PROPOSED CIVIL & STRUCTURAL WORKS FOR NEW INCOMER ON RIDGEWAYS 66/11 KV

Item No.	Description	Unit	Qty	Rate (Ksh.)	Amount (Kshs)
1	**PRELIMINARIES**				
	Location and access to the site				
1.1	The Ridgeways 66/11kv Substation is located in Ridgeways, along Kiambu Road - off Ridgeways Road. The bidder is advised to visit Site, to familiarize himself with the nature and position of the Site. No claims arising from the Contractor's failure to do site visit will be entertained.	ITEM	0		
	Pricing items of preliminaries				
1.2	Prices SHALL BE INSERTED against items of "preliminaries" in the tenderer's priced Bills of Quantities. The Contractor is advised to read and understand all preliminary items. The Contractor shall be deemed to have included in his prices or rates for the various items in the Bills of Quantities or Specification for all cost involved in complying with all the requirements for the proper execution of the whole of the Works in the Contract	ITEM	0		
	Prevention of Accidents, damage or loss.				
1.3	The Contractor is notified that these works are to be carried out on a restricted site where the client is going on with other normal system operation activities. The Contractor is thus instructed to take reasonable care in the execution of the works as to prevent accidents, damage or loss and disruption of activities being carried out by the Client. The Contractor shall allow in his rates any expense he deemed necessary by taking such care within the site.	ITEM	0		
	Existing Services				
1.4	Prior to the commencement of any work, the Contractor is to ascertain from the relevant authority the exact position, depth and level of all existing services in the area and he/she shall make whatever provisions may be required by the authorities concerned for the support, maintenance and protection of such services. The Contractor shall take every precaution to avoid damage to all existing property including roads, cables, drains and other services, and he will be held responsible for and shall make good all such damage arising from the execution of this contract at his own expense to the satisfaction of the Client.	ITEM	0		
1.5	Allow for liaising with the relevant road agencies (KeNHA, KURA, KeRRA or the County Government) on proposals and approvals for any external road works, including access, road crossings and drainage. Prepare and submit all drawings and applications, attend meetings, and obtain the necessary permits and wayleaves. Pay all fees and charges, and indemnify the Employer against all costs, fees, penalties and claims arising.	ITEM	1		
	CONTRACTOR'S SUPERINTENDENCE/SITE AGENT				
1.6	The Contractor MUST avail on site a literate English speaking Agent or Representative, competent and experienced in the kind of work involved who shall give his whole experience in the kind of work involved and shall give his whole time to the Resident Engineer's of the works. Such Agent or Representative shall receive on behalf of the Contractor all directions and instructions from the Project Manager and such directions shall be deemed to have been given to the Contractor in accordance with the Conditions of Contract.	ITEM	1		-
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	Safety Personnel				
1.7	Contractor should allow for a qualified Safety Officer conversant with Kenya Power contractors safety regulations for the entire contract period who will be responsible for receiving Daily Work Permits in daily basis The working hours shall be those generally given by the client in accordance with the safety regulations. No work shall start in the absence of the safety person having received permit to work from the relevant authorizing officer.	ITEM	1		-
	Insurance				
1.8	The Contractor shall insure as required in Conditions of the Conditions of Contract. No payment on account of the work executed will be made to the Contractor until he has satisfied the PROJECT MANAGER either by production of an Insurance Policy or and Insurance Certificate that the provision of the foregoing Insurance Clauses have been complied with in all respects. Thereafter the PROJECT MANAGER shall from time to time ascertain that premiums are duly paid up by the Contractor who shall if called upon to do so, produce the receipted premium renewals for the PROJECT MANAGER's inspection.	ITEM	1		-
	Site Security				
1.9	The Contractor shall be entirely responsible for the security of all the Works, stores, materials, plant, personnel, etc, both his own and sub-contractors' and must provide all necessary watching, lighting and other precautions as necessary to ensure security against theft, loss or damage and the protection from the public.	ITEM	1		-
	Sign Boards				
1.10	The Contractor shall allow for the provision and erection of publicity, project-information, directional, safety and other signboards, and shall maintain them throughout the Works and remove them upon completion. The location, size, construction and lettering of the signboards shall be subject to the Client's approval.	ITEM	1		-
	Communication and Data Costs				
1.11	Allow a Provisional Sum of KES 1,500,000.00 for communication and data costs, in both electronic and printed formats, for the Project Manager, Project Engineer and Project Supervisors. Include any necessary mark-up.	ITEM	1		-
	Visitor's Book and Site Diary				
