

PROJECT:- PROPOSED TREATMENT WORKS FOR KATHWANA WATER SUPPLY

Bill NO. 1 - PRELIMINARIES AND GENERAL ITEMS					
Item No.	Description	Unit	Qty	Rate (Ksh)	Amount (Ksh)
A	GENERAL ITEMS				
	Testing of the Works				
1.2	Allow for provision of testing of materials and works - specified tests in all sections of the works	L/sum	1		
	Sign Boards				
1.3	Allow for provision of the establishment, maintenance and removal of sign boards - location and design to be as directed by the Engineer	No.	2		
	Contractor's Camp				
1.4	Allow for provision of erecting and removal on completion of the works, contractor's camp.	Item	1		
	Total for Preliminaries carried to Bills Summary				

BILL NO. 2: TREATMENT WORKS					
Item No.	Description	Unit	Qty	Rate (Ksh)	Amount Kshs.
2.00	Setting Out				
2.10	Allow for setting out all the works	Item	1		
3.00	Site clearance and earth works - (All Provisional)				
4.2.1	Clear site of all bushes undergrowth, rubbish etc and dispose off all waste materials.	M ²	1,000		
4.2.2	Strip topsoil 200mm depth and dispose as directed by the Engineer.	M ²	500		
4.2.3	Excavate over site to reduce levels, backfill with selected material and cart away the surplus and hardformation remove as directed by the Engineer.	M ³	900		
4.2.4	Ditto Extra over item 4.2.3 for rock excavation (provisional)	M ³	600		
4.2.5	Cut down trees over 2.5m girth measured 1m from ground level, grab out roots and dispose as directed.	No.	1		
4.2.6	Ditto 1.0m girth but n.e. 2.5m ditto	No.	1		
4.2.7	Ditto 0.5m girth but n.e. 1.0m ditto	No.	1		
4.30	Concrete: Water proof additive at a rate of 1kg water proof cement to 50kg cement to be used in all concrete or as directed by the Engineer.				
4.3.1	Provide and place 50mm thick blinding concrete class 15/20 to the T/works plant.	M ²	110		
4.3.2	provide place and compact concrete class 20/20 as mass concrete for benching.	m ³	50		
4.3.3	Provide, batch, place and vibrate structural concrete class 25/20 in base slab, walls, columns, beams and suspended slabs	M ³	95		
4.3.4	Procure materials, cast and place concrete slabs (1:2:4) for baffle walls 1.0m high, 80mm thick reinforced with A282 square mesh fabric as detailed in drawings	M	110		
4.3.5	Masonry Stone vertical walling 200 x 150mm bedded in 1:3 c/s mortar	M ²	106		
4.3.7	25mm thick c/s screed (1:3)	M ²	659		
Page Total carried to Collection - Treatment Works					

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Item No.	Description	Unit	Qty	Rate (Ksh)	Amount Kshs.
4.4.0	Formwork				
4.4.1	Provide, fix wrot timber formwork including, propping, strutting, striking to edge of base slab and all deemed to be included items for rough finish on unexposed surfaces	M ²	150		
4.4.2	Ditto to fair finish on exposed surfaces	M ²	150		
4.5	Reinforcement				
4.5.1	Supply, cut, bend and place high tensile steel bars as specified in drawing and bar bending schedules. Rate to include for binding wire, spacer blocks and all deemed to be included items	kg	2,650		
4.5.2	Ditto but mesh reinforcement A252 as per drawings and bar bending schedules (BBS)	M ²	184		
4.5.3	Supply all materials and from contraction joint in walls including for 190mm wide PVC water bar, sealant all as detailed in drawings	M	120		
4.5.4	Stone pitching in c/s mortar 1:3	M ²	26		
4.6	Pipe Fittings, Valves and Pipework				
	<u>Rates shall include for supply of all materials, transport, handle on site and erection. The rate should also include all requisite accessories eg extension spindle and head stock with hand wheel to valves, bolts, nuts and washers where necessary or as detailed in the drawing</u>				
4.6.1	400mm long 250mm ND GS Flange/Spigot pipe with paddle flange.	No.	2		
4.6.2	250mm ND GS 90 ⁰ flanged bend	No.	2		
4.6.3	250mm ND GS lever operated butterfly valve. AVK	No.	4		
4.6.4	250mm ND GS Flange/spigot pipe cut to fit as per drawing.	No.	1		
4.6.5	500mm long 150mm ND GS Flange/Spigot pipe with puddle flange	No.	3		
4.6.6	150mm ND GS Flange/spigot cut to fit	No.	3		
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Item No.	Description	Unit	Qty	Rate (Ksh)	Amount Kshs.
4.6.7	150mm ND GS Flange Adaptor	No.	3		
4.6.8	150mm ND GS lever operated butterfly valve AVK	No.	3		
4.6.9	150/250mm ND GS Flanged taper	No.	3		
4.6.10	250mm ND GS equal tee	No.	3		
4.6.11	200mm long 250mm ND GS flange/spigot pipe	No.	3		
4.6.12	300mm long 250mm ND GS flange/spigot pipe	No.	3		
4.6.13	250mm ND GS 45 ⁰ Flange/Spigot	No.	3		
4.6.14	1180mm long 65mm ND 90 ⁰ GS spigot/spigot pipe male threaded	No.	54		
4.6.15	65mm ND GS equal tee female threaded	No.	27		
4.6.17	150mm long 65mm ND GS spigot/spigot pipe male threaded	No.	27		
4.6.18	65mm ND GS flange female threaded	No.	27		
4.6.19	6mm thick 2400 x 450mm galvanised MS plate	No.	1		
4.6.20	250mm x 200mm ND GS flanged reducing tee	No.	6		
4.6.21	250mm ND GS flange/spigot pipe cut to fit as per drawing	No.	3		
4.6.22	300mm ND VJ flange adaptor	No.	3		
4.6.23	250mm ND Sluice Valve AVK	No.	3		
4.6.24	200mm ND VJ flange adaptor	No.	3		
4.6.25	200mm ND GS flange/spigot pipe cut to fit as per drawing	No.	3		
4.6.26	250mm ND VJ flange adaptor	No.	6		
4.6.27	300 x 250mm GS flanged reducing tee	No.	3		
4.6.28	250mm ND GS blinding flange	No.	1		
4.6.29	300mm GS flanged /spigot pipe cut to fit as detailed	No.	5		
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PROJECT:- PROPOSED TREATMENT WORKS FOR KATHWANA WATER SUPPLY

