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When replying please quote: AWWDA/GOK/B/TWS/W-12/2024/VOL.I (8) PE-jms

2nd February, 2024

To All Bidders;

PROCUREMENT OF WORKS FOR THE CONSTRUCTION OF WATER PROJECTS WITHIN AWWDA AREA OF JURISDICTION: CONSTRUCTION OF THIKA WATER AND SANITATION PROJECT: IFB NO. AWWDA/GOK/B/TWS/W-12/2024

CLARIFICATIONS TO ISSUED BIDDING DOCUMENT AND BID SUBMISSION FOR PROCUREMENT FOR WORKS

Reference is made to the ongoing procurement of Works for the Construction of Thika Water and Sanitation Project; IFB No. AWWDA/GOK/B/TWS/W-12/2024.

Pursuant to clauses ITT 7.1 of the Tender Data Sheet (TDS), please find attached responses to clarifications as received by 31st January 2024.

Please note that the bid submission date remains 8th February, 2024 at 12:00 p.m. East Africa Time

ENG. KIPRONO D. ROP
FOR: CHIEF EXECUTIVE OFFICER

Encl.

GROUNDWATER EXPLOITATION WITHIN ATHI BASIN AND AUGMENTATION OF COMMUNITY WATER PROJECTS		
SUMMARY SHEET		
BILL NO.	DESCRIPTION	AMOUNT (KSHS)
1	PRELIMINARY AND GENERAL ITEMS	
2	EQUIPPING OF 1 NO. BOREHOLES	
3	CONSTRUCTION OF 1 NO. 50M ³ ELEVATED PREESSED STEEL WATER TANK ON 18M STEEL	
4	MAGOGONI DISTRIBUTION	
5	REHABILITATION OF KISII ESTATE TRUNK SEWER NETWORK	
6	REHABILITATION OF KISII ESTATE SEWER LATERALS	
	SUB-TOTAL 1	
	ADD 5% CONTINGENCIES AMOUNT	
	SUB TOTAL 2	
	ADD 16% VAT	
	GRAND TOTAL	

BILL NO.1: PRELIMINARY AND GENERAL ITEMS					
ITEM NO.	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
Contractor's Mobilization					
101	Mobilization and demobilization of contractor's plant and equipment including but not limited to drilling units, tank erection equipment, test pumping equipment, borehole development equipment, materials, personnel and other required supplies	LS	1		
Temporary Works					
Contractor's Camp and Plant					
102	Establish, maintain and remove Contractor's camps, offices, facilities, etc at the end of the contract.	LS	1		
Project Sign Boards					
103	Provide, erect and maintain project sign boards at borehole sites as directed by the Project Manager. The rate include installation, removal and storage as directed by Project Manager.	Nr	2		
Provisional Sums					
104	Allow Provisional Sum of Kshs 500,000.00 for maintaining, fuelling, lubricating and servicing of the transport vehicles assigned to the project for supervision of the works to be expended as directed by the Project Manager.	PC	1	500,000.00	500,000.00
105	Allow Provisional Sum of Kshs 500,000.00 to cover supervision costs of Engineers assigned on the project from the Employer's head office to cover expenses for communication, transport, allowances etc, to be expended as directed by the Project Manager.	PC	1	500,000.00	500,000.00
106	Allow Provisional Sum of Kshs 500,000.00 to cover the costs for branding, communication and visibility of project components to be expended as directed by the Project Manager.	PC	1	500,000.00	500,000.00
107	Allow Provisional Sum of Kshs 500,000.00 to cover the costs of Hydrogeological Survey, Environmental Impact Assessment, preparation and submission of survey and EIA reports, application of authorization to drill and abstraction permits from Water Resources Authority and EIA permits from NEMA including payments for road crossing application fees to be expended as directed by the Project Manger.	PC	1	500,000.00	500,000.00
108	Provide "As Built drawings" in AutoCAD and 5nr A3 hard copies and Operation and maintenance manuals for all plant, and equipment installed or constructed and rehabilitated. Include general layouts, pipeline profiles, chamber plans, sections & reinforcement detailing	sum	1	5,000,000.00	5,000,000.000
109	Provisional Sum of KES 500000 for any payments for services by roads authorities, County Government, NEMA etc and any other that have any statutory jurisdiction over the works. Rate to include sourcing road cutting permits and reinstatement to standard, permits to work on road verges and	sum	1	5,000,000.00	5,000,000.000
110	Add a percentage of items 104, to 109 for contractor's overhead profit.	%			
BILL TOTAL CARRIED TO SUMMARY SHEET					

