FINAL

	PROPOSED CIVIL AND BUILDING WORKS AT CHEMELIL 33/11KV SUBSTATION				
Item	**Description**	**Unit**	**Qty**	**Rate**	**Amount (Kshs)**
	ELEMENT No.1				
A	**PRELIMINARIES AND ENABLING WORKS**				
1	Allow for temporary adequate site office with notice-board, shelves, well maintained visitors book, furniture and able to accommodate 10 people during site meetings to be held once month including refreshments, also provide separate room/rooms for contractor usage as store, changing room etc. as part of the site office.	ITEM	1		
2	Allow for all necessary statutory approvals for the works and drawings by relevant County/Central government Authorities, replication of drawings to required formats for endorsement by proffessional persons and submit a set of approved drawings to client before commencement of the works including registrartion of the site and works with NCA.	ITEM	1		
3	Allow for a qualified person conversant with Kenya Power safety regulations with capacity to receive safety electrical permits and to double up as 'Safety Officer' for the entire contract period.The safety officer to keep records of all work related incidences and accidents on site and report accordingly if any.	ITEM	1		
4	Allow for security and insurance for the proposed works. The contractor's security personel to keep daily records of all casuals and other people who access site as the records may be require by client.	ITEM	1		
5	Allow for temporary sign post for the proposed works.	ITEM	1		
6	Allow for approvals from NEEMA and related authorities.	ITEM	1		
7	Allow for temporary metered electricity supply for the works (if Lv suppy within site) or a Generator for fabrication works.	ITEM	1		
8	Allow for materials samples testing from time to time including mill Certificates for all reinforcements and structural steel works delivered for the works, Sand, Ballast and Concrete test cubes. Copies to be attached at every stage of inspection for paymement and as may be requested by the Client	ITEM	1		
9	Allow for attendance for Kenya power personnel carrying out earthing prior to blinding & backfilling all the excavated bases & earth grids	ITEM	1		
10	Allow for clean water on site for the construction works.	ITEM	1		
11	Allow for a temporary sanitary facility on site preferbly a pit latrine for contractor staff on site and make good after works completion.	ITEM	1		
	ELEMENT No.2				
A	**SWITCH YARD REHABILITATION**				
1	Allow for carefully collecting all KPLC scrap, materials and equipment on site under KPLC supervision, transfer/load and store as per client directives.	ITEM	1		
	TOTAL CARRIED TO SUMMARY PAGE 1				

Item	Description	Unit	Qty	Rate	Amount (Kshs)
2	Demolition of the existing pit latrine, gatehouse and any existing iddle plinths on site which may obstruct new works, hand over the recoverables to KPLC, cart away the debris and make good.	ITEM	1		
3	Clear site of all shrubs, grass and any other vegetation and burn/cart away the arising.	SM	3000		
4	Mass excavations of the black cotton soil average depth 450mm starting from stripped level and cart way and damp it within kplc plot, outsite the substation to form an embankmenk a long the substation boundary wall as directed.	CM	1400		
5	Selected and approved imported murram fill in switchyard, compacted in layers not exceding 150mm thick using a 10 tonne vibrating roller to 95% MDD to gradual slope as instructed making up substation yard level.	CM	1500		
6	Allow for raising levels of switch yard by average 350mm using selected murram and compacted in layers n,e 150mm to 95% MMD making up the final sitchyard level,	SM	3000		
7	Prepare and apply Gradiator 4TC or equal and and approved insecticide to surfaces of murram fill and blinding as per Manufacturer's written instructions (to be done by a specialist subcontractor and guarantee given, a certificate as a proof required by client)	SM	2400		
8	Apply suitable weed killer, herbicide to surfaces of blinding as per the Manufacture's written instructions (to be done by a specialist subcontractor and guarantee given, a certificate as a proof required by client)	SM	2400		
9	1000 gauge polythene or other equal and approved mebrane laid on compacted and treated murram with welted laps of 200mm wide.	SM	2400		
10	Supply and spread a uniform layer of 150mm thick 'one inch ' (25mm) ballast in switchyard	SM	2400		
	ELEMENT No. 3				
	TRANSFORMER PLINTHS 2Nos.				
1	Excavate for 2No. transformer plinth pits sizes (9400x6900)mm, depths 0-2m from final ground level and cart away.	CM	160		
2	Allow for soil stablization at bottom of pits with hand parked boulders/murram and compacted to 95.5% MDD.	CM	40		
3	Allow for stablization concrete 150mm thick 1;3;6 - 30mm aggregates	CM	14		
4	Allow for keeping excavated pits water free by pumping, bailling or otherwise.	ITEM	1		
5	Allow for planking and strutting to uphold the foundations.	ITEM	1		
6	Return,fill and ram selected imported murram around transformer plinth.	CM	5		
	TOTAL CARRIED TO SUMMARY PAGE 2				