Item No.	Description	Unit	Qty	Rate (Ksh)	Amount Kshs.
4.6.30	250mm ND GS elbow male and female threaded	No.	1		
4.6.31	300mm ND blind flange	No.	1		
4.6.32	1,900mm long 25mm ND spigot/spigot pipe one end male threaded	No.	1		
4.6.33	250mm ND GS flanged/spigot pipe cut to fit as detailed	No.	2		
4.6.34	250mm double flanged GS 90 ⁰ bend	No.	2		
4.6.35	250mm ND standard UPVC/GS adaptor	No.	1		
4.6.36	200mm ND GS blind flange	No.	3		
4.6.37	80mm ND GS elbow male and female threaded	No.	3		
4.6.38	80mm ND GS flange spigot male threaded pipe as per drawing	No.	3		
4.6.39	80mm ND sluice valve AVK	No.	3		
4.6.40	750mm long 250mm ND GS flange/spigot pipe	No.	3		
4.6.41	250mm ND VJ coupling	No.	3		
4.6.42	1,200mm long 250mm ND GS flange spigot pipe with paddle flange	No.	3		
4.6.43	2,200mm long 80mm ND GS flange spigot pipe with paddle flange	No.	1		
4.6.44	80mm ND sluice valve AVK	No.	1		
4.6.45	4,000mm long 200mm ND GS double flanged pipes	No.	3		
4.6.46	200mm ND GS double flanged pipes cut to fit as per drawings	No.	3		
4.6.47	200mm ND GS flange/spigot flanged pipes cut to fit as per drawings	No.	3		
4.6.48	200mm ND lever operated butterfly valve AVK	No.	2		
4.6.49	6,000mm long 150mm ND GS double flanged pipe	No.	7		
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Item No.	Description	Unit	Qty	Rate (Ksh)	Amount Kshs.
4.6.50	6,000mm long 150mm ND GS single flanged pipe	No.	1		
4.6.51	6,000mm long 200mm ND GS double flanged pipe	No.	4		
4.6.52	200 x 150mm ND reducing tee all flanged	No.	1		
4.6.53	200mm ND cast iron sluice valve AVK	No.	2		
4.6.54	150mm ditto	No.	1		
4.6.55	150mm ND 90° Double flanged bend	No.	1		
4.6.56	350mm ND flange.spigot GS pipe cut to fit as per drawing	No.	3		
4.6.57	350mm ND VJ coupling	No.	2		
4.6.58	200mm ND flanged GS 90° bed	No.	2		
4.7	Supply, lay in trenches n.e 2m deep the following pipes and fittings				
4.7.1	300mm ND flanged GS pipes	No.	4		
4.7.2	150mm UPVC pipes PN 16	No.	5		
4.8	MISCELLENEOUS WORKS				
4.8.1	Supply and erect 38mm dia GS hand railing complete as detailed in the drawing, including for raw/bolt fixings to walkway for filters and around the outlet chamber including the external ladder(staircase) as detailed	Item	1		
4.8.2	Allow for supply and fixing of steel inlet baffles to filters including for bolts and slots as detailed in Drg.	Item	1		
4.8.3	Supply and fix access cover and frame in the operating landing after the filters as detailed in Drgs	No.	2		
4.8.4	Ditto but for the washout manholes	No.	12		
4.8.5	Ditto but for the outlet chamber	No.	6		
4.8.6	Supply materials, fabricate and fix batter boards including all pipes and fittings as detailed	No.	2		
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Item No.	Description	Unit	Qty	Rate (Ksh)	Amount Kshs.
4.8.7	Provide materials, fabricate and install 6mm thick Gal. MS V - Notch weir plate 3800mm long including fastening with 10mm rag bolts onto 5mm thick 80 x 80mm angle iron as per drg No. 002-STD-003	No.	4		
4.8.8	Supply and fix step irons at outlet chamber walls as directed by the Engineer	No.	18		
4.8.9	Supply all materials and construct a masonry wastewater basin 10m x 10m and of 2m depth to be used during disludging and draining of runoff. The rate to include for the excavation and testing.	No.	1		
4.8.10	Supply and lay filter media to specified grading and as detailed in drawing	m ³	25		
4.8.11	Supply and Install 6mm stainless steel 90 ⁰ V-Notch plate fastened with 8mm dia. GS rag bolts as detailed	Item	1		
4.8.12	Supply and Install 6mm stainless steel measuring scale plate as detailed in the drawings.	Item	1		
4.8.13	Supply and install hand stop and frame complete with 8mm lag bolts as detailed in the drawings.	Item	2		
4.8.14	Supply and install within chemical house or as directed by the Engineer FRO dozer for dozing chlorine	No.	2		
4.8.15	Ditto but FRN dozer for dozing alum/soda ash, at the inlet chambers as detailed in the drg	No.	4		
4.8.16	Procure and install within the chemical house 0.5m ³ fibre glass solution tanks - rates to include all the necessary tubes, pipes and fittings to connect to dozers	No.	6		
4.8.17	Allow for provision of materials and construction of 1.5m high concrete stand for 3 No. solution tanks within the chemical house	Item	1		
Page Total carried to Collection - Treatment Works					

