

**Procurement Of 132 kV Underground Cable Nanyuki – Rumuruti Transmission Line (AfDB Funded), Tender No.: KETRACO/PT/009/2021**

**Clarification List - 03**

Sl. No.	Ref Clause	Provision as per Bidding Document	Clarification requested/ Query	Response
1.	Section II – Instruction to Bidders   Clause 20.2	<p>The written confirmation of authorisation to sign on behalf of the Bidder shall indicate:</p> <p>The name and description of the documentation required to demonstrate the authority of the signatory to sign the Bid such as a Power of Attorney; and</p> <p>In the case of Bids submitted by an existing or intended JVCA an undertaking signed by all parties (i) stating that all parties shall be jointly and severally liable, if so required in accordance with ITB 4.1(a), and (ii) nominating a Representative who shall have the authority to conduct all business for and on behalf of any and all the parties of the JVCA during the bidding process and, in the event the JVCA is awarded the Contract, during contract execution.</p>	Please confirm in case of JVCA, a Representative means one person from the leading part of JVCA? Or more than one person from the leading part of JVCA also can be authorized?	It's one or more person representative of the JVCA.
2.	Proposed Route Coordinates	COORDINATES ARE REFERED TO ARC 1960 ZONE 37 NORTH	Is it possible to provide the coordinates in longitude and latitude format?	No



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3.			Please kindly confirm the conditions for the contract coming into effective.	The contract shall become effective from the date of signing the contract agreement.
4.	Section II – Bid Data Sheet   Clause ITB 19.1	The Bidder shall furnish a bid security, in the amount of not less than Four hundred and fifty four thousand (454,000) US Dollars, or its equivalent in a freely convertible currency issued from <b>a tier 1 bank licensed by the Central Bank of Kenya</b> as per Form of Bid Security included in Section VII – Forms and Procedures.....	Please kindly confirm that the Bid Security (Bank Guarantee) can be issued from a bank outside of Kenya.	Adhere to the requirement in the bid. Refer to ITB 19.1- Section II Bid Data sheet
5.			Please provide the detailed parameters & requirements of the underground cable such as current carrying capacity, cross-section, size of the conductor/metallic sheath, etc.	Transfer capacity of the completed circuits has been provided in Vol. 2 of 2- Clause 2.14 Electrical System Design Parameters. The other parameters will be designed and proposed by the bidder in accordance to the prevailing conditions
6.	Vol.2 Technical Specifications   Clause 2.11 - Oversheath	The cable serving shall be robust enough to prevent unnecessary damage during installation and shall insulate the cable from earth. The outer covering shall preferably be of medium density polyethylene, except for the closing sections that enter buildings, which shall be of a low smoke, zero halogen material (LSOH)....	As per Technical Specification under clause no 2.11, MDPE material is specified for the Over sheath. However as per Data sheet the same is mentioned as HDPE. Kindly confirm the actual requirement.	HDPE

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7.	Price Sch. 2.0 - Cable Accessories & Price Sch. 3.6 - Cable smart surveillance system		Cable Accessories like Link box, concentric cables, Cable Joints, Joint bays, Surveillance system etc. are in Lumpsum Contract. Kindly confirm that the bidder is eligible for price amendment for any increase in route.km of 132kV EHV Cable. Alternately, the same can also be provided as unit rate.	Only changes in route km will attract changes only if it can be demonstrated that it resulted in changes of these lumpsum items. bidders should provide a breakdown of the lumpsum rate of the items.
8.	Vol 2. Technical Requirements   Clause 2.17 Continuous Ratings	<p><b>2.17. Continuous Ratings</b></p> <p>Continuous rating calculations are to be performed in accordance with IEC 60287. Contractors are required to state clearly the value of ac resistance used for XLPE cable conductors and justify the value used.</p> <p>Contractors are required as part of their site survey works to identify any utilities in close proximity to the new cable circuit that may derate the cable circuit and to calculate the derating effect and propose a solution to negate this effect.</p> <p>Cable rating calculations shall be submitted along with the offer based on the data provided under Clause 2.14. The calculations shall be reconfirmed and approved after the</p>	<p>In case Bidder has to design the 132kV Cable, we presume the following are the input parameters. Kindly confirm the same.</p> <p>i) Load Capacity: 115MVA.  ii) Short Circuit Current: 31.5kA/1s.  iii) Type of Laying: Flat formation  iv) Depth of Laying: 1.1m.  v) Ground Thermal Resistivity: 2.0Km/W.  vi) Ground Temperature: 35°C.  vii) Short circuit Current for Metallic Sheath: 31.5kA/1s.  viii) Spacing between Circuits (c/c of Flat formation): 1.5m</p>	<p>i. Refer to clause 2.14  ii. Refer to clause 2.14  iii. For cable formation, the bidder to select arrangement for the relevant right of way corridor and meets the power transfer capacity of the circuits under the site conditions.  iv. Refer to clause 2.15  v. Ground Thermal Resistivity shall not be greater than 2.7Km/W  vi. Ground Temperature 40°C  vii. Refer to Clause 2.14  viii. The spacing will be dependent on thermal calculation to optimize cable corridor. A minimum of 0.7 m is allowed in the concrete trench area. In the direct burial area, a minimum of 1.5 m is recommended</p>



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		site investigations and before the manufacture.										
9.	Price Sch. 4   Clause 6.4 - Recovery of existing towers, arranging the members and transportation to KETRACO store at Isiolo		In the EHV Cable Corridor there are some existing towers which needs to be dismantled (Both Structure & Foundation). Quantification is indicated in numbers as per the referred price schedule under installation works. The amount of dismantling work could be assessed only with actual Tower Structure & Foundation drawings. We request to provide the Tower Structure & Foundation drawings for bidding purpose.	<div>The drawings are as attached. The drawings would give an estimation of how much demolition is required, the actual demolition of erected towers and foundations is the responsibility of the bid to carry out investigation for the bidding purposes. The total number of foundations is to be changed to be 9 in number</div> <table><tr><th>Item</th><th>Description</th><th>Unit</th><th>Qty</th></tr><tr><td>6.4</td><td>Recovery of existing towers, arranging the memebers and transpotation to KETRACO store at Isiolo</td><td>each</td><td>9</td></tr></table> <div>Changes to be effected in the price schedule accordingly.</div>	Item	Description	Unit	Qty	6.4	Recovery of existing towers, arranging the memebers and transpotation to KETRACO store at Isiolo	each	9
Item	Description	Unit	Qty									
6.4	Recovery of existing towers, arranging the memebers and transpotation to KETRACO store at Isiolo	each	9									
10.	Supply of unmanned aerial vehicle		As per the technical specification Hybrid Unmanned Aerial Vehicle is required. We request you to specify type of fuel required for fuel powered engine.	Petrol								
11.	Vol 1 Section VII – General Conditions  Clause 4.2 Performance Security  Section VII – Particular	<div>The Contractor shall deliver the Performance Security to the Employer within 28 days after receiving the Letter of Acceptance and shall send a copy to the Engineer.....</div> <div>Twenty Percentage (20%) of the Accepted Contract Amount payable</div>	<div>The timeline for submission of advance Bank Security is not mentioned in the tender document, however we understand that the Advance Bank Security to be Submitted along with the Performance Security. Kindly clarify if our understanding is correct.?</div>	The understanding is acceptable.								



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	Conditions  Clause 14.2.1 Total Advance Payment	against receipt of an Advance Payment Guarantee issued by the Contractor .....											
12.	Section III. Evaluation and Qualification Criteria   Clause 2.6 - Equipment	The Bidder must demonstrate that it has the key equipment listed hereafter:	<p>As per the minimum required equipment list for some of the quantities are as below.</p> <ul style="list-style-type: none"><li>•Item No 7 Conductor Puller-3 Nos.</li><li>•Item No 8 Conductor Tensioner -3 Nos.</li><li>•Item No 24 Puller – 2 Nos.</li><li>•Item No 26 Tensioner – 2 Nos.</li></ul> <p>We understand the scope of work for overhead line transmission line work is very minimal and required number of stringing equipments mentioned in the list are not required.</p> <p>Considering the scope of work for Overhead line stringing work we request you to revise the quantity of the conductor puller and tensioner including stringing tools.</p>	Refer to query 13 below									
13.	Section III. Evaluation and Qualification Criteria   Clause 2.6 - Equipment	The Bidder must demonstrate that it has the key equipment listed hereafter:	<p>As per the minimum required equipment list for some of the equipment quantities mentioned below are repeating</p> <ul style="list-style-type: none"><li>• Item No 14 Heavy Duty Truck (13 Tons) -3 Nos.</li><li>• Item No 15 Heavy Duty Truck (5 Tons)-3 Nos.</li><li>• Item No 20 Lorry over (10 Tons)-4 Nos</li><li>• Item No 27 Tipper Truck (up to 10 Tons) – 10 Nos.</li><li>• Item No 7 Conductor Puller-3 Nos.</li><li>• Item No 8 Conductor Tensioner -3 Nos.</li><li>• Item No 24 Puller – 2 Nos.</li><li>• Item No 26 Tensioner – 2 Nos.</li></ul>	Revised list provided <table><tr><td></td><td>Equipment Type and Characteristics</td><td>Minimum Number required</td></tr><tr><td>1</td><td>100 ton hydraulic crimping tool</td><td>2</td></tr><tr><td>2</td><td>Back actor (backhoe) and trenchers</td><td>1</td></tr></table>		Equipment Type and Characteristics	Minimum Number required	1	100 ton hydraulic crimping tool	2	2	Back actor (backhoe) and trenchers	1
	Equipment Type and Characteristics	Minimum Number required											
1	100 ton hydraulic crimping tool	2											
2	Back actor (backhoe) and trenchers	1											

