

WSTF - UPSCALING BASIC SANITATION FOR THE URBAN POOR
CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR KAKAMEGA COUNTY WATER AND SANITATION
COMPANY LTD (SHITOLI DTF)

BILL 1 - PRELIMINARY AND GENERAL

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
1.00	<u>CONTRACTUAL REQUIREMENT</u>				
1.10	Allow for provision of Performance Security in accordance with Conditions of Contract	Item	LS		
1.20	Allow for provision of Insurance of Works and Contractor's Equipment in accordance with the Conditions of Contract	Item	LS		
1.30	Allow for provision of Third Party Insurance (including Employer's Property) all in accordance with the Conditions of Contract	Item	LS		
1.40	Allow for provision of Insurance against Accident to Workmen in accordance with the Conditions of Contract	Item	LS		
2.00	<u>SPECIAL REQUIREMENT</u>				
2.10	Allow for supply of materials and construction of a temporary Site Office (to be used by the Contractor) and Store (to be used by the Superving Staff), total area not exceeding 30m2. The structure to revert back to the Contractor upon completion of the Project.	item	ls		
3.00	<u>SIGN POST</u>				
3.10	Provide and erect contract/Project Sign boards as shown on the Contract drawings	nr	2		
4.00	<u>TESTING OF SYSTEM</u>				
4.10	Provide materials and carry out test running of the DTF system. The Contrcator will be required ti submit methodolgy for test running	item	LS		
BILL TOTAL					

WSTF - UPSCALING BASIC SANITATION FOR THE URBAN POOR CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR KAKAMEGA COUNTY WATER AND SANITATION COMPANY LTD (SHITOLI DTF)					
BILL 2 - RECEIVING BAY / BALANCING TANK / SLUDGE DRYING BED					
ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
	<i>The DTF site in Iguhu is predominant of rock boulders across the entire area. Contractors are asked to familiarize themselves with the condition on site and include in the rates the cost of removal of this rocks</i>				
1.00	<u>EARTHWORKS</u>				
	The rates shall include for all strutting, shuttering, stabilizing excavation phases and keeping the excavation free of water by pumping, bailing or other means				
1.10	<u>Top soil removal</u>				
1.11	Bulk excavations and top soil removal for the whole area of Receiving Bay and Balancing Tank (depth n.e. 150mm). Spread top soil stacked on site for reuse. Level and prepare for grassing and landscaping.	m ²	133.8		
1.20	<u>Excavation for foundation</u>				
	Excavate for foundations, part backfill after construction and remainder, cart away to tips or use as fill on site, all as directed by the Project Manager				
1.21	Maximum depth n e. 1m after stripping of top soil	m ³	107.0		
1.22	Disposal of excavated material which cannot be used as backfill material on site. The rates shall include disposal of surplus material to tips identified by the Contractor in liaison with the Local Authority	m ³	66		
1.23	Extra over for Items 1.21-1.22 : for excavation in rock Class 'A', blasting not permitted (Provisional), to be approved and directed by the Project Manager	m ³	10.7		
1.24	-Ditto- for excavation in rock Class 'B', blasting not permitted (Provisional)	m ³	32.1		
1.25	-Ditto- for excavation in rock Class 'C', blasting not permitted (Provisional)	m ³	64.2		
1.30	<u>Compaction</u>				
1.31	Provide approved hard core and compact in one layer of 300mm and blinded with sand or gravel	m ³	24.4		
1.32	Provide approved granular fill and compact in one layer as per details in drg and blinded with sand or gravel	m ³	3.9		
SUBTOTAL 1					

BILL 2 - RECEIVING BAY / BALANCING TANK / SLUDGE DRYING BED

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
2.00	<u>SUBSTRUCTURE: CONCRETE/REINFORCEMENT/ FORMWORKS</u>				
2.10	<u>Damp-proof membrane</u>				
2.11	Damp-proof membrane, gauge 1000 laid over hard core	m ²	81.3		
2.20	<u>Concrete</u>				
2.21	Blinding: Provide all materials, mix and place concrete grade C15/20 (1:3:6) for blinding of ground slab, mixing to be done using concrete mixer approved to be suitable for the type of works by the Project Manager	m ²	83.5		
2.22	Ground slab: Provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3) for ground slab, mixing to be done using concrete mixer approved to be suitable for the type of works by the Project Manager	m ³	16.4		
2.23	Columns: provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3)	m ³	0.8		
2.30	<u>Reinforcement</u>				
			83.5		
2.31	Provide all materials as specified below and fix at sites; fabric reinforcement no. A142 mesh size 150 x 150mm weighing 2.22 kg per m2 , including Bends, tying Wire and spacer blocks; fabric reinforcement with minimum 150mm wide side and end laps, laid in bed	m ²	84		
2.32	Provide reinforcement - deformed high yield steel Y10 bars	Kg	193		
2.40	<u>Formwork</u>				
	Provide and fix shuttering including propping, strutting and striking, all as specified				
2.41	Wrot Formwork - Class F3 Finish				
2.411	Sides of columns	m ²	16.6		
2.50	<u>Finishing</u>				
2.51	Screed the ground slab with water proof cement mortar 1:3 with a slope of 1% towards the outlet for the Balancing tank	m ²	63.2		
SUBTOTAL 2					

BILL 2 - RECEIVING BAY / BALANCING TANK / SLUDGE DRYING BED

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
3.00	<u>WALLING</u>				
3.10	<u>Natural stone wall</u>				
	Natural Stone Block Walling, medium chisel dressed, reinforced with 20 swg hoop iron at every third course, and bedded, jointed and bonded in cement mortar (1:3)				
3.11	200 mm walling	m ²	72.9		
3.20	<u>Plaster</u>				
3.21	Plaster internally and externally with water proof cement mortar 1:3	m ²	145.73		
SUBTOTAL 3					
4.00	<u>SUPERSTRUCTURE: CONCRETE / REINFORCEMENT / FORMWORKS</u>				
4.10	<u>Concrete</u>				
4.11	Suspended slab Balancing Tank: Provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3) for balancing tank suspended slab, depth of 150mm. Allow for 3 openings of 600x400mm for the manholes	m ³	9.2		
4.12	Suspended slab Receiving Bay: Provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3) for the two receiving bay suspended slabs, depth of 150mm.	m ³	0.2		
4.13	Beams: provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3)	m ³	2.4		
4.14	Suspended slab outlet chamber: Provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3) for outlet chamber suspended slab, depth of 150mm. Allow for a circular opening of 600mm dia.	m ³	0.2		
4.15	Provide and install reinforced fibre covers of 600x450mm including frame and fitted with a handle for the balancing tank and the outlet chamber	nr	6		
4.20	<u>Reinforcement</u>				
4.21	Provide reinforcement - deformed high yield steel Y10 bars	Kg	1107.0		
4.30	<u>Formwork</u>				
	Provide and fix shuttering including propping, strutting and striking, all as specified				
4.31	Sawn Formwork - Class F1 Finish				
4.311	Horizontal soffits of suspended slabs	m ²	57.8		