BILL NO. 2: EQUIPPING OF MAGOGONI BOREHOLE

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
201	Allow Provisional Sum of Kshs 450,000.00 to provide, install and commission a submersible pump capable of delivering 20m ³ /hr against a head of 250m or as directed by the Project Manager	PC	1	450,000.00	450,000.00
	NB: Indicate the make of the pump and motor. Size of casing is				
	Pump Make :				
	Country of Origin:				
	Make of Motor:				
202	Provide, install and commission a 3 phase, 415Vac, DOL control panel for the above pump comprising of the following:- Provisional	LS	1		
	b) Appropriate rating contactor				
	b) Appropriate rating thermal overload relay				
	c) Over/under voltage phase failure protection relay				
	d) Voltmeter				
	e) Voltmeter selection switch				
	f) Water level relay				
	g) Appropriate Ammeter				
	h) Appropriate MCCB for the mains				
	i) Appropriate MCCB for the control circuit				
	j) Start, Stop/reset push button (Green marked "START", and				
	k) Pilot indicator lights (green marked "PUMP RUN", red marked "OVER LOAD TRIPPED", yellow marked "BOREHOLE LOW, white				
	l) Hours run counter range 0 - 99999 hours				
	m) Cable looping box of appropriate rating				
203	Enhanced MP204 Blackbox unit to integral circuit	No	1		
	NB: A schematic and control wiring diagram MUST be supplied with the starter.				
204	3" class B G.I rising main pipe c/w pipe locking clamp including connecting to the existing tank and connecting for both water offices and Main House boreholes.	M	300		
205	Supply of 3" crane sockets to the rising main	No.	50		
206	Provide and install one 3" bulk flow meter class B (type and make to be approved by the Project Manager) c/w Non Return Valve at the well head. Rate to include all pipe and fittings at the well head.	No.	1		
207	Electrode cable(pair)	M	440		
208	Electrode pencils (pair)	No.	1		
209	25mm Dipper tube complete	M	240		
210	1.5mm ² Flat cable for float switch	M	100		
211	2" x 6" borehole cover c/w sundries	No.	1		
212	1.5mm ² 2-CORE underground armoured cable – Electrodes	M	100		
213	63A switch fuse "MEM" or equivalent	No.	1		
214	Allow a P.C. Sum for electricity supply and connection to the borehole sites. Contractor is responsible for the application of electricity connection; follow up and for prompt supply and connection of electricity by KPLC. Electricity account to be held in the name of the Employer .	PC	1	300,000.00	300,000.00
215	Add a percentage of items 315 for contractor's overheads and profit.	%	10%		
216	Allow a sum for testing and commissioning of the borehole equipping	LS	1		
219	Provide for float switch to elevated tank and connect to the control	sum	1		
220	4 FT Copper earth rod complete with clamp	Set	1		
221	Lead cable 10.0m ² single core (for earthing)	M	10		
222	Submersible cable rubber sheathed 25mm ² 3 core submersible armored	M	240		
223	Underground armored cable 25mm ² 3 core	M	95		
	Solar Works				
224	Supply and installation of polycrystalline solar modules of 345W capacity capable to power the above submersible pumps or as directed by the Project Manager	Nr.	60		
225	Solar Inverter/Controller for 18.5kw (Hybrid) or as directed by the project	Nr.	1		
226	Combiner PV Disconnet 1000-40-4	Nr.	1		