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			Looking at the duplication of the equipment in the requirement list. We request you to revise the quantity of the minimum required equipment.	3	Boom Trucks	1
				4	Cable pulling machine (10 tonne)	2
				5	Cable drum trailers	2
				6	Drum lifting jacks	2
				7	Conductor puller	1
				8	Conductor Tensioner	1
				9	Digital Earth Tester	2
				10	Excavators 130kW minimum	2
				11	Hydraulic Cranes	2
				12	Heavy Duty air compressor	2
				13	4-wheel drive utility vehicle	8
				14	Tipper truck up to 10 tonnes	2
				15	Heavy duty trucks (13 ton)	2
				16	Light duty trucks (2 ton)	2
				17	Heavy duty trucks (5 ton)	2
				18	High Voltage cable testing equipment	2
				19	High voltage line testing equipment	2
				20	Concrete Mixers (5 cubic meters)	2
				21	Vibrator	2

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				<table><tr><td>22</td><td>Motor Graders</td><td>1</td></tr><tr><td>23</td><td>Power Joint Machine</td><td>1</td></tr><tr><td>24</td><td>Torque Wrench</td><td>4</td></tr><tr><td>25</td><td>Total station and accessories</td><td>2</td></tr><tr><td>26</td><td>Water pump</td><td>2</td></tr><tr><td>27</td><td>Water Trucks (for construction)</td><td>2</td></tr><tr><td>28</td><td>Microtunnelling boring machine/Horizontal directional drilling</td><td>1</td></tr></table>	22	Motor Graders	1	23	Power Joint Machine	1	24	Torque Wrench	4	25	Total station and accessories	2	26	Water pump	2	27	Water Trucks (for construction)	2	28	Microtunnelling boring machine/Horizontal directional drilling	1
22	Motor Graders	1																							
23	Power Joint Machine	1																							
24	Torque Wrench	4																							
25	Total station and accessories	2																							
26	Water pump	2																							
27	Water Trucks (for construction)	2																							
28	Microtunnelling boring machine/Horizontal directional drilling	1																							
14.	Section III. Evaluation and Qualification Criteria   Clause 2.6 - Equipment	The Bidder must demonstrate that it has the key equipment listed hereafter:	<p>As per the key equipment listed in the list 2.6 of Evaluation and Qualification Criteria. We understand that listed equipment are for capability assessments of the bidder.</p> <p>Since some of the equipment are repeating in given list, so we understand that bidder shall deploy the equipment as per the work requirement to complete the project within the project timelines.</p> <p>Kindly confirm if our understanding is correct?</p>	Refer to query 13 above for revised list. Mobilization of equipment is the responsibility of winning bidder in order to achieve time of completion																					
15.			We propose to use precast concrete trench to hasten the project. Is it acceptable?	Comply with the bid document specifications provided. Value engineering will be acceptable during project implementation.																					
16.	Price Sch. 1   Clause 3.2 Steel frame		The price schedule mentions sch 1 item 3.2 "Steel frame including foundation connection system "Please clarify.	Bidder is responsible for providing a comprehensive bid for complete functionality of the Nanyuki - Isiolo and Nanyuki - Rumuruti transmission lines																					



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	including foundation connection system											
17.	Price Sch. 1   Clause 3.3 Transmission riser structures including foundation connection system and earthing system		The price schedule mentions "Transmission riser structures including foundation connection system and earthing system" "Please provide existing cable termination structure drawings."	<p>Bidder to propose transmission riser structure as there is none which is existing. The riser structure fencing is to be provided by the bidder as per specifications provided after the table of clarifications.</p> <table><tr><th>Item</th><th>Description</th><th>Unit</th><th>Qty</th></tr><tr><td>3.1.3</td><td>Riser structures fencing.</td><td>Set</td><td>3</td></tr></table> <p>Changes to be effected in the price schedule accordingly.</p>	Item	Description	Unit	Qty	3.1.3	Riser structures fencing.	Set	3
Item	Description	Unit	Qty									
3.1.3	Riser structures fencing.	Set	3									
18.	Price Sch. 4   Clause 1.1.1 Complete profile survey and setting out of the cable route including preparation of profiles and drawings and pegging		Cabling route between MN3 to MN6 is falling in house and habitation location, we presume there is no change in the cable routing & clearing of the habitation will be done by employer before handing over the land. Kindly confirm.	Employer is responsible for acquisition of right of way Clearing of the right of way and access route is the obligation of the contractor								

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	of critical positions.			
19.	Vol 2. Technical Requirements   Clause 1.5 Scope of Works	... The contractor is required to familiarise himself with all utilities that will interact with the underground and overhead lines in order to provide a functional bid. Collaboration with the utility owners will therefore be required in order to identify services proximal to the construction site. The contractor will also be required to share designs and plans in advance. The contractor will avoid outages and damages to services. Design and work methodology will also be subjected to the review of the service provider. The contractor will also be required to make provide to provide alternative service route and compensate for the unavoidable outages and damages....	In case of any major utilities encountered in job stage that would require rerouting of cabling works shall be considered to be paid in additional price by the employer. Kindly confirm.	Such changes will be handled in accordance to the provisions in the contract in the event they are unavoidable.
20.	Vol 2. Technical Requirements   Clause 1.41 Responsibility	Until each Section of the Works has been taken over or deemed to have been taken over under the Conditions of Contract, the Contractor shall be entirely responsible (save as is provided in the Conditions of Contract) for such section	We understand that Operation & Maintenance is not in the scope of the bidder and only the contractor's representative will be called in case of any requirement during DLP period and the Contractors Engineer doesn't need to be present at site for the whole DLP period. Please confirm.	Contractor to fulfil obligations of the defect notification period as per the bid documents. Deployment of the necessary staff for the obligation of the fulfilment of the contract is the Contractor's responsibility.



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<p>y of the Contractor</p>	<p>of the Works, whether under construction, during tests or in use for KETRACO's service.</p> <p>During the period of maintenance, the Contractor shall make such arrangements as to ensure the attendance on the Site, within a reasonable time of his being called upon to do so, of a competent representative for the purpose of carrying out any work of maintenance for which the Contractor shall be liable and during such part or parts of the said period as the Employer's representative shall deem it necessary, the said representative shall be continuously available on the Site.</p> <p>Any work that may be necessary for the Contractor to carry out in pursuance of his obligations under the Conditions of Contract shall be carried out so as to interfere as little as practicable with the normal operation of the generating station or substations. Work on the Site shall be carried out at such time and during such hours as the Employer's representative may require.</p> <p>The Contract is to include the whole of the Works that are described in or implied</p>		
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		<p>in the Contract Document. All matters omitted from the Specification which may be inferred to be obviously necessary for the efficiency, stability and completion of the Works, shall be deemed to be included in the Contract Price.</p> <p>Works shown upon the drawings, and not mentioned or described in the Technical Specification and Works described in the Technical Specification and not shown on the drawings will nevertheless be held to be included in the Contract and their execution is to be covered by Contract Price in the same manner as if they had been expressly shown upon the drawings or described in the Technical Specification.</p>		
21.	Section II. Bid Data Sheet   ITB 11.1(h)	<p>...b) Copies of Type Test Reports and technical documents (catalogue, brochures, drawings.) of each major item offered shall form part of the Bid. Copies of Type test reports shall meet the following:</p> <p>.....ii. Results of type test shall have been conducted at least three (3) years prior to the date of tender submission. The Bidder shall submit contact details</p>	<p>Results of type test shall have been conducted at least three (3) years prior to the date of tender submission.</p> <p>Our understanding is Type Test conducted prior to March 2018 is acceptable.</p> <p>Please clarify</p>	Results of type test shall have been conducted at least three (3) years prior to the date of tender submission.



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		(Title, email and fax) of certifying laboratory.....		
22.	Vol 2. Technical Requirements   Clause 2.10 Metallic Sheath	... For the purpose of increasing the total short circuit current rating of the cable, an Aluminium wire screen of suitable cross-sectional area shall be applied between the core bedding layer and the lead sheath. An Aluminium tape shall be applied directly over the Aluminium wires in an opposite lay to the lay of the Aluminium wires, to ensure equal current sharing in the Aluminium wire screen. A suitable binder tape shall be applied over the Aluminium wire screen.	It is mentioned that "an Aluminium wire screen of suitable cross-sectional area shall be applied", however in Technical Data Sheets Pg 23, copper wire is required. Please clarify	Cable is to be equipped with corrugated aluminium screen
23.	Vol 2. Technical Requirements   Clause 2.4 General Requirements & Clause 1.10.2- Temperatures	2.4 The cable shall comply with the requirements of IEC 60840, IEC 60228 plus any additional requirements specified hereafter. The cable shall be designed for reliable service life of at least 40 years. All materials used shall be compatible and suitable for the continuous operating temperature of the cable of 90°C and short circuit temperature of 250°C (5 seconds duration).	In vol 2. Page 71, 2.4 it is mentioned "All materials used shall be compatible and suitable for the continuous operating temperature of the cable of 90°C ", however in vol 2, page 20, the required max conductor temperature is 80°C, please clarify	The maximum cable temperature shall be 90°C.

