PROPOSED CIVIL WORKS & STRUCTURES FOR KINANEI 66/11KV, 1X23 MVA TX.					
Item	Description	Unit		Unit	Amount (Kshs)
				Rate(Ksh.)	
	ELEMENT No.1: PRELIMINARIES AND ENABLING WORKS				
	Allow for Temporary hoarding approximately 2.5m high for the proposed site	ITEM	1		
	including gates, security sentries and the like and cart away on completion of the				
	project				
В	Allow for material storage, working sheds, workmen shelter against adverse weather, changing rooms & Temporary wash facilities	ITEM	1		
С	Allow for a temporary site office (approx 100sqm)with provision for site office	ITEM	1		
Ŭ	meeting room complete with portable seats,table ,white board,washroom for	11LIVI	1		
	Project team, including all works and fittings				
D	Allow for a qualified safety Officer with OSHA and conversant with Kenya	ITEM	1		
	Power safety rules for the entire contract period		_		
	Allow for security and insurance for the proposed works, materials and personel	ITEM	1		
	for the entire contract period				
F	Allow for clean water suitable for drinking for the works	ITEM	1		
	Allow for temporary sign post for the proposed works	ITEM	1		
	Allow for temporary power supply including adequate stand-by generator for	ITEM	1		
	lighting the works and equipment testing				
Ι	Allow for all the necessary statutory approvals for the works by relevant county	ITEM	1		
	departments, replication of drawings to required formats, Endorsement by relevant				
	proffesional persons; and submit a set of approved drawings before				
	commencement to the client, including site and project registration with NCA provisional 400,000				
K	Allow for entire site surveying including spot-heights and contour profiles for	ITEM	1		
ĸ	establising working levels and substation drainage level system	IIEW	1		
L	Allow for GeoTechnical Services-Provisional sum-ksh.350,000	ITEM	1		
	Allow attendance for Kenya power personnel to Check earthing prior to blinding	ITEM	1		
	& backfilling all the excavated bases & earth grids including tests for resistivity to	112.01	1		
	accepatable levels as per KPLC standards				
	Allow for AS ABUILT DRAWINGS including stamped hard copies and Soft	ITEM	1		
	copies and submit the same to the Client after project commisioning				
	Allow for NEMA/EIA approvals including EMCA (Cap. 387) enforcement	ITEM	1		
Q	Allow for materials samples testing from time to time including mill Certificates	ITEM	1		
	for all reinforcements and structural steel works delivered for the works. Copies to				
	be attached at every stage of inspection for paymement and as may be requested by				
	the Client		1		
R	Allow for visitors book and site diary. The same should be well maintained and	ITEM	1		
	safely kept with names of all persons who vist the site for the purpose of the project. Site activites and occurances shall be recorded in the site diary on a daily				
	basis. Both records shall be handed over to the client after completion of the				
	project.				
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Item	Description	Unit	Quantity	Rate	Amount
	ELEMENT No 2: GENERAL SITE CLEARNCE				
А	Clear site of all trees, bushes, shrubs, grass and the like to accommodate the	SM	5000		
	substation, Site Offices, material storage, plant and other machinery ,working				
	sheds for the workmen etc. Grab up their roots and burn the arising including				
	fumigation against harmful crawling animals, snakes and the like				
	ELEMENT No 3: 66KV LILO BAYS				
	SWITCH - GEAR FOUNDATION PLINTHS(Substructure Works -All				
	provisional) 66KV SWITCH-GEAR PLINTHS: (The following in 51 No.				
	CT/CVT/SD/PI/NCT/CABLE SUPPOT/LIGHTENING MASTS &				
	ISOLATORS Foundations type F1. 6Nos. CB Foundation Type F2 and 10No				
	Foundation Type F3 GANTRY-Total 92Nos.				
	Strip the top vegetable soil averagely 200mm deep and cart-away	SM	3600		
	Excavate foundation pits commencing from stripped level and not exceeding 1.5m deep	СМ	400		
	Ditto Exceeding 1.5m but not exceeding 3.0m	СМ	50		
	Extra -Over for excavating in all classes of rocks at any depth	СМ	15		
	Allow for all necessary plunking and strutting	ITEM	1		
	Allow for disposal of general water by pumping, bailing or otherwise	ITEM	1		
	Return, Fill and Ram Selected Excavated materials around the foundations	СМ	50		
Н	Load and Cart-Away surplus excavated materials from site to County Government Approved damping site	СМ	160		
	Level and Compact bases of pits to receive blinding.	SM	200		
	Blinding(Plain Concrete Class 15)	5101	200		
	50mm thick (1:3:6) Concrete blinding to pit bottoms	SM	200		
	Vibrated Reinforced Concrete Class 25/20 mm Aggregates In:	5141	200		
К	Bases	СМ	60		
	Stub columns	CM	70		
	Stub columnis	CIVI	70		
	High yieled steel reinforcement bars including cutting, bending, tying and				
	fixing in place, spacer blocks and tying wires to BS 4449.				
М	D8-16mm	KG	13000		
	Fair - Face FormWork to:	KU	13000		
N	To vertical sides of bases (225-300mm)	LM	460		
	To vertical sides of stub-Columns	SM	450		
	Rendering & finishes	SIVI	430		
	Rendering to Plinth top surface and any other suffeces exposed to weatherelements	SM	210		
	finished smooth trowelled including 50mm chamfer all round on all plinths.	SM	310		
	Substation and Foundations Earthing:				
	Excavate earth grids 300mm wide x 600mm deep average and cart-away including	SM	2400		
	red-soil backfilling after laying the earthing materials within entire subststion yard				
	, including design of earthing system as per geotechnical report, seek kplc approval,				
	supply and install all earthing materials.				