227	Encloser for PV Disconnect and Controller measuring 1000*500*350mm	Nr.	1		
228	Lightening Arrestor	Nr.	1		
229	Earthrod c/w clamp	Nr.	1		
230	10MM2X2 SOLAR PV cable	M	100		
231	6MM2X2 SOLAR PV cable	M	100		
232	Solar Module steel support structure 3m above the ground surface with members of the following specifications: Angle line 40x40x3mm frame; SHS 50X50X3mm - horizontal and vertical beams; SHS 75x75x3mm stands; SHS 40x40x3mm bracings and MS plate 6mm thick	LS	1		
Pump Control House					
233	Construction of a well ventilated pump house 3mx2m internal dimension and 2.2m clear height with concrete roof slab reinforced with Y12 at 150 c/c both directions. Rate to include provision of steel door of gauge 16 (1.5mm thick) metal plates complete with two anti-ltheft and weather resistant padlocks all to the approval of the project manager. the walss shall be constructed with 225*225mm stone masonry fine dressed. Place hoop iron 3/4" on every coarse.	LS	1		
Fencing Works					
234	Construction of borehole area perimeter fence approximately 100m long using 2.1m high chainlink G14 and 65 x 65 x 5mm thick steel angle lines at 2m centre to centre embedded in mass concrete 0.6m deep and diameter strutted at all corners of straight lines	M	100		
235	Provide 6No. Strands of wire G12 and secure the chainlink using blinding wire G16	M	100		
236	Provide and fix hinged and lockable steel grilled gate 2m wide with frame of 75mm class B pipes embedded in concrete as shall be directed.	Nr.	1		
BILL TOTAL FOR EQUIPPING 1 NO. BOREHOLES CARRIED TO SUMMARY SHEET					

BILL NO. 3 : CONSTRUCTION OF 1NO. 50M3 ELEVATED STEEL WATER TANK					
ITEM NO.	DESCRIPTION	UNIT	QTY	RATE (KSHS)	AMOUNT (KSHS)
1	General clearance				
	grassland	m2	100		
	Excavation				
	Excavation shall include strutting, shuttering, stabilizing excavated surface and keeping excavations free of water bailing out, pumping or other means				
301	Excavate to reduced levels in top soil for depth not exceeding 0.25	M3	7.00		
302	Excavate for tank foundation 0.25-0.5m	M3	31.00		
303	Ditto but in material other than top soil, rock or hard material depth 0.5-1m	M3	51.00		
304	Ditto but in material other than top soil, rock or artificially hard material depth 1-2m	M3	11.00		
	Filling				
	Filling to completed structure including compaction as specified				
305	Compacted granular fill, Using excavated material	M3	16.00		
306	Hardcore, Using imported material	M3	11.00		
	Disposal of Excavated materials				
307	Dispose excavated materials other than rock or artificially hard materials on site as directed by the Engineer	M3	11.00		
308	Dispose excavated material rock or artificially hard materials on site as directed by the Engineer	M3	7.00		
	DESIGNED MIX FOR ORDINARY STRUCTURAL CONCRETE SEVERE EXPOSURE USING ORDINARY PORTLAND CEMENT				
	Supply all materials and construct the reinforced concrete foundation for the elevated pressed steel tank 50 m3 as specified and shown in the Drawing No.: THIWASCO/ELVTANK/1.0 Include for shuttering and excavation works				
	Provide & Place Concrete Grade: 15 as blinding				
309	Using 20 mm aggregate	M3	3.00		
310	Provide & Place Reinforced Concrete Grade: 25				
	Using 20 mm aggregate	M3	18.50		
311	CONCRETE ANCILLARIES FORMWORK; FAIR FINISH				
	Plane Vertical				
	Sides of base; width >0.2	m2	36.00		
	Reinforcement				
	High yield hot rolled ribbed bars BS4449, Rate to include for Supply, delivering, cutting, bending, supporting and securing in concrete.				
312	High Yield bars	Ton	1.60		
	In assorted diameters: 8 mm, 10 mm, 12 mm, 16 mm				
	ELEVATED STEEL TANK				
313	Supply and erect a 50 m3 Elevated Pressed Steel tank on 20.0 m high tower. Panels configuration to be of 1.22 m square. Complete with all pipework (inlet, outlet, overflow, washout and other fittings) as specified and shown in Drawing. Submit Structural Design calculations documentation and shop drawings for approval prior to fabrication. Tower to be painted with one coat each of zinc phosphate primer and silver aluminium. 4.1 Drawing No. THIWASCO/ELVTANK/1.0	nr	1.00		
314	Water level indicator				
	Provide and install Tank level indicator	nr	1.00		
315	Testing of Works				
	Water Retaining Structures 4.3 Allow for water tightness testing of Elevated Steel Tank	nr	1.00		
TOTAL FOR CONSTRUCTION OF 1NO. WATER TANKS					