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		1.10.2 Max. Conductor temperature 80°C		
24.	Vol 2. Technical Requirements   Clause 1.5 Scope of Works	<p>Table 1: An approximate listing of utility installations</p> <p>Utility Details</p> <p>Water pipe to the Kenya Air Force Camp: 6-inch-wide pipes, 1 meter deep. Between Tower 15 and 16</p> <p>Safaricom Line /Police Line/NSIS: More than 2 meters deep, Between Tower 15 and 16</p> <p>Water Pipes to Batuk: 3 inches wide pipes, 1 meter deep, Between Tower 15 and 16</p> <p>Water Tunnel from the NAWASCO sewerage plant feeding the river: 24 inches in diameter, 2 meters deep</p> <p>Sewerage Line from Batuk to the NAWASCO Treatment Plant: 2 meters deep</p> <p>Laikipia Airbase Road: under KeRRA</p> <p>50 mm water pipe between tower 17 and 18: Under NAWASCO management, less than 1 meter deep</p> <p>Nanyuki Rumuruti Road: Under KENHA Management</p>	In the bidding document vol. 2 page 14 Table 1, few existing utilities are listed, would you please provide the related layout drawings, please clarify.	No drawings for these facilities are available. It is the responsibility of the bidder/contractor to undertake this works





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25.			In "Cable Trench drawing example", the dimensions showed on the drawing are mandatory requirement or it can be redesigned as per the actual site situation, please clarify.	The drawings can be redesigned but must fit in the minimum corridors of 14m, 11 m and 8 m for the triple, double and single circuit portions respectively and 2 m for the concrete portion on the KENHA road. The drawings provided are for information only.
26.			In proposed cable route drawing, three locations were marked as "Portion of overhead line to be maintained", please clarify the detailed scope of work related to this portion which shall be considered by the bidder.	The overhead line terminal towers and the transition towers are interphase points. The bidder should consider all the necessary designs, supplies, installations, testings and commissioning required to connect the underground high voltage power cable and fiber cable to the overhead conductor and OPGW respectively.
27.			In the bidding document vol. 2 section 4, the direct buried armoured fiber optic cable is required, however in "Technical Data Sheet" and "Price Schedule", the product is described as "UG OPGW" and "Optical ground wire", as our understanding, the required fiber optical cable is used for the communication purpose only, kindly please clarify.	<p>The underground cable section shall include the installation of an Armored Fiber Optic Cable for communication.</p> <p>The updated Technical Datasheets for the Armored Fiber Optic Cable are provided</p>
28.			In the bidding document vol. 2 section 7 page 131, the maximum typical distances for detection of Surveillance System is 30m depend on different TIP event which are too deep, the normal depth of 132kV power cable will not be more than 3m to the ground level, so kindly please clarify if we can select the product model which is suitable to the underground cable system and match the required function or please advice your preferred manufacturer or product.	Bidder to propose suitable solution and supplier for surveillance of cable as per bidding documents. There is no list of preferred manufacturers.
29.			As our understanding, one (1) terminal tower to connect 132kV UG Cable and 132kV NANYUKI-ISIOLO overhead line shall be supplied and erected by the contractor. Shall KETRACO	Provided outline drawing. Detailed drawing shall be provided to the winning bidder.



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			provide the detailed design drawings to refer for Nanyuki-Isiolo line.	
30.			Please tell us the weight of the towers to be dismantled	See the outline drawings provided. However, it's the responsibility of the bidder to conduct a site visit to verify the site conditions in order to submit a more responsive bid.
31.			Please indicate the type of excavations (cast) and dimensions to be broken.	Refer to the foundation drawings provided. The drawings would give an estimation of how much demolition is required, the actual demolition of foundations is the responsibility of the bid to carry out investigation for the bidding purposes.
32.			Please indicate the depth the existing excavations (cast) must be broken.	Refer to the foundation drawings provided. The drawings would give an estimation of how much demolition is required, the actual demolition of foundations is the responsibility of the bid to carry out investigation for the bidding purposes.
33.			<p>Please confirm that the 10% Retention from: Particular Conditions Part A - Contract Data Percentage of Retention 14.3.2 10% of the contract price</p> <p>Is the same 10% from: Appendix 1. Terms and Procedures of Payment TERMS OF PAYMENT Schedule No. 1. Plant and Equipment Supplied from Abroad</p>	As per the bidding documents, 10% shall be retained from each invoice. The amount shall be paid back in 5% installments as per the bidding document.

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			<p>Five percent (5%) of the total or pro rata EXW amount upon issue of the Operational Acceptance Certificate, within forty-five (45) days after receipt of invoice.</p> <p>Schedule No. 2. Plant and Equipment Supplied from within the Employer's Country</p> <p>Five percent (5%) of the total or pro rata EXW amount upon issue of the Operational Acceptance Certificate, within forty-five (45) days after receipt of invoice.</p> <p>Schedule No. 4. Installation Services</p> <p>Five percent (5%) of the total or pro rata value of installation services performed by the Contractor as evidenced by the Employer's authorization of the Contractor's monthly applications, upon issue of the Completion Certificate, within forty-five (45) days after receipt of invoice.</p> <p>Five percent (5%) of the total or pro rata value of installation services performed by the Contractor as evidenced by the Employer's authorization of the Contractor's monthly applications, upon issue of the Operational Acceptance Certificate, within forty-five (45) days after receipt of invoice.</p>	
34.	Technical Data Sheets   Technical Data Sheets for Drone (Unmanned Aerial Vehicle)	<p>a) Operational Altitude: Ft 1000-12000</p> <p>g) Payload: Kg 7</p>	<p>In "Technical Data Sheets for Unmanned Aerial Vehicle", "Operational Altitude" is required to be 1000-12000 ft and the required payload is 7kg. However as per the feedback from the UAV supply company who held the only UAV license in Kenya indicating that such altitude is way above the Kenya legal limit, and the payload is also above the limit of the product they could provide in Kenya. In addition, as per the communication between the UAV supplier and Kenya Civil Aviation Authority</p>	<p>The operational altitude limit shall be 400 ft in accordance to KCAA.</p> <p>Required minimum payload is 7 kgs</p> <p>Bidder to propose drone and associated systems such that the maximum take -off mass (inclusive of payload) and the total payload of the Kenya Legal Limit as per KCAA. The drone should fulfil all the KCAA requirements for category C operations.</p>



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			(KCAA) that such requirements shall not be approved by KCAA, in this case please clarify the above mentioned issues.	
35.	Vol. 2 Employer's Requirements   Clause 1.62.1 Inspection and Tests at supplier's premises	....Mandatory factory acceptance tests (FAT) shall be performed for all major electrical plant such as UG cable, accessories, Surge Arrestors, ADSS cable and any other such equipment that the Employer deems to require FAT.... ....The Contactor shall provide for (3) three representatives of the Employer two (2) and the Project Manager one (1), to attend each factory test per lot. The Contractor shall meet all associated travel, accommodation and living costs, which shall be deemed to be included in the Contract Price....	Please clarify:  1) What is "any other such equipment"? Please give the contract a clear list of equipment to be FAT. 2) Shall the contractor provide FAT cost for 3 people or 6 people for each FAT item? 3) Please also specify the time/duration for FAT of each major item in order to allow the contractor to calculate the cost of FAT.	1. All major items as listed high voltage cable, bonding leads, joints, terminations, grounding boxes, screen earthing boxes, earthing and bonding cables, Voltage Limiters, Surge Arrestors, fiber cable (ADSS), cable accessories, fiber accessories.  2. 3 people  3. Min 5 days allowances for each FAT. However, time to be determined by the testing schedule and scope. The time duration for each equipment will be defined by the manufacturer the bidder chooses.
36.	Vol. 2 Employer's Requirements   Clause 1.6.1 Definite Work	.... The overall underground cable system shall include:.... Three class 'B' road crossings via micro tunnelling...	The underground cable line route will cross road several times, including rough road and normal asphalt road. Normally, open cut method is preferred for such cable road crossing. We would like to request you to confirm that such road crossing method is accepted.	Microtunnelling shall apply to class B roads. Other roads, open cut method is acceptable subject to approval by the relevant authority. It's the contractor's responsibility to obtain all such approvals.
37.	Vol. 2 Employer's Requirements   Clause	All cables installed in concrete troughs shall have suitable anti-termite protection, to be approved by KETRACO	The requirement of anti-termite protection is not found for the direct burial cable portion, please clarify if the direct burial section require anti-termite protection cable also, or normal cable out sheath shall be applied.	Anti -termite protection shall be provided for the complete cable.

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	2.12. Anti-Termite Protection			
38.			We would like to request for a 21-day (or three weeks) Time of extension of the deadline of bid submission to allow us to give a serious and competitive bid.	The bid submission date has been extended vide addendum 1 to 19th April 2021. should there be any changes, the same shall be communicated
39.	Vol.1 Section VIII - Particular Conditions  Clause 2.1.1 Time for access to the Site	<b>Within 30</b> days after Commencement Date: PC 10.2 KETRACO will provide the following facilities for access to Site: a. Over the whole length of the route, sufficient right of access as the Employer's representative agrees is essential for the Contractor's staff to carry out survey work and investigation of the general foundation conditions. b. Unless otherwise agreed, over not less than one-eighth of the route as specified above, in not more than seven continuous lengths there shall be:- .....	According to the tender documents, KETRACO provides us with 1/8 of the trace permits for the execution of the work. Please define us when the remaining part is to be provided. In the case that the Employer cannot obtain the trace permits, its necessary to make new analyses and new calculations, incurring extra cost for the contractor. Please confirm that this extra cost will be paid by the Employer, in accordance with the data in the bidding conditions.	Terms of the GCC will apply
40.	Vol.1 Section VIII - Particular Conditions  Clause		Please define how many days payments will be made: 45 or 60 days.	The Particular Conditions Clause 14.7.1 (a), (b), (c) on payment is revised to 45 days.