	Chain-Link Fence (securiy area):				
	<u>Chain-Link Fence (securiy area):</u> 2.4m high x10A gauge chainlink fence, complete with 4mm diameter 5 strands of	LM	35		
	<u>Chain-Link Fence (securiy area):</u> 2.4m high x10A gauge chainlink fence, complete with 4mm diameter 5 strands of galvanized plain wire pass through 3.0m high 150x150x5mm thick, cranked	LM	35		
	<u>Chain-Link Fence (securiy area):</u> 2.4m high x10A gauge chainlink fence, complete with 4mm diameter 5 strands of galvanized plain wire pass through 3.0m high 150x150x5mm thick, cranked reinforced concrete posts placed at 2.5m centers, 12 gauge barbed wire on 450mm	LM	35		
	<u>Chain-Link Fence (securiy area):</u> 2.4m high x10A gauge chainlink fence, complete with 4mm diameter 5 strands of galvanized plain wire pass through 3.0m high 150x150x5mm thick, cranked reinforced concrete posts placed at 2.5m centers, 12 gauge barbed wire on 450mm cranks, including, excavation and erection works, 1:3:6 mix mass concrete	LM	35		
	<u>Chain-Link Fence (securiy area):</u> 2.4m high x10A gauge chainlink fence, complete with 4mm diameter 5 strands of galvanized plain wire pass through 3.0m high 150x150x5mm thick, cranked reinforced concrete posts placed at 2.5m centers, 12 gauge barbed wire on 450mm cranks, including, excavation and erection works, 1:3:6 mix mass concrete surround at 600mm deep.	LM	35		
S	<u>Chain-Link Fence (securiy area):</u> 2.4m high x10A gauge chainlink fence, complete with 4mm diameter 5 strands of galvanized plain wire pass through 3.0m high 150x150x5mm thick, cranked reinforced concrete posts placed at 2.5m centers, 12 gauge barbed wire on 450mm cranks, including, excavation and erection works, 1:3:6 mix mass concrete surround at 600mm deep. Allow for 600mm masonary wall above ground including all Material,	LM	35		
S	<u>Chain-Link Fence (securiy area):</u> 2.4m high x10A gauge chainlink fence, complete with 4mm diameter 5 strands of galvanized plain wire pass through 3.0m high 150x150x5mm thick, cranked reinforced concrete posts placed at 2.5m centers, 12 gauge barbed wire on 450mm cranks, including, excavation and erection works, 1:3:6 mix mass concrete surround at 600mm deep. Allow for 600mm masonary wall above ground including all Material, labour,builders works and plaster finishes with 2 coats of black bituminous paint				
S	<u>Chain-Link Fence (securiy area):</u> 2.4m high x10A gauge chainlink fence, complete with 4mm diameter 5 strands of galvanized plain wire pass through 3.0m high 150x150x5mm thick, cranked reinforced concrete posts placed at 2.5m centers, 12 gauge barbed wire on 450mm cranks, including, excavation and erection works, 1:3:6 mix mass concrete surround at 600mm deep. Allow for 600mm masonary wall above ground including all Material, labour,builders works and plaster finishes with 2 coats of black bituminous paint including pcc coping				
S	Chain-Link Fence (securiy area): 2.4m high x10A gauge chainlink fence, complete with 4mm diameter 5 strands of galvanized plain wire pass through 3.0m high 150x150x5mm thick, cranked reinforced concrete posts placed at 2.5m centers, 12 gauge barbed wire on 450mm cranks, including, excavation and erection works, 1:3:6 mix mass concrete surround at 600mm deep. Allow for 600mm masonary wall above ground including all Material, labour,builders works and plaster finishes with 2 coats of black bituminous paint including pcc coping Allow for kplc PM,PE and Project Supervisor on communication and updates				
S	Chain-Link Fence (securiy area): 2.4m high x10A gauge chainlink fence, complete with 4mm diameter 5 strands of galvanized plain wire pass through 3.0m high 150x150x5mm thick, cranked reinforced concrete posts placed at 2.5m centers, 12 gauge barbed wire on 450mm cranks, including, excavation and erection works, 1:3:6 mix mass concrete surround at 600mm deep. Allow for 600mm masonary wall above ground including all Material, labour, builders works and plaster finishes with 2 coats of black bituminous paint including pcc coping Allow for kplc PM,PE and Project Supervisor on communication and updates facilitation including data processing and print a provisional Sum of Ksh.	LM	35		
S	Chain-Link Fence (securiy area): 2.4m high x10A gauge chainlink fence, complete with 4mm diameter 5 strands of galvanized plain wire pass through 3.0m high 150x150x5mm thick, cranked reinforced concrete posts placed at 2.5m centers, 12 gauge barbed wire on 450mm cranks, including, excavation and erection works, 1:3:6 mix mass concrete surround at 600mm deep. Allow for 600mm masonary wall above ground including all Material, labour,builders works and plaster finishes with 2 coats of black bituminous paint including pcc coping Allow for kplc PM,PE and Project Supervisor on communication and updates	LM	35		
S	Chain-Link Fence (securiy area): 2.4m high x10A gauge chainlink fence, complete with 4mm diameter 5 strands of galvanized plain wire pass through 3.0m high 150x150x5mm thick, cranked reinforced concrete posts placed at 2.5m centers, 12 gauge barbed wire on 450mm cranks, including, excavation and erection works, 1:3:6 mix mass concrete surround at 600mm deep. Allow for 600mm masonary wall above ground including all Material, labour, builders works and plaster finishes with 2 coats of black bituminous paint including pcc coping Allow for kplc PM,PE and Project Supervisor on communication and updates facilitation including data processing and print a provisional Sum of Ksh.	LM	35		

Item	Description	Unit	Quantity	Rate	Amount
	ELEMENT NO.4: CABLE TRENCHES				
	Trench (600mm-1200mm wide)x(600mm-900mm deep) - length Approx. 2001M				
A	Excavate for cable trench 1.2m wide from ground level not exceeding 1.0m metres deep.	СМ	230		
	Load and cart- away excess excavated materials from site to County Government Approved damping site	СМ	185		
	Backfill and ram selected excavated materials around trench walls.	СМ	45		
D	50mm plain concrete(1:4:8) blinding on cable trench base	SM	250		
Е	Allow for all necessary plunking and stritting	ITEM	1		
F	Allow for disposal of general water by pumping. Bailing or otherwise.	ITEM	1		
	Vibrated reinforced concrete class 20/20 1:2:4 as described in;				
G	150mm thick trench base.	СМ	40		
Н	150mm thick trench walls with fair face finish internally and external rendering	СМ	50		
	High yieled steel reinforcement bars including cutting, tying, bending and				
	fixing in place, spacer blocks and tying wires to BS 4449.				