1.12	The Contractor shall keep a visitors' book on the Site to record the names of all persons visiting the Site in connection with the Project. The Contractor shall also maintain a daily site diary recording site activities and, in particular, any occurrences that may affect the progress of the Works. The visitors' book and site diary shall be handed over to the Client upon completion of the Project or whenever directed by the Client.	ITEM	1		-
	Statutory County & Government approvals				
1.13	Allow KES 300,000 for revising, customizing and reproducing drawings to meet the requirements and standards of the approving authorities, including the professional fees of the Contractor's nominated professionals.	ITEM	1		-
1.14	Allow for various approval levies fees and the like	ITEM	1		-
1.15	Allow for the preparation and submission of two colour A3 copies of the final as-built drawings, bound in spiral booklets, together with a digital backup on a portable drive, upon completion of the Works	ITEM	1		-
	Site Offices				
1.16	The Contractor shall provide and maintain adequate site offices, approximately 12 m² in area, with standard furniture for the use of the Project Manager and for site meetings. The Contractor shall also provide and maintain one heavy-duty, three-in-one colour A3 printer. The offices and printer shall be removed from the Site upon completion of the Works.	ITEM	1		-
	Storage of Materials				
1.17	The Contractor shall, at their own risk and expense, provide weatherproof, lockable storage sheds at locations directed by the Project Manager for the safe storage of materials and for the use of workers engaged on the Works. Upon completion, the Contractor shall remove the sheds and make good any damaged or disturbed surfaces to the satisfaction of the Project Manager.	ITEM	1		-
	Water				
1.18	Allow for the provision of clean water required for the execution of the Works.	ITEM	1		-
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Item No.	Description	Unit	Qty	Rate (Ksh.)	Amount (Kshs)
	Tests				
1.19	The Contractor shall, at their own cost, provide samples of materials and workmanship, including concrete test cubes, as required by the Client for approval or rejection. If a sample is rejected, the Contractor shall provide further samples until they are approved. The Client may reject any materials or workmanship that, in the Client's opinion, do not conform to the approved samples.	ITEM	1		-
1.20	Provide a PC sum of 350000 for calibrated testing devices for site quality control, including a Schmidt rebound hammer for non-destructive testing of the strength of existing and new concrete	ITEM	1		-
	Earthing				
1.21	Provide a PC sum for re-instating the substation earthing affected by the new works, to match the existing earthing system. This includes earth conductors, connections to new foundations and structures, and testing of earth resistance. The contractor shall submit a detailed earthing proposal to KPLC for approval before execution, and the sum shall be expended as directed by the Engineer.	PC SUM	1		-

Item No.	Description	Unit	Qty	Rate (Ksh.)	Amount (Kshs)
2	**SWITCHGEAR EQUIPMENT FOUNDATIONS**				
	ALL PROVISIONAL				
2.1	Scoop existing ballast and heap for reuse; Excavate foundation pits commencing from ground level and not exceeding 1.5m deep	M3	200		-
2.2	Ditto but over 1.5m but not exceeding 3.0m	M3	15		-
2.3	Extra -Over for excavating in all classes of rock	M3	15		-
2.4	Allow for all necessary planking and strutting	ITEM	1		-
2.5	Allow for keeping all excavations free from water, including surface run-off, rainwater, groundwater and seepage, by pumping, bailing, sumps or otherwise. Provide, operate and maintain all pumps and equipment for as long as necessary to complete the foundation works in dry conditions. Dispose of the water clear of the works to an approved discharge point without causing erosion, flooding or nuisance.	ITEM	1		-
2.6	Allow for all temporary works necessary to execute the works safely. This includes flood protection by diversion channels, bunds or sandbags to keep excavations free of storm water, and temporary access routes and ramps for personnel, plant and materials. Maintain all temporary works in good condition throughout the works, then remove them and reinstate the site to the satisfaction of the Engineer on completion.	ITEM	1		-
2.7	Return, fill and ram selected excavated material and approved borrow material around foundations, in layers, to the Engineer's satisfaction.	M3	112		-
2.8	Load and cart away surplus excavated material from site to a dumping site approved by the County Government.	M3	52		-
	Blinding(Plain Concrete Class 15)				
2.9	50mm thick (1:3:6) Concrete blinding to pit bottoms	M3	6		-
	Vibrated reinforced concrete Class 25(1:1.5:3) with 20 mm maximum aggregate in:				
2.10	Bases	M3	21		-
2.11	Stub columns	M3	25		-
2.12	15 mm average thickness smooth steel-trowelled finish to top surfaces of plinths, including forming 50 mm chamfers to all exposed edges of all plinths.	M2	16		-
	Waterproofing				
2.13	Prepare and apply two coats of approved black bituminous waterproof paint to all concrete surfaces in contact with the ground, prior to backfilling.	M2	235		-
	High yield steel reinforcement bars to BS 4449, including cutting, bending, tying and fixing in position, spacer blocks and tying wire.				