Item	Description	Unit	Qty	Rate	Amount (Kshs)
B	***High yieled steel reinforcement bars including cutting,bending, tying and fixing in place, spacer blocks and tying wires to BS 4449.***				
1	Reinforcement bars D8, D10 and D12 to bases, upstand beams and top slabs for Tx. plinths all spaced @ 200 c/c.	KG	5000		
2	Allow for INSERT plates 10mm thick 300x300 Including anchors and fixing to receive angle line framing and gratings (m.s) at approximately 1000mm c/c. on both the sump and Tx plinth walls,	ITEM	1		
C	***Formwork***				
1	Vertical Sides of bases and sides of top slab(225-300)mm	LM	55		
2	Steel/ wooden formwork to sides of plinths upstand beams and the plinths sides to produce a fairly smooth concrete surface finish (plastering concrete surfaces will not be allowed))	SM	120		
D	***Reinforced Concrete***				
1	Class 25(20) concrete in the transformer foundation base 300mm thick.	CM	25		
2	Class 25(20) concrete in the plinth upstand beams 150mm thick.	CM	20		
3	Class 25(20) concrete in the plinths top slabs sizes (5000x2500)	CM	10		
E	***Hardcore fill***				
1	Well compacted hardcore fill in the plinths.	CM	20		
2	50mm thick concrete (1:4:8) blinding and DPM on the hardcore	SM	18		
F	***TX Sump Grating***				
1	Allow for HEAVYduty gratings made of 75x75mmx8mm thick angle and in panels of (2500x1000mm wide) maximum, with 25mm diameter ribbed bars cut to size and welded along the width of the panels at 40mm c/c 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. (For 2No. plinths)	SM	40		
G	***Finishes***				
1	Surfaces finish smooth trowelled in (1:3) cement/ Sand mortar including 50mm chamfer all round top edges of plinths, including ground anchors.	SM	26		
H	***Transformer Ground Anchors 2No.***				
1	Excavate for 2No. Ground anchors size (2000x2000)mm depth n.e. 1.5m from stripped level and dispose off the spoil	CM	12		
	TOTAL CARRIED TO SUMMARY PAGE 3				

Item	Description	Unit	Qty	Rate	Amount (Kshs)
2	Ditto exceeding 1.5m but n. e. 3m	CM	4		
I	***High yieled steel reinforcement bars including cutting,bending, tying and fixing in place, spacer blocks and tying wires to BS 4449.***				
1	D10 and D12 bars	KG	210		
J	***Vibrated reinforced concrete class 20/25 1:2:4 as described in;***				
1	Ground anchors	CM	10		
2	Allow for fixing ground anchors in place before concreting as instructed, client to provide the steel anchors.	ITEM	1		
3	Return,fill and ram selected imported murram around gtound anchor plinth plinth.	CM	3		
	ELEMENT No. 4				
	FOUNDATION PLINTHS				
	6No. typical foundation plinths for 33Kv bus bar.				
A	***Excavations. (All Provisional)***				
1	Excavate for 6No. Bus bar structure plinths foundation pits size (2000x2000) depths not exceeding 1.5m from final ground level.	CM	37		
2	Ditto exceeding 1.5m but n.e 3.0m.	CM	10		
3	Allow for keeping excavated pits water free by pumping, bailling or otherwise.	ITEM	1		
4	Return,fill and ram selected imported murram around the foundations.	CM	20		
5	Removing excess excavated materials from Site and damping it within kplc plot as directed.	CM	37		
6	Selected hand paccked and compacted hardcore fill/boulders average thickness of 350mm to stablize the foundation and make up levels for the plinths.	CM	10		
B	***Vibrated reinforced concrete class 20/25 1:2:4 as described in;***				
1	Compacting bases of pits and blinding with mass concrete mix (1:4:8 - 50 mm thick)	SM	25		
2	Stub columns and foundation bases. Bases (2000x2000x300 thick) and stub columns (1400x970x1500 high)	CM	25		
C	***High yieled steel reinforcement bars including cutting,bending, tying and fixing in place, spacer blocks and tying wires to BS 4449.***				
1	Reinforcement bars D12 to bases and stub columns of bus bars.	KG	400		
2	Reinforcement bars T8 in rings.	KG	400		
E	***Formwork***				
1	Steel/ wooden formwork to sides of stub columns and bases to produce a fairly smooth concrete surface finish to stub columns faces. (plastering concrete surfaces will not be allowed))	SM	45		
	TOTAL CARRIED TO SUMMARY PAGE 4				