BILL 2 - RECEIVING BAY / BALANCING TANK / SLUDGE DRYING BED					
ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
4.32	Wrot Formwork - Class F3 Finish				
4.321	Sides of beams	m ²	23.7		
				SUBTOTAL 4	
5.00	<u>PIPEWORK - PIPES and FITTINGS</u>				
5.10	<u>Pipes</u>				
	Supply, transport to site and store in secure place, including jointing material, bolts, gaskets, packing, jointing glues, etc. as applicable. Install, test and commission.				
5.11	100 mm dia. uPVC pipe 500mm long with a bend bringing the overflow bypass from the balancing tank to the outlet chamber. All fittings should be protected with a coat of water paint and two coats of emulsion paint	item	1s		
5.12	100 mm dia. uPVC pipe (connected to the gate valve at the balancing tank outlet)	m	0.4		
5.13	100 mm dia. uPVC pipe (connecting the balancing tank outlet chamber to the sludge drying bed inspection chamber)	m	10		
5.14	100mm dia. class 41 uPVC pipe (underdrain pipes of the sludge drying bed)	m	11		
5.15	100mm dia. class 41 uPVC pipe (from the sludge drying bed inspection chamber to the next module)	m	5		
5.16	Provide all materials and perforate the pipes supplied under item 5.14 (underdrain pipes). Perforation shall be holes of 10mm diameter at 100mm center to center spacing. The holes are placed on two parallel lines located at a 30° angle from the central line as per	m	10		
5.20	<u>Fittings and Valves</u>				
5.21	100mm dia. Gate valve including stub, flange, bolts and nuts (controlling the flow from the outlet chamber)	nr	1		
5.30	<u>Pipe laying</u>				
	The rate quoted shall be deemed to include, supply, transport to site, storage, excavation, laying, jointing and backfilling with selected excavated material in pipe trenches. The rates shall include disposal of surplus material to tips identified by the Contractor in liaison with the Local Authority				
	uPVC Flexible Jointed Pipes Nominal Diameter 100mm				
5.31	Outlet pipe connecting the balancing tank outlet to the sludge drying bed inspection chamber to the next module (anaerobic reactor) at a depth n.e. 1.5m	m	5		
				SUBTOTAL 5	

BILL 2 - RECEIVING BAY / BALANCING TANK / SLUDGE DRYING BED

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
6.00	<u>METALWORKS</u>				
6.10	GMS Coarse Screen, size 500x640mm, fabricated using GMS bars, 5x50 mm at spacing 30 mm (centre to centre) welded to frame hinged into concrete walls, all as per details on Drg. Apply 1 coat of primer and 2 coats of approved gloss paint	nr	1		
6.20	GMS Fine Screen, size 500x640mm, fabricated using GMS bars, 5x50 mm at spacing 15 mm (centre to centre) welded to frame hinged into concrete walls, all as per details on Drg. Apply 1 coat of primer and 2 coats of approved gloss paint	nr	1		
6.30	Provide and install a rectangular MS sluice gate size 400x400mm with an extended handle on a 25mm MS sliding channel. Apply 1 coat of primer and 2 coats of approved gloss paint	nr	2		
SUBTOTAL 6					
7.00	<u>FILTER MEDIA</u>				
7.10	<u>PE liner</u>				
7.11	Supply and place the 1mm thick PE liner as shown on the drawing. Allow for welding of joints between two sheets using hot wedge welding machine (where applicable)	m ²	66.5		
7.20	<u>Filter media</u>				
7.21	Drainage layer: supply and place 300mm thick layer of approved coarse gravel size 20-32mm as shown on the drawings.	m ³	10.2		
7.22	Transition layer: supply and place 100mm thick layer of approved medium gravel size 10-14mm as shown on the drawings.	m ³	4.6		
7.23	Filtration layer: supply and place (as per drawings) 350mm thick layer of approved sieved and washed sand with the following characteristics: - dia 0.2 - 0.7 mm - free of silt - normal particle size distribution	m ³	13.7		
SUBTOTAL 7					
TOTAL					
NOTE: 1. All the rates include 16% VAT 2. All the rates include supply, handling, assembling, installation, deployment of machines, processing (i.e. welding), and all related labour work					

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BILL 3 - ANAEROBIC REACTOR

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
	<i>The DTF site in Iguhu is predominant of monolithic rock across the entire area. Contractors are asked to familiarize themselves with the condition on site and to include the cost of removing this rock in the rates</i>				
1.00	<u>EARTHWORKS</u>				
	The rates shall include for all strutting, shuttering, stabilizing excavation phases and keeping the excavation free of water by pumping, bailing or other means				
1.10	<u>Top soil removal</u>				
1.11	Bulk excavations and top soil removal for the whole area of ABR (depth n.e. 150mm). Spread top soil stacked on site for reuse. Level and prepare for grassing and landscaping.	m ²	101.2		
1.20	<u>Excavation for foundation</u>				
	Excavate for foundations, part backfill after construction and remainder, cart away to tips or use as fill on site, all as directed by the Project Manager				
1.21	Maximum depth n.e. 1.0 m after stripping of top soil	m ³	101.2		
1.22	ditto, but depth from 1.0m up to 2m	m ³	101.2		
1.23	ditto, but depth from 2.0m up to 3.0m	m ³	90.7		
1.24	ditto, but depth from 3.0m up to 4m	m ³	63.5		
1.25	Disposal of excavated material which cannot be used as backfill material on site. The rates shall include disposal of surplus material to tips identified by the Contractor in liaison with the Local Authority	m ³	132.3		
1.26	Extra over for Items 1.21-1.23 : for excavation in rock Class 'A', blasting not permitted (Provisional), to be approved and directed by the Project Manager	m ³	35.7		
1.27	-Ditto- for excavation in rock Class 'B', blasting not permitted (Provisional)	m ³	107.0		
1.28	-Ditto- for excavation in rock Class 'C', blasting not permitted (Provisional)	m ³	214.0		
1.30	<u>Compaction</u>				
1.31	Provide approved hard core and compact in one layer of 300mm and blinded with sand or gravel	m ³	30.4		
PAGE 1 TOTAL					