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Item No.	Description	Unit	Qty	Rate (Ksh)	Amount Kshs.
4.11.1	<p>Power Supply</p> <p>Allow a PC sum for application and installation of power from nearest KPLC line and supply, install for lighting the treatment works compound including cabling and all necessary fixtures all to the approval of the Engineer. The rate should include all necessary accessories including cables.</p>	P.C	1		
4.12	<p>SECURITY/ FENCING</p>				
4.12.1	<p>Excavate for, provide and erect chain link fence 2.4m high comprising concrete class 15 surround, concrete posts at 3.0m centres with 500mm long cranks at top, 12½ gauge chain link fence, 4no. Plain wire strands threaded through holes in posts, 4 no. strands 12½ gauge barbed wire tied to cranked top of fence and weave to form mesh 200x200mm, concrete straining posts at corners and at intervals of 40m or as directed by the Engineer. The rate to include for all excavation and disposal.</p>	m	1,000		
4.11.2	<p>Provide and install double leaf gate of 2mx4.8m (height and width) fabricated from 50mm hollow section black pipes (gauge 16) and 50mmx50mm weld mesh (8 S.W.G). Rates to include for 2no. 100mmx100mm gauge 16 rectangular hollow section m.s. gate posts and also include for painting the gate with oxide primer and 2 coats of blue high quality gloss paint.</p>	No.	1		0
4.1.3					
Page Total carried to Collection - Treatment Works					
COLLECTION PAGE - TREATMENT WORKS					
Item No.	Description	Unit	Qty	Rate (Ksh)	Amount Kshs.
	<p>Carried Forward from Page 3</p> <p>Carried Forward from Page 4</p> <p>Carried Forward from Page 5</p> <p>Carried Forward from Page 6</p> <p>Carried Forward from Page 7</p> <p>Carried Forward from Page 8</p> <p>Carried Forward from Page 9</p>				
TOTAL CARRIED TO SUMMARY - TREATMENT WORKS					

BILL NO.3: - DOUBLE GRADE 9 HOUSE					
Item No.	Description	Unit	Qty	Rate (Ksh)	Amount Kshs.
	The following works in construction of Grade 9 House including supply of materials and necessary works for placing, erecting, completion, testing and commission. All works are provisional and subject to re-measurements.				
5.1	Clearance and Preparation				
5.1.1	Clear site of all bushes, shrubs, hedges and dispose as directed by the engineer.	m ²	60		
5.1.2	Cut down trees over 2.5m girth measured 1m from ground level, grab out roots and dispose as directed.	No.	1		
5.1.3	Ditto 1.0m girth but n.e. 2.5m ditto	No.	1		
5.1.4	Ditto 0.3m girth but n.e. 1.0m ditto	No.	1		
5.2	Preparation of Foundation				
5.2.1	Excavate oversite to clear vegetable soil average depth 250mm from ground level and dispose materials as directed by the Engineer.	m ²	36		
5.2.2	Excavate in normal materials depth not exceeding 1.5m, backfill with approved material and dispose extra materials as directed by the Engineer.	m ³	33		
5.2.3	Extra over for excavation in decomposed rock/compacted murrum.	m ³	15		
5.2.4	Extra over excavation for rock material	m ³	38		
5.3	Hardcore Filling				
5.3.1	Lay and compact 200mm thick hand-packed hardcore laid in layers not exceeding 150mm thick including treating hardcore surface with an approved antitermite treatment chemical; 'Gradiator' or other equal approved.	m ²	90		
5.4	Water Proofing				
5.4.1	Damp proofing horizontal asphalt width not exceeding 300mm	m	70		
5.4.2	1000 gauge water proofing membrane sheet (DPM) laid on blinded hardcore surface	m ²	80		
Page Total Taken to Collection - Double Grade 9 House					