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	14.7.1 (a), (b), (c) Payment			
41.	Retention		Please confirm when the retention that may be pending will be returned in the event that the amortization is not achieved during the project period.	The question is not clear. Refer to the final payment clause 14.13.
42.	Bond Guarantee		How long the guaranteed bond will be in % of Contract Amount and what Amount (according to FIDIC Max. 10% and for 18 months completion of the works or 12 months Operational Reception). Please confirm.	The Performance bond, being 10% of the contract amount, will be returned upon issue of the performance certificate as per GCC.
43.	CCTV		Please send us the information on how you plan to carry out the CCTV (the scope of the work to be carried out).	The bidder should propose a full CCTV system to monitor the cable on the KENHA road reserve and along the KDF land fence. The primary control and monitoring station shall be located in the Laikipia Air Base, approximately 5km from the cable route. The Underground Optical fiber shall be used to transmit the same surveillance information to the two substations, first to Nanyuki and then Rumuruti (via Nanyuki) via a gigabit ethernet link with conversion media at terminal station.
44.	Vol 2 Technical Requirements   Clause 1.51.2.2 Handheld	<b>1.51.2.2. Handheld Data Collectors</b>  Handheld Data Collectors as indicated in the schedule of rates and prices shall be supplied and handed over to the Employer. All required licences and software support (for proprietary software	According to the technical description, and the TECHNICAL DATASHEETS FOR HANDHELD DATA COLLECTOR DATASHEET was defined, which correspond to Smartphone. In the specifications it is required to provide these devices and service for the next 6 years. We consider this period to be very high for a 12-month project. Please redefine this interval.	Comply with technical requirement which the handheld data collector has GIS capability.  Service period should be 24 months.



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	Data Collectors	if required) minimum of six years must be provided. The specifications of the devices should be as follows: .....		
45.			Please define the scope of the work to be carried out with the transition towers from the overhead line to the underground line.	All design, supply, installation, testing and commissioning works required for the termination of the OPGW and overhead cable to the underground fiber and power cable with the necessary associated accessories.
46.	Technical Data Sheets   Technical Data Sheets for Drone (Unmanned Aerial Vehicle)	a) Operational Altitude: Ft 1000-12000 g) Payload: Kg 7	Consulting with the local drone provider and telephone company for data package management. Drone weight 7 kg is to high. Please define the drone operating altitude	See clarification 34 on drones
47.			Define the limits of the existing airline project and of this tender.	Question is not clear
48.			Please define who is responsible for paying import taxes (not defined).	<b>1. Import Duties and Taxes on Imported Machinery and Equipment</b> a) All imported materials, equipment and plant (including Mandatory Spares) to be used in this project are unless exempted) subject to Import Duty, Import Declaration Fee (IDF), Railway Development Levy (RDL) and Value Added Tax. Tax exemption granted under this Contract shall be for official aid



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				<p>funded project and shall be as provided under the applicable tax laws in Kenya.</p> <p>b) The amount paid for RDL, VAT, (IDF) and Import Duty under 14.2.1 (a) above shall be reimbursed to the Contractor by the Employer. The contractor shall pay VAT and all the applicable import duties and levies and thereafter seek for re-imbursement from the Employer.</p> <p><b>2. Import duties and taxes for Contractors equipment and machinery</b>  For contractor's equipment and machinery imported on temporary basis for the execution of the contract, the contractor is liable for payment of duties/taxes on importation, however the contractor will request temporary importation approval from Kenya Revenue Authority whereby the duties/taxes will not be paid if the imported equipment and machinery are re -exported within the granted allowed period</p> <p>c) The price tendered by the Contractor shall include VAT, Import duties, RDL and IDF.</p> <p><b>3. Local Taxation</b>  <b>VAT</b>  All materials, plant and equipment purchased locally for permanent installation of the project are subject to Value</p>
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				<p>Added Tax. Fuel used by the Contractor for transport or during construction is also subject to VAT.</p> <p>All works executed by local or foreign subcontractors for construction of the project are subject to VAT.</p> <p><b>4. Withholding Tax</b></p> <p>The contractors, subcontractors are liable to payment of Withholding Tax (WHT). All payments made to the Contractor or Sub-Contractors shall be subject to withholding tax. At the point of making such payments, the Employer shall deduct the applicable Withholding tax in respect of the payments and remit the same to Kenya Revenue Authority.</p> <p>Where payments for the Contract Price are made directly by the financiers to the Contractor, the Contractor shall make the necessary arrangements with Employer to ensure that withholding income tax is remitted to the Kenya Revenue Authority.</p> <p><b>5. Other Taxes</b></p> <p>The Contractor, subcontractors and consultants shall indemnify and hold Employer free from any liability on account of all taxes such as payroll taxes and corporate tax in connection with the provision of the Services during execution of the project and nothing in this clause shall prevent the Employer from withholding any taxes that the Employer is required under the laws of the Republic.</p>
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				<p><b>6. Import License</b> The Contractor will be responsible for obtaining the necessary import licenses required under Kenya regulations for import into Kenya of all the Goods being supplied from outside of the country, and for all the administrative work associated therewith to the limit and extent as indicated in this contract. The Employer will provide reasonable assistance in applying for the licenses to the Contractor in respect thereof.</p> <p><b>7. Pre-Shipment Inspection</b> The Contractor shall procure the issuance of an Inspection Certificate of Conformity (COC) issued by an authorized KEBS partner prior to shipment. The certificate is a mandatory Customs Clearance document in Kenya. Kenya Bureau of Standards has appointed Societe Generale de Surveillance S.A and INTERTEK Group Plc to perform the Pre shipment Verification of Conformity programme on their behalf, depending on the country of supply. The cost for Pre-Shipment inspection fee shall be reimbursed by the Employer.</p> <p><b>8. Delivery and Documents</b> Upon shipment, the Contractor shall notify the Employer and the Employer's Representative, and the Insurance Company, by cable, telex or facsimile the full details of the shipment including contract number, description of Goods, quantity the vessel, the bill of lading number and</p>
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				<p>date, port of loading, date of shipment, port of discharge etc. The Contractor shall mail or courier the following documents in two copies to the Employer and three copies to the Employer's Representative, with a copy to the Insurance Company:</p> <p><b>(a) For Imported Goods</b></p> <ul style="list-style-type: none"> <li>i. The Contractor's invoice showing Goods description, quantity, unit price, total amount,</li> <li>ii. Non-negotiable bill of lading</li> <li>iii. Packing list identifying contents of each package</li> <li>iv. Insurance Certificate,</li> <li>v. Manufacturer's/ Contractor's warranty certificate,</li> <li>vi. Inspection certificate (Clean Report of Findings) issued by the nominated inspection agency,</li> <li>vii. Contractor's factory inspection report, and</li> <li>viii. Certificate of Origin</li> </ul> <p>The above documents shall be received by the Employer and Employer's Representative at least two weeks before arrival of the Goods at the port and, if not received, the Contractor will be responsible for any consequent expenses (including and demurrage). This is to provide time to obtain tax exemption for each shipment, if applicable.</p> <p><b>(b) For Domestic Goods</b></p> <ul style="list-style-type: none"> <li>i. Copies of the Contractor's Invoice showing Goods description, quantity, unit price, total amount,</li> <li>ii. Delivery note,</li> <li>iii. Manufacturer's/ Contractor's guarantee certificate,</li> </ul>
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				iv. Inspection Certificate issued by the nominated inspection agency and the Contractor's factory inspection report, and v. Certificate of Origin.
49.	Price Schedule, Local Taxes	Sub Total (Exclusive of local taxes) Local taxes, Total (Inclusive of Local taxes)	Please define what are the local fees that should be included in the prices in PRICE SCHEDULE.	Bidders to carry out ground checks based on the cable route, bid document and clarifications issued so far.
50.	Price Schedule 4 item 2.1, Soil Class C2, C3 and C4		Please define the soil type C2, C3, C4.	C2 is weathered rock with bearing capacity between 699 - 400kpa C3 is soil with bearing capacity between 449 - 250kpa C4 is soil with bearing capacity between 249 - 150kpa
51.			Please confirm if the joints are in a register camara or are directly buried.	Joint bays should be provided. Please clarify what is "register camara"
52.			For the analysis of the P&C system, preparation of the technical and economic solution, the data of the existing situation (plans, configuration, etc.) are required. The process of preparing this same part of the project can last a minimum of 6 weeks. Please take this situation into account so that we want to offer a correct and professional solution.	Single Line diagram of protection and Control are provided. Detailed drawings will be provided to the winning bidder
53.	Price Schedule 1 item 3.8 132kV		What is the design of the required tower and how many towers are required?	Nanyuki – Rumuruti will utilize the existing terminal towers at both ends while Nanyuki – Isiolo line will require a terminal tower at one end. Outline drawings are provided.



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	Terminal tower			
54.	Price Schedule 1 item 3.9, material for connection of OPGW and conductor is required		Please mention the specification of the existing OPGW and Conductors	Data sheet are provided.
55.	Price Schedule 4, Item 2.1, soil class C2, C3 and C4		Please mention the specification of these different soil classes.	C2 is weathered rock with bearing capacity between 699 - 400kpa C3 is soil with bearing capacity between 449 - 250kpa C4 is soil with bearing capacity between 249 - 150kpa
56.	Price Schedule 4 item 4.4.4 installation of OPGW, earth wire and conductors and accessories		Please mention whether the OPGW, conductor, earth wire and accessories will be supplied from the contractor or from KETRACO. In case it will be supplied from the contractor please mention the specs of the required OPGW and conductor.	Bidders responsibility for transition from underground cable to overhead line and provide any necessary material required.