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BILL 3 - ANAEROBIC REACTOR

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
2.00	<u>SUBSTRUCTURE: CONCRETE / REINFORCEMENT/ FORMWORKS</u>				
2.10	<u>Damp-proof membrane</u>				
2.11	Damp-proof membrane, gauge 1000 laid over hard core	m ²	103.3		
2.20	<u>Concrete</u>				
2.21	Blinding: Provide all materials, mix and place concrete grade C15/20 (1:3:6) for blinding of ground slab, mixing to be done using a concrete mixer approved to be suitable for the type of works by the Project Manager	m ²	105.1		
2.22	Footing: provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3)	m ³	0.4		
2.23	Ground slab: Provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3) for ground slab, mixing to be done using a concrete mixer approved to be suitable for the type of works by the Project Manager	m ³	21.0		
2.24	Columns: provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3)	m ³	2.6		
2.25	Beams: provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3)	m ³	1.0		
2.26	Base slab of the siphon chamber: provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3)	m ³	1.4		
2.30	<u>Reinforcement</u>				
2.31	Provide all materials as specified below and fix at sites; fabric reinforcement no. A142 mesh size 150 x 150mm weighing 2.22 kg per m2, including bends, tying wire and spacer blocks; fabric reinforcement with minimum 150mm wide side and end laps, laid in bed	m ²	105.1		
2.32	Provide reinforcement - deformed high yield steel D10 bars	Kg	678.0		
2.40	<u>Finishing</u>				
2.41	Screed the ground slab with water proof cement mortar 1:3	m ²	83.5		
2.50	<u>Formwork</u>				
	Provide and fix shuttering including propping, strutting and striking, all as specified				
PAGE 2 TOTAL					

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BILL 3 - ANAEROBIC REACTOR

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
2.51	Wrot Formwork - Class F3 Finish	m ²	30		
2.511	Sides of beams	m ²	49.9		
3.00	<u>WALLING</u>				
3.10	<u>Natural stone wall</u>				
	Natural stone block walling, medium chisel dressed, reinforced with 20 swg hoop iron at every third course, and bedded, jointed and bonded in cement mortar (1:3)				
3.11	200 mm Walling	m ²	266.3		
3.20	<u>Supporting edge</u>				
3.21	200mm PCC supporting wall for the anaerobic filter media	m ²	1.59		
3.30	<u>Plaster and Rendering</u>				
3.31	Plaster internally and externally with water proof cement mortar 1:3	m ²	532.6		
4.00	<u>SUPERSTRUCTURE: CONCRETE / REINFORCEMENT / FORMWORKS</u>				
4.10	<u>Concrete</u>				
4.11	Beams: provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3)	m ³	5.6		
4.12	Suspended roof slab for Settler, ABR Tank and siphon chamber: Provide all materials, mix, place and compact concrete grade C20 (1:1.5:3)	m ³	13.7		
4.13	Provide and install reinforced fibre covers 600mm x 450mm with a frame and fitted with a handle (inlet and outlet chamber)	nr	22		
4.14	Provide all material and fabricate reinforced precast concrete covers of 400x700x40mm with a 40x40mm angle frame connected with the welded mesh as per drawings. Allow for two metal handles per cover with a minimum of 100mm length and 40mm height. Apply 1 coat of primer and 2 coats of approved gloss paint to all metal parts. Allow for recess of 30x30mm on either side of the distibution trenches wall as per drawings.	nr	22		

PAGE 3 TOTAL

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BILL 3 - ANAEROBIC REACTOR

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
4.20	<u>Reinforcement</u>				
4.21	Provide reinforcement - deformed high yield steel D10 bars	Kg	1688.0		
4.30	<u>Formwork</u>				
	Provide and fix shuttering including propping, strutting and striking, all as specified				
4.31	Sawn Formwork - Class F1 Finish	m ²	30		
4.311	Horizontal soffits of suspended slabs	m ²	91.4		
4.32	Wrot Formwork - Class F3 Finish	m ²	25		
4.321	Sides of beams	m ²	9.1		
5.00	<u>PIPEWORK - PIPES and FITTINGS</u>				
5.10	<u>Pipes</u>				
	Supply, transport to site and store in secure place, including jointing material, bolts, gaskets, packing, jointing glues, etc. as applicable. Install, test and commission.				
5.11	100mm dia. class 41 uPVC pipe (inlet and AF outlet down pipes)	m	5.2		
5.12	100mm dia. class 41 uPVC pipe (ABR and AF compartments down pipes)	m	255.94		
5.13	150mm dia. Class 41 uPVC (for the siphon drainage chamber outlet to the inlet chamber of the VFCW)	m	10		
5.14	100mm dia. 2000mm long uPVC Pipe for vent pipe, with three coats of gloss paint, PVC wire gauze, vent cap, all fittings (two bend and one tee) and a 1000mm high protective concrete stub as per details in Drg	nr	1		
5.20	<u>Fittings and Valves</u>				
5.21	100x100mm dia. uPVC class 41 Equal tee (for inlet, ABR, AF and outlet down pipes)	nr	95		
5.22	50mm dia. uPVC pipe 200mm long (sleeve for aeration holes in the ABR chambers)	nr	32		
PAGE 4 TOTAL					

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BILL 3 - ANAEROBIC REACTOR

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
5.23	150mm dia uPVC pipe 200mm long (sleeve for overflow pipe in the siphon chamber)	nr	1		
5.30	<u>Pipe laying</u>				
	The rate quoted shall be deemed to include, supply, transport to site, storage, excavation, laying, jointing and backfilling with selected excavated material in pipe trenches. The rates shall include disposal of surplus material to tips identified by the Contractor in liaison with the Local Authority				
	uPVC Flexible Jointed Pipes Nominal Diameter 150mm				
5.31	Outlet pipe connecting the siphon chamber outlet to the VFCW inlet at a depth n.e. 1.5m	m	10		
5.40	<u>Siphon</u>				
5.41	Supply and install the siphon system fabricated by Nairobi IronMongers Ltd or other approved suppliers, to details provided in the drg	Item	LS		
6.00	<u>FILTER MEDIA</u>				
6.10	<u>Filter media</u>				
6.11	Anaerobic filter material: supply and place 1200mm thick layer of approved aggregates size 30-42mm as shown on the drawings	m ³	11.6		
6.20	<u>Precast concrete slab</u>				
6.21	Supply material, fabricate and place precast concrete slab class 20/20 finished fair 875mm x 500mm x 100mm reinforced by D10 bars both ways, perforated to details shown on the drawings.	nr	44		

PAGE 5 TOTAL

BILL TOTAL

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BILL 4 - VERTICAL FLOW CONSTRUCTED WETLANDS