Ι	D 8 in cable trench @ 150mm C/C Both ways	KG	4000		
	Fair Face - Form work to:				
J	Vertical sides of trench walls.(Internally and Externally)	SM	600		
K	Vertical side of trench base-(75-150mm)	LM	400		
L	Allow screeding/sloping and water drainage including all outlet pipes at cable trench ends	ITEM	1		
М	Provide and put in place (900x400x50mm) thick precast concrete trench covers reinfoced with Y8 bars spaced at 100mm both ways with fair face finish on both	No.	260		
	sides, inside a 50x50 angle framing including priming and corrosion protective coat				
	Ditto But 1500mm x 400mm x50mm	No.	260		
0	Supply and fix for 600x600mm cable trench, galvanized 300-400mm wide x50mm deep x 2mm thick galvanized perforated steel cable trays(samples subject to kplc approval) for control cables including mounting on the trench and all joints and bends on galvanized mild steel support brackets 40mm wide x 5mm thick with a mean girth of 1200mm as supports to detail, secured to the trench walls using 100mm long x14mm dia. rawl bolts spaced at 1.0m center to center (Contractor to submit details of cable tray support bracket for approval by kplc before fabrication and galvanizing including samples of rawl bolts)	LM	150		
	Allow concrete for bedding and thikenings (class 25 /20 mm aggregates) along the full length of trench bases	СМ	60		
_	Supply and install 150mm diameter medium duty PVC pipes as ducts. with and including 150mm thick concrete class 20 surround and murrum compaction underlying pipe bases as per as per engineer's instructions at various places	LM	120		
R	Ditto but terminating at all equipments with lengths not exceeding 3.0m per equipment	LM	60		
S	Allow for 150mm diameter, 90 degrees medium duty PVC bends, Tees and the like not exceeding 50 nos. including all bulders work and connection from equipment to trenches and the like.	LOT	1		
	Cable trays for 1200x900mm power Cable trench				
Т	Fabricate, galvanize to not less than 95microns and fix cable trays,in 50x50x5mm thick RHS main frame with 50x50x5mm RHS ties at 300mm c/c welded in the main frame and raised 200mm above the cable trench floor with same size supports. Allow for 6mm thick mild steel plates welded to all the bases of the cable tray support legs	LM	120		
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Item	Description	Unit	Quantity	Rate	Amount
	ELEMENT No. 5: 66KV KV GALVANIZED STEEL STRUCTURES				
	Fabricate and Supply to site, Steel Structures for Bus Bars, Voltage and				
	Current Transformers(CT's &VT's),Surge Diverters(SD's), Post Insulators				
	(PI's), Lightning Arrestors and Lighting Masts. The structures shall be made				
	from hot -rolled structural steel sections As per drawings & other				
	specficifications, and GTPs ncluding all connections, weldings, nuts&washers,				
	base and top plates, Stiffener plates, gussets, bolts and the like, including				
	transport and delivery to site in well coded manner handed over to client for				
	erection to match bolt assembly in foundations with galvanizing minimum 95				
	microns. Fabricator to allow for qualified steel erectors on site during the full				
	erections of Vertical gantries and Horizontal booms AS follows-;				
Α	CT &VT Structure-165 Kgs.	PCS	12		
В	CVT Structure-165 Kgs.	PCS	6		
С	Post Insulator Structure-530 Kgs.	PCS	3		
D	Isolator/Air Break Switch Structure - 450kg	PCS	6		
Е	Surge Diverter Structure-145Kgs.	PCS	9		
F	Diito but 3.0 m for 66kv NCT Structure - 145Kg	PCS	2		
G	Cable Sealing ends structure - 500kg	PCS	1		
Н	LILO Gantry (4-vertical Gantries and 2-Horizontal Booms)- 4500Kg	PCS	2		
Ι	BUS BAR (4 vertical Gantries and 2-Horizontal Boom)-4500kg	PCS	2		
J	High Level Bus-Bar Switch Structure -750Kg	PCS	1		
K	Lightening Mast & Security Lights Structure - 520kg	PCS	4		
L	Allow for grouting after KPLC Erection of structures	ITEM	1		
M	Allow for Assembly and Erection of All 66kv Vertical Gantries and Horizontal		1		
IVI	Booms	ITEM	1		
N	Allow for 2 Nos. Galvanizing/coating thickness measurement equipment including	ITEM	1		
	Testing & Calibration as necessary. Provide documents to supprt calibration for	TIEN	1		
	client ue within project.Provisional 500,000				
0	Allow for A Provisional Sum of Ksh. 700,000.00 for Factory Visit, Inspection, and	ITEM	1		
ľ	Tests before, during and after in the workshop/factory fabrication and	TIEW	1		
	galvanization process to check then accept/reject every process, quality,				
	workmanships, precision and the like as per specifications. Including all				
	faclitations/transport, communication for 6no. Client Teams (Project				
	Supervisor, IAC members, PE & PM)				
<u> </u>	Foundation Bolts (Refer to drawings):				
Р	Supply and fix galvanized steel bolts M30 x 1000mm long C/W Nuts and washers	No.	140		
	and anchor plates to detail including setting, aligning, holding in position and	110.	110		
	pouring of concrete				
Q	Ditto but M25x700mm long	No.	250		
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Item	Description	Unit	Quantity	Rate	Amount
	ELEMENT No. 6: 1X23 MVA TX. PLINTH & OIL-SUMP WALL WORKS				
			110		
	General excavation 0-2m	CM	110		
	Extra Over for excavating in All Classes of rocks at any depth excavation	CM	14		
C	Allow for soil stabilization /bottom soiling with parked boulders	CM	20		
D	Allow for 'Plum' stabilization concrete -30mm aggregates-150mm-1.3.6	СМ	10		
E	<u>Reinforced Concrete</u>	CM	10		
	BASE concrete Class 25 to footings 300mm deep	CM	12		
	Concrete Class 25 to upstand beam & walls	CM	25		
G	Concrete Class 25 to Top Cover Slab	СМ	4		
	Steel Reinforcement	17	5200		
	Steel -Ribbed 8-16mm dia. to base and beam and wall	Kg	5300		
Ι	Allow for INSERT plates 12mm thick 300x300 Including anchors and fixing to	PC	10		
	receive angle line framing and gratings (m.s)	~ ~	2.0		
	Allow for Harcdore filling to Tx. voids including blinding to receive Top cover slab	СМ	30		
	<u>Formwork</u>				
	Fair face Formwork to vertical sides of all bases (225-300mm)	LM	30		
	Fair face Formwork to vertical walls	SM	120		
М	Fair face Formwork to Vertical sides of Top cover	LM	20		
Ν	Allow Concrete class 25 to perimeter sump wall 150mm thick	СМ	8		
	Transformer Gratings				
0	Allow for HEAVYduty gratings in 1.0m pieces made of 75x75mm angle framing with 25mm diameter Ribbed bars at 30mm centres along the sump perimeter including fixing of Nosing edge angle to match for grating mounting ,all steel works galvaniozed to NOT less than 95 microns and allow for notching as directed by client and making good the fabricated and galvanized gratings including spray painting in-situ the affected areas after fixing to receive 300-400mm wide cable trays (m.s) at various places as directed by kplc	SM	25		
	23 MVA Tx. Oil Sump Chamber				
	Construct OIL sump chamber2m x 5m x 2m deep; perimeter 200mm thick block walling; internal plaster complete with niru finish; with ring beam at every 2m interval 250x200mm with 4 nos.12mm bars and 8mm shear links at 200mm spacing; cover slab with manhole opening 150mm reinforced with 8mm steel bothways at 150mm spacing; heavy duty steel cover; including pvc pipe 4"connecting with the main transformer pit not exceeding 6m awayin two compartments and connect to soakpit	ITEM	1		
	Provide galvanized 125 x 75mm x 8mm U Channels welded to triangular shape (1.5x1.2x1.9metres); placed in reinforced concrete size, 1.0x1.0metres (m.s), with the top portion exposed above the concrete aproximately 200mm, including 50mm diameter hole drilled on exposed section.	ITEM	1		
	Allow for 2 Nos. Shmidt hammer including Testing & Calibration as necessary. Provide documents to supprt calibration for client ue within project.Provisional 250,000	ITEM	1		
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Item	Description	Unit	Quantity	Rate	Amount
	ELEMENT No. 7: SWITCHYARD EXCAVATION, LEVELLING &				
	BALLASTING				
Α	Oversite general excavation to Reduce levels averagely 200mm deep and Cart Away all loose soil	SM	3600		
В	Bulk excavation averagely 400mm deep and Cart Away from site to approved	СМ	1440		
	dumping site, unsuitable soil commencing from stripped level but not exceeding 1.5m deep at the proposed substation area	CM	1440		
C	Fill in with approved imported marrum to make up levels and compact to 95%	СМ	1440		
	MDD (AASHTO T99) in layers of 150mm in the entire proposed substation area	CM	1440		
D	Allow for oversite grading to make up levels averagely 300mm using redsoil compacted in layers not exceeding 150mm thick	SM	3600		
Е	Apply suitable weed killer, herbicide to surfaces of blinding as per the	SM	2540		
	Manufacture's written instructions with a guarantee of more than 5 years				
F	1000 gauge polythene or other equal and approved membrane laid on compacted and treated quarry dust with welted laps of 200mm wide.	SM	2540		
G	Supply and spread uniformly 150mm thick, 1" - 2.5", singly graded and approved ballast in the switch - yard	SM	2540		
Н	Allow for stablization of unstable areas prior to murram backfill with averagely 300mm thick hardcore boulders	СМ	760		
	ELEMENT 8: ACCESS ROAD, DRIVEWAY & PARKING(Concrete Paving Blocks)				
Α	Mass excavation to reduce levels not exceeding 1.50m deep commencing	СМ	360		
	from stripped level average 750mm deep.				