Item	Description	Unit	Qty	Rate	Amount (Kshs)
2	Top surface finish smooth trowelled including 50mm chamfer all round on all plinths.	SM	10		
	ELEMENT No. 4A				
	4No. typical foundation plinths for 33Kv Circuit Breakers as per the general arrangement drawing (GA)				
A	***Excavations.***				
1	Excavate for 30No. structure plinths foundation pits size (3400x1200) depths not exceeding 1.5m from final ground level.	CM	30		
2	Ditto exceeding 1.5m but n.e 3.0m.	CM	10		
3	Allow for keeping excavated pits water free by pumping, bailling or otherwise.	ITEM	1		
4	Allow for planking and strutting to uphold the foundations.	ITEM	1		
5	Return,fill and ram selected imported murram around the foundations.	CM	25		
6	Removing excess excavated materials from Site and disposing off.	CM	25		
7	Selected hand paccked and compacted hardcore fill/boulders average thickness of 350mm to stablize the foundation and make up levels for the plinths.	CM	10		
B	***Vibrated reinforced concrete class 20/25 1:2:4 as described in;***				
1	Compacting bases of pits and blinding with mass concrete mix (1:4:8 - 50 mm thick)	SM	15		
2	Stub columns and foundation bases, (600x600x1500 high) and (1200x1200x300 thick) respectively.	CM	10		
C	***High yieled steel reinforcement bars including cutting,bending, tying and fixing in place, spacer blocks and tying wires to BS 4449.***				
1	Reinforcement bars D12 to bases and stub columns of plinths.	KG	300		
2	Reinforcement bars D8 in rings.	KG	150		
D	***Formwork***				
1	Steel/ wooden formwork to sides of stub columns and bases to produce a fairly smooth concrete surface finish to stub columns faces. (plastering concrete surfaces will not be allowed))	SM	10		
2	Top surface finish smooth trowelled including 50mm chamfer all round on all plinths.	SM	12		
	ELEMENT No. 5				
	CABLE TRENCHES AND DUCTS				
A	***Trench (600-1200 withd)x(600-1200 depth) length 380 metres at various locations (All Provisional)***				
1	Excavate for cable trench 1.2m wide from reduced level not exceeding 1.0 metres deep.	CM	300		
	TOTAL CARRIED TO SUMMARY PAGE 5				

Item	Description	Unit	Qty	Rate	Amount (Kshs)
2	Load, cart away excavated materials and dispose at areas designated by local authority.	CM	300		
3	Backfill and ram selected imported murram around trench walls.	CM	5		
4	50mm plain concrete(1:4:8) blinding on cable trench bas	SM	410		
B	***Vibrated reinforced concrete class 20/25 1:2:4 as described in;***				
1	In 150mm thick trench base and covers	CM	70		
2	In 150mm thick trench walls with fairly smooth face finish.	CM	80		
3	Provide and put in place (900x400x50mm) thick precast concrete trench covers reinfoced with D8 bars spaced at 100mm both ways with fairly smooth face finish on both sides, including angle iron size (50x50x3mm thick) for covers edges protection. (For 900x600mm, trench), including 2 coats of red oxide paint and 2 coats of alluminium paint.(Provide collapsable cover lifting handles after every 10 trench covers)	No.	625		
4	Ditto 1200x300mm trench covers	NO	175		
5	Ditto 1500x300mm trench covers	NO	161		
C	***High yieled steel reinforcement bars including cutting, tying, bending and fixing in place, spacer blocks and tying wires to BS 4449.***				
1	D 8 in cable trench @ 200 c/c both ways	KG	4100		
D	***Form work to***				
1	To sides of trench walls.	SM	720		
E	***Cable Ducts***				
1	Provide and put in place 150mm diameter heavy duty pvc cable ducts at various points surrounded 150mm mass concrete (1:2:4)	LM	150		
2	Provide and fix as necessary 150mm diameter PVC bends	No.	40		
F	***Ladder Cable Tray***				
1	Supply and fix galvanized (Minimum 110 Microns) ladder cable trays in panels of 3200mm long and 1150mm (for 1200x1200 trench wide) made out (50x50x4mm thick SHS) with rungs spaced at 400mm c/c and supported 200mm above trench bed at 1600mm c/c.	LM	65		
2	Ditto, but panels of (3200mmx850mm) for 900x900mm trench	LM	70		
3	Ditto, but panels of (3200mmx550mm) for 600x600mm trench	LM	200		
4	Ditto, but panels of (3200mmx950mm) for Tx. Plinth sump	LM	38		
	TOTAL CARRIED TO SUMMARY PAGE 6				