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
1.00	<u>EARTHWORKS</u>				
	The rates shall include for all strutting, shuttering, stabilizing excavation phases and keeping the excavation free of water by pumping, bailing or other means				
1.10	<u>Top soil removal</u>				
1.11	Bulk excavations and top soil removal for the whole area of VFCW (depth n.e. 150mm). Spread top soil stacked on site for reuse. Level and prepare for grassing and landscaping.	m ²	353.9		
1.20	<u>Excavation</u>				
	Excavate, part backfill after construction and remainder, cart away to tips or use as fill on site, all as directed by project manager				
1.21	Maximum depth n.e. 1m after stripping of top soil	m ³	353.9		
1.22	Disposal of excavated material which cannot be used as backfill material on site. The rates shall include disposal of surplus material to tips identified by the Contractor in liaison with the Local Authority	m ³	194.7		
1.23	Extra over for Items 1.21-1.22: for excavation in rock Class 'A', blasting not permitted (Provisional), to be approved and directed by the Project Manager	m ³	35.4		
1.24	-Ditto- for excavation in rock Class 'B', blasting not permitted (Provisional)	m ³	106.2		
1.25	-Ditto- for excavation in rock Class 'C', blasting not permitted (Provisional)	m ³	212.4		
1.30	<u>Embankment</u>				
1.31	Construct a masonry embankment 250mm high with a top width of 600mm and side slopes of 1:2 on either side using approved natural stone block, medium chisel dressed. Ensure foundation is well-prepared and compacted prior to laying.	m ²	150		
1.40	<u>Compaction</u>				
1.41	Compact using approved material to the right formation level with a slope of 1% toward the drainage channel for each bed as shown in drawings	m ²	284		
1.42	Provide approved hard core and compact in one layer of 250mm and blinded with sand or gravel at the drainage channel level	m ³	2.2		
PAGE 1 TOTAL					

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BILL 4 - VERTICAL FLOW CONSTRUCTED WETLANDS

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
2.00	<u>CONCRETE / REINFORCEMENT/ FORMWORKS</u>				
2.10	<u>Damp-proof membrane</u>				
2.11	Damp-proof membrane, gauge 1000 laid over hard core (drainage channel)	m ²	8.9		
2.20	<u>Concrete</u>				
2.21	Blinding: Provide all materials, mix and place concrete grade C15/20 (1:3:6) for blinding of ground slab (drainage channel), mixing to be done using concrete mixer approved to be suitable for the type of works by the Project Manager	m ²	8.9		
2.22	Ground slab (drainage channel): Provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3) for ground slab, mixing to be done using concrete mixer approved to be suitable for the type of works by the project manager	m ³	1.3		
2.30	<u>Reinforcement</u>				
2.31	Provide all materials as specified below and fix at sites; fabric reinforcement no. A142 mesh size 150 x 150mm weighing 2.22 kg per m2, including bends, tying wire and spacer blocks; fabric reinforcement with minimum 150mm wide side and end laps, laid in bed	m ²	8.9		
2.40	<u>Finishing</u>				
2.41	Screed the ground slab (drainage channel) with water proof cement mortar 1:3. Allow for carrying out benching with a slope of 1:4 towards the central channel as per drawings.	m ²	8.9		
2.50	<u>Precast concrete covers</u>				
2.51	Provide all material and fabricate reinforced precast concrete covers of 700x400x40mm with a 40x40mm angle frame connected with the welded mesh as per drawings. Allow for two metal handles per cover with a minimum of 100mm length and 40mm height. Apply 1 coat of primer and 2 coats of approved gloss paint to all metal parts. Allow for recess of 50x50mm on either side of the wall as per drawings.	nr	22		
PAGE 2 TOTAL					

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BILL 4 - VERTICAL FLOW CONSTRUCTED WETLANDS

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
3.00	<u>WALLING</u>				
3.10	<u>Natural stone wall</u>				
	Natural stone block walling, medium chisel dressed, reinforced with 20 swg hoop iron at every third course, and bedded, jointed and bonded in cement mortar (1:3)				
3.11	200mm walling	m ²	23.0		
3.20	<u>Plaster</u>				
3.21	Plaster internally and externally with water proof cement mortar 1:3	m ²	46.1		
4.00	<u>PIPEWORK - PIPES and FITTINGS</u>				
4.10	<u>Pipes</u>				
	Supply, transport to site and store in secure place, jointing material, fittings, bolts, gaskets, packing, jointing glues, etc. as applicable. Install as per drawings, level, test and commission				
4.11	100mm dia. class 41 uPVC pipe (distribution pipe)	m	45		
4.12	60mm dia. class 41 uPVC pipe (intermediate distribution pipe)	m			
4.13	40 mm dia. dia. class 41 uPVC pipe (feeding pipes)	m	204		
4.14	100mm dia. class 41 uPVC drain pipes	m	212.8		
4.15	100mm dia. class 41 uPVC outlet pipe (from the drain channel to the discharge point)	5	150		
4.16	Provide all materials and perforate the pipes supplied under item 4.13. (feeding pipes) Perforation shall be holes of 10mm diameter at 300mm centre to centre spacing. The holes are placed on two parallele lines located at a 30° angle from the central line as per drawings	m	204		
4.17	Provide all materials and perforate the pipes supplied under item 4.14. (drain pipes). Perforation shall be holes of 10mm diameter at 100mm centre to centre spacing. The holes are placed on two parallele lines located at a 30° angle from the central line as per drawings	m	212.8		
4.18	Sealing of each opening (bitumen, welding or brackets) for the drain pipe to pass through the PE liner to reach the drain channel	pc	14		
PAGE 3 TOTAL					

WSTF - UPSCALING BASIC SANITATION FOR THE URBAN POOR
CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR KAKAMEGA COUNTY WATER AND SANITATION
COMPANY LTD (SHITOLI DTF)

BILL 4 - VERTICAL FLOW CONSTRUCTED WETLANDS

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
4.20	<u>Fittings and Valves</u>				
4.21	150x150mm equal tee to connect the inlet pipe to the ballcock valves	nr	2		
4.22	150mm dia. PVC Ball Cock valve	nr	2		
4.23	150mm dia. PVC end cap to connect to the socket end of the bypass pipe in the drainage channel.	nr	1		
4.24	150mm PVC elbow	nr	2		
4.25	150x150mm PVC equal tee	nr	2		
4.26	150x100mm PVC reducer	nr	4		
4.27	100x40mm PVC reducing tee	nr	24		
4.28	100mm PVC end caps to place at each end of the 2 last reducing tee 100x40mm	nr	4		
4.29	40mm dia. PVC end cap	nr	24		
4.30	<u>Pipe laying</u>				
	The rate quoted shall be deemed to include, supply, transport to site, storage, excavation, laying, jointing and backfilling with selected excavated material in pipe trenches. The rates shall include disposal of surplus material to tips identified by the Contractor in liaison with the Local Authority				
	uPVC Flexible Jointed Pipes Nominal Diameter 150mm				
4.31	Outlet pipe from the VFCW drainage channel to the discharge point at a depth n.e. 1.5m	m	135		
5.00	<u>FILTER MEDIA AND PLANTS</u>				
5.10	<u>PE liner</u>				
5.11	Supply and place the 1mm thick PE liner as shown on the drawing. Allow for welding of joints between two sheets using hot wedge welding machine (where applicable)	m ²	390		
PAGE 4 TOTAL					