PROJECT:- PROPOSED TREATMENT WORKS FOR KATHWANA WATER SUPPLY

Item No.	Description	Unit	Qty	Rate (Ksh)	Amount Kshs.
5.5	Reinforcement				
5.5.0	<u>Supply, cut, bend and place high tensile steel bars as specified in drawing and bar bending schedules. Rate to include for binding wire, etc</u>				
5.5.1	Diameter: 8 mm	kg	200		
5.5.2	Diameter: 10 mm	kg	100		
5.5.3	Diameter: 12 mm	kg	500		
5.5.4	Ditto but steel fabric mesh reinforcement A142 as per drawings and BS 4483	m ²	20		
5.6	Concrete Work				
5.6.1	Allow for mixing and placing of concrete class 15/20 to form 50mm thick blinding to under bases, footings and floor slab	m ²	36		
5.6.2	Batch, mix and place vibrated reinforced concrete 25/20 to floor slab, bases, footings, beams, Kitchen shelves and shower shelves as detailed	m ³	32		
5.7	Finishes to Concrete Surfaces				
5.7.1	Finish top of concrete surfaces with 20mm thick cement sand 1:3 in steel finish	m ²	40		
5.8	Formwork				
5.8.1	Erect and strike wrought formwork to sides of floor slab, concrete shelves, and beams including strutting, propping, striking, ties and fasteners. Dimensions as per details on drawings of specific structural component	m ²	20		
5.8.2	Erect and strike wrought formwork to soffit of lintels, window and door spaces and concrete shelves including strutting, propping, striking, ties and fasteners. Dimensions as per details on drawings of specific structural component	m ²	30		
5.9	Precast Concrete. Rate to include for supply, laying and jointing				
5.9.1	600X600X50mm precast concrete paving slab.	No.	20		
5.9.2	Precast concrete wall coping	m	4		
5.9.3	Precast concrete chimney cap	No.	2		
	Page Total Taken to Collection - Double Grade 9 House				

PROJECT:- PROPOSED TREATMENT WORKS FOR KATHWANA WATER SUPPLY

Item No.	Description	Unit	Qty	Rate (Ksh)	Amount Kshs.
5.10	Brickwork, Blockwork and Masonry. Rate to include for supply laying and jointing				
5.10.1	100mm thick concrete block straight wall	m ²	12		
5.10.2	150mm thick concrete block straight wall	m ²	65		
5.10.3	150mm - 225mm thick dressed masonry vertical straight wall	m ²	250		
5.11	Timber work. Rate to include for supply, jointing, erecting including requisite straps and bolts				
5.11.1	Treated soft wood cross sectional area not exceeding 0.01m ² for brandering, wall plates, purlins and ties				
5.11.2	50X50mm	m	150		
5.11.3	75x75mm	m	50		
5.11.4	100X50mm	m	150		
5.11.5	125X50mm	m	120		
5.12	Roofing				
5.12.1	Pre-factory painted iron sheets gauge 26 including ridge cap	m ²	125		
5.13	Surface Finishes				
5.13.1	20mm cement sand screed 1:3 on floors finished smooth in steel trowel	m ²	70		
5.13.2	20mm cement sand plaster 1:3 on internal walls finished smooth in steel trowel	m ²	230		
5.13.3	20mm cement sand rendering 1:3 on external walls	m ²	150		
5.13.4	20X100mm high cement sand screed 1:3 on internal skirting finished smooth in steel trowel	m ²	10		
5.13.5	20X600 mm high cement sand screed 1:3 on plinth on external walls	m ²	40		
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PROJECT:- PROPOSED TREATMENT WORKS FOR KATHWANA WATER SUPPLY