Item	Description	Unit	Qty	Rate	Amount (Kshs)
	ELEMENT No. 6				
A	***OIL INTERCEPTOR***				
1	Excavate starting from ground level a pit size (5mx3mx2.5m depth)	CM	45		
2	Return,fill and ram imported murram around the intercepter walls	CM	10		
3	Selected hand paccked and compacted hardcore fill/boulders average thickness n.e 300mm to stablize the foundation base.	CM	5		
4	Removing excess excavated materials from Site and disposing off.	CM	45		
5	Compacting bases of pit and blinding with concrete mix (1:4:8 - 50 mm thick)	SM	20		
6	Water proof Concrete (1:2:4/25) reinforced with BRC A142 including 200mm laps, and all necessary tying wires and supports in slab 200mm thick.	SM	20		
7	Approved natural stone walling 225mm thick in water proof cement/sand mortar (1:3) reinforced with 20SWG hoop iron at every two alternating courses.	SM	30		
8	25mm thick cement/sand water proof (1:3) rendering on wall surfaces and floor slab finished smooth and waterproofed.	SM	100		
9	Allow for kplc PM,PE and Project Supervisor on communication and updates facilitation including data processing and print a provisional Sum of Ksh. 800,000	ITEM	1		
B	***Sawn Formwork***				
1	Vertical sides of slabs and beams girth 150-300 high	LM	40		
2	Soffits of slab including provision including openings for inspection chambers on slab,	SM	20		
C	***High yieled steel reinforcement bars including cutting, tying, bending and fixing in place, spacer blocks and tying wires to BS 4449.***				
1	In slab and ring beam and slab beams, D8 and D10 @ 200 c/c	KG	550		
D	***Vibrated reinforced concrete class 20/25 1:2:4 as described in;***				
1	Slab, ring beams and slab beams. and beams	CM	6		
2	Provide and fix (600x450)mm heavy duty coated cast iron manhole covers and frames, or approved equivalent in the market	No.	3		
	TOTAL CARRIED TO SUMMARY PAGE 7				

Item	Description	Unit	Qty	Rate	Amount (Kshs)
3	Excavate for Soakpit 1.8m dia n.e 3m deep to seepage laevel, three cuorses of masonry walling on a footing a round soakpit,includding filling with boulders, blinding on the hardcore fill,placing DPM , provision for inlet point for pvc pipes with cover slab 150mm thick reinforced with BRC A142 including std. inspection chamber and finishes.	ITEM	1		
4	Provide and lay 150mm medium gauge PVC pipes with 100mm concrete surrounded, connecting the plinth sumps to the oil interceptor. Provide 100mm dia. Pvc bends and 6LM of pvs pipe for plumbing purposes,	LM	100		
5	Construct on site manholes to M.O.P.W. specifications including (600x450)mm heavy duty coated cast iron manhole covers or approved equivalent	No.	4		
	ELEMENT No. 7				
A	**ACCESS ROAD (Paving Blocks, 500 sq m)**				
1	Mass excavation to reduce levels not exceeding 1.50m deep commencing from stripped level average 750mm deep.	CM	200		
2	Load and cart away excavated material from site.	CM	200		
3	Ram and compact sub-grade ready to receive sub-base	SM	500		
B	**Filling**				
1	Well compacted in layers of 150mm Imported approved filling material to make up levels	CM	450		
2	300mm Thick handpacked hardcore, filling leveled, well rammed and consolidated in 150mm thick layers.	CM	160		
3	50mm Thick quarry dust blinding	SM	500		
4	250 x 125mm High pre-cast concrete kerb bedded and jointed in cement and sand (1:4) mortar including 325x100mm thick mass concrete class 20/20 in foundation and haunching at the back, including all necessary formwork and excavations.	LM	250		
5	Extra-over ditto but curved on plan to various radii	LM	40		
6	250 x 125mm High pre-cast concrete channels	LM	290		
7	Extra-over ditto for curved on plan to various radii	LM	30		
8	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	500		
9	Extra over for junction between straight and curved kerbs.	NO	12		
10	Prepare surfaces and apply three coats of approved road marking paint: to Kerb stones and parking 75-150mm girth.	LM	400		
	TOTAL CARRIED TO SUMMARY PAGE 8				