WSTF - UPSCALING BASIC SANITATION FOR THE URBAN POOR
CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR KAKAMEGA COUNTY WATER AND SANITATION
COMPANY LTD (SHITOLI DTF)

BILL 4 - VERTICAL FLOW CONSTRUCTED WETLANDS

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
5.20	<u>Filter media</u>				
5.21	Drainage layer: supply and place approved 100mm thick layer of approved coarse gravel size 20-32mm as shown on the drawings.	m ³	19.1		
5.22	Transition and distribution layer: supply and place approved 2 x 100mm thick layer of approved medium gravel size 10-14mm as shown on the drawings.	m ³	45.8		
5.23	Filtration layer: Supply and place (as per drawings) 450mm thick layer of approved sieved and washed sand with the following characteristics: - dia 0.2 - 0.7 mm - free of silt - normal particle size distribution	m ³	102.96		
5.30	<u>Plants</u>				
5.31	Supply and plant common reeds (PHRAGMITES AUSTRALIS) or other local aquatic plant: 4 shoots per square metre. Allow for 3 months of nursing before planting and once planted maintainance until commissioning	item	Is		
PAGE 5 TOTAL					
BILL TOTAL					

WSTF - UPSCALING BASIC SANITATION FOR THE URBAN POOR
CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR KAKAMEGA COUNTY WATER AND SANITATION
COMPANY LTD (SHITOLI DTF)

BILL 5 - SOLID WASTE INCINERATOR

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
1.00	<u>EARTHWORKS</u>				
	The rates shall include for all strutting, shuttering, stabilizing excavation phases and keeping the excavation free of water by pumping, bailing or other means				
1.10	<u>Top soil removal</u>				
1.11	Bulk excavations and top soil removal for the whole area of CA (depth n.e. 150mm). Spread top soil stacked on site for reuse. Level and prepare for grassing and landscaping.	m ²	9.86		
1.20	<u>Excavation for foundation</u>				
	Excavate for foundations, part backfill after construction and remainder, cart away to tips or use as fill on site, all as directed by the Project Manager				
1.21	Maximum depth n.e. 0.9 m after stripping of top soil	m ³	7.14		
1.22	Disposal of excavated material which cannot be used as backfill material on site. The rates shall include disposal of surplus material to tips identified by the Contractor in liaison with the Local Authority	m ³	4.607		
1.23	Extra over for Items 2.21 - 2.22: for excavation in rock Class 'A', blasting not permitted (Provisional), to be approved and directed by the Project Manager	m ³	4.284		
1.24	-Ditto- for excavation in rock Class 'B', blasting not permitted (Provisional)	m ³	2.142		
1.25	-Ditto- for excavation in rock Class 'C', blasting not permitted (Provisional)	m ³	0.714		
1.30	<u>Compaction</u>				
1.31	Provide approved hard core and compact in layers of 200mm	m ³	1.7		
2.00	<u>CONCRETE / REINFORCEMENT/ FORMWORKS</u>				
2.10	<u>Damp-proof membrane</u>				
2.11	Damp-proof membrane, gauge 1000 laid over hard core	m ²	8.5		
2.20	<u>Concrete</u>				
2.21	Footing: provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3)	m ³	1.248		
PAGE 1 TOTAL					

WSTF - UPSCALING BASIC SANITATION FOR THE URBAN POOR
CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR KAKAMEGA COUNTY WATER AND SANITATION
COMPANY LTD (SHITOLI DTF)

BILL 5 - SOLID WASTE INCINERATOR

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
2.22	Blinding: Provide all materials, mix and place concrete grade C15/20 (1:3:6) for blinding of strip footing, mixing to be done using concrete mixer approved to be suitable for the type of works by the engineer	m ²	4.25		
2.23	Ground slab: Provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3) for ground slab 150mm high, mixing to be done using concrete mixer approved to be suitable for the type of works by the engineer	m ³	1.125		
2.24	Plinth for the incinerator unit: Provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3) for plinth 150mm high, mixing to be done using concrete mixer approved to be suitable for the type of work by the project manager.	m ³	0.225		
2.25	Deck: Provide all materials, mix, place and compacted concrete grade C25/20 (1:1.5:3) for plinth 75mm high, mixing to be done using concrete mixer approved to be suitable for the type of work by the project manager.	m ³	0.2491		
2.30	<u>Reinforcement</u>				
2.31	Provide all materials as specified below and fix at sites for ground slab, plinth and decks; fabric reinforcement no. A142 mesh size 150 x 150mm weighing 2.22 kg per m ² , including Bends, tying Wire and spacer blocks; fabric reinforcement with minimum 150mm wide side and end laps, laid in bed	m ²	12.321		
2.40	<u>Formwork</u>				
	Provide and fix shuttering including propping, strutting and striking, all as specified. Sawn Formwork - Class F1 Finish				
2.41	Sides of ground slab	m	11		
2.42	Sides of the plinths	m	5		
2.43	Horizontal soffits of suspended slab (for the 2 decks)	m ²	3.321		
2.50	<u>Finishing</u>				
2.51	Screed ground slab with water proof cement mortar 1:3 with a slope of 1% towards the door side where a channel is leading the drained water outside	m ²	7.5		
PAGE 2 TOTAL					

WSTF - UPSCALING BASIC SANITATION FOR THE URBAN POOR
CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR KAKAMEGA COUNTY WATER AND SANITATION
COMPANY LTD (SHITOLI DTF)

BILL 5 - SOLID WASTE INCINERATOR

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
3.00	<u>INCINERATOR</u>				
3.10	Provide all materials: fire bricks, fire cement, ballast, sand, hinges, steel angle, steel channel RHS and flat sheet. Construct solid waste incinerator as specified in the drawing and plaster the external walls. Provide, connect and paint (quality gloss) 4m high DN150 steel pipe as chimney as per drawings. Fabricate, paint (quality gloss) and install steel top frame, cover, ash door and fire grate as per drawings	item	1s		
4.00	<u>WALLING</u>				
4.10	<u>Natural stone wall</u>				
	Natural stone block walling, medium chisel dressed, reinforced with 20 swg hoop iron at every third course, and bedded, jointed and bonded in cement mortar (1:3)				
4.11	200 mm Walling	m ²	10.1		
4.12	Strip walling	m ²	5.5		
4.20	<u>Plaster and Rendering</u>				
4.21	Plaster internally and externally with water proof cement mortar 1:3	m ²	20.2		
5.00	<u>PIPEWORK - PIPES and FITTINGS</u>				
	Supply and install:				
5.10	<u>Pipes</u>				
5.11	uPVC 150mm dia. rain gutter complete with accessories (e.g. union, end cap)	m	8.00		
5.12	uPVC 75mm down pipe with appropriates elbows	m	5.00		
6.00	<u>METAL WORKS</u>				
6.10	<u>Steelwork for columns</u>				
6.11	Supply and fix 75mmx75mmx3mm thick and 3200mm long SHS column with fish tail lugs embeded in column footing as per drawings. Allow for welding of a 100x3mm U-shape steel sheet on top of the column to accommodate wall plate.	nr	6		
6.20	<u>Wire mesh</u>				
6.21	Supply and install 50x50mm welded mesh to be welded to the steel column all around the incinerator shed	m ²	18		
PAGE 3 TOTAL					