Item No.	Description	Unit	Qty	Rate (Ksh)	Amount Kshs.
5.14	Carpentry and Joinery. Rate to include supply, fixing, boring, cutting and all other associated works				
5.14.1	Construction of Kitchen base cupboards complete with shelves as detailed	No.	2		
5.14.2	Construction of wrot Cedar bedroom built-in wardrobes complete with shelves as detailed	No.	2		
5.14.3	Construction of Kitchen wall cupboards complete with shelves as detailed	No.	4		
5.14.4	Construction of Kitchen wall shelves as detailed	No.	2		
5.15	Doors and windows. Rate to include supply of materials, fixing and all other associated works and painting with 3 coats premium quality super gloss paint. Cost to include frames, hinges, locks, handles, stopers and all other requisite accessories				
5.15.1	Supply and fix lockable steel pre-fabricated external door 900X2180mm, complete with frames rocks(steel doors to replace wooden doors in drawings).	No	2		
5.15.2	Ditto but windows size 1300x1230	No	4		
5.15.3	Ditto but windows size 700X1230	No	6		
5.15.4	Ditto but windows size 700X650	No.	4		
5.15.5	850X2180 flush door D2 as specified	No.	4		
5.15.6	800X2180 flush door D2 as specified	No.	6		
5.16	Ceiling				
5.16.1	Ceiling Board, celotex painted with three coats distemper	m ²	70		
5.17	Piped Services. Rate to include supply, fixing, testing and commissioning				
5.17.1	Provide all materials for and install water supply internal plumbing services including all fittings and fixtures within the grade 9 house upto the valve chamber as specified.	Item	1		
Page Total Taken to Collection - Double Grade 9 House					

PROJECT:- PROPOSED TREATMENT WORKS FOR KATHWANA WATER SUPPLY

Item No.	Description	Unit	Qty	Rate (Ksh)	Amount Kshs.
5.17.2	Provide all materials for and install waste water internal plumbing services including all fittings and fixtures within the grade 9 house upto the inspection chamber include 2No. Inspection chamber and associated pipework as specified.	Item	1		
5.17.3	Covered Plastic tank size 800X600X500 mm high complete with cover and fixing in roof space on bearers	No.	2		
5.17.4	Vitreous china hand wash basin size 500X400mm fixed on semi concealed brackets complete with chromium coated bib tap(Bricon or approved equivalent	No.	2		
5.17.5	Stainless steel sink (ASL, Carron or approved equivalent) with sinle bowl and drainer fixed on semi concealed brackets complete with chromium coated bib tap(Bricon or approved equivalent	No.	2		
5.17.6	Low level WC Suite comprising vitreous china pan with 2 gallon plastic cistern complete with plastic seat and cover, flush pipe and all necessary accessories	No.	2		
5.17.7	Chromium plated shower mixer unit with stopcork and shower rose	No.	2		
5.18	Painting				
5.18.1	Apply three coats of plastic emulsion paint on plastered internal walls	m ²	230		
5.18.2	Apply three coats of premium quality paint on plastered internal walls	m ²	150		
5.19	Metal Work. Rate to include supply of materials, fabricating, fixing and all other associated works				
5.19.1	Flue Duct Panneling 210mm X 1800mm	m ²	3		
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COLLECTION PAGE - DOUBLE GRADE 9 HOUSE					
Item No.	Description	Unit	Qty	Rate (Ksh)	Amount Kshs.
1	Carried Forward from Page 12				
2	Carried Forward from Page 13				
3	Carried Forward from Page 14				
4	Carried Forward from Page 15				
5	Carried Forward from Page 16				
TOTAL FOR DOUBLE GRADE 9 HOUSE TAKEN TO SUMMARY					