Item	Description	Unit	Qty	Rate	Amount (Kshs)
11	Supply and install as shall be directed by client, 4No., 200mm diameter heavy duty PVC pipes as ducts for cables crossing the access road including all necessry excavations, 200mm concrete bedding , haunching and 200mm concrete surround to ducts including 2No. self-soaking access manholes minimum size 900x900x1000mm deep in masonry wall plastered internally and externally, and approved covers.	ITEM	1		
C	***External Access Road (Murraum)***				
1	Allow for standard 5m wide external access murram road approx. 55m long, including all necessary excavations,base stabilization, filling, compaction, elevating and connecting to the internal paved road and external main roads.	ITEM	1		
2	Allow for excavations, base stablization and installing 900mm ID culvert spanning 10m across the access road including 300mm concree surroud, head and wing walls besides sump.	ITEM	1		
	ELEMENT No. 8				
	CONTROL BUILDING (15mx7m)				
A	**Excavations**				
1	Excavate starting from ground level for foundation strip 1000mm wide and coloum bases and cart away the excvated materials.	CM	75		
2	Ditto exceeding 1.5m but n,e 3mm depth.	CM	10		
3	Ditto but cable trenches,column bases.	CM	35		
4	Allow for all necessary planking and strutting.	ITEM	1		
5	Allow for keeping excavation free from general water.	ITEM	1		
6	Selected hand paccked and well compacted hardcore fill/boulders average thickness n.e 400mm to stablize the foundation strip.	CM	25		
B	**Mass Concrete Class P as described.**				
1	Plain concrete (1:4:8-20mm aggregates) in 50mm thick blinding to foundation strip, column bases and cable trench.	SM	85		
C	**High yield mild steel reinforcement bars from 8mm to 12mm including cutting, bending, spacer blocks, tying wire and fixing to BS 4449 in, strip foundation, substructure columns including footings and cable trench.**				
1	D12 in substructure columns and bases and ground beam	KG	500		
2	D10 in foundation strip	KG	800		
3	D8 in cable trench and column rings	KG	450		
D	**Sawn formwork to: -**				
1	Sides of substructure columns and strip foundation	SM	65		
2	Ditto but cable trench	SM	35		
E	**Vibrated reinforced concrete class 20/20 (1:2:4/25) as described in**				
1	Strip foundation (1000mmx300mm)	CM	15		
	TOTAL CARRIED TO SUMMARY PAGE 9				

Item	Description	Unit	Qty	Rate	Amount (Kshs)
2	Cable trenches 150mm thick	CM	15		
3	Column bases (1000mmx1000mmx300mm thick)	CM	5		
4	Columns footings/stubs	CM	5		
5	Ground beam (450x200mm)	CM	5		
6	concrete door ramps including BRC A142 reiforcement.	CM	2		
F	**Substructure approved natural stone walling in cement sand mortar (1:3) including and reinforced with 20 SWG Hoop iron in every alternative course**				
1	200mm thick wall.	SM	100		
G	**Filling.**				
1	Return, fill and ram selected imported murram around foundations.	CM	60		
2	Load cart away surplus excavated materials and dispose in areas designated by local authorities.	CM	75		
3	Selected hand packed hardcore filling, compacted in layers of 150mm thick to make up levels in control building to required levels.	CM	45		
4	50mm thick approved and compacted murram blinding on hardcore fill.	SM	105		
H	**Insecticide.**				
1	Prepare and apply "Premise 200 SC " or equal and approved insectcide to surfaces of blinding as per manufacturer"s written instructions.	SM	105		
I	**Damp Proofing.**				
1	1000 gauge polythene DPM laid on the blinding including 200mm side and end overlaps.	SM	105		
J	**Mild steel bar to BS 4449;**				
1	Double BRC mesh reference No. A142 weighing 2.22kg per square meter including 150mm minimum end and side overlaps,bends, tying wires and spacer blocks.	SM	105		
K	**Vibrated reinforced concrete class 20/20 (1:2:4/25) as described in**				
1	150mm thick ground floor slab.	SM	110		
2	450x200mm ground beam	CM	5		
L	**Sawn formwork to;**				
1	Sides of ground floor slab and trench 75-150mm high	LM	45		
	SUPERSTRUCTURE				
M	**Damp Proof Course.**				
1	200mm wide dump proof cource (DPC) laid with 1:3mix cement sand mortar.	LM	45		
	Walling				
N	**Approve stone walling in cement sand mortar (1:3) including and reinforced with 20 SWG hoop iron in every two alternating course.**				
	TOTAL CARRIED TO SUMMARY PAGE 10				