Bill NO. 4: MAGOGONI PIPELINE					
ITEM	DESCRIPTION	UNIT	QTY	RATE (Kshs.)	TOTAL (Kshs.)
	CLASS D: DEMOLITION AND SITE CLEARANCE				
	The rate quoted is for site clearance and demolition. Rate shall be deemed to include removal of the material, natural and artificial articles, objects and obstructions which are above the original surface and carting away to tips, identified by the Contractor in liaison with the Local Authority				
1.00	General clearance				
D1.0	Removal from site and disposed to County Government of Kiambu (CGK) dump site				
2.00	Trees				
D2.0	Cutting of trees, removal of stumps and backfilling holes with selected excavated material. Girth measured 1m above ground level. Bushes shall include tree girth n.e.				
D2.1	Trees of girth 500mm - 1m	nr	1		
3.00	Stumps				
D3.2	Stump, Diameter 500 mm - 1m	nr	1		
D3.3	Stump, Diameter exceeding 1m	nr	1		
D4	CLEARANCE OF PIPELINE WAYLEAVES, DISPOSAL AS DIRECTED Pipeline and access track				
	Nominal bore: not exceeding 100 mm,	m	1000		
	CLASS I: PIPEWORK - PIPES				
	The rate quoted is for purchasing ' HDPE pipe Class C from suppliers, transporting to site, laying and jointing. The rate is deemed to include backfilling supply of HDPE pipes				
I5.2	plain ended electrofusion joints, standard pipe lengths				
	OD 90.PN10	m	1,000		
	Supply of PPR Consumer Pipes				
	Polypropylene pipe n.b. OD 20	m	200		
	Two band saddle clamp stainless steel tapping sleeves c/w female threaded outlet				
	OD 90 - Outlet OD 20	nr	10		
	OD 90 - Outlet OD 20	nr	5		
	CLASS J: PIPEWORK - FITTINGS AND VALVES SUPPLY				
	The rate quoted is for provision and jointing of fittings and valves to the pipe network. 'steel and HDPE' Pipe fittings				
	Bends Plain Ended, butt welded joints in angles				
	Bends of varying curvature from 7 degrees to 90 degree				
	OD90,PN 10	nr	5		
	junctions and branches				
J1.0	Tee 110 x 90mm PN 10	nr	2		
J1.1	Main Plain ended, flanged invert level branch OD 90/90, PN 10.	nr	2		
	Adaptors, detachable collars couplings & saddles				
	Flexible straight & stepped coupling				
J1.2	DN 90, PN 16.	nr	12		
	Valves and Penstocks				
J1.12	Supply gate valves to SSRN 226				
	DN 25, PN 10	nr	4		
	DN 80, PN 10	nr	4		
J1.13	Non-return valves, double flanged				
	DN 100 PN 10	nr	2		
J1.14	Flap valves, flanged				
	DN, 80, PN 10.	nr	2		
J1.16	Tripple function Anti-Surge Air Valves, flanged				
	DN 25, PN 10.	nr	4		
J1.17	Water meters,smart ready ultrasonic				
	DN75,PN 10	nr	2		
	CLASS J: PIPES AND FITTINGD INSTALL				