В	Load and cart away excavated material from site.	СМ	360		
С	Ram and compact sub-grade ready to receive sub-base	SM	480		
	Filling				
D	Imported filling material to make up levels	СМ	330		
Е	300mm Thick handpacked hardcore, filling leveled, well rammed and consolidated in 150mm thick layers	СМ	138		
F	50mm Thick quarry dust blinding	SM	480		
	250 x 125mm High pre-cast concrete kerb bedded and jointed in cement and sand	LM	450		
	(1:4) mortar including 325x100mm thick mass concrete class 20/20 in foundation				
	and haunching at the back, including all necessary formwork				
	and excavations.				
Н	Extra-over ditto but curved on plan to various radii	LM	60		
	250 x 125mm High pre-cast concrete channels	LM	450		
	Extra-over ditto for curved on plan to various radii	LM	60		
J	Heavy duty industrial concrete paving blocks size (210x105x80mm) minimum strength 49N/mm square laid in herringbone pattern to slope on quarry dust (m.s) and compacted to Engineer's approval	SM	480		
K	Extra over for junction between straight and curved kerbs.	NO	8		
L	Prepare surfaces and apply three coats of approved road marking paint: to Kerb	LM	450		
	stones and parking 75-150mm girth.	1141	150		
M	Supply and install as shall be directed by client, 150mm diameter medium gauge	LOT	1		
	PVC pipes as ducts for cables crossing the access road including all necessry	201			
	excavations, concrete bedding, haunching and surround to ducts including self-				
	soaking access manholes minimum size 900x900x1000mm deep in masonry wall				
	plastered internally and externally, and pcc covers.				
	External Access Road (Murraum)				
N	Allow for standard 5m wide external access murram road approx. 20m long,	LOT	1		
	including all necessary eccavations, base stabilization, filling, compaction,	-			
	elevating and connecting to the internal paved road and external main roads.				
 					
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Item	Description	Unit	Quantity	Rate	Amount
	ELEMENT NO. 9: EXTERNAL CULVERTS				
A	Provide, lay and joint 450mm diameter precast concrete pipes (culverts)for service ducts as directed by the Engineer. The rate to include backfilling and compaction to drain formation level.	LM	30		
В	Provide, place and compact 150mm class 15 (1:3:6) concrete bed and surround to 450mm diameter pipes.	СМ	3		
	ELEMENT NO. 10: INTERNAL DRAINAGE WORKS				
	OPEN PERIMETER DRAIN				
A	Excavate on site drain trench not exceeding 1.5m deep including plunking and struting, disposal of soil to receive drainage channels and forming sloping sides in well compacted murram bed. (hydraulic depth 1m ,Trapezoidal area 0.9sm)	LM	250		
В	Provide, lay and joint 600mmx450mmx225mm (300mm diameter half-round) Invert Block Drain(IBD), including 600mmx225mmx80mm PCC side slabs(m.s) with two (2) courses laid on both sloping sides on a 100mm thick well compacted murram fill	LM	250		
С	Supply and lay on sides of sloped trench 600mmx225mmx80mm precast concrete side slabs jointed in 1:3 cement sand mortar, including proper joint treatment with waterproof Mortar	SM	300		
D	Extra over for allowing inlet openings from collection chambers 150mm with PVC pipe;all including surface treatment and joint sealant max 40 inlet ponts	ITEM	1		
	Drop Manholes				
E	Drop Manholes 600 x 600 x 450mm average deep (Internal) comprising :1000 x1000 x 150 mm thick mass concrete Class 20 base : 150mm Solid concrete block walls : 150mm Thick VRC Class 20 top slab/or cover; with heavy duty meshed/grilled manhole cover : 12mm internal render to base and walls : including step irons : all necessary excavation, disposal and formwork. with outlet PVC pipes as per type A or B across the sitchyard terminating to the open drain max 10 no chambers;	ITEM	1		
	BILL NO. 11: WELFARE ,ABOLUTION & SECURITY				
	Construct Guard House & toilet block (Non executive)within the subtsation plot entrance area including plumbing works, foul water drainage to the septic tank,all electrical works and all the necessary manholes (Location to be shown by client) Max area 12 Sq.metres - To include 2 washrooms and a urinal potion,Guard sentry)-draft proposal by contractor to client for approval-unit rate per sq meter to apply as per IQSK Handbook	SM	15		
В	Supply and fix polysynthetic manhole cover and frame size 600 x 450mm and : frame set into cement and sand (1:4) mortar: cover set in grease	NO	3		
С	<u>Septic Tank</u>	TEM	1		
U	Excavate, construct in the new location as directed and dispose surplus excavated material, septic tank size 3500x2000mm; including inlet and outlet manholes as per drawing. Allow for all builders work, plumbing and like for above works and base stabilization with boulders including blinding - Bidder quote lumpsum	ITEM	1		
D	Allow to supply substation with water from municipal water provider,AND provide traditional well min. 15m deep 1.8m dia with masonary protection at 2m from top cover slab and a provision for sump pump as standby Provisional Sum of Ksh.300,00000	ITEM	1		
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Item	Description	Unit	Quantity	Rate	Amount
	BILL NO.12: CONTROL BUILDING				
	ELEMENT NO 1: SUBSTRUCTURES				
	Excavations				
	General excavations to include excavating in loam, clay. Black cotton soil, red				
	soil or any soil which does not require ripping or use of compressor tools				
Α	Excavate trenches for wall foundations: commencing from reduced level and not	СМ	55		
	exceeding 1.5 metres deep.				