WSTF - UPSCALING BASIC SANITATION FOR THE URBAN POOR
CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR KAKAMEGA COUNTY WATER AND SANITATION
COMPANY LTD (SHITOLI DTF)

BILL 5 - SOLID WASTE INCINERATOR

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
6.30	<u>Chimney support</u>				
6.31	Supply and install 5mm thick steel cables from the roof of the shed to the top of the chimney	m	20		
6.40	<u>Steel Door</u>				
	Supply and fix steel casement door with 50 x 50mm pressed metal frames, including hinges, pad bolts and tower bolts, all to manufacturer's details, with one coat lead oxide primer complete with opening accessories including bedding and pointing around frames in cement mortar				
6.41	Door size 900 x 2100 mm high	nr	1		
7.00	<u>ROOFING</u>				
7.10	<u>Roofing sheets</u>				
7.11	IT4 (box profile) roofing sheets with resin coat laid on sawn cypress (Grade 2) battens size 100 x 50mm pressure impregnated with approved preservative	m ²	13.2		
7.20	<u>Carpentry and joining</u>				
	Roof Timbers: double pitch roof truss and overhanging canopy in sawn cypress grade II seasoned and pressure impregnated with wood preservative and timber joints with bolted and nailed connections as per the drawings				
7.21	Equal truss 2500mm clear span and 650mm high with 450mm eaves projection, in 100 x 50mm rafters and 100 x 50mm struts and ties with a spacing of 1500 mm C/C	nr	3		
	Other Roof Members: Sawn cypress grade II maximum moisture content 12% seasoned and pressure impregnated with wood preservative and timber joints with bolted and nailed connections as per drawings				
7.22	100 x 50mm purlins	m	24		
7.23	100 x 50mm wall plate tied to wall with 20 s.w.g. hoop iron at 900mm centres	m	7.5		
7.24	200 x 40mm fascia board	m	16.8		
PAGE 4 TOTAL					

WSTF - UPSCALING BASIC SANITATION FOR THE URBAN POOR CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR KAKAMEGA COUNTY WATER AND SANITATION COMPANY LTD (SHITOLI DTF)					
BILL 5 - SOLID WASTE INCINERATOR					
ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
8.00	<u>PAINTING AND DECORATING</u>				
8.10	<u>Painting</u>				
	Prepare, knot, prime, stop and apply three coats first quality gloss paint				
8.11	General surfaces of fascia boards	m ²	3.36		
8.12	General surfaces of steel columns	item	ls		
8.13	General surfaces of steel casement door	item	ls		
9.00	<u>PCC SLABS</u>				
9.10	Provide all material, fabricate and place PCC slabs 600x600mm in front of the incinerator shed and allow for preparation of the bedding including all required earthwork	m ²	1.8		
PAGE 5 TOTAL					
BILL TOTAL					

WSTF - UPSCALING BASIC SANITATION FOR THE URBAN POOR
CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR KAKAMEGA COUNTY WATER AND SANITATION
COMPANY LTD (SHITOLI DTF)

BILL 6 - OPERATOR STORE

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
1.00	<u>EARTHWORKS</u>				
	The rates shall include for all strutting, shuttering, stabilizing excavation phases and keeping the excavation free of water by pumping, bailing or other means				
1.10	<u>Top soil removal</u>				
1.11	Bulk excavations and top soil removal for the whole area of operator store bed (depth n.e. 150mm)	m ²	22.2		
1.20	<u>Excavation for foundation</u>				
	Excavate for foundations, part backfill after construction and remainder, cart away to tips or use as fill on site, all as directed by the Project Manager				
1.21	Maximum depth n.e. 1.2 m after stripping of top soil	m ³	16.668		
1.22	Disposal of excavated material which cannot be used as backfill material on site. The rates shall include disposal of surplus material to tips identified by the Contractor in liaison with the Local Authority	m ³	10.6		
1.23	Extra over Items : for excavation in rock Class 'A', blasting not permitted (Provisional), to be approved and directed by the engineer	m ³	10.0		
1.24	-Ditto- for excavation in rock Class 'B', blasting not permitted (Provisional)	m ³	5.0		
1.25	-Ditto- for excavation in rock Class 'C', blasting not permitted (Provisional)	m ³	1.7		
1.30	<u>Compaction</u>				
1.31	Provide approved hard core and compact in layers of 200mm	m ³	5.99		
2.00	<u>SUBSTRUCTURE: CONCRETE / REINFORCEMENT/ FORMWORKS</u>				
2.10	<u>Concrete</u>				
2.11	Blinding: Provide all materials, mix and place concrete grade C15/20 (1:3:6) for blinding of strip footing, mixing to be done using concrete mixer approved to be suitable for the type of works by the engineer	m ²	11.3		
PAGE 1 TOTAL					

WSTF - UPSCALING BASIC SANITATION FOR THE URBAN POOR
CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR KAKAMEGA COUNTY WATER AND SANITATION
COMPANY LTD (SHITOLI DTF)

BILL 6 - OPERATOR STORE

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
2.12	Footing: provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3)	m ³	2.3		
2.13	Ground slab: Provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3) for ground slab, mixing to be done using concrete mixer approved to be suitable for the type of works by the engineer	m ³	2.8		
2.20	<u>Reinforcement</u>				
2.21	Provide all materials as specified below and fix at sites; fabric reinforcement no. A142 mesh size 150 x 150mm weighing 2.22 kg per m ² , including bends, tying wire and spacer blocks; fabric reinforcement with minimum 150mm wide side and end laps, laid in bed	m ²	18.6		
2.22	Provide reinforcement - deformed high yield steel D10 bars	Kg	74.5		
2.30	<u>Formwork</u>				
2.31	Provide and fix shuttering including propping, strutting and striking, all as specified				
2.32	Sides of ground slab	m	17.3		
3.00	<u>WALLING</u>				
3.10	<u>Natural stone wall</u>				
	Natural stone block walling, medium chisel dressed, reinforced with 20 swg hoop iron at every third course, and bedded, jointed and bonded in cement mortar (1:3)				
3.11	200mm thick walling	m ²	51.5		
3.12	Strip walling	m ²	13.8		
3.20	<u>Damp-proof course</u>				
3.21	Damp-proof membrane, gauge 1000 laid over hard core	m ²	18.6		
3.22	Bituminous felt damp-proof course under 200mm wide walls	m	17.3		
3.30	<u>Plaster and Rendering</u>				
3.31	Plaster walls internally and external wall above the ring beam with 12.5mm Thick Gauged Cement ratio 1:3	m ²	69.7		
PAGE 2 TOTAL					