	METHOD OF MEASUREMENT TYPE A IN METERS: HDPE Pipes Rates for installation of pipelines include: transportation of pipes from storage, stripping of top soil, excavation of trenches in loose soil, weathered rock and in hard rock as per Drawing No.: THIWASCO/SD/5.0, laying of pipes in trenches, jointing of pipes and backfilling of pipe trenches				
	Pipe n.b: n.e. 100 mm trenches depth n.e. 1 m	M	1000		
	TESTING Test pressure exc.6 bar but not exc. 15 bar,				
J1.18	Pipe n.b: n.e. 100 mm	m	1000		
	STERILISATION AND FLUSHING				
J1.19	Pipe n.b.: n.e 100 mm.	m	1000		
	METHOD OF MEASUREMENT TYPE B BY NUMBER: Fittings				
	11.25o , 22.5o , 45o , 90o Long radius Plain Ended bends Bend n.b: n.e. 100 mm				
J1.20	trenches depth n.e. 1 m.	nr	5		
	Junctions and Branchese				
J1.21	Tee n.b: n.e. 100 mm trenches depth n.e. 1 m	nr	4		
J1.22	Gate, butterfly valves, penstocks, non return/flap valves Pipe n.b: n.e. 100 mm Not in trenches, rate to include installation with extension spindle and valve surface box as per Drawing Number: THIWASCO_SD_11.0	nr	2		
J1.23	AIR VALVES Pipe n.b: n.e. 100 mm Not in trenches/ In precast concrete chambers as per Drawing No.: THIWASCO/SD/2.0 including all fittings.	nr	4		
J1.24	Meters Pipe n.b: n.e. 100 mm Not in trenches/ In chambers as per Drawing No.: THIWASCO/SD/3.0 including all fittings.	nr	2		
	CLASS K: PIPEWORK - MANHOLES AND PIPEWORK ANCILLARIES				
	MANHOLES AND OTHER CHAMBERS IN ACCORDANCE WITH STANDARD DRAWINGS				
K1.6	In -situ concrete Valve chamber as per Drawing No.: THIWASCO/SD/10 Pipe Nom. Bore n.e. 100 mm. Depth n.e. 1.5 m	nr	2		
	In -situ concrete Washout valve chamber As per Drawing No.: THIWASCO/SD/13.0				
K1.8	Pipe n.b: n.e exc. 100 mm depth 1.5 - 2 m.	Nr	2		
	In -situ concrete outfall structure As per Drawing No.: THIWASCO/SD/13.0				
K1.10	Pipe n.b: n.e exc. 100 mm depth 1.5 - 2 m.	nr	2		
K1.11	Precast concrete Valve chamber As per Drawing No.: THIWASCO/SD/2.0 Pipe Nom. Bore n.e. 100 mm. Depth n.e. 1.5 m	nr	4		
K1.12	CONCRETE MANHOLE COVERS Precast concrete cover Area: 0.5 - 1 m2 as per Drawings	nr	6		
	Crossings				
	REINSTATEMENT				
K1.13	Temporary breaking up and permanent reinstatement of 2-K731 surfaced roads, pipe nominal bore not exceeding. 250 mm.	nr	10		
	OTHER PIPEWORKANCILLARIES				
K1.14	Marker Posts for Air valves in accordance with general drawings	nr	4		
K1.15	Marker Posts for Washouts in accordance with general drawings.	nr	2		
K1.16	Marker Posts for Pipelines in accordance with general drawings.	nr	5		
K1.17	Marker Posts for valves in accordance with general drawings.	nr	6		