2.14	D8-16mm	KG	3500		-
	Fair - Face Formwork to:				
2.15	To vertical sides of stub-Columns	M2	150		-
2.16	To vertical sides of bases	M2	61		-
	CABLE TRENCHES				
	Type I - (600x600mm deep)				
2.17	Excavate for cable trench 900mm wide and commencing from reduced level not exceeding 1.5m metres deep.	M3	60		-
2.18	Load and cart away excess excavated materials from site to County Government Approved dumping site	M3	33		-
2.19	50mm thick Plain concrete blinding (1:3:6)mix (Class 15/20 mm Aggregate)	M2	42		-
	Vibrated reinforced concrete class 25/20 (1:1.5:3) as described in:				
2.20	150mm thick trench bed	M3	7		-
2.21	150mm thick trench walls with fairly smooth face finish.	M3	9		-
2.22	Cast and put in place precast concrete cable trench covers reinforced with D8 bars spaced at 100mm both ways with fair face finish on both sides and engraved KPLC. Size; (900x300x75mm) thick [Note: The concrete used for precast covers shall be Class 30]	NO	140		-
2.23	Supply and fix 14 Gauge galvanized perforated steel cable trays; 300mm wide and 50mm deep and 1.2mm thick including mounting on the trench on well secured hangers/support (Ms) and all jointed by welds and bended as appropriate to client satisfactory.	LM	40		-
	High yield steel reinforcement bars to BS 4449, including cutting, bending, tying and fixing in position, spacer blocks and tying wire.				
2.24	D8 in cable trench at 150mm centres both ways	KG	1100		-
	Fair Face - Form work to:				-
2.25	**Vertical sides of trench walls.(Internally and Externally)**	M2	129		-
	TOTAL CARRIED TO SUMMARY PAGE				

Item No.	Description	Unit	Qty	Rate (Ksh.)	Amount (Kshs)
2.26	50mm thick average screeding in cable trench, sloping to drain run-off water including making outlet holes and supply and fix UPVC outlet pipes.	M2	56		-
2.27	Make 115mm diameter holes on the existing 150mm thick concrete cable trench walls to receive 110mm diameter UPVC ducts (ms).	NO	12		-
2.28	Make good all disturbed areas on road furniture's and other affected areas along the cable trench path.	ITEM	1		-
2.29	Supply and lay at different locations, 110mm diameter UPVC ducts from various switchgear foundations to inside concrete cable trench (ms), including provision of equal 900 and 450 bends and tees as directed by the Engineer.	LM	60		-
2.30	Plain 150mm thick concrete (1:3:6) surround and 50mm thick blinding on UPVC ducts, including excavations of ducts trenches, backfilling and compaction as necessary.	M3	7		-
2.31	Prepare and apply two coats of approved black bituminous waterproof paint to all concrete surfaces in contact with the ground, prior to backfilling.	M2	280		-
	Type II - (400x400mm deep)				
2.32	Excavate for cable trench 700mm wide and commencing from reduced level not exceeding 1.5m metres deep.	M3	14		-
2.33	Load and cart away excess excavated materials from site to County Government Approved dumping site	M3	14		-
2.34	50mm thick Plain concrete blinding (1:3:6)mix (Class 15/20 mm Aggregate)	M3	1		-
	Vibrated reinforced concrete class 25/20 1:1.5:3 as described in;				
2.35	150mm thick trench bed	M3	1.5		-
2.36	150mm thick trench walls with fairly smooth face finish.	M3	2		-
2.37	Cast and put in place precast concrete cable trench covers reinforced with D8 bars spaced at 100mm both ways with fair face finish on both sides. Size; (700x300x75mm) thick [Note: The concrete used for precast covers shall be Class 30]	NO	50		-
2.38	Supply and fix 14 Gauge galvanized perforated steel cable trays; 300mm wide and 50mm deep and 1.2mm thick including mounting on the trench on well secured hangers/support (Ms) and all jointed by welds and bended as appropriate to client satisfactory.	LM	15		-
	High yield steel reinforcement bars to BS 4449, including cutting, bending, tying and fixing in position, spacer blocks and tying wire.				