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57.			Vol. 2 clause 4.1.4 it is mentioned that armouring of Fibre optic cable shall be provided over inner sheath by corrugated stainless steel armouring tape to make the cable rodent and termite proof. While it is mentioned clause 4.1.2 sub clause iii that the cable is to be all dielectric. Please clarify	Cable to be an outdoor armoured underground
58.	1.5 Scope of Work.		Please mention number of switch stations	Please clarify what switch stations are?
59.	Vol.2 clause 7 Detection surveillance system		<ul style="list-style-type: none"> <li>- 1- How many cable circuits?</li> <li>- 2- Route length of each circuits?</li> <li>- 3- Location where the DAS system (Intrusion detection system) can be placed?</li> <li>- 4- Location of FOC installed w.r.t Power cables? Can you provide any cross sectional drawings? We also need to know how deep the FOC/power cables are buried</li> </ul>	<ol style="list-style-type: none"> <li>1. All cable circuits will be monitored</li> <li>2. Complete length (Except for the CCTV which is for the section along the KDF fence and the KENHA road reserve)</li> <li>3. DAS to be placed in the Laikipia Air base at approximately UTM ARC 1960 37N (0280855 0004403)</li> <li>4. Bidder retains design responsibility as guided by the bidding documents</li> </ol>
60.	VOL2 Page 71 clause 2.5 Cable and Conductor Specification		<ol style="list-style-type: none"> <li>1) The specs. describes 132kV cables with Aluminium conductor while it's Copper in the guarantee schedules?</li> <li>- 2) The metallic screen in specs. is Aluminium wires + LEAD alloy while it's Copper wires + LEAD alloy in GTP?</li> </ol>	<ol style="list-style-type: none"> <li>1. Aluminium conductor</li> <li>2. Corrugated Aluminium sheath</li> <li>3. Corrugated Aluminium sheath</li> </ol>



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			<ul style="list-style-type: none"> <li>- 3) Please advise if KETRACO would accept Aluminium wires + Laminated Aluminium tape (same as the Administrative Capital project).</li> <li>- 4) Please advise if clause 2.13. Fire Resistance is applicable in this project or not ?</li> <li>- • IEC 60332-1 (Fire)</li> <li>- • IEC 60332-3A (Fire)</li> <li>- • IEC 61034 (Smoke)</li> <li>- • IEC 60754 (Minimal Halogen)</li> <li>- Ideally, over sheath materials will also have an oxygen index of less than 30% and a temperature index of greater than 260.</li> <li>- 5) Please advise if clause 2.13. Fire Resistance is applicable in this project or not ?</li> <li>- 6) Please clarify if any of the cable sections will enter the buildings since the specs. describe a low smoke, zero halogen material (LSOH) in this case, which by the way is out of our range for HV cables.</li> </ul>	<ul style="list-style-type: none"> <li>4. Fire resistance is applicable</li> <li>5. Fire resistance is applicable as per clause 2.13</li> <li>6. Cable is not entering buildings as it is installed between overhead line section</li> </ul>
61.	Price sch. 4, item 5.6 training		1) Please define the mentioned unit (PAX )	<ul style="list-style-type: none"> <li>1. PAX is persons</li> <li>2. Amend in the price schedule 4 accordingly to reflect as below;</li> </ul>



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			2) The total number of trainees as per the price sch is 8 while in clause 1.60.1 VOL2 it is mentioned that the total number of the trainees will be 14 please clarify	<table><tr><th>Item</th><th>Description</th><th>Unit</th><th>Qty</th></tr><tr><td>5.6.1</td><td>Planning &amp; Design Engineers</td><td>Pax</td><td>8</td></tr><tr><td>5.6.2</td><td>Operation and Maintenance Engineers</td><td>Pax</td><td>6</td></tr></table>	Item	Description	Unit	Qty	5.6.1	Planning & Design Engineers	Pax	8	5.6.2	Operation and Maintenance Engineers	Pax	6
Item	Description	Unit	Qty													
5.6.1	Planning & Design Engineers	Pax	8													
5.6.2	Operation and Maintenance Engineers	Pax	6													
62.	Clause 1.6.1 VOL 2 Extent of work		Please define what is meant by class B crossings	Class B is a national road linking one important center to the other. Refer to ministry of works (roads department) road design manual Part 1-Geometric Design of Rural Roads-Roads Classification.												
63.	General		<p>-During the site survey, we came to know that the protection systems of the station should be updated and modified to match the new installations. Please advise if the study of this upgrading process will be submitted after or during the bidding stage</p> <p>-Regarding CCTV , please advise whether it will be installed on the towers along the transmission line or it will be installed surrounding a certain area .Also please advise where the fibres that will feed the cameras , will come from? (will it be from KETRACO or from the underground fiber cable)</p> <p>-Please mention the total length of the Nanyuki-Rumuruti link (showing the distance between Nanyuki station and the underground works starting point station)</p>	<p>The protection system study will not be submitted during bid. However, the same is required during implementation. Please note that the bidder should propose a comprehensive bid as their will be no price adjustments for bidding errors</p> <p>CCTV will be installed on the KENHA road reserve and the KDF fence portions only. The fibers to feed the cameras to the Laikipia airbase monitoring will be provided by the bidder and not the underground fiber cable. The underground fiber will be used to link the Rumuruti substation to the cable monitoring system. The total route length of the Nanyuki - Rumuruti transmission line is approximately 81km The total route length of the Nanyuki - Isiolo transmission line is approximately 71 km</p>												



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			Please mention the total length of Nanyuki Isiolo link (the single circuit) mentioning the distance between nanyuki and the underground works starting point.	The first underground cable riser is approximately 2 km from the Nanyuki substation. The bidders' scope of works also involves the Nanyuki, Rumuruti and Rumuruti Substations
64.	Price Schedule		Please kindly provide the local taxes and rates for Schedule No. 1, No.2, No.3 and No. 4 respectively.	The Kenya Revenue Act –Cap 469 and other registrations and regulations clearly outlines all issues relating to duties and taxes in Kenya
65.	Price Schedule		We understand that price schedule quantities are based on preliminary design. While in execution stage, payment will be made on the actual quantities from detailed design at the quoted unit price. Please kindly confirm.	Changes will only be accepted incase of changes in route length. Bidder should provide detailed breakdown of prices per unit quantities where possible for the lumpsum items as well. Bidder takes responsibility for the estimated quantities as they are deemed adequate for the route length.
66.			We value this bidding opportunity very much and attach great importance to the quality of the bidding documents for this project. In order to ensure that we have a reasonable time for bid preparation, we sincerely apply to your esteemed company to extend the closing date to the end of April i.e. April 30.	Refer to addendum 1 for time extension which is 19 <sup>th</sup> April 2021.
67.	TECHNICAL DATASHEET S FOR 132 KV XLPE CABLE		In Technical Datasheet: Metal Sheath Type - LEAD Due to environmental considerations, LEAD is not used. Please confirm that we can use another type of approved material.	Aluminum sheath is to be used
68.	Proposed route Nanyuki	HDD. HORIZONTAL DIRECTIONAL DRILLING	Please define in the plan, the areas where the directed perforations should be made	Bidders responsibility to carryout site investigation using the cable route map and coordinates that have been provided. .

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	Underground Cable			
69.	Proposed route Nanyuki Underground Cable	Section (configuration of the plans)	Please define the section and the configuration to make with the horizontal direct perforation.	Bidders responsibility to design and obtain approvals from relevant authorities for all such crossings as per the bidding documents
70.	TECHNICAL DATASHEET S FOR 132 KV XLPE CABLE	Insulation	In Technical Datasheets, insulation thickness is required as nom. 20mm which is quite high for 132kV.  Please confirm us that we can offer the cable with a proper thickness for 132kV or is 20mm insulation thickness mandatory.	Nominal thickness of insulation to be 16 mm. Bidder to comply with IEC in regard to tolerances of insulation thickness
71.	TECHNICAL DATASHEET S FOR 132 KV XLPE CABLE	Over sheath type: HPDE  Protective anti corrosion external sheath covering: HPDE	In Technical Datasheets, outer sheath material is required as HDPE (has also anti-termite protection as its natural property). Please confirm that if we will use this material is enough or is necessary to use anothers protection antitermites	Bidder to comply with the bid requirement and provide further anti termite protection as well
72.	Vol 2 Technical Specifications   Clause 1.5		Terminal Towers and Existing Lines  Aerial Existing Conductor	Outline drawing for the terminal tower is provided.  Clarification is not clear



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	Scope of work			
73.			The UAV supplier required to have local presence in Kenya, but we have contact with majority of UAV manufacturers in China, they do not have presence in Kenya, so we hope that KETRACO can offer a UAV manufacturer list cooperated for previous project.	There is no UAV manufacturer prequalified list.
74.			Please clarify the details of CCTV equipment, there were no CCTV numbers in BOQ, we need numbers for CCTV equipment.	Bidder to design with sufficient quantities to cover relevant portion (along the KENHA road and the KDF fence) section as per the bidding requirements, provided coordinates and the cable route map.
75.			Please clarify the documents need for equipment manufacturers, there was no clear list for manufacturer document list.	Refer to item 2.7 Subcontractors/manufacturers and ITB 11.1 (h)
76.			In Particular conditions, it is defined as that employer shall pay the contractor the amount certified in each interim payment certificate within 60 days whereas in Appendix 1. Terms & procedures of Payment, payment cycle is defined as 45 Days.  Kindly Clarify	45 days.
77.			We understand that all Taxes & Duties are need to be covered in price schedule as per Particular Conditions. Request to accept the waiver of the same.	Refer to query 48.