	CLASS L: PIPEWORK — SUPPORTS AND PROTECTION, ANCILLARIES TO LAYING AND EXCAVATION				
	This items include all excavation and backfilling of trenches for pipework, manholes and chambers, headings, thrust boring and pipe jacking. Pipe laying in headings and by thrust boring and pipe jacking. Provision of supports and protection to pipework. All materials; cement, Sand and ballast to be supplied by				
L1	hard rock class 1 material				
L1.1	altered and weathered rock class II material.	m ³	68		
L1.2	class S2 material.	m ³	101		
	BEDS				
L1.3	In pipe trenches lower bedding as per Drawing No.: THIWASCO/SD/5.0 with blended imported and screened 2-L323 class S2 material.	m ³	68		
	L1.4 SURROUNDS				
	Surrounding material				
	In pipe trenches Selected granular material as per Drawing				
	Pipe n.b. n.e. 100 mm	m ³	135		
	CONCRETE STOOLS AND THRUST BLOCKS CONCRETE CLASS 25				
	Asp per Standard Drawings To bends. Volume: 0.5 - 2 m ³ , nom.				
L1.5	Pipe n.b. n.e. 100 mm	nr	5		
	To junctions/tees. Volume: 0.5 - 2 m ³ , nom				
L1.6	Pipe n.b. n.e. 100 mm	nr	4		
	Valve & Taper stools. Volume 0.1-0.5 m ³ ,				
L1.7	Pipe n.b. n.e. 100 mm	nr	2		
	MISCELLANEOUS				
	Pigmented low density polyethylene and Aluminium foil in a bright colour continuously labelled "DANGER HDPE PIPE" in English and Swahili. For road crossings.	m	100		
	Tee Keys for valve operation				
	Provide Tee keys for the operation of Sluice valves. Length = 600 - 3000mm c/w tapered handle tip for surface box opening. Keys to suit extended 2-X9.2 spindle top provided.	nr	2		
	Chamber cover lifting apparatus				
	As per General Drawings.	nr	2		
	Supply Denso paste/tape				
	For all fittings	sum	1		
	Consumer connections				
	For connection of existing consumers Contractor's rate to include supply and installation of compression fittings as per Standard Drawing including 90o Male HDPE Bend OD 20, 90o HDPE Bend OD 20, All Flanged Tee HDPE OD 20, HDPE - BPT adaptor (OD 20 - OD 20), Universal connector OD 20 and transfer of consumer meter connection from old pipeline to new pipeline	nr	30		
PAGE TOTAL CARRIED FORWARD TO SUMMARY PAGE:					

BILL NO.5: SEWERS KISII ESTATE					
Item No	Description	Unit	Quantity	Rate (KSh.)	Amount (KShs)
CLASS A - GENERAL ITEMS					
Testing of the Works					
A260.1	Carrying out test on 300mm pipeline as specified or directed by the Engineer. Include provision of all equipment and materials	m	300		
CLASS B - SITE INVESTIGATION					
B111	Trial holes where ordered to prove location, construction size etc, of pipelines, services or existing structures, depth n.e 4m (Provisional)	nr	10		
CLASS D - DEMOLITION AND SITE CLEARANCE					
D154	Dense bush and thicket, removal from site and desposed as directed	m2	1200		
CLASS I: PIPEWORK - PIPES SEWERS & FITTINGS-SUPPLY ONLY					
HDPE structured walled-spiral welded pipes welded jointing sewerb pipes SN 10					
11924.n	OD 675 mm socket and spigot joints	m	300		
CLASS J: PIPEWORK - PIPES SEWERS & FITTINGS INSTALL					
Method of measurement type A in meters					
HDPE pipes in trenches & piers, bedding and concrete haunches					
The rates entered against the items in this section shall include for stripping top soil, laying aside and subsequently replacing					
over refilled trench,excavation in trench in all materials including rock,shoring,strutting,shuttering where necessary, refilling and compacting, spresding surplus soil evenly over and along pipe trench as per THIWASCO standard drawing/7.0 sheets 1&2 for the entire length of pipeline to the correct depths,line and level					
Installation of supplied pipe OD:675mm					
J1934	Depth 1.5m - 2.0m	m	50		
J1935	Depth 2.0m - 3.0m	m	200		
J1936	Depth 3.0m - 4.0m	m	50		