В	Ditto over 1.5m deep but not exceeding 3.0m deep	CM	13		
С	Excavate pits for column bases	СМ	38		
D	Ditto over 1.5m deep but not exceeding 3.0m deep	СМ	15		
Е	Ditto but cable trenches	СМ	77		
F	Extra over excavation for excavating in hardrock all classes.	CM	5		
G	Allow for stabilization of all bases using hardcore	СМ	5		
	Backfilling around Foundations				
Н	Backfill around foundation : selected excavated material : placed 'n 200mm thick	СМ	59		
	layers : well watered and compacted to 98% MDD				
	Disposal of Excavated Material				
Ι	Surplus excavated material : remove and deposit in spoil heaps on site	СМ	203		
	Disposal of water				
J	Keep excavations free from all water by baling, pumping or otherwise	ITEM	1		
	Planking and strutting				
K	Planking and strutting to sides of all excavations : keep excavation free from all	ITEM	1		
	fallen materials				
	Imported Hardcore				
L	Approved quarry stone hardcore : 450mm thick (overall) : hand packed and well	СМ	93		
	compacted in 150mm thick layers				
	Murram Blinding				
Μ	50mm Murram blinding to surface of hardcore	SM	185		
	Antitermite Treatment				
Ν	Chemical antitermite treatment to murram filling ; Dragnet 30% EC or equal and	SM	185		
	approved : provide 10 year guarantee				
	Insitu Concrete : Class 15/25mm				
0	50 mm Blinding layer: under wall foundations.	SM	40		
Р	Ditto : under column bases.	SM	25		
Q	Ditto : under cable trenches/channel;	SM	62		
	Insitu concrete : class 25/20 : vibrated : reinforced				
R	Strip foundations trenches .	СМ	8		
S	Column bases.	СМ	8		
Т	Column stubs.	СМ	3		
U	Cable trenches	СМ	15		
V	Bed to cable channel/trenches ; laid to falls	СМ	7		
W	150mm thick floor bed	СМ	45		
Х	Ramp	СМ	2		
Y	11kv switchboard panel pad supports	СМ	2		
	Mesh fabric reinforcement to BS 4483 : 200mm laps				
Z	Fabric mesh reference A142 weighing 2.22kg per square metre : in floor beds	M2	185		
	High yield steel bar reinforgement to BS 44461				
A1		KG	1198		
	D 10	KG	202		
C1	D 12	KG	261		
D1	D 16	KG	1207		
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Item	Description	Unit	Quantity	Rate	Amount
	Wrot formwork : to				
Α	Vertical sides : column bases	M2	40		
В	Vertical sides : column stubs	M2	65		
С	Ditto : strip foundations	M2	21		
D	Ditto : sides of channel/trench walls	M2	191		
Е	Vertical edge of floor bed	LM	65		
F	Extra-over for boxing size 400 x 400x600mm deep to form control panel grooves	No	8		
	on 150mm thick concrete slab.				
G	Vertical sides of ground beam	M2	40		
Н	Allow for water Proofing for floor and trench areas provisional-ksh.1,000,000	ITEM	1		
	Quarry /natural stone bedded and iointed in cement and sand (1:3)mortar :				
	20 gauge x 25mm hoop iron in every alternate course				
Η	200mm thick Walling	M2	120		
Ι	One layer 1000 gauge polythene sheet damp proof membrane : under beds :	M2	185		
	300mm laps.				
J	Makes 200mm diameter holes on walling	No	30		
	Ditto but concrete 200mm on cable trench	No	30		
	Supply and lay 200mm diameter heavy duty PVC ducts as cable sleeves	LM	90		
М	100mm Thick concrete (1:3:6) bed and surround to; 200mm diameter pipes,	LM	90		
	including all necessary formwork.				
Ν	6mm thick Chequered plate trench cover to 600x600mm trench of average size	SM	40		
	700x800mm : comprising 25 x 25 x 3mm RHS cross members : welded to and				
	including 25 x 25 x 3mm RHS as edge frame : in 750mm lengths, and allow for				
	collapsible handles				
0	Ditto but 1000x1200mm trench of average size, 700x800mm	SM	9		
Р	Ditto but 1000x1200mm trench of average size,400x800mm	SM	5		
	Ditto but 400x400mm control panel groove of average size,450x400mm	SM	2		
R	40x40x 3mm Angle frame set in fillet in concrete sides of open channel : 50x3mm	LM	144		
	lugs at 1000mm centres with fish tail ends cast into concrete				
S	Prepare and apply undercoat of zinc chromate primer to all general metal surfaces.	SM	160		
	Ditto but two coats of gloss aluminium paint.	SM	160		
	Cable trays				
U	Fabricate and fix steel cable trays frame for 900 x900mm cable trench, comprising	LM	15		
	of 50x50x4mm thick SHS frame, weld together with 900mm wide 50x50x4mm				
	struts, spaced at 400mm C/C to horizontal; to form cable tray and rised 200mm				
V	above the trench floor.	116	52		
	Ditto but for 600 x 600mm cable trench.	LM	53		
~~	Supply and fix 150x50x6mm thick RHS anchored on concrete pads (measured	LM	15		
	separately) to client satifactory ELEMENT NO.2: CONCRETE SUPERSTRUCTURE				
	Insitu concrete: class 25/20 : vibrated reinforced in;				
X	Columns	СМ	6		
			6		
	Ring beams Ditto : intermediate beams	CM	5 °		
	Ditto : Lintels	CM	8		
		CM	1		
	Ditto but 150 mm thick suspended slab	SM	229		
	High yield deformed bar reinforcement in beams and suspended slab to BS 44461, including, cutting, betwing,tying wire and spacer blocks;				
C^1		KG	429		
	D 8 D 10	KG	429 2451		
	D 10 D 12	KG	2451 270		
	D 12 D 16				
11		KG	501		
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Item	Description	Unit	Quantity	Rate	Amount
	Wrought formwork : to				
Α	Vertical sides of columns	SM	100		
В	Sides and soffits of Ring beams	SM	93		
С	Ditto : intermediate beams	SM	71		
D	Ditto : lintels	SM	14		
	Ditto: soffits suspended slab	SM	204		
	Ditto: sides of suspended slab	LM	65		
	ELEMENT NO.3: WALLING				
	Machine cut natural stone blocks or other equal and approved building				
	blocks: minimum compressive strength 7N/mM2 : regular coursed walling of				
	uniform colour : bedded and jointed in cement and sand (1:3) mortar : 20				
	gauge x 25mm hoop iron in every alternate course				
F	200mm Walling - external	SM	171		
	200mm Walling - internal	SM	315		
	Damp proof courses ; bituminous felt : bedded in cement mortar (1:4) :	SIVI	515		
	<u>Solomm laps</u>				
Н	Horizontal : 200mm wide	М	73		
· ·	Precast concrete units : Class 20/20 ; reinforced as necessary	141	, , , ,		
	for handling ; fair face finished on all exposed faces				
I	250 x 75mm window Cill : once weathered and throated : bedded in cement	М	25		
1	mortar 1:4)	IVI	23		
	mortar 1:4)				
	ELEMENT NO 4. WINDOWS				
	ELEMENT NO 4: WINDOWS				
	Aluminium				
	Mediam duty anodized aluminium windows complete				
	with all necessary framing, million, transome, mosquito				
	proofed hooded permanent vents, all necessary pegs,				
	prime, quality handle, pointing with approved mastic				
	<u>sealant all round, 6mm thick laminated glass</u>				
	Window overall size 1800 x 1500 mm high; 2No. Sliding leaves	NO	14		
	Ditto but size 1.0 x 1.5m high	NO	2		
	Ditto but size, 1.0 x 1.0m high	No	1		
М	Ditto but size, 0.5 x1.0.m high	NO	2		
	Burglar proofing				
Ν	12mm Diameter round mild bars welded to each other at 150mm centres both	SM	30		
	ways with every alternate bars welded to window frames (m.s)				
	Window Cills				
0	200 x 150 x 30 mm thick concrete window cill with one curved edge including	LM	25		
	bedding and pointing in cement and sand mortar (1:3)				
Р	Prepare and apply two coats of brick red paint	SM	6		
		1			
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Item	Description	Unit	Quantity	Rate	Amount
	ELEMENT NO.5: DOORS				
	Steel Doors				
	Supply and fix the following purpose -made steel doors, including fixing lugs,				
	once shop primed with one coat red oxide primer before delivery to site,				
	complete with frames and including all ironmongery to Client approval and as				
	per Door drawing: SK NO. 06449				
	BAT AND INSECT PROOFING				
	Mild steel Bat and insect proofing screens panels in lourver opening, including				
	13 x13 x 3mm flat frame in panels; welded one face with and including coffee				
	tray gauge wire mesh: one shop coat red oxide primer : to				
Q	Double leaf door overall size 2000 x 3000mm high	NO	2		
R	Ditto but Single leaf door overall size, 1500 x 2500mm high	NO	6		
Α	Medium duty aluminium door overall size 1000 x 2500mm high complete with	No	7		
	locking devices and housing on top all to Client's approval.				