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78.			We understand that 5% of the total or pro rata CIP amount will be released upon issue of operational acceptance certificate, within 45 days after receipt of invoice. Kindly Clarify since Operational Acceptance is not defined in particular conditions.	5% retention will be paid upon issuance of the performance certificate.
79.			It is mentioned as that 5% of the total or pro rata CIP amount will be released upon issue of completion certificate, within 45 days after receipt of invoice. Kindly clarify since Particular Conditions doesn't talk about Completion certificate and in General conditions, "Taking Over Certificate "terminology is used.  If Taking Over Certificate & Completion Certificate is same?	Take over certificate is the same as completion certificate
80.			We understand that, if the equipments are imported from the countries under COMESA, exemption on duties will be applicable on the same and necessary documents will be provided.  Kindly clarify.	Refer to query 48.
81.			Requirement of Tower Designs, Tower Structural drawings for all the 3 type terminal towers (multi circuit, double circuit, single circuit)  Also requirement of foundation drawings for demolition of the foundations are required.	Refer to previous clarifications.
82.			Line Profile and tower schedule for the sections where the cable termination is to be done are required. Kindly provide the same.	Not necessary at this stage. Responsibility of the bidder to carryout site investigation for comprehensive bid submission.



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83.	Price Shedule 4   Rise Structure and protection		Installation of Riser and protection of the same is not in the BOQ. Please include	Effect the price schedule 4 accordingly as below <table><tr><th>Item</th><th>Description</th><th>Unit</th><th>Qty</th></tr><tr><td>3.1.2</td><td>Riser structures and steel frames for 132kV cable termination.</td><td>Set</td><td>3</td></tr><tr><td>3.1.3</td><td>Riser structures fencing.</td><td>Set</td><td>3</td></tr></table>	Item	Description	Unit	Qty	3.1.2	Riser structures and steel frames for 132kV cable termination.	Set	3	3.1.3	Riser structures fencing.	Set	3
Item	Description	Unit	Qty													
3.1.2	Riser structures and steel frames for 132kV cable termination.	Set	3													
3.1.3	Riser structures fencing.	Set	3													
84.			The CCTV cameras exact route length along the military camp and spacing needs to be clarified. Also please clarify the exact control that the military camp requires for this surveillance	Route is as per shared route. The CCTV shall monitor the cable along the KDF land and the portion on the KENHA road. The Laikipia air base will have complete access and control of the surveillance system. The transmitted feed to the nearest station (Nanyuki) will only have remote access to the feed.												
85.			It is observed during the site visit that the D/C cabling which goes towards Rumuruti it passes parallel to the road until it gets inside the fence. But there is a portion along the road where there is entrance of British camp and a concrete pathway/culvert to the gate is present which is appx 5-6m in length. How do you recommend us to pass in that section.	Microtunnelling and other appropriate proposal from the bidders. All crossings methods are subject to approval of British camp (Batuk), KENHA and KETRACO.												
86.			It is understood there shall be a cable compound in each termination area. (3nos) where we have to put chain link fencing around appx 10x10 m. Kindly confirm the same and include it in the BOQ.	Refer to query 17 and 83.												



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87.			Understand during the site visit that there is a slight change in route. Please update the BOQ in that case.	The BOQ quantity remains for this item as issued. Actual quantity will be remeasured on the site for the winning bidder.
88.			Confirm that micro tunneling is to be done only to cross the asphalt road and not to cross the murrum road or mud road.	Microtunneling is for class B roads
89.			We thank you for conducting the pre bid meeting and site visit. In context, we request you to avail us with necessary permission for carrying out soil thermal resistivity test at 500m equal intervals in 132kV Double circuit underground transmission line.	The bidder may undertake necessary investigations to provide a comprehensive bid at their own responsibility.
90.	Vol 1, Section I. Instruction to bidders   Clause 14. Bid Prices and Discounts- 14.8  Section VII. General Conditions   Clause 14.1.1 (b)	14.8 All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 28 days prior to the deadline for submission of bids, shall be included in the rates and prices and the total Bid Price submitted by the Bidder.  Unless otherwise stated in the Particular Conditions: (b)the Contractor shall pay all taxes, duties and fees required to be paid by him under the Contract, and the Contract Price shall not be adjusted for any of these costs except as stated in GC Clause 13.7	Under price schedule 1(Supply Foreign), the "Unit Price" be quoted on "CIP Project Site" and also Local Taxes to be quoted separately for supply and services portion.  Please be informed that as per CIP Incoterms, the custom duties and taxes will be borne by the buyer (i.e. KETRACO in this case, whereas ITB14.8 & GCC14.1.1(b) it is mentioned as the contractor shall pay all taxes, duties and fees required to be paid under the contract.  Also in 500kV HVDC Transmission Line Project (IFB No. KETRACO/PT/009/2021), which was funded by AfDB and already commissioned, all the taxes and duties applicable such as custom duty, VAT, IDF, RDL, NCA Levy for the equipment supply (import/local) as well as services were exempted.	Refer to query 48



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		[Adjustments for Changes in Legislation];	Since the current project being funded by AfDB, having same loan no. (2100150027845), we presume that all taxes and duties as well as service portion are exempted and bidder is not required to include in their bid price	
91.	Section VII. General Conditions   Clause 1.1.3 Dates, Tests, Periods and Completion, 1.1.3.7  Section VIII, Particular Conditions   Clause 1.1.3.7 Defect Notification Period	“Defects Notification Period” means the period for notifying defects in the Works or a Section (as the case may be) under <b>GC</b> Clause 11.1 [Completion of Outstanding Work and Remedying Defects], which extends over twelve months except if otherwise stated in the Particular Conditions (with any extension under <b>GC</b> Clause 11.3 [Extension of Defects Notification Period]), calculated from the date on which the Works or Section is completed as certified under <b>GC</b> Clause 10.1 [Taking Over of the Works and Sections].  Shall be extended by 12 months (1 year)	The duration of the Defects Liability Period is not specified in the General Conditions and Particular Conditions of the contract. We would like to know the duration of the Defects Liability Period (Normally it should be 12 months counting from taking over). Please Clarify.	The DLP shall be 24 months
92.	Vol. 2 Technical Requirement	... The conductor will be water blocked to meet the requirements of IEC 60840, using water blocking tapes	It states, “The use of water blocking powder on its own is not permitted.” Is that possible to “use the water blocking tapes	Water blocking tapes/yarns combined with water blocking powder for water blocking of the conductor will





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	s   Clause 2.5 Conductor	and / or yarns. The use of water blocking powder on its own is not permitted.	combined water blocking powder for water blocking of the conductor"? Please clarify?	be acceptable upon confirmation by the contractor that it works effectively.						
93.	Vol. 2 Employer's Requirement s   Clause 2.7 Insulation  Technical Datasheets for 132KV XLPE cable	The preferred manufacturing process is the vertical continuous vulcanisation (VCV) line however cable manufactured with either MDCV or CCV lines will also be considered. The cable shall be manufactured using low viscosity, ultra clean grades of material.  Single pass/triple exclusion: VCV	In Employer's Requirements it states VCV is preferred but MDCV or CCV lines can also be considered. However, in the Technical Datasheets the required manufacturing method is VCV.  We would like to know whether MDCV or CCV is allowed or not? Since in terms of quality there is no difference between MDCV, CCV or VCV. Both MDCV and CCV can be all technical requirements.	VCV, MDCV, CCV lines are all acceptable. Manufacturers should demonstrate tests and documented customer experience to overcome technical challenges posed by the CCV and MDCV methods						
94.	Technical Datasheets for 132KV XLPE cable	Insulation Nominal Thickness: mm 20  Minimum Thickness: mm yes	This 20mm thickness is not in accordance with IEC 60840. Shall the manufacturer provide the insulation nominal thickness in line with IEC 60840 or the manufacturer has to follow the 20mm requirement in the technical data sheet, in which we believe is not reasonable.	Refer to query 70. Nominal thickness shall be 16 mm. Minimum thickness shall be in accordance to IEC 60840						
95.	Section III. Evaluation and Qualification Criteria.	<table><tr><th>N o.</th><th>Position</th><th>Minimum Academic Qualification</th></tr><tr><td>2</td><td>Cable Design Engineer</td><td>Bachelor of Science in Electrical Engineering</td></tr></table>	N o.	Position	Minimum Academic Qualification	2	Cable Design Engineer	Bachelor of Science in Electrical Engineering	In Section 2.5 PERSONNEL, the following positions can also be effectively handled by Higher Diploma holders from our National Polytechnics and Technical Universities.  Construction Site Manager Construction Engineer- Civil Construction Engineer - Electrical Protection Engineer	Higher Diploma is not acceptable.  The bachelor's degree or equivalent.
N o.	Position	Minimum Academic Qualification								
2	Cable Design Engineer	Bachelor of Science in Electrical Engineering								

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	3	Construction (Site) Manager	Bachelor of Science in Civil Engineering/Electrical Engineering and Certification in Project Management	Communication Engineer Geotechnical Engineer Senior Surveyor Safety, Health and Environmental Manager. So our request for these positions is you indicate Bachelor Degree or Equivalent.	
	5	Construction Engineer – Civil	Bachelor of Science in Civil Engineering and Certification in Project Management		
	6	Construction Engineer – Electrical	Bachelor of Science in Civil Engineering and Certification in Project Management		
	7	Protection engineer - electrical	Bachelor of Science in Electrical Engineering		
	8	Communication Engineer	Bachelor of Science in Electrical Engineering		

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		<table><tr><td>9</td><td>Geo-technical Engineer</td><td>Bachelor of Science in Survey, Geospatial Engineering</td></tr><tr><td>10</td><td>Senior Surveyor</td><td>Bachelor of Science in Survey, Geospatial Engineering</td></tr></table>	9	Geo-technical Engineer	Bachelor of Science in Survey, Geospatial Engineering	10	Senior Surveyor	Bachelor of Science in Survey, Geospatial Engineering		
9	Geo-technical Engineer	Bachelor of Science in Survey, Geospatial Engineering								
10	Senior Surveyor	Bachelor of Science in Survey, Geospatial Engineering								
96.	Eligibility Criteria		<p>In SPN-Nanyuki_Rumuruti_Transmission_Line February 2021 (00000002) page 1, item 6. The provisions in the Instructions to Bidders and in the General Conditions of Contract are the provisions of the African Development Bank Standard Bidding Document: Procurement of Goods or Procurement of Works.</p> <p>Regarding from AFD official webpage: <a href="https://www.afdb.org/en/projects-and-operations/procurement/new-procurement-policy">https://www.afdb.org/en/projects-and-operations/procurement/new-procurement-policy</a></p> <p>Standard Forms, Templates and Others Documents: Standard Bid Evaluation Guide for Procurement of Goods and Works – check the link Word documents in page 11 and 12 at Table 3: <a href="https://www.afdb.org/fileadmin/uploads/afdb/Documents/Procurement/Project-related-Procurement/Procurement_of_Goods_and_User_s_Guide_-_November_2010.doc">https://www.afdb.org/fileadmin/uploads/afdb/Documents/Procurement/Project-related-Procurement/Procurement_of_Goods_and_User_s_Guide_-_November_2010.doc</a></p>	Eligibility will be confirmed during evaluation.						