	CLASS K: PIPEWORK - MANHOLES AND SEWERWORK ANCILLARIES				
	Manholes & other chambers, in accordance with standard drawings The rates entered are to include for: Excavating in all types of soils including rock, manhole base, manhole rings, shuttering where necessary, concrete slabs and covers, step irons or ladder, backfilling and compacting around manholes, and disposing of surplus material.				
	Precast concrete sewer manholes OD: 675				
K 151.1	Depth n.e 2.0m	nr	1		
K 151.2	Ditto- but depth 2.0m - 3.0m	nr	1		
K 151.3	Ditto- but depth 3.0m - 4m	nr	1		
K 151.4	Ditto- but depth 4.0m - 5.0m	nr	1		
K 151.5	Ditto- but depth 5.0m - 6.0m	nr	1		
	precast concrete sewer manholes with back drops				
K 151.6	Depth n.e 2.0m	nr	1		
K 151.7	Ditto- but depth 2.0m - 3.0m	nr	1		
K 151.8	Ditto- but depth 3.0m - 4.0m	nr	1		
	Crossings				
	Allow for microtunneling of under drains. Rate to include for incorporation of any special materials required to cross the drain as per drawings				
K 631	Pipe nominal bore 675mm	nr	1		
	Reinstatement				
	Breaking up and temporary reinstatement - unsurfaced road. Allow for Crossing of roads. Rate to include for incorporation of any special materials required to cross the road as per drawings				
K 731.1	Pipe nominal bore 675mm	m	20		
	CLASS L: SUPPORTS AND PROTECTION ANCILLARIES TO LAYING AND EXCAVATION				
	Extras to Excavation and Backfilling (Note: Blasting not allowed for any rock excavation)				
	<i>In Pipe Trenches</i>				
L111	Excavation of rock of all classes (Provisional)	m ³	1140		
	Bed, Haunches and Surrounds as per THIWASCO Standard Drawings				

	<i>Mass Concrete Grade 15/20 in 150mm Thick Beds, Haunches and Surrounds</i>				
	<u>nominal bore: 675</u>				
L442	Beds: using imported granular material	m	300		
L442	haunch Type D (Mass Concrete)	m	300		
Total for Sewer Rehabilitation					
Total for Sewer Rehabilitation Carried to Summary Page					

BILL NO. 6: - KISII ESTATE LATERALS					
Item No	Description	Unit	Quantity	Rate (Kshs)	Amount (Kshs)
CLASS A - GENERAL ITEMS					
Testing of the Works					
A260	Carrying out test on the sewerline as specified or directed by the Engineer. Include provision of all equipment and materials	m	1000		
CLASS B - SITE INVESTIGATION					
B111	Trial holes where ordered to prove location, construction size etc, of pipelines, services or existing structures, depth n.e 4m	nr	10		
CLASS D - DEMOLITION AND SITE CLEARANCE					
D100	Pipeline and access track Nom. Bore 200 mm socket & spigot joint	m	1000		
D154	Dense bush and thicket, removal from site and disposed of as directed	m ²	4000		
D561	Other structures of indeterminate construction Volume not exceeding 50m ³	nr	30		
CLASS I: PIPEWORK - PIPES, SEWER & FITTINGS-SUPPLY ONLY					
I100	25 mm HDPE Double-Wall Corrugated socket ended sewer pipes Nom. Bore 200 mm socket & spigot joints	m	1000		
CLASS J: PIPEWORK - PIPES, SEWER & FITTINGS-INSTALL					
	Method of Measurement type A in metres HDPE Pipes In trenches & piers, beddings & concrete haunches The rates entered against the items in this section shall include for stripping top soil, laying aside and subsequently replacing over refilled trench, excavation in trench in all materials including rock, shoring, strutting, shuttering where necessary, refilling and compacting, spreading surplus soil evenly over and alongside pipe trench compacting, lay, jointing, bedding and haunching type "D" as per drawing				
	Installation of supplied pipe nominal bore:200mm				
J 222	Depth: 1.0- 1.5 m	m	195		
J 223	1.5 - 2.0 m	m	500		
J 224	2.0 - 3.0 m	m	300		
J 225	3.0 - 4.0 m	m	5		
CLASS K: PIPEWORK - MANHOLES AND PIPEWORK ANCILLARIES					