В	Supply and fix first grade emergency panic lock on the1500mm wide doors to	NO	3		
	client approval.				
С	Prepare and apply gloss paint to general surfaces ; steel doors; both sides measured	M2	66		
	ELEMENT NO.6: FLOOR FINISHES				
	Cement and sand (1:4) trowelled screeds : on concrete : to				
D	25mm Floor screed to receive terazzo including plastic diving strips	M2	185		
	Polished Terrazzo Floor Finishes on concrete				
Е	30mm thick terrazzo floor finish	SM	185		
F	Ditto 25mm thick Skirting 150mm high:	LM	115		
	Non-Slip Ceramic Tiles				
G	300 x 300 x 6mm thick ceramic floor tiles approved bedded and jointed in cement	SM	8		
	and sand (1:4) mortar and pointed with neat coloured cement.				
Н	100 x 6mm thick ceramic tiles skirting bedded and jointed in cement and sand	LM	12		
	mortar (1:4) and pointed with neat coloured cement				
	Skirting				
Ι	20 x 100mm High cement and sand skirting with rounded top and curved junction	LM	12		
	with floor finish				
	ELEMENT NO.7: WALL FINISHES				
	12mm thick lime plaster in two coats : steel trowelled finish : on				
	concrete or blockwork : to				
J	Walls and columns	SM	510		
	Ditto but to soffit of suspended slab	SM	220		
<u> </u>	Prepare and apply three coats PVA matt vinyl emulsion paint : on	-			
К	Plastered walls, columns and beams, External wall faces	SM	1000		
L	Ditto but soffit of suspended slab	SM	220		
	200 x 300 x 4mm Thick glazed ceramic wall tiles : fixed with approved quality	SM	15		
	adhesive in accordance with the manufacturers instructions : on and including	5141			
	12mm thick cement and sand screed backing : jointed, pointed and grouted in				
	matching colour coloured cement grout and Plastic corner strips to edges of tiled				
	surfaces				
N	Key pointing in cement sand (1:3) in horizontal joints.	SM	171		
	Plinth walls and edges of floor bed	SM	26		
<u> </u>	Prepare and apply three coats first grade external quality	5171	20		
	paint : to				
Р	Columns and beams	SM	128		
\vdash	Respace and apply three coats bituminous paint : to	SIVI	120		
Q	Ninth area and edges of floor bed	CM (26		
<u>ب</u>		SM	26		
	TOTAL CARRIED TO SUMMARY PAGE				

Item	Description	Unit	Quantity	Rate	Amount
	ELEMENT NO.8: KITCHEN				
R	100mm thick 1:2:4 concrete in kitchen work top	SM	2		
S	Y 10 reinforcement bars at 150 centres	KG	17		
Т	150mm block wall	SM	2		
U	12mm thick mix 1:3 cement sand plaster	SM	5		
V	Single drain single bowl stainless approved kitchen sink	NO	1		
W	Bricon or any approved kitchen mixer tap	NO	1		
Х	900x600mm wide 20mm thick MDF board bottom cabinets comprising of 2No.	ITEM	1		
	Cabinents, 4No. Drawers including fixing, mouver hinges, rails, handles and				
	approved finishes.				
Y	Ditto in locable overhead cabinets but with 3No. open shelves	ITEM	1		
Ζ	10mm thick granito tiles finishes on the kitchen work top fixed with approved	SM	2		
	quality adhesive in accordance with the manufacturers instructions : on and				
	including 12mm thick cement and sand screed backing : jointed, pointed and				
	grouted in matching colour, coloured cement grout and alluminium corner strips to				
	edges of tiled surfaces				
	ELEMENT NO.9: INTERNAL DRAINAGE AND PLUMBING WORKS				
	To supply and install the following Sanitary fittings including all the				
	necessary joints to service overflow and waste pipes, jointings and mortices,				
	plugs, screws bolts and making good. Sanitary Fittings will be to Client's				
	approval of the relevant samples				
	Approved Standard white countertop wash hand basin size: 585x430mm on with	NO	2		
	one center tap hole and a 2 nd RHS tap hole for Basin top mounted under counter				
	soap dispenser .Cobra single lever mixer tap with pop up waste: and plastic bottle				
	trap 32mm dia with seal.				
	Approved standard WC white wall concealed cistern white seat & cover unit to	NO	2		
	have short siphon internal overflow and wide mouth WC P-trap waste outlet.	110	-		
С	Stainless steel toilet roll holder with top flap cover.	NO	2		
D	Stainless Steel basket soap dish size 200x150mm.	NO	1		
Е	Approved standard hand drier with infrared sensor and DP Switch with wiring	NO	1		
	Aluminium coat/towel hook complete with screw to wall fixtures and rubber door	NO	2		
	stopper	110	2		
G	Approved standard basin mounted push action stainless steel liquid soap dispenser	NO	2		
_	with 0.5 litre under counter soap holder.	110	2		
Н	"Bevelled" Mirror to Client's approval fixed on wall with chrome plated dome	NO	1		
	headed screws. Mirror size 600 x 800mm high	110	1		
	ELEMENT NO.8: PAVING SLABS				
	150mm thick Hardcore bed : deposited, spread, levelled and compacted : to	SM	82		
	receive sand bed	5141	02		
	50mm Sand bed : levelled and compacted to receive paving	SM	82		
	50x 600 x 600mm precast concrete (class 20) paving slabs : laid on sand bed	SM	82		
	(measured separately) : jointed and pointed in cement mortar (1:4)	5141	02		
<u> </u>	ELEMENT NO. 9: FIRE FIGHTING EQUIPMENT				
<u> </u>	Supply and fix controlled fire extinguisher manufactured to BS EN 3-9:2006,				
	Bs 7863:2009, BS 5306-4:2001and the cylinder manufactured to BS 5045				
	complete with the following: Charge and fixing bracket, Pictorial instructions,				
	Colour code, Servicable on site, Brass hot stamping and Operating valve as				
	described				
	4000 IN 44				
N	9 litre carbon dioxide fire extinguisher complete with re-fills, discharge horn and	No.	4		
	fittings to wall brackets smanufactured by Angus or equal and approved.	110.	т		
	9Kg dry plwder reulti-parposed fire class A'B and C as manufactured by Angus	No.	4		
Ĭ	Fig Armou ABC malti-purpose model AP 9 K or equal and approved.	110.			