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			<p>Turkey is not available.</p> <p>However, the same page in section is the same contract documents.</p> <p>Standard Bidding Documents for procurement of Works</p> <p><a href="https://www.afdb.org/fileadmin/uploads/afdb/Documents/Procurement/Project-related-Procurement/SBD-_Procurement_of_Works_-_September_2010_-_Revised_-February_2018.doc">https://www.afdb.org/fileadmin/uploads/afdb/Documents/Procurement/Project-related-Procurement/SBD-_Procurement_of_Works_-_September_2010_-_Revised_-February_2018.doc</a></p> <p>So, check the recent member list in official Webpage.</p> <p><a href="https://www.afdb.org/en/about-us/corporate-information/members">https://www.afdb.org/en/about-us/corporate-information/members</a></p> <p>Turkey is exist.</p> <p>The latter seems to be more recent but need to be confirmed from authority.</p>	
97.	2. SIGNED SUBCONTRACT AGREEMENT Clarification	<p>WHEREAS the Contractor has entered into, or will hereafter enter into, a general energy and construction contract, henceforth "The Project Contract" for the Project Names including but not limited to Procurement of EPC Contractor for the completion of the Isiolo - Nanyuki 132 kV transmission lines ICB No: KETRACO/PT/007/2021 under Kenya Electricity Transmission Company Limited (KETRACO) henceforth "The</p>	<p>Isiolo-Nanyuki transmission line project is different. Is it Rumuruti-Nanyuki underground cabling project? Please clarify it.</p>	<p>There is Nanyuki – Isiolo and Nanyuki – Rumuruti projects which are not complete. Both projects have an underground section which is required for completion. The projects share the wayleave corridor as you approach Nanyuki substation.</p>





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		Owner of the Project" to perform in accordance with various contract documents and specifications in reference to the Project Contract to furnish labour, materials, supplies, labour and/or goods required to construct The Project.		
98.	Section I. Instruction to bidders   Clause 21.1 Submission, Sealing and Marking of Bids	21.1 Bidders may always submit their bids by mail or by hand. If so, specified in the BDS, bidders shall have the option of submitting their bids electronically. Procedures for submission, sealing and marking are as follows:	We have noticed that all the documents related to the submission are to be sent only through the website. Can we please confirm this?	<p><b>Bidders shall submit Complete bid documents as per ITB 20.1 ITB 21.1 of the and Section II. Bid Data Sheet HARD Copies (One (1) Original, Two (2) Copies) and three (3) soft copies in CDs/DVDs</b></p> <p>Bid documents will NOT be submitted through SAP ARIBA platform.</p> <p>In addition to the original of the Bid, the number of copies is: two (2) printed copies must be clearly labelled, Copy 1, 2, and two (2) soft copies in CDs/DVDs. The ORIGINAL printed hard copy shall still remain the main reference document. Soft copies must be submitted and shall be at the bidder's risk as to their completeness and accuracy.</p> <p>The soft copies provided in CDs (or DVDs) shall be structured. Each Volume shall be presented in a separate folder. Each Section shall be provided as single PDF files Additionally, data sheets and price schedules shall be provided as editable Excel 2007 or 2010 files</p>



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99.	Technical schedule of 132kV XLPE power cable	Short time current density(1sec): 2kA/mm²	Kindly clarify if the Short time current density of Metallic screen of is 2kA, 1sec or 31.5kA, 1Sec.	The units of Short time current density are kA/mm². The bidder should propose a value suitable for the designed conductor that is fit for purpose and the existing conditions								
100	PART 2: Employer's Requirement s,   Clause No. 2.11, Oversheath  Technical schedule of 132kV XLPE power cable	The outer covering shall preferably be of medium density polyethylene, except for the closing sections that enter buildings, which shall be of a low smoke, zero halogen material (LSOH).  Type and material: HDPE	Kindly clarify if the type and material for Protective anti corrosion external sheath covering of 132kV XLPE Power cable is HDPE or LSOH.	HDPE								
101	Price Sch. 1- Item 5.2  Price Sch. 4- Item 5.5	Handheld Data Collector as per scope of works: no 100  Handheld Data Collector (Data, call, usage etc as per scope of works) each 10	Kindly clarify if the quantity required for Handheld Data Collectors is 100 Nos. or 10 Nos.	<div>The Handheld Data Collectors shall be 10Nos.</div> <table><tr><th>Item</th><th>Description</th><th>Unit</th><th>Qty</th></tr><tr><td>5.2</td><td>Handheld Data Collector as per scope of works</td><td>No</td><td>10</td></tr></table> <div>Effect the changes accordingly in the Price schedule 1-supply.</div>	Item	Description	Unit	Qty	5.2	Handheld Data Collector as per scope of works	No	10
Item	Description	Unit	Qty									
5.2	Handheld Data Collector as per scope of works	No	10									
102	Price Sch. 1- Item 3.1 Cable tray		Kindly clarify if the cable tray and supports for the concrete cable trench of 132kV XLPE Power cable is required or not required.	Bidder to design the cable trench and supports to meet the transfer capacity as per the employer's requirements. This is required as stated in the price schedule								

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103	<p>Price Sch. 1- Item 1.1&amp;1.2</p> <p>Price Sch.4- Item 4.1, 4.2 &amp; 4.3</p> <p>Technical Requirements   Clause</p>	<p>132kV Three phase double circuit Power cable Nanyuki-Rumuruti: route km16.8 132kVThree phase single circuit Power cable Nanyuki -Isiolo: route km 4.2</p> <p><b>Complete 132kV Single Circuit Buried Cable</b> Complete 132kV Single Circuit Buried Cable: km 0.5 Complete 132kV Single Circuit in cable trench: km 0.02 Complete 132kV single circuit buried cable crossing the road to be quoted for approved excavation method: km 0.05</p> <p><b>Complete 132kV Double Circuit Buried Cable</b> Complete 132kV Double Circuit Buried Cable: km 14 Complete 132kV Double Circuit in cable trench: km 1 Complete 132kV Double circuit buried cable crossing the road to be quoted for approved excavation method: km 0.1</p> <p><b>Complete 132kV Triple Circuit Buried Cable</b> Complete 132kV Triple Circuit Buried Cable: km 4</p>	<p>The overall underground cable system quantities are contradictory between Definite work and Price Schedules. Kindly clarify</p> <p>Kindly clarify if the overall underground cable system is 21 km or 19.92 km.</p>	<p>The Nanyuki - Isiolo runs parallel to the Nanyuki - Rumuruti transmission line before branching off on its own. The route length portion in which it runs by itself is only approximately 0.5 km.</p> <p>The price schedule quantities remains.</p>
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	1.6.1, Definite work	<p>Complete 132kV Triple Circuit in cable trench: km 0.05</p> <p>Complete 132kV Triple circuit buried cable crossing the road to be quoted for approved excavation method: km 0.2</p> <p>The overall underground cable system shall include:</p> <ul style="list-style-type: none"> <li>1.5 km of double circuit underground cable system with single pilot fibre in concrete trench installation</li> <li>• 11.5 km of double circuit underground cable system with single pilot fibre in directly buried installation</li> <li>• 3.8 km of triple circuit underground cable system with two pilot fibre in directly buried installation</li> <li>• 0.4 km of single circuit system with single pilot fibre system in directly buried installation</li> <li>• Three class 'B' road crossings via micro tunnelling</li> <li>• Three access entrance (gate) crossings via micro tunnelling</li> </ul>		
104	Cable trench sketches	Type-4, Direct buried	The overall dimension, 8m is applicable for Single circuit underground cable system or is triple circuit underground cable system.	The 8m dimension is for a single circuit underground cable system, the triple circuit shall be 14m but not applicable for the road crossing.