WSTF - UPSCALING BASIC SANITATION FOR THE URBAN POOR
CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR KAKAMEGA COUNTY WATER AND SANITATION
COMPANY LTD (SHITOLI DTF)

BILL 6 - OPERATOR STORE

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
4.00	<u>SUPERSTRUCTURE: CONCRETE / REINFORCEMENT/ FORMWORKS</u>				
4.10	<u>Concrete</u>				
4.11	Beams: provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3)	m ³	0.8		
4.20	<u>Reinforcement</u>				
4.21	Provide reinforcement - deformed high yield steel D10 bars	Kg	236		
4.30	<u>Formwork</u>				
	Provide and fix shuttering including propping, strutting and striking, all as specified. Wrot Formwork - Class F3 Finish				
4.31	Sides for beams	m ²	13.5		
5.00	<u>PIPEWORK - PIPES and FITTINGS</u>				
5.10	<u>Pipes</u>				
5.11	Provide all materials and install internal waste water drainage for the hand wash basin, the WC and the shower, to be connected to the inspection chamber outside the building	item	1s		
5.12	Provide and lay 100mm dia. Class 41 uPVC sewer pipe from the inspection chamber to the next treatment module	m	10		
5.13	Provide 25mm dia. HDPE water pipe and construct pipeline from the existing service line to the operator store through the overhead tank, incl. all required fittings. Allow for connection of the HDPE pipe to the service line with all appropriate fittings.	item	1s		
5.14	Provide and install 15mm dia. HDPE water pipe in the washroom of the operator store, including all required fittings for connection and chasing all pipes within the wall and make good after	item	1s		
5.20	<u>Supplementary parts</u>				
	Provide and install the following complete with associated pipework and fittings				
5.21	Glazed ceramic wash hand basin	nr	1		
5.22	Glazed Ceramic water closet	nr	1		
5.23	Shower: instant shower head(Lorenzetti or equivalent) and 15mm dia. water tap	item	1s		
PAGE 3 TOTAL					-

WSTF - UPSCALING BASIC SANITATION FOR THE URBAN POOR
CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR KAKAMEGA COUNTY WATER AND SANITATION
COMPANY LTD (SHITOLI DTF)

BILL 6 - OPERATOR STORE

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
6.00	<u>METALWORK</u>				
6.10	<u>Steel tower</u>				
6.11	Provide all material and construct a 3000mm high steel tower as specified in the drawings. Allow for excavating and placing of 4 nr class 25/20 concrete footing size 400x400x600mm deep as per drawings	item	LS		
6.20	<u>Steel Door</u>				
	Supply and fix steel casement door with 50 x 50mm pressed metal frames, including hinges, pad bolts and tower bolts, all to manufacturer's details, with one coat lead oxide primer complete with opening accessories including bedding and and pointing around frames in cement mortar				
6.21	Door size 900 x 2100 mm high	nr	2		
6.30	<u>Steel Casement Windows</u>				
	Supply and fix the following standard section horizontal bar type steel casement windows with one coat lead oxide primer complete with opening accessories including burglar proofing bedding and pointing around frames in cement mortar				
6.31	Window size 1200 x 1200mm high	nr	2		
6.32	Window size 600 x 600mm high	nr	2		
6.40	<u>Glazing</u>				
	4mm thick clear sheet glass and glazing to steel casements with putty in panes				
6.41	0.10 - 0.50 square metres	m ²	4.8		
7.00	<u>ROOF COVERINGS</u>				
7.10	<u>Roofing sheets</u>				
7.11	IT4 (box profile) roofing sheets with resin coat laid on sawn cypress (Grade 2) battens size 100 x 50mm pressure impregnated with approved preservative	m ²	35.0		
PAGE 4 TOTAL					-

WSTF - UPSCALING BASIC SANITATION FOR THE URBAN POOR
CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR KAKAMEGA COUNTY WATER AND SANITATION
COMPANY LTD (SHITOLI DTF)

BILL 6 - OPERATOR STORE

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
7.20	<u>Carpentry and joining</u>				
7.21	Roof Timbers: mono pitch roof truss and overhanging canopy in sawn cypress grade II seasoned and pressure impregnated with wood preservative and timber joints with bolted and nailed connections as per the drawings				
7.22	Equal truss 4000mm clear span and 750mm high with 600mm eaves projection, in 100 x 50mm rafters and 100 x 50mm struts and ties with a spacing of 1500 mm C/C	nr	4		
7.23	Other Roof Members: Sawn cypress grade II maximum moisture content 12% seasoned and pressure impregnated with wood preservative and timber joints with bolted and nailed connections as per drawings				
7.24	100 x 50mm purlins	m	16		
7.25	100 x 50mm wall plate tied to wall with 20 s.w.g. hoop iron at 900mm centres	m	17.3		
7.26	200 x 40mm fascia board	m	22.1		
7.30	<u>Ceiling</u>				
7.31	Provide and fix 9mm chipboard ceiling fixed on 600x600mm brandering (50x50mm). Allow for 1nr 600x600mm access hatch with cover	m ²	18.6		
7.32	50mm high cornice	m	25.3		
7.40	<u>Timber Battern Door</u>				
7.41	50mm thick lipped timber battern door 900x2100mm high made of 100x50mm seasoned timber including hinges, ironmongery, frame and galvanised metal sheet (1m high) at the bottom of the door	nr	1		
8.00	<u>PAINTING AND DECORATING</u>				
8.10	<u>Painting</u>				
8.11	Prepare, knot, prime, stop and apply three coats first quality emulsion paint Plastered surfaces internally	m ²	64.4		
8.12	Under side of the ceiling	m ²	18.6		
8.13	Prepare, knot, prime, stop and apply three coats first quality gloss paint				
PAGE 5 TOTAL					

WSTF - UPSCALING BASIC SANITATION FOR THE URBAN POOR
CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR KAKAMEGA COUNTY WATER AND SANITATION
COMPANY LTD (SHITOLI DTF)