Item	Description	Unit	Qty	Rate	Amount (Kshs)
1	200mm thick medium dressed natural stone wall/approved concrete blocks/Machine cut stones to control room walling and gable.	SM	200		
P	**Sawn formwork to;**				
1	Vertical sides of ring beam	SM	50		
2	Ditto but soffits beams	SM	100		
3	Ditto but soffit of roof slab	SM	105		
4	Sides of roof slab 100-150mm high	LM	50		
Q	**Steel reinforcement bars including cutting, bending, spacer blocks, tying wires and fixing. High tensile bars to BS 4461: 8mm to 12mm bars to:**				
1	D8 in rings	KG	300		
2	D10 in slab	KG	1350		
3	D12-16 in columns and beams	KG	900		
R	**Vibrated reinforced concrete class 20/20 (1:2:4/25) as described in**				
1	Columns	CM	5		
2	Ring beams	CM	5		
3	150mm thick roof slab	SM	105		
S	**Supply, fabricate and fix 6No. Steel trusses spanning 5000mm and hoisted to height not exceeding 4.50m high above finished floor level as described;**				
1	Trusses consisting of 50x50x4mm tie beam,rafters 50x50x3mm,struts and ties 50x50x3mm; all with 10 nos. mild steel cleats 100x50x4mm for purlins anchor, to heights not exceeding 4m spanning 7m with weight not exceeding 200kg, Including fixing the same to roof slab.	NO	6		
2	Zed purlins ZS6 100mm deep	LM	160		
3	Prepare and apply 2 coats of red - oxide primer paint on roof structural steel work prior to hoisting/fixing in position and one final touch-up coat after erection.	ITEM	1		
4	Supply and fix BP760 box profile factory pre-painted gauge 26 roofing sheets to an approved colour laid with 94mm side laps and 150mm end laps fixed to steel 'Z' purlin (m/s) including 'J' bolts washers, nuts and rubber caps at 600mm c/c.	SM	200		
5	Ditto but vertical face of cladding	SM	55		
6	Ditto but for eave covering	SM	50		
7	26Gx480mm with stiffeners ridge caps	LM	16		
	TOTAL CARRIED TO SUMMARY PAGE 11				

Item	Description	Unit	Qty	Rate	Amount (Kshs)
8	Fabricate SHS 50x50x4mm thick steel facsia cladding framework structure 1000mm high, 50x50x4mm angle iron struts, including fixing into the wall with adequate wall passes as described to client satisfaction including applicatioin of 2 coats of red-oxide primer and a final touch-coat after erection.	SM	60		
9	Supply and fix 450x450mm extractor fan in the battery room including the wiring accessories.	NO	1		
10	Purpose made 14 gauge box gutter 900mm girth, srewed/welded to gutter stool on 50x25x3mm thick M.S fixed to rafters at 600mm centres; internally painted with two coats of black bituminous paint, externally with one coats of red oxide primer and two coats of finishing silver alluminium paint	LM	32		
11	Extra over for stopped ends.	NO	4		
12	Ditto for 100mm diameter holes in gutter.	NO	2		
13	Allow for harvestig the rain water fro the gutters into the ground mounted water tank including all the piping works using 100mm dia, pipes, bends and holding/fixing to wall mechanism.	ITEM	1		
T	**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				
	sealant all round, 6mm thick laminated glass				
1	Window overall size 1200 x 1500 mm high; 2No. Sliding leaves	NO	13		
U	**Burglar proofing**				
1	16mm Diameter round mild bars welded to each other at 150mm centres both ways with every alternate bars welded to window frames (m.s) 50X50x3mm SHSincluding priming (2 coats) the grill with red oxide paint and final gloss paint (2 coats)	SM	30		
2	Supply and lay HD pvc ducts, 200mm dia, sleeves for power cables exits	LM	20		
V	**Window Cills**				
3	200 x 150 x 30 mm thick concrete window cill with one curved edge including bedding and pointing in cement and sand mortar (1:3)	LM	25		
4	Prepare and apply two coats of brick red paint and 2 final coats og gloss paint	SM	6		
	TOTAL CARRIED TO SUMMARY PAGE 12				