	Manholes & other chambers, in accordance with standard drawings The rates entered are to include for: Excavating in all types of soils including rock, manhole base, manhole rings, shuttering where necessary, concrete slabs and covers, step irons or ladder, backfilling and compacting around manholes, and disposing of surplus material				
	Precast concrete sewer manholes				
	pipe nominal bore:200				
K 151	Depth n.e 2.0m	nr	15		
K 152	Depth 2.0 - 3.0 m	nr	15		
K 153	Depth 3.0 - 4.0 m	nr	2		
K 155	Depth 4.0 - 5.0 m	nr	1		
K 155	Depth 5.0 - 6.0 m	nr	1		
	precast concrete sewer manholes with drops				
K 156	Depth n.e 2.0m	nr	1		
K 157	Depth 2.0 - 3.0 m	nr	1		
K 158	Depth 3.0 - 4.0 m	nr	1		
	Crossings				
	Include for all pipes and work associated with the crossings				
	<i>Pipe nominal bore 200mm</i>				
K 661	Allow for microtunneling of under drains. Rate to include for incorporation of any special materials required to cross the drain as per drawings	nr	10		
	Reinstatement				
	<i>Pipe nominal bore 200mm</i>				
K 731	Breaking up, temporary reinstatement-unsurfaced road	m	40		
	Allow for Crossing of roads. Rate to include for incorporation of any special materials required to cross the road as per drawings				
K 731	Breaking up, temporary reinstatement-surfaced road	m	30		
	Allow for Crossing of roads. Rate to include for incorporation of any special materials required to cross the road as per drawings				
	CLASS L: SUPPORTS AND PROTECTION				
	ANCILLARIES TO LAYING AND				
	EXCAVATION				
	Extras to Excavation and Backfilling				
	(Note: Blasting not allowed for any rock excavation)				
	<i>In Pipe Trenches as directed</i>				
L111	Excavation of rock (Provisional)	m ³	1,900		
	Bed, Haunches and Surrounds				

	Pipeline nominal bore 200mm				
L332	Beds: pipe bedding using Imported granular material as per specifications pipe nominal bore 200mm	m	500		
	<i>Mass Concrete Grade 15/20 in 150mm Thick Beds, Haunches and Surrounds</i>				
L443	Haunches: using mass concrete Concrete haunch type D to Pipe of Nominal Bore: 200	m	600		
L444	300 mm thick concrete surrounds Pipe Nominal Bore: 200	m	100		
	<u>customer connection</u>				
L444.1	Provide 15 m long OD 160 HDPE pipes for connection of new & reconnection of existing THIWASCO customers. 3-X9.1 Rate to include all material required for bends and 0.6 m X 0.6 m X 1.0 m deep Inspection Chambers as per nr 50 15,000 750,000.00 Drawing Number: THIWASCO/SD/7.0 Sheet 1 of 2	m	50		
	TOTAL SEWER LATERALS CARRIED TO SUMMARY PAGE				