2.39	D8 in cable trench at 150mm centres both ways	KG	140		-
	Fair Face - Form work to:				
2.40	Vertical sides of trench walls.(Internally and Externally)	M2	28.5		-
2.41	50mm thick average screeding in cable trench, sloping to drain run-off water including making outlet holes and supply and fix PVC outlet pipes.	M2	6		-
2.42	Make 115mm diameter holes on the existing 150mm thick concrete cable trench walls to receive 110mm diameter UPVC ducts (ms).	NO	9		-
	TOTAL CARRIED TO SUMMARY PAGE				

Item No.	Description	Unit	Qty	Rate (Ksh.)	Amount (Kshs)
3	**STEEL GALVANIZED STRUCTURES**				
	Supply Fabricated Steel Structures for 66kV equipment including; Current transformers, Capacitive Voltage Transformers, Surge Diverters, Circuit Breakers, Cable Transition Structure and Isolators. The steel structures shall be manufactured from hot-rolled structural steel sections of tensile strength of 430-460N/mm2, yield strength of 255N/mm2, density of 7860kg/m3 galvanizing thickness of >110 microns as per drawings attached including all welding and nuts and bolts connections, stiffener plates, washers, etc, including transport and delivery to site in well coded manner handed over to client ready for erection.NB:				
	Notes: **1) All Holes To Be 18mm diameter where applicable for M16 Bolts unless otherwise stated.** **2) All Steelwork to Be Free From Rust, Dust Burrs E.T.C Then Galvanised By Hot Dip. Process, Thickness and Quality of Zinc Coating to Withstand Test of BS 729.** **3) Assembly Bolts, Nuts and washers to Conform to BS 916 and the Quantity Supplied to Include 10% Spare Allowance.** **4) Fabricators Are To Designate All Steelwork Items and Provide Erection Mark Plans.** **5) All Individual Steel Parts to Be Marked - KPLC**				
3.1	CTs Structure; size 150x150x6mm thick SHS and 2.40m long - Approx. 200 Kgs each.	NO	9		-
3.2	VTs Structure; size 150x150x6mm thick SHS and 2.40m long - Approx. 200 Kgs each.	NO	6		-
3.3	Surge Diverters Structure; size 150x150x6mm thick SHS and 2.40m long - Approx. 200 Kgs each.	NO	3		-
3.4	Post Insulator Structure; size 150x150x6mm thick SHS and 2.40m long - Approx. 200 Kgs each.	NO	3		-
3.5	Isolator (Air break switch); size 150x150x6mm thick SHS and 3.0m high; two-legged - Approx.500kg each.	NO	7		-
3.6	Busbar support Structure 66kV 150x150x6mm thick SHS - Approx 1000kgs each	NO	1		-
3.7	66kV Incoming Gantry structure Approx 1600kgs (boom structure plus one gantry leg)	NO	1		-
3.8	66kV CB Support Structure, size 150x150x6mm thick SHS and 2.40m long, hot-dip galvanised - 300Kgs each	NO	6		-
3.9	Supply and fix all galvanized steel bolts min M25x600mm long Including poring anchoring holding in position and allowing for all bolts nuts washers and bottom plates.	NO	165		-
3.10	Assess and measure the existing steel structures on site (gantries and equipment supports), including member sizes, connections and base plate details. Redraft the drawings to match the existing, and compute the specific weight of each member and assembly into a steel weight schedule. Submit the drawings and weight computations to the Engineer for approval in hard and soft copy (PDF and DWG).	ITEM	1		-