Item	Description	Unit	Qty	Rate	Amount (Kshs)
	DOORS				
	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				
1	On all doors	NO	12		
2	Double leaf steel doors 2000x3000mm high in two panels 750mm wide consisting of 1.6mm thick plate welded into50x25x3mm frames;75x50x6mm main frame with wall anchors;louvre blades into 500mm and bottom 1m depth all 1.6mm thick;-main entrance as per the drawing provided.	NO	1		
3	Ditto 1000x3000 steel door single leaf	NO	1		
4	Ditto 1500x3000 steel door double leaf	NO	1		
5	Prepare and apply 2 coats of red oxide primer and 3 coats of gloss paint on all steel doors internally and externally. (Color scheme be provided by client)	ITEM	1		
V	**Finishes (Walling)**				
1	13mm thick cement sand plaster (1:3) to walling internal surface and soffits of roof slab mixed with lime giving a smooth finish to receive paint	SM	290		
2	13mm cement sand mortar(1:3) on the walling external surface and the gable.	SM	290		
3	Prepare and apply undercoat, 2 coats and 2 coats of premium grade silk vinyl emmulsion paint on all plastered surfaces internally.Ceiling to receive 2 coats of undercoat and 2 coats of brilliant white vinyl matt emulsion paint	SM	290		
4	Prepare 2 coat s of external paint currently in the market (use paints recommended for external use, eg rough & tough)	SM	290		
w	**Flooring**				
1	20mm thick cement sand (1:3) screed for floor to receive terazzo.	SM	105		
2	30mm thick well polished terrazzo floor finish	SM	105		
3	32 x 2mm thick Plastic dividing strips.	LM	150		
X	**Plinth Area.**				
1	12mm thick cement sand mortar(1:4) render to plinth.	SM	45		
2	Prepare and apply undercoat and three coats of bituminous gloss paint to plinth.	SM	45		
3	Prepare and lay one line of paving slabs all round control room.	SM	21		
	TOTAL CARRIED TO SUMMARY PAGE 13				

Item	Description	Unit	Qty	Rate	Amount (Kshs)
Z	***11kv board Supports***				
1	Provide and fix on control building trench, as 11kv board supports made out of (100x50x6mm thick) steel channels, including cutting, fabrication, priming and gloss paint as instructed by client. Total lenths of channels 80m.	LM	80		
	Cable Trench Covers				
2	Provide 700x700x6mm thick chequer plate covers to (600x600)mm cable trench including provision of adequate collapsable handles, stoppers and any other necessary framing all round, to client approval.	SM	10		
3	Ditto (1300x1300x6mm thick)mm covers	SM	25		
	ELEMENT No. 10				
A	**SMOKE DETECTORS**				
1	Allow for 6no.sensors for Hardwired Smoke detectors installations; including a battery back up; to be carried out by a nominated sub-contractor	ITEM	1		
2	Allow for general attendance on specialist contractor	ITEM	1		
3	Builder's work in connection with Smoke detector installations; cut away for and attend in 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		
	ELEMENT No. 11				
A	**ELECTRICAL INSTALLATIONS WORKS**				
1	Builders work in relation to Elecrical power supply to various points in control room including chasing, conduits,recommended wiring cables, switches and socket boxes etc. Provide, fix and test the followig	ITEM	1		
2	12way-3hase distribution board (Havels) rated 100 Amps, complete with (a) 6pcs 32A MCBs (b) 4pcs, 2-phase 20A MCBs (C) 4pcs. 1-phase 6A MCBs (d) 4pcs 1-phase 10A MCBs	ITEM	1		
3	Consumer unit 4-way 100A, complete with 100A double pole switch, 10A MCB, 20A MCB, 32A MCB &20A MCB.	No	1		
4	Fluorescent lamps 1200mm long complete with fittings/equivalent in the market with sample for approval.	No	12		
5	3-phase socket outlet 32Amps	NO	1		
6	1-phase socket outlets 20 Amps	NO	6		
7	1-phase socket outlets 32 Amps	NO	2		
8	Photo-cell sensor for security lights around control building.	NO	1		
	TOTAL CARRIED TO SUMMARY PAGE 14				

Item	Description	Unit	Qty	Rate	Amount (Kshs)
9	Earthing of the control room	ITEM	1		
10	Security lamps on control room external, LED 100A.	NO	6		
	ELEMENT No. 12				
	RAIN WATER HARVESTING				
1	Supply and install 10000 litres approved plastic water tank with outlet gate valve 1 inch including water tank platform made of masonry and concrete as per drg, and raised 600mm. Approved 3/4" watertap and required fittings and connections.	ITEM	1		
2	Distribute water within the substation from the ground mounted water tank to the guard house approx. 80metres away, using 20mm PPR pipes including excavation of water pipe water trench, backfilling, all connections and accessories.	ITEM	1		
3	Construct a suitable shed for the water tank made out of (75x75x6mm thich SHS), bracings, roof and painting to protect the tank from direct sunshine.	ITEM	1		
4	Allow for the supply of substation with piped water including all local authorities' charges, sub main pipes 1 inch diameter standard plastic pipes and all connections, testing and commissioning of all the plumbing works and installation of a water meter on site.	ITEM	1		
5	Allow for 0.5HP water pump and the necessary connections including power supply and lockable shade.	No	1		
	ELEMENT No. 13				
A	**PAVING SLABS**				
1	150mm thick Hardcore bed : deposited, spread, levelled and compacted : to receive sand bed	SM	60		
2	50mm Sand bed : levelled and compacted to receive paving	SM	60		
3	50x 600 x 600mm precast concrete (class 20) paving slabs : laid on sand bed (measured separately) : jointed and pointed in cement mortar (1:4)	SM	60		
	ELEMENT No.14				
A	**STORM WATER DRAINS (All Provisional)**				
1	Excavate on site drain trench not exceeding 1.5m deep including plunking and strutting, disposal of spoil to receive drainage channels and forming sloping sides in well compacted murram bed.	LM	70		
2	Lay (300x450)mm precast concrete invert block drains to suitable fall with grooved edges and tongued, joints filled with cement/sand mortar (1:3) and laid on 75mm weak concrete bed.	LM	70		
3	Lay on sides of sloped trench (600x225x50mm) precast concrete slabs jointed in 1:3 mortar	SM	140		
4	Stone pitching in 1:3 mortar at various locations as directed by client	SM	10		
	TOTAL CARRIED TO SUMMARY PAGE 15				