BILL NO. 4: BACKWASH SYSTEM					
Item No.	Description	Unit	Qty	Rate (Ksh)	Amount Kshs.
	<u>DEMOLITION AND SITE CLEARANCE</u>				
A	Clear site of small bushes and grub roots of small trees and cart	m ²	150		
	EARTHWORKS				
	GENERAL EXCAVATION				
B	Excavate 200mm top soil and dispose	m ²	95		
C	Excavate in class 111 material max. depth 1 m for disposal	m ³	65		
D	Extra over excavation, depth 1 - 3.5 m for re-use	m ³	75		
	Excavation Ancillaries				
E	Trimming of excavated surfaces to receive blinding concrete	m ²	90		
	<u>IN-SITU CONCRETE</u>				
	<u>Design mix for ordinary structural concrete for Class B exposure using Ordinary Portland cement</u>				
	<u>Provide Concrete Grade 15</u>				
F	50mm thick blinding under base slab and column bases	m ³	6		
	PLACE REINFORCED CONCRETE				
	<u>Bases, footing, ground slabs</u>				
G	Thickness:150-300 mm	m ³	22		
	<u>Walls</u>				
H	Thickness:250 mm	m ³	26		
	<u>Columns</u>				
I	Thickness: 300 x 300 mm	m ³	2		
	<u>Slab and Staircase</u>				
J	Thickness:250 mm	m ³	8		
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Item No.	Description	Unit	Qty	Rate (Ksh)	Amount Kshs.
K	<u>Beams</u> X-Sectional area 0.03-0.1 m ²	m ³	5		
L	<u>Pump Plinth</u> Thickness:150-300 mm	m ³	3		
	<u>CONCRETE ANCILLARIES</u> Provide and fix shuttering including propping, strutting and striking all as specified, including for boxing out openings				
	(i) Vertical Formwork - Class F1 Finish				
A	Sides of 300 mm base slab and columns bases	m ²	12		
	(iii) Vertical Formwork - Class F3 Finish				
B	Internal and external of walls	m ²	239		
C	Ring beams	m ²	50		
	<u>REINFORCEMENT</u> <u>High yield steel bars to SSRN 126 or 127</u>				
D	Diameter: 8 mm	kg	196		
E	Diameter: 10 mm	kg	594		
F	Diameter: 12 mm	kg	2,990		
G	Diameter: 16 mm	kg	1,452		
	<u>Construction Joints</u> <i>Provide and install the following waterstops in construction joints including all surface treatment, rebates and formwork</i>				
H	200 mm wide expansive super-cast water foil PVC or similar approved waterstop in construction joints in walls (Provisional)	m	69		
	<u>ROOFING</u> <u>Roof including trussed rafters, fittings and fastenings</u>				
I	Roofing timber cypress 100 x 50 mm to purlins and struts	m	130		
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Item No.	Description	Unit	Qty	Rate (Ksh)	Amount Kshs.
J	Ditto cypress 150 x 75 mm	m	72		
K	Ditto cypress 100 x 75 to tie beam and king post	m	72		
L	300 x 25 mm Fascia Board	m	50		
M	100 x 100 mm wall plate	m	25		
	<u>Cladding</u>				
N	24 gauge IT5 sheeting	m ²	156		
O	Ridge cap	m	13		
	<u>BRICKWORK, BLOCKWORK & MASONRY</u>				
	Superstructure Walling				
P	Supply, lay and join with sand cement mortar 200 mm thick stone masonry wall	m ²	99		
	<u>Blockwork ancillaries</u>				
A	Joint reinforcement using 50 x 6mm hoop iron ties 300mm long in every other course	m	410		
	<u>Damp proof membrane</u>				
B	Single layer of 500 gauge polythene sheeting laid on blinded hardcore with 150mm side laps to receive concrete	m ²	51		
	<u>Anti-Termite treatment</u>				
C	Treat surface of hardcore with approved anti termite solution applied strictly in accordance with the manufacturers instructions	m ²	51		
	PAINTING				
D	2 coats of emulsion paint on doors and windows	m ²	19		
	WATER PROOFING				
	<u>Rendering with proprietary mix mortar</u>				
E	Internal 20 mm mortar rendering, cement/sand 1:4 painted soft white to ks 10 B 15 or similar	m ²	102		
Page Total Taken to Collection - Backwash System					

PROJECT:- PROPOSED TREATMENT WORKS FOR KATHWANA WATER SUPPLY

Item No.	Description	Unit	Qty	Rate (Ksh)	Amount Kshs.
F	SPRAYED OR BRUSHED WATER PROOFING USING (stated) External spray of tyrolean coloured soft white to ks 10 B 15 or similar	m ²	102		
	MISCELLANEOUS WORK				
	<u>Drainage to structures above ground</u>				
G	Gutters inclusive of all fittings	m	28		
H	Downpipes inclusive of all fittings	m	14		
	<u>Windows</u>				
I	HD 2FS window as specified in the drawing	nr	1		
J	HD 4FS windows as specified in the drawing	nr	2		
	<u>Doors</u>				
	<u>Metal external</u>				
K	Single leaf, standard, 800 mm wide	nr	1		
L	Flush door 1500 mm wide	nr	2		
	<u>Other</u>				
M	100mm dia vent pipes 200mm long	nr	1		
N	Precast concrete grill work of approved type	m ²	5		
	<u>PIPEWORK</u>				
	Supply and fix galvanized steel pipes and fittings and others				
	<u>Double flanged pipe with 25 mm male threaded tapping for pressure gauge</u>				
O	80 mm diameter approx. 400 mm long	nr	2		
P	100 mm diameter approx. 400 mm long	nr	3		
Q	5mm dia. pressure gauge - (pressure class upto 10 bars) hunter or approved equivalent	nr	2		
A	80 mm dia flanged/ flanged bend 90°	nr	2		
	Page Total Taken to Collection - Backwash System				

