

APPENDIX A: GUARANTEED TECHNICAL PARTICULARS (GTPS) — NORMATIVE				
GALVANIZED STEEL STRUCTURES -PROPOSED EPZ ATHIRIVER 66/33 KV SUBSTATION.				
Tender No. ....				
Description			Bidder's offer	
1. Manufacturer's Name & Country of manufacture				
2. Name of item to be supplied				
3. Type of galvanized steel structure				
Clause	Description			
1	Scope			
2	Applicable Standards			
4.1	Service conditions			
4.2.1	General Requirements			
4.2.1.1	Manufacturing standards			
4.2.1.2	Surface integrity of hot-rolled sections for use in the manufacture of steel structures			
4.2.1.3	Angle sections, channels and flats are hot-rolled and complies with the requirements of Kenya Standard KS 02-572			
4.2.1.4	Tensile strength of the steel			
	Yield stress of the steel			
4.2.1.5	Mechanical Properties			
Table 1	A. ANGLES			
	Sr.No	Material Parameter	KPLC Requirements	
	1	Tensile strength	>430<460 N/mm2	
	2	Yield strength	255 N/mm2	
	3	Tolerances		4%
		mass		
		Leg Length	± 1mm to 3mm	
		Thickness	± 0.5mm	
		Out of square	Max deviation 2mm	
		straightness	0.3 % of length	
	4	Elongation	24-26%	
	5	Galvanizing Thickness	>110 Microns	
	6	Modulus of Elasticity	20 x 10 <sup>9</sup>	
	7	Density	7860kg/m3	
	8	Nominal length	±0.4%	
	B. CHANNELS			
	1	Tensile strength	>430<460 N/mm2	
	2	Yield strength	255 N/mm2	
	3	Tolerances		
		depth	1.5-3mm	
		width of flange	2.5mm	
		flange thickness	-0.5mm	
		thickness of web	±5mm	
		flange out of square	Max deviation 2mm	
		flatness of web	Concave –max 15%	
	4	Elongation	24-26%	

C. HOLLOW SECTIONS			
1	Tensile strength	>430-460 N/mm2	
2	Yield strength	255 N/mm2	
3	Tolerances		
	Length	4%	
	Thickness	± 1mm to 3mm	
	Out of square	± 0.5mm	
	straightness	Max deviation 2mm	
4	Elongation	24-26%	
5	Galvanizing Thickness	>85 Microns	
6	Modulus of Elasticity	20 x 10 <sup>9</sup>	
7	Density	7860 kg/m3	
8	Nominal Length	±0.4%	
D. BOLTS,NUTS,WASHER			
1	Safe working shear stress	120 N/mm2	
2	Grade (Bolts/Nuts)	4.6/4	
3	Tolerances		
	threads	0.01mm	
4	Galvanizing Thickness	>85	
4.2.1.6	Materials before and after fabrication are straight and free from twists		
4.2.1.7	Sheared or cropped edge are dressed to a neat finish and are free from distortion		
4.2.1.8	All holes are drilled in one operation and burrs are removed		
	Holes are not be formed by a gas cutting process		
4.2.1.8	All matching holes for bolts registers with each other so that a gauge 2mm less in diameter than the diameter of the bolt passes freely through the assembled members in a direction at right angle to such members		
4.2.1.9	Erection clearances for cleated ends of members connecting steel to steel		
4.2.1.10	Bending of flat straps are carried out cold		
4.2.2	<b>Welding</b>		
4.2.2.1	Type of welding		
4.2.2.2	Mode of cleaning of welds		

4.2.3	<b>Galvanizing</b>			
4.2.3.1	All punching, cutting, drilling, screw tapping and the removal of burrs are completed before the galvanizing process commences			
4.2.3.2	Type of galvanization			
4.2.3.3	Bolts are completely galvanized including the threads, and the threads are left uncoated in the case of nuts			
4.2.3.4	Uniformity of the zinc coating			
4.2.4	CONTRACTOR COMPLIANCE SHEET			
Table 2	No.	Item	KPLC Requirements	
	1	Confirm supply of shop drawings 'As fabricated, upon award successful bid in portable device	2 No's	
	2	Supply of additional bolts/nuts/washers ( both connection and anchor)	Extra 2%	
	3	Supply calibrated coating thickness measuring equipment	2 no.	
4.3	<b>Drawings-(fill list as per the Kinanie order list)</b>			
	<b>Table 3</b>	No.	Item Description	
		1		
		2		
		3		
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18				
5	<b>Marking &amp; Packing</b>			
5.1.1	Where an item includes a number of components to form a complete assembly, all component parts are included in one composite package which shall be firmly strapped or bound together			
5.1.2	All galvanized parts are protected from injury to the zinc coating due to abrasion during periods of transit, storage and erection			
5.2	Markings			
A1	Tests to be performed			
A2	Standards for inspection and testing			
A3	All manufactured galvanized steel structure shall be offered for FATs and inspection in the presence of KPLC engineers at manufacturers site			
A4	Supplier shall replace without charge to KPLC items that don't meet specification			
B1	QAP			
B2	Delivery time, Production capacity & experience of the manufacturer			
C1	Technical documents to be submitted with tender documents			
	a. Fully-filled clause by clause Guaranteed Technical Particulars (GTPs)- stamped and signed by the manufacturer.			
	b. Shop drawings in soft copy (.pdf and .dwg)			
	c. Manufacturer's catalogues, brochures, and technical data;			
	d. Copies of required test certificates and test reports			
	e. Details of manufacturing capacity			
C2	f. Sales records for previous five years and reference letters from at least four of the customers;			
	Documents to be submitted for approval before manufacture			
	a. Fully filled clause by clause Guaranteed Technical Particulars (GTPs)			
	b. Drawings and technical data of the galvanized steel structure; stamped and signed by the manufacturer.			
	c. Marking and packaging details			
* Words like 'agreed', 'confirmed', 'As per KPLC specifications', etc. shall not be accepted and shall be considered non-responsive.				
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<b>Manufacturer's Name, Signature, Stamp and Date</b>				