BILL 6 - OPERATOR STORE

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
8.14	General surfaces of fascia boards	m ²	4.4		
8.15	General surfaces of glazed metal windows, including burglar-proofing	item	1s		
8.16	General surfaces of steel casement door and flush door	item	1s		
8.20	<u>Tiling</u>				
	Supply and fix tiles on the floor and walling up to 1.2m high for the toilet area				
8.21	Floor tiles for the office and the washroom: 6mm thick ceramic coloured	m ²	16.1		
8.22	Skirting tiles: 6mm thick and 100mm high ceramic coloured	m ²	2.2		
8.23	Wall tiles around the washroom to the height of 1500mm: 4mm thick ceramic coloured	m ²	5.3		
9.00	<u>PCC SLABS</u>				
9.10	Provide all material, fabricate and place PCC slabs 600x600mm around the operator store and allow for preparation of the bedding including all required earthwork	m ²	26.5		
10.00	<u>ELECTRICAL CONNECTION</u>				
10.10	Allow for electrical connection including complete meter connection with meter box (KPLC), compact switch board, wiring and testing of the lighting system for two rooms (office and bathroom), 2 fluorescent bulbs, 2 switch buttons, 3 double electrical sockets and any other installation as to make lighting system operational as specified in the technical specifications or approved equivalent	1s	1		
11.00	<u>WATER SUPPLY</u>				
11.10	Supply and installation of a 1000L water tank on a steel tower. The rates should include materials and labour for interconnecting the tank and operators store water outlet points	1s	1		

PAGE 6 TOTAL

BILL TOTAL

NOTE:

WSTF - UPSCALING BASIC SANITATION FOR THE URBAN POOR
CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR KAKAMEGA COUNTY WATER AND SANITATION
COMPANY LTD (SHITOLI DTF)

BILL 7 - SITE AND AUXILIARY WORKS

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
1.00	<u>SITE CLEARANCE AND GENERAL EXCAVATION</u>				
1.10	<u>General Clearance</u>				
1.11	Clear area within the DTF site of all grass, bushes, shrubs, hedges and grub up roots	m ²	2468		
1.20	<u>Removal of trees and stumps</u>				
1.21	Tree of girth: up to 500mm (provisional)	nr	4		
1.22	Tree of girth: 500mm - 1m (provisional)	nr	3		
	Note:- Girth shall be measured 1.0 m above the ground level Trees to remove to be identified by the Project Manager				
1.30	<u>Landscaping and grass planting</u>				
1.31	Allow for trimming of site to correct slopes and use excavated material as fill and cart-away remaining material to approved tips.	item	1s		
1.32	Provide and plant approved grass and maintain until it takes roots	m ²	1800		
1.40	<u>Surface water drainage</u>				
1.41	Excavate earth drain to the lines and levels directed by the project manager. Depth to invert not exceeding 0.5m	m	80		
1.50	<u>PCC Slabs- Footpath</u>				
1.51	Provide all material, fabricate and place PCC slabs 600x600mm and allow for preparation of the bedding including all required earthwork	m ²	94.0		
2.0	<u>DISPOSAL OF BOULDERS</u>				
2.10	Cart away boulders to tips approved by the County Government	m ³	400		
3.0	<u>GABION AND STONE PITCHING WORKS</u>				
3.10	Excavate along river embankment and river bed for the laying of gabions from the existing ground level to the bottom of embankment to approval of Engineer. Depth n.e. 3.0m including disposal of surplus material	m ³	68		
PAGE 1 TOTAL					

WSTF - UPSCALING BASIC SANITATION FOR THE URBAN POOR
CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR KAKAMEGA COUNTY WATER AND SANITATION
COMPANY LTD (SHITOLI DTF)

BILL 7 - SITE AND AUXILIARY WORKS

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
3.20	Provide all materials and carry out laying of 1m x 1m x 2m Maccaferri or approved equivalent galvanized gabions laid in stretches with 0.5m overlap, mesh wire diameter 2.0mm, include for tying of adjacent gabions with approved wire	m ³	200		
3.30	Provide 150mm approved hardcore as fill in gabions	m ³	200		
3.40	Provide 150mm thick stone pitching and grout with mortar as specified or as directed by the engineer.	m ²	70		
4.0	<u>CHAMBERS</u>				
	Provide and construct chambers as described below. The rates quoted shall include site clearance, excavation, disposal of excavated material, backfilling, compacting and fixing of all inlet, outlet at the bottom of chamber, including haunching works and smooth finishing etc. as specified and instructed by the project manager				
4.10	Detached inspection chamber (SDB + VFCW + Site): internal dimension 1000 x 1000 mm up to a depth n.e. 3000 mm including base slab, haunching, masonry walling 150mm thick, plastering internal and external, proper finishing and a cover slab 150mm thick with a rectangular 900mm x 900mm reinforced fibre access cover including a frame and fitted with a handle	pcs	7		
5.00	<u>FENCING AND GATE</u>				
5.10	Provide all materials and construct metal gate 6.0 m wide with 1 Nr 915 mm wide pedestrians entrance door within the gate, including 2 Nr pillars with column all as detailed on drawing, inclusive of painting with undercoating and finish coating	pcs	1		
5.20	Excavate for 3425mm long post holes (2700mm overground and 725mm underground), provide all materials and construct chain link fence to be gauge 12 galvanized steel wire double twist with 3 strands of gauge 16 barbed wire on concrete posts at 3 m centres all as per details on drawings provided including straining posts at every 10th post and additional posts at corners	m	201		
6.00	<u>ROADS</u>				
6.10	<u>Gravel access road within the DTF</u>				
6.11	Bulk excavations and top soil removal for the whole area of the road (depth n.e. 250mm). Spread top soil stacked on site for reuse.	m ²	387		
PAGE 2 TOTAL					

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CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR KAKAMEGA COUNTY WATER AND SANITATION
COMPANY LTD (SHITOLI DTF)

BILL 7 - SITE AND AUXILIARY WORKS

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
6.12	Existing formation compacted to 95% MDD as shown in the drawing	m ²	387		
6.13	150mm hard core fill compacted base as shown in the drawing	m ²	387		
6.14	Supply and place approved 150mm thick crusher-run gravel shown on the drawings.	m ²	387		
7.00	<u>Headwall</u>				
7.11	Construct an RC headwall at the end of the outfall drain	Item	LS		
PAGE 3 TOTAL					
BILL TOTAL					

WSTF - UPSCALING BASIC SANITATION FOR THE URBAN POOR CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR KAKAMEGA COUNTY WATER AND SANITATION COMPANY LTD (SHITOLI DTF)		
BILL No	DESCRIPTION	AMOUNT (KSh)
Bill No 1	PRELIMINARY AND GENERAL	
Bill No 2	RECEIVING BAY / BALANCING TANK / SLUDGE DRYING BED	
Bill No 3	ANAEROBIC REACTOR	
Bill No 4	VERTICAL FLOW CONSTRUCTED WETLAND	
Bill No 5	SOLID WASTE INCINERATOR	
Bill No 6	OPERATOR STORE	
Bill No 7	SITE AND AUXILIARY WORKS	
Sub-Total		
Add 8 % Contingencies		
GRAND TOTAL INCLUSIVE OF CONTIGENCIES [KSh]		