PROJECT:- PROPOSED TREATMENT WORKS FOR KATHWANA WATER SUPPLY

Item No.	Description	Unit	Qty	Rate (Ksh)	Amount Kshs.
B	100 mm dia flanged/ flanged bend 90°	nr	5		
C	150 mm dia flanged/ flanged bend 90°	nr	2		
D	80 mm double flanged free acting check valve	nr	2		
E	100 mm double flanged free acting check valve	nr	3		
F	80 mm double flanged sluice valve AVK	nr	2		
G	100 mm dia double flanged sluice valve AVK	nr	3		
H	150 mm dia double flanged sluice valve AVK	nr	3		
I	200 mm dia double flanged sluice valve after meter	nr	1		
J	300 mm dia double flanged sluice valve AVK	nr	1		
K	80 mm dia flanged adaptor	nr	3		
L	100 mm dia flanged adaptor	nr	3		
M	150 mm dia flanged adaptor	nr	1		
N	200 mm dia flanged adaptor	nr	7		
O	300 mm dia flanged adaptor	nr	2		
P	300 mm dia standard P.V.C adaptor Type A2	nr	2		
Q	100 mm dia flange/spigot pipe approx. 300 mm cut to fit on site	nr	3		
R	100 mm dia flange/spigot pipe approx. 2500 mm cut to fit on site	nr	1		
S	100 mm dia flange/spigot pipe approx. 2500 mm cut to fit on site	nr	1		
T	150 mm dia flange/spigot pipe approx. 1600 mm cut to fit on site	nr	1		
U	200 mm dia flange/spigot pipe with padde flange approx. 1500 -2500 mm cut to fit on site	nr	7		
V	300 mm dia flange/spigot pipe with padde flange approx. 1200 mm cut to fit on site	nr	2		
Page Total Taken to Collection - Backwash System					

PROJECT:- PROPOSED TREATMENT WORKS FOR KATHWANA WATER SUPPLY

Item No.	Description	Unit	Qty	Rate (Ksh)	Amount Kshs.
W	All flanged radial tee - 80x80x80 mm	nr	1		
X	All flanged radial tee - 100x100x100 mm	nr	2		
Y	300 mm dia equal tee	nr	1		
Z	300/200 mm dia flanged reducing tee	nr	5		
AA	80 mm dia all flanged meter	nr	1		
AC	80 mm dia double flanged pipe 1250 mm long	nr	1		
AD	80 mm dia double flanged pipe 600 mm long	nr	1		
AE	150 mm dia double flanged pipe 4500 mm long	nr	1		
AF	300 mm dia double flanged pipe 800 - 1100 mm long	nr	4		
A	150/80 mm dia flanged taper	nr	1		
B	200/100 mm dia flanged taper	nr	1		
C	300/200 mm dia flanged taper	nr	1		
D	100/65 single flanged eccentric taper	nr	2		
E	100/150 single flanged eccentric taper	nr	2		
F	100/200 single flanged eccentric taper	nr	2		
G	150/200 single flanged eccentric taper	nr	2		
H	400 mm dia standard P.V.C adaptor Type A2	nr	1		
I	300 mm dia blind flange	nr	2		
	<u>BACKWASH PUMPS</u>				
	<i>Provide the Prime Cost for the supply, install, test and commission the following positive head centrifugal pumps, inclusive of all accessories including motor, base frame mounting and cabling.</i>				
K	Nominal speed 2900 RPM, power 7.5 KW, head 24 m, discharge 60 m ³ /hr	No.	2		
Page Total Taken to Collection - Backwash System					

PROJECT:- PROPOSED TREATMENT WORKS FOR KATHWANA WATER SUPPLY

Item No.	Description	Unit	Qty	Rate (Ksh)	Amount Kshs.
	<u>CONTROL PANEL</u>				
	<i>Provide the Prime Cost for the supply, install, test and commission <u>contol panel</u> for;</i>				
M	7.5 KW power motor		2		
	<u>Cabling for Controls</u>				
	Provide the Prime Cost the supply of cabling for Controls				
N	4C x 2.5mm PVC/SWA/PVC Cables to Backwash Tank	m	120		
O	Cable Glands	nr	6		
	ELEVATED BACKWASH TANK				
	Provide and install 5m x 4m x 4m (80m ³) pre-fabricated elevated steel tank. Rates to include for 15m steel platform, access ladder, 150mm dia steel inlet and 300mm dia steel outlet pipeworks including control valves	L/Sum	1		
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	COLLECTION - BACKWASH SYSTEM				
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7	Carried Forward from Page 28				
TOTAL FOR BACKWASH SYSTEM TAKEN TO SUMMARY					

