts, Nuts and Washers of 10mm Diameter of 3" length	No.	32		
18.	Gaskets 6mm thickness	Kg	8		
19.	PVC Adaptors 2"	No.	12		
20.	G.I Nipple 2"	No.	20		
21.	Cast iron lockable manhole cover	No.	5		
22.	Solfix cement	LTR.	16		
23.	Coral Blocks 9" x 9" x 16"	No.	1,000		
24.	Portland Cement	Bag.	40		
25.	Building Sand	M ³	11		
26.	Ballast	No.	22		
	<i>PIPELINE TOTAL</i>				

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
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NO.					KSHS
<u>C.</u>	FABRICATION AND INSTALLATION OF 50M³ STEEL ELEVATED TANK.				
1.0	Excavation and earthworks. Excavate for foundation to a depth not exceeding 1500mm.	Item	1		
1.2	Tank construction Construct a 50m ³ METRIC COLD Pressed Steel Sectional Water Storage Tank of size 5000mm x 5000mm x 2000mm to BS 1564 Part II complete with 1.5mm thick pitched roof cover, Internal & External ladders, Water Level Indicator, Vent Cleats, Stays, Manhole with lockable cover, Glasticord joining compound, galvanized nuts, bolts & washers. Tank painted with 2 coats Bituprime internally & Aluminium paint externally – Plate thickness 4.5mm.	No.	1		
1.3	Provide 15m high Tank tower to BS 449 complete with walk way, hand rail, ladder painted with 2 coat of Aluminium paint.	No.	1		
1.4	Fabricate and erection of structural steel work for 27m steel tower.	Item	1		
1.5	Allow for piping costs and transportation to site.	Item	1		
	<i>ELEVATED TANK TOTAL</i>				

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT KSHS
<u>E.</u>	CONSTRUCTION OF PLANT HOUSE.				
1.0	Clear site of all bushes, scrubs, undergrowth and trees and remove all stumps and roots and dispose.	Lump Sum	1		
1.1	Excavate site commencing from 200mm below ground level but not exceeding 1.0m deep.	M ³	15		
1.2	Provide, place 50mm thick blinding 1:3:6 concrete mix to the strip foundation.	M ²	2		
1.3	Provide, place and joint 200mm thick dressed coral stone house wall in 1:3 cement sand mortar as directed by the engineer.	M ²	108		
1.4	Provide, place and compact 200mm thick hardcore for backfilling as shown on the drawings.	M ²	50		
1.5	Provide, place 50mm thick blinding 1:3:6 concrete mix on top of hardcore and compact.	M ²	50		
1.6	Provide, mix and place 100mm thick vibrated reinforced concrete 1:2:4 mix to floor slab. Allow for curing.	M ³	6		
1.7	Provide, mix and place 1:3 cement sand screed 20mm thick on top of floor slab. Allow for curing.	M ²	50		
	TOTAL				

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
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NO.					KSHS
	<i>Balance Brought Forward</i>				
1.8	Provide, prepare and apply 1:3 cement sand plaster of 20mm thick to internal sides of wall. Allow for water proof cement and curing.	M ²	90		
1.9	Provide, prepare and apply 1:3 cement sand plaster of 20mm thick to external sides of wall. Allow for curing.	M ²	95		
	<i>Reinforcement</i>				
2.0	Provide and fix Y10 reinforcement bars in concrete beam of plant house as shown on drawings directed by engineer.	M	255		
2.1	Provide and fix Y8 reinforcement bars for links in concrete beams of the house as shown on the drawing.	M	274		
	<i>Sundries</i>				
2.2	Provide, mix and place reinforced concrete 1:2:4 to beam as shown on the drawings. Allow for plastering. The column size to be 200 x 200mm.	No.	8		
2.3	Allow for roof placement	Item	1		
	<i>TOTAL</i>				

SUMMARY OF BILL OF QUANTITIES FOR NDAU PROJECT.		
BOQ ITEM.	DESCRIPTION	AMOUNT (Kshs)
A	Construction of 8.305Km Pipeline	
B	Materials for 8.305Km Pipeline	
C	Installation of 15m Elevated Tank	
D	Construction of Plant House	
	<i>SUB-TOTAL</i>	
	Contingencies (5%)	
	GRAND TOTAL	

Notes:

- A desalination plant which can yield 2.0m³/hr will be ideal for Ndau village based on its population.
- Total Household in Ndau is 221
- Total Population in Ndau is 1,070

Population of 1,070 People by 13litres per person per day. Total production is 14,400 litres if you divide by the number of households, every house will get 65litres per day. This equals to 0.065m³. Every household will gate 3 Jeri canes of portable water per day.