Р	1200 ABC main-purpose model AP 9 K or equal and approved.	No.	2		
	4.5Kg Co2 Powder Fire Extinguisher as Angus Fire Armour.	No.	4		
	TOTAL CARRIED TO SUMMARY PAGE				

FLEMENT NO. 10: SMOKE DETECTORS ITEM A Allow for Hardwired Smoke detectors installations; including a battery back up; to ITEM 1 B Allow for general attendance on specialist contractor ITEM 1 C Builder's work in comection with Smoke detector insullations; cut away for and item and attend in all trades on the sub-contractor installing the following points in a mainly conneciled system; including chases, holes and recess notching in timbre etc; and making good all finishes for cut in boxs, electrical wiring, mounting brackets, super clearcial Drawing No SK No. 02820/B Sheet IC - Immpsum and comprising the following No SK No. 02820/B Sheet IC - Immpsum and comprising the following No SK No. 02820/B Sheet IC - Immpsum and comprising the following No SK No. 02820/B Sheet IC - Immpsum and comprising the following Que and Impse scomplete with 3-phase 4VE Stirbhuiton board netal 100Amps. I Datios for clearcing Analy - Johnes 4VE Stirbhuiton board netal (100Amps. I Dato No. Consumer unit rated 60Amps , 6 ways each MCBS rated 32Amps and ITEM 1 I Charges. I Dato No. Consumer unit rated light steel posts, 100W, I.ED Floodlights fittiggs comprise with withing in twin with error th 1.5mm sq. wring to each lamp including post foundations, No. 0 ways consumer with, No. 40 doubt pole contactor, 3No.15A miniature circuit brackers, INA, 40A current operated and 1800mm long by 15mm diameter with and leakage circuit bracker with and leakage circuit bracker with and deleakage circuit bracker with and deleage and lamps and 300mm by 300mm concrete mathole with removable cover, 1No. 63A MCB with enclosure, monoble with enclosure, suproved standard. NO <	ount
A Allow for Hardwired Smoke detectors installations; including a battery back up; to ITEM 1 B Allow for general attendance on specialist contractor ITEM 1 C Builder's work in connection with Smoke detector installations; out away for and indendin all trades on the sub-contractor installing the following points in a mainly concealed system; including chases, holes and recess notching in timber etc; and making good all finishes for cut in boxes, electrical wiring, mounting brackets, smoke detector feeds, fire alarm points etc ITEM 1 D Allow for electrical installations to be carried out by a nominated sub-contractor as per electrical installations to be carried out by a nominated sub-contractor as per electrical installations to be carried out by a nominated Sub-Contractor as per electrical prawing No SK No. 08290/B Sheet IC - lumpsum and comprising ITEM 1 E Didlo No. Consumer unit rated 60Amps - 2set and six 1-Phase way MCBS IGAmps IEE E Ditto INo. Consumer unit rated 60Amps - 6 ways each MCBS rated 32Amps and IfAmps Item 1 If stamps - 0 wing to each lamp including post foundations, INo. 6 ways consumer unit, INo. INo. 40A double pole contactor, SNo. 15A miniature circuit breakers: No. 40A current operated earth leakage circuit breakers: No. 6 ways consumer unit, INo. INo. 40A double pole contactor, SNo. 15A miniature circuit breakers: No. 40A current operated earth leakage circuit breakers: No. 6 ways consumer unit, INo. 1No. 6 AMR CB with enclosure, manbel with menvable cover, 1No. 6 MAR CB with enclosure, switch f	
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per electrical Drawing No SK No. 08280/B Sheet 1C - lumpsum and comprising the following ,1No. 12 way 3-phase 415V distribution board rated 100Amps complete with 3-phase MCBS, 32Amps -2set and six 1-Phase way MCBS 16Amps E Ditto 1No. Consumer unit rated 60Amps , 6 ways each MCBS rated 32Amps and 1TEM 16Amps ITEM 1 6 ELEMENT NO.12: SUBSTATION LIGHTING Item F Supply 10No. approved standard street light steel posts,100W, LED Floodlights Item 1 fittings complete with control gear and lamps complete with wiring in twin with earth 1.5mm sq. wiring to each lamp including post foundations, 1No. 6 ways consumer unit, 1No. 1No. 40A doublr pole contactor, 3No.15A miniature circuit breakers, 1No, 40A current operated earth leakage circuit breaker with rated leakage current of 0.5A, 2No. dawn to dusk timer switch with manual overriding switch for the street lights No. 2 G Earthing comprising of 6.0mm sq. earth lead and 1800mm long by 15mm diameter copper earth electrode with driving tip and clamp in a 300mm by 300mm concrete manhole with removable cover, 1No. 63A MCB with enclosure, No. 2 H 10.0mM2 x 2core PVC/SWA/PVC copper cable to connect power from the gate house to the respective lighting posts including cable glands to terminate the underground cable NO 4 1 Trenching, cable laying, ducting and back filling LM 150 150 <t< td=""><td></td></t<>	
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Item	Description	Unit	Quantity	Rate	Amount
	DI EMENTINO 12				
	ELEMENT NO 13				
	ROOFING & RAINWATER DISPOSAL				
	Structural Steel work				
	The following in framed structural steelwork : complete with and including all				
	welded and bolted connections : delivery to site and erection with and				
	including one shop coat of zinc plumbate primer				
A	7 No. structural steel roof trusses spanning 10750 mm girth : hoisting and fixing				
	approximate 4.5 M above ground level :				
В	100 x 50 x 4 mm thick RHS rafters	LM	85		
С	50 x 50 x 3 mm SHS struts and ties	LM	145		
D	50 x 50 x 3 mm SHS tie beam	LM	55		
	100 x 100 x 6 mm thick base plate welded to truss : drilled with 4No. holes for 12 mm diameter bolts	No	14		
F	Supply and fix 150x50x2mm 'Z' - purlins with welded cleats and bolted to rafters primed	LM	224		
G	Fabricate steel framework comprising of SHS 40x40x4mm thick to form vertical facsia cladding, comprising of vertical and horicontal members, bracings, struts runners all adequately and including fixing into position in, to client satisfaction.	LM	70		
Н	Supply and fix BP760 or equivalent box profile factory pre-painted 28-gauge full length roofing sheets to an approved colour laid with 94mm side laps and fixed to steel 'Z' purlin (m/s) including self tapping screws/bolts as necessary.	SM	270		
Ι	Ditto but vertical sides of fascia cladding framework and gable sides	SM	85		
	Ditto but eave covering	SM	40		
	Supply and fix 28Gx320mm with stiffed ridge caps	LM	23		
	Rainwater Goods				
L	Supply and fix 14 gauge Mild steel sheet purpose made box water gutter, 1200mm girth; to sit and fixed on eaves cover framework as described (ms) and to rafters	LM	46		
М	Extra over for stopped ends.	N0	4		
	Ditto 110mm diameter holes in gutter	N0	2		
	110mm diameter down pipe	LM	12		
Р	Extra-over down pipe for 900mm girth swaneck including, tightly securing with sandle clips at 750mm centres.	NO	2		
Q	Extra over downpipe for 300m shoe	NO	2		
	Painting generally.				
R	Prepare and apply 2 coats of red oxide primer and apply 2 coats of alluminium finish on rainwater goods	SM	1		
	Prepare and apply two coats black bituminous paint in rainwater gutters internally.	SM	55		
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Item	Description	Unit	Quantity	Rate	Amount
	EXTERNAL WORKS				
	BILL NO.13 GROUND MOUNTED TANK PLINTH				
Α	Excavate Pit for water tank not exceeding 1.50 m deep	СМ	8		
В	Remove surplus excavated material from site	СМ	7		
	Return fill and well ram selected excavated materials around foundations	СМ	1		
	Concrete work:-				
	50mm thick plain blinding concrete mix (1:4:8) class 10-15mm aggregates in:-				
D	Foundations	SM	10		
	Guaranteed strength vibrated reinforced concrete mix (1:11/2:3) class 25-				
	20mm aggregate in:-				
Е	Base.	CM	3		
F	Ditto but curved 250mm thick walling	CM	2		
G	Ditto but curved 300mm thick top cover	CM	2		
	Reinforcements				
	High yield deformed bars to B.S. 4461				
Н	D 8	KG.	31		
	D 12	KG.	635		
	Wrot Formwork to:-				
Ι	Curved base 225-300mm high	SM	11		
J	Curved edges of walling	SM	18		
	Fillings				
K	Approved hardcore of 100-200mm diameter fillings	CM	4		
	BILL NO.14 ELEVATED WATER STORAGE TANK STEEL TOWER				
Α	Excavate for column pits 1.5m deep commencing from stripped level but not	СМ	6		
	exceeding 1.5 m deep.				
	Extra over excavation in rock of all classes.	CM	2		
	Remove surplus excavated material from site	CM	4		
	Return fill and well ram selected excavated materials around foundations	CM	2		
Е	50mm thick 1:4:8 blinding to column bases	SM	4		
	Vibrated reinforced concrete class 20/20 1:2:4 as described in;				
F	Colomn bases	CM	1		
G	Stubs	CM	1		
	High Steel reinforcement bars including tying bending spacer blocks tying				
	wires and fixing high tensile bars to BS 44461				
	D 12	KG	104		
	D 8	KG	18		
J	Allow for accurately setting 16 No. 20mm diameter galvanised steel foundation	ITEM	1		
	bolts at 250mm centres on foundation column plinths.				
	Wrought formwork to sides of columns	SM	2		
L	Ditto but to Bases	SM	5		
M	Ditto but to Vertical sides of stub	SM	7		
N	10mm thick top finish of cement/sand screed	SM	4		
	The following in steel work tower 2000x2000mm wide x6000m high fixed				
	1500mm deep in ground including cutting and welding or bolting as necessary				
	finished, with 3 coats of red oxide primer	NO			
0	300 x 300 x 10mm thick base plate with 4no. 18mm diameter holes spaced at	NO	4		
P	250mm centres and welded to the bottom of tower column	TN	24		
^P	100x100x0mm mild steel SHS in main framework, welded to base plates and reported with 32No. Cleats	LM	24		
Q	Dire decking 100x0x6mm RHS	T M	11		
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Item	Description	Unit	Quantity	Rate	Amount
	Gate Columns:				
E1	Excavate for column pits 1.5m deep commencing from stripped level but not	СМ	15		
	exceeding 1.5 m deep and cart-away				
F1	Extra over excavation in all classes of rock.	СМ	3		
Gl	Allow for well compacted murram backfill round the foundations	СМ	12		
	50mm thick 1:4:8 blinding to column bases	SM	4		
	Vibrated reinforced concrete class 20/20 1:2:4 as described in;				
Л	Colomn bases and Stubs	СМ	2		
	High Steel reinforcement bars including tying bending spacer blocks tying				
	wires and fixing high tensile bars to BS 44461				
L1	D8-12	KG	360		
	Fair -Face Formwork to:				
M1	Vertical edges of bases (225-300mm)	LM	15		
N1	Vertical sides of Stubs	SM	15		
	Precast concrete class 20/20 copings:-				
01	450 x 450 x 50mm. Thick coping weathered and throated all round bedded on top	NO.	4		
	of Gate columns with cement sand motar (1:4)				
	ELEMENT NO. 15: REINFORCED CONCRETE RETAINING WALL -				
	200MMWIDE X1200MM HIGH X 250M LONG				
Α	Bulk excavation averagely 1.5m deep including carting away and backfilling	СМ	720		
	Allow for all necessary plunking and strutting	ITEM	1		
С	Allow for disposal of general water by pumping, bailing or otherwise	ITEM	1		
D	Vibrated Reinforced Concrete class 30/20mm aggregates in all locations	СМ	215		
	High yieled steel reinforcement bars including cutting, bending, tying and	TTG	10000		
E	D8-10mm	KG	12000		
	Fair - Face FormWork to:				
	To vertical sides of bases	LM	500		
	To vertical sides of retaining wall	SM	1000		
	Allow for water proof cements on all concrete works	ITEM	1		
Ι	Apply 2 coats of black bituminous water-proof paint on the concrete surface	SM	1000		
_	internally and externally prior to backfilling to the plinth area				
J	Allow for slots/notches 250x250mm x 600mm deep at 2.5m intervals, during wall	NO	510		
	casting for grouting of galvanized steel posts (m.s with chainlink) tonclude				
V	making good after use	LOT	1		
K	Provide all materials, prepare and construct minimum 200mm thick grouted stone	LOT	1		
	pitching, maximum 600mm wide in 1:3 cement sand motar laid on 100mm well				
Ļ	compacted murram bed to the full perimeter of the retaining wall externally		4.50		
L	Allow for stabilization of retaining wall base with hardcore boulders to	СМ	150		
	satisfaction averagely 450mm deep				
	Expansion Joint	61.5	20		
M	20mm thick construction joint in flex cell or equall and approved expansion joint $1/(25, 25)$	SM	20		
	and (25x25)mm expedite sealer at 30m interval				
	Chainlink Fencing:	116	250		
0	2.4m high x10A gauge chainlink fence, complete with 4mm diameter 5 strands of	LM	250		
	galvanized plain wire passing through 3.0m high 150x150 - cranked reinforced				
	concrete posts placed at 2.5m centers, 12 gauge barbed wire on 450mm cranks,				
	including 600mm deep grouting on to R.C retaining wall(m.s), erection works.				
	Allow for double concrete struts at all corners and gates and as shall be directed				
	by the Engineer				
	Razor Wire		0.50		
Р	Supply and fix Razor Wire at the cranked portion of the Chainlink fence, Coil	LM	250		
	size 450mm diameter, Blade profile-ripper razor wire, Stretch factor-maximum of				
	Our per coil and secured to concrete posts with galvanised steel wire 600mm long				
	anchored on the wall at 1.5m centers.				
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					Amount (Kshs) For Tender
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