3.11	Allow a provisional sum of Ksh.1,000,000.00 for factory visit, inspection and tests before, during and after, in workshop/factory fabrication and galvanization. All required tests shall be carried out by client Inspection Team/Engineers to Accept/Reject every process, Quality, Workmanship etc before delivery to site as specified in Technical Specifications for steel structures, including all facilitation/transport and communication for them(CIT members ,PE,PM)-Allow necessary mark ups	ITEM	1		-
3.12	Allow for concrete beddings, thickenings, extensions and haunchings at various locations affected by the works, or made necessary by unforeseeable depths encountered during excavation, all as directed by the Engineer.	M3	50		-
	TOTAL CARRIED TO SUMMARY PAGE				

Item No.	Description	Unit	Qty	Rate (Ksh. PPCBL INL.)	Amount (Kshs)
4	**REMOVAL OF EXISTING CABRO, RECOVERY OF MATERIALS & BALLASTING**				
	RECOVERY				
4.1	Set out the extent of the existing cabro-paved road to be removed and protect the adjacent paving to remain. Carefully lift the existing 80 mm thick interlocking concrete paving (cabro) blocks without damage. Clean them and stack neatly on pallets within the site, as directed by the Engineer, for re-use. Cart away damaged blocks to an approved tip.	M2	40		-
4.2	Carefully recover the existing sand bedding (approx. 50 mm thick). Screen off contaminants and stockpile on site, covered, for re-use as directed.	M3	2		-
4.3	Carefully break out and remove the existing precast concrete kerb stones and channels, including haunching and bedding. Clean and stack them on site for re-use as directed. Cart away broken concrete and debris to an approved tip.	LM	30		-
	BALLASTING OF SWITCHYARD AREA AFTER FOUNDATION WORKS				
4.4	After completion of foundation works, excavate the existing sub-base or unsuitable material approx. 150 mm deep and cart away. Trim and compact the formation. Then supply and spread approved murram/gravel, 150 mm thick, to make up levels and falls to match the existing switchyard. Compact to 95% MDD to receive the ballast (m.s.).	M2	300		-
4.5	Prepare and apply an approved weedicide and herbicide to the compacted surface, as per the manufacturer's written instructions, with a guarantee of 5 years and beyond. Supply and lay 1000 gauge polythene or other equal and approved membrane on the treated surface, with welded laps 200 mm wide.	M2	300		-
4.6	Supply and spread uniformly well-graded 30 mm - 40 mm ballast, 150 mm total thickness, laid in two 75 mm layers, to match the finished level of the existing switchyard ballast (m.s.).	M2	300		-
4.7	Make good all paving, kerbs, ballast and surfaces disturbed during the works. Use the recovered materials, or new matching ones where needed, to match the existing line, level and finish. Clear debris to an approved tip, all to the satisfaction of the Engineer.	ITEM	1		-
	TOTAL CARRIED TO SUMMARY PAGE				

					Amount (Kshs) For Tender
	SUMMARY PAGE				
	TOTAL PAGE 1				
	TOTAL PAGE 2				
	TOTAL PAGE 3				
	TOTAL PAGE 4				
	TOTAL PAGE 5				
	TOTAL PAGE 6				
	TOTAL PAGE 7				
	SUB-TOTAL				
	Add 16% VAT			**16%**	
	Add 0.03% PPDL Levy			**0.03%**	
	TOTAL CARRIED TO FORM OF TENDER				
	AMOUNT IN WORDS				
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	.....				
	COMPANY NAME..... SIGN..... STAMP.....				
	PROPOSED WORK DURATION IN WEEKS (Please indicate) ..... WEEKS				