BILL NO. 6: CHLORINATION HOUSE					
Item No.	Description	Unit	Qty	Rate (Ksh)	Amount Kshs.
	EARTH WORKS				
	GENERAL EXCAVATION				
A	Excavate 200mm top soil and dispose	m ²	30		
B	Excavate in class 111 material max depth 2-5 m for disposal	m ³	18		
	FILLING AND COMPACTION				
C	Hardcore using excavated Class 1 material	m ³	7		
	<u>IN-SITU CONCRETE</u>				
	Plain concrete Class 15/20 in 75mm blinding layer under base slab of Flocculation Basin and under bases of columns.				
D	20mm aggregate	m ³	2		
E	Vibrated, Reinforced Concrete Class 25/20 20mm aggregate	m ³	20		
	CONCRETE ANCILLARIES				
	FORMWORK: FAIR FINISH				
	<u>Plane Vertical</u>				
F	Fair finish to vertical sides of ring beam and roof slab	m ²	47		
	REINFORCEMENT				
	<u>High yield steel bars to SSRN 126 or 127</u>				
G	Diameter: 8mm	kg	160		
H	Diameter: 10mm	kg	450		
I	Wire weld fabric Bs REF. A142	m ²	25		
	CONCRETE ACCESSORIES				
	<u>Finishing of top surfaces</u>				
J	40mm screed,cement: sand 1:3 1% fall smooth trowel finish	m ²	32		
	Page Total carried to Collection - Chlorination House				

PROJECT:- PROPOSED TREATMENT WORKS FOR KATHWANA WATER SUPPLY

Item No.	Description	Unit	Qty	Rate (Ksh)	Amount Kshs.
K	Ditto stair treads	m ²	1		
L	Ditto stair risers	m ²	1		
CONCRETE ACCESSORIES					
<u>Finishing of top surfaces</u>					
A	40mm screed,cement: sand 1:3 1% fall smooth trowel finish	m ²	32		
B	Ditto stair treads	m ²	1		
C	Ditto stair risers	m ²	1		
BRICK WORK, BLOCKWORK & MASONRY					
LIGHTWEIGHT CONCRETE BLOCKWORK					
D	<u>One block construction</u>				
E	Vertical walls: Thickness 150-250mm for superstructure	m ²	45		
<u>Blockwork ancillaries</u>					
F	Joint reinforcement using hoop iron in every other course	m	90		
G	Damp proof course	m	15		
H	Damp proof membrane	m ²	12		
Damp proofing					
<u>Rendering with proprietary mix mortar</u>					
I	Internal 20mm mortar rendering, cement/sand 1:4 painted "soft white" to Ks 10B 15 or similar	m ²	49		
<u>Sprayed or brushed water proofing using (Stated)</u>					
J	External spray of tyrolean coloured soft white to Ks 10 B 15 or	m ²	40		
Page Total carried to Collection - Chlorination House					

PROJECT:- PROPOSED TREATMENT WORKS FOR KATHWANA WATER SUPPLY

Item No.	Description	Unit	Qty	Rate (Ksh)	Amount Kshs.
	MISCELLANEOUS WORK				
	<u>Drainage to structures above ground</u>				
K	Gutters including all fittings	m	27		
L	Down pipes including all fittings	m	12		
	<u>Doors</u>				
	<u>Wood,flush,external</u>				
M	Single leaf,standard. 900mm wide	nr	2		
	<u>Other</u>				
N	Precast concrete grill work of approved type	m ²	1		
O	Emergency shower	nr	1		
	<u>SUBSTRUCTURE WALLING</u>				
P	Supply, lay and join with sand cement mortar 230mm thick stone masonry wall in strip foundation	m ²	11		
	<u>Doser Units</u>	No	4		
	EPOXY PAINT TO TANKS,FLOORS & WALLS				
B	Provide and apply 3 coats of approved Epoxy Paint on 1 coat epoxy primer to internal surfaces of Chemical Mixing tanks (Master seal 180' as made by BASF or approved equivalent)	m ²	5		
	Ditto-but to floors and walls of chemical Storage and Mixing areas	m ²	30		
	CHEMICAL STIRRERS				
	Page Total carried to Collection - Chlorination House				

PROJECT:- PROPOSED TREATMENT WORKS FOR KATHWANA WATER SUPPLY

Item No.	Description	Unit	Qty	Rate (Ksh)	Amount Kshs.
C	Supply,install,test and commission Mechanical Stirrers in Chemical Mixing Tanks. The shaft and impellers to be of non-corrosive material.Include all materials for fixing on tanks e.g holding down	nr	2		
	WINDOWS & CEILINGS				
	<u>Windows</u>				
	<u>Supply and fix the following uPVC Windows in small section panes with opening accessories, complete with glazing:-</u>				
D	Window size 1200 x 1200 mm	nr	1		
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COLLECTION PAGE - CHLORINATION HOUSE					
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TOTAL FOR CHLORINATION HOUSE TAKEN TO SUMMARY					
BILLS COLLECTION:- GRAND SUMMARY					
Item No.	Item Description	Unit	Qty.	Rate	Cost Estimate (Kes)
1	Bill No 1 - PRELIMINARIES AND GENERAL ITEMS				
2	Bill No. 2 - TREATMENT WORKS				
3	Bill No. 3 - DOUBLE GRADE 9 HOUSE				
4	Bill No. 4 - BACKWASH SYSTEM				
5	Bill No. 5 - CHLORINATION HOUSE				
	Sub - Total				
	GRAND TOTAL TAKEN TO FORM OF TENDER				