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105	Cable trench sketches	Type-1 & Type-2	The trefoil arrangement for 132kV cable in concrete cable trench is acceptable for triple and double circuit underground cable system. Kindly confirm.	Trefoil arrangement is acceptable subject to appropriate design during contract implementation.
106	Price Sch.1-Item 2-Cable accessories	132kV outdoor cable Termination: Nos. 18 132kV insulation joints: lot 1 132kV Straight joint: lot 1 Link boxes: lot 1 Ground box: lot 1 PD Sensor: lot 1	Kindly Specify the quantity for cable accessories for the following 1. 132kV Insulated Joint 2. 132kV Straight Joint 3. Link boxes 4. Ground Boxes 5. PD sensors It will help for all the bidders to quote uniformly for the specified quantities for cable accessories.	Bidders responsibility to design and estimate quantities sufficient for the project as no adjustments will be allowed without a significant change in route length.
107	Price Sch.1-Item 1.4 & 1.5	Earthing & Bonding cable: lot 1 132kV surge arrester: lot 1	Kindly Specify the quantity for cable for the following 1. Earthing & Bonding Cable 2. 132kV Lightning arrester. It will help for all the bidders to quote uniformly for the specified quantities for cable accessories.	Bidders responsibility to design and estimate quantities sufficient for the project as no adjustments will be allowed without a significant change in route length.
108			Joint bays for Insulating Joint/Straight Joint is required or not required.  If Joint bays is required, whether it is RCC type or Block work type. Kindly confirm.	Joint bays are required and should be RCC minimum class 25. All concrete works will be as per technical specifications
109	Technical Specification   Clause 1.9	The Contractor shall provide at his own cost, all necessary local transport routes and access tracks and all labour, plant and materials necessary for unloading	We understand that the provision of vehicle access track along the length of the cleared strip is only for the purpose of construction and it a temporary road. Kindly confirm.	Access track shall be handed over to the client for use in repair and maintenance of the cable as per the employer's requirements.



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	Access Tracks	<p>and erection, and shall be entirely responsible for their efficient and correct operation. The Employer will, however, permit the Contractor to use any of his existing access tracks subject to these being restored to the satisfaction of the Engineer in respect of any damage which may be caused during the period of the Contract and the subsequent maintenance period. For this purpose the Contractor shall agree with the Engineer suitable records indicating the initial condition of each access track prior to its use.</p> <p>Where the crossing of pipelines by vehicles and equipment is necessary, whether the pipes are above or below ground, the Contractor shall obtain permission to cross from the appropriate company or authority. The measures to be taken to protect the pipelines shall be agreed upon with them. Existing tracks shall be jointly inspected prior to their use and their condition recorded and agreed. Provision shall be made to establish a vehicle access track along the length of the cleared strip to for purposes of</p>	<p>If any access track to be provided, kindly provide cross section details of road.</p>	
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		construction. Any alternative route for the track may be agreed with the Engineer. On handing over any section of works, the Contractor shall hand over relevant access tracks in a condition suitable for the Employer's maintenance vehicles and, for those originally belonging to the Employer, in no worse condition than originally recorded										
110	Technical Specification   Clause 5.3.7.5 Concrete Structures		Kindly provide payment provision for Joint bay in price schedule	<div>Include as below in Price Schedule 4</div> <table><tr><th>Item</th><th>Description</th><th>Unit</th><th>Qty</th></tr><tr><td>4.4.6</td><td>Installation of Joint Bays</td><td>Lot</td><td>1</td></tr></table> <div>Bidders to update the price schedule accordingly.</div>	Item	Description	Unit	Qty	4.4.6	Installation of Joint Bays	Lot	1
Item	Description	Unit	Qty									
4.4.6	Installation of Joint Bays	Lot	1									
111			Kindly provide cross section details of road, for estimating the restoration volume of road.	The road crossing on major road is through micro tunneling. However, for minor roads crossing shall be open. This is a contractor's responsibility to verify for themselves on site & to estimate the volume for reinstatement in submitting your bids.								
112	Technical Specification   Clause 5.3.1 General	... In general, the following principles shall be followed • The power and pilot cable of each circuit shall be laid in separate trenches, troughs or ducts. Two circuits in one trench shall be avoided as far as possible unless the circuit functions are inter-	We presume the cable sealants are required only for building basements and hence the fire sealants are not required for cable joints. Kindly confirm.	Provisions as per technical specification must be provided to avoid the spread of fire across circuits								

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		<p>dependent in which case, subject to the approval of KETRACO, two segregated circuits may be installed in one (concrete) cable trench. The minimum separation between independent circuits shall be 1.5m.</p> <ul style="list-style-type: none"> <li>• To prevent fire spreading across circuits, appropriate separating walls or barriers must be provided between circuits.</li> <li>• Where cables leave / enter a different installation system (e.g. cable trough into cable basement or direct buried into a cable basement) the transition shall be made via sealed ducts and the impact of the ducts on cable rating shall be taken into account.</li> </ul>		
113		Road Crossing	<p>We presume all the road crossing (Major or minor) shall be done with Horizontal directional drilling(HDD) and cable routing will be done through HDPE pipe.</p> <p>Kindly confirm</p>	Road crossing shall be done through HDPE pipe with appropriate concrete surround designed and laid to approval.
114	Technical Specification   Clause 5.3.7 Method of Cable Laying	<p>...The material surrounding the cables, between trench floor, walls and cable tiles, shall be at least, 150mm of approved material, free of stones or any other material likely to damage or penetrate the cable outer sheath. It may</p>	<p>As per cl.5.3.7, material surrounding the cable shall be at least 150mm of approved material.</p> <p>As per cl.5.3.2.1, The cables shall be laid on approximately 200mm of sand fill, which will be placed to form a bed for a cable. Upon completed laying of a cable it shall be covered</p>	<p>We confirm that the thickness of bedding layer for cables is 200mm.</p> <p>&amp; the thickness of sandfill materials surround above the cable is 200 mm</p>





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	Clause 5.3.2.1 For Direct Buried Cables	<p>be necessary to use an approved semi-permeable membrane to avoid migration of the fill under wet conditions....</p> <p>...The cables shall be laid on approximately 200mm of sand fill, which will be placed to form a bed for a cable. Upon completed laying of a cable it shall be covered with additional sand layer 200mm thick above the top of the uppermost cable....</p>	<p>with additional sand layer 200mm thick above the top of the uppermost cable.</p> <p>As per sketch provided in tender document thickness of sandfill layer is 100mm in 2 layers.</p> <p>Kindly confirm the thickness of bedding layer for cables and the thickness of sandfill material surrounded above the cable.</p>	
115	Technical Specification   Clause 4.2.1 Mechanical Characteristics	<p>The induced attenuation due to fiber wrapped around a mandrel of a specified diameter.</p> <p>viii. Induced Attenuation at 1550nm: <math>\leq 0.05</math> Db/km</p>	<p>From one of our suppliers tell us that on the third page of the HDPE ARMOR FIBER document, the attenuation value cannot be so low.</p> <p>a) Please confirm that this is additional attenuation under certain test conditions.</p> <p>b) Could you explain the reason for this low attenuation?</p> <p>c) Recommend to change at next value: @ 1550nm <math>\leq 0.20</math> dB / km.</p>	<p>a. This is induced attenuation</p> <p>b. This is to minimize induced attenuation</p> <p>c. Request is rejected. Comply with the required maximum induced attenuation as per 4.2.1 of the technical specification</p>
116	Technical Specification   Clause 4.2.2 Optical Fiber Characteristics	Dispersion Slope: $< 0.07$ ps/(nm <sup>2</sup> .km)	On the fourth page of the HDPE ARMOR FIBER document, one of our suppliers ask if it is possible to change this value: to $< 0.08$ ps / (nm <sup>2</sup> .km)?	ComplyTheComply with the technical specification Dispersion Slope: $< 0.07$ ps/(nm <sup>2</sup> .km as per the bid documents.

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117	Technical Specification   Clause 2.14 Electrical System Design Parameters	Loading capability of each 132kV cable circuit: 115 MVA	As per clause 2.14 – as per this clause load is 115 MVA i.e. 503 Amp rated required current. Please confirm.	The load is 115MVA per circuit as per the technical specifications
118	Technical Specification   Clause 2.10 Metallic Sheath		Please confirm short circuit current of metallic sheath/screen	The short circuit current of metallic sheath/screen is 31.5kA for 1 S
119	Technical Specification   Clause 2.7 Insulation	The colour of the insulation shall be such that it is easily distinguishable from the screening materials	As per Clause 2.7 – this clause specifies colour insulation. Please note that in extra high voltage cable, super clean grade of XLPE insulation compound will use. Thus, colour of insulation shall be natural. Please confirm.	Please comply with the requirement.
120			<p>Please confirm cable laying installation condition for cable size work-out –</p> <ul style="list-style-type: none"> <li>• Trefoil / Flat</li> <li>• Laying formation (direct buried in ground/air/trench/duct)</li> <li>• Spacing between cable circuits</li> <li>• Phase spacing (applicable for fat formation)</li> <li>• Bonding method</li> <li>• Ground temp when cable laid in ground</li> </ul>	<ul style="list-style-type: none"> <li>• Flat for directly buried. Bidder to propose formation for concreted section</li> <li>• There is a portion directly buried and another portion in a concrete trench</li> <li>• Phase spacing minimum in flat formation is as per Technical specification clause 2.15.</li> <li>• Bonding method: special bonding (cross bonding)</li> <li>• Ground temp 40 degrees Celsius</li> </ul>

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			<ul style="list-style-type: none"> <li>• Air temp when cable laid in air</li> <li>• Thermal resistivity of soil</li> <li>• Depth of cable laying</li> </ul>	<ul style="list-style-type: none"> <li>• Air temperature 36 degrees Celsius</li> <li>• Thermal resistivity should not be greater than 2.7Km/W.</li> <li>• Depth of cable laying 1.1 m</li> </ul>
121	Contract Agreement.		As per Technical data schedule/ GTP, the manufacturing process is Vertical continuous vulcanizing (VCV) method. Request to please advise if the manufacturing process of Catenary Continuous Vulcanization CCV method is also