Item	Description	Unit	Qty	Rate	Amount (Kshs)
5	Allow for mass concrete (1:2;4) mix in drainage channels works	CM	10		
	ELEMENT No. 15				
A	**33KV BUS BAR GALVANIZED STEEL STRUCTURES**				
	Fabricate and Supply to site, Steel Structures for 33kv Bus Bars. The structures shall be made from hot -rolled structural steel sections As per drawings & other specficifications 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 110 microns. Fabricator to allow for qualified steel erectors on site during the full erections of Vertical gantries and Horizontal booms AS follows-;				
1	33KV Bus Bar Structures 1800kg	PCS	4		
2	Allow for grouting after KPLC Erection of structures	ITEM	1		
3	Allow for A Provisional Sum of Ksh. 500,000.00 for Factory Visit, Inspection,and Tests before, during and after in the workshop/factory fabrication and 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,P & PM)	ITEM	1		
B	***Foundation Bolts (Refer to drawings):***				
1	Supply and fix galvanized steel bolts M28x 700mm long C/W Nuts 2No, and washers 2No 6mm thick and anchor plates to detail including setting, aligning, holding in position and pouring of concrete	PCS	64		
	ELEMENT No. 16				
A	**GATE HOUSE AND PIT LATRINE**				
1	Construct Guard House & Pit latrine within the subtsation plot entrance area including plumbing works,,all electrical works (Location to be shown by client).-Max area 9 Sq.metres for Gatehouse and 6 sq. meters for Pit latrine. draft proposal by contractor to client for approval-unit rate per sq meter to apply as per IQSK Handbook .Including a 3000l capacity plastic tank raised atleast 3000m above ground and its supports and its piping to wash hand based installed.	ITEM	1		
	TOTAL CARRIED TO SUMMARY PAGE 16				

Item	Description	Unit	Qty	Rate	Amount (Kshs)
	ELEMENT No. 17				
A	**Chainlink Fencing:**				
1	2.4m high x10A gauge chainlink fence, complete with 4mm diameter 5 strands of galvanized plain wire passing through 3.0m high 150x150 - Ycranked reinforced concrete posts placed at 2.5m centers, 12 gauge barbed wire on 450mm Y 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	LM	20		
	ELEMENT No. 18				
	EXISTING SUBSTATION BOUNDARY WALL AND GATE				
1	Prepare surfices and repaint the substation gates with 3 coats of gloss paint as directed	ITEM	1		
2	Repair the existing razor wire	ITEM	1		
3	Allow for cutting the wall for a door 900x2100mm and a window 1200x1200mm, Fabricate the door and window as approved and fix and paint as instructed.	ITEM	1		
4	Prepare and paint the substation walling with suitable approved external paint, both external and internal surfaces,	ITEM	1		
	ELEMENT No. 19				
A	**ELEMENT NO. 9: FIRE FIGHTING EQUIPMENT**				
	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				
1	9 litre carbon dioxide fire extinguisher complete with re-fills, discharge horn and fittings to wall bracket, as manufactured by Angus or equal and approved.	No.	4		
2	9Kg dry powder multi-purposed fire class A'B and C as manufactured by Angus Fire Armour ABC multi-purpose model AP 9 K or equal and approved.	No.	4		
3	1200x1200mm woven glass fire blanket with 0.025 wink thermal conductivity.	No.	2		
4	4.5Kg Co2 Powder Fire Extinguisher as Angus Fire Armour.	No.	4		
5	Allow for KPLC attendance and interruptions	ITEM	1		
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	TOTAL FROM SUMMARY PAGE 17				
	SUBTOTAL INCLUSIVE OF PPCBL				
	16% VAT				
	TOTAL (VAT INCL.) CARRIED TO FORM OF TENDER				
	Tender Amount in Words				
	Contract Period (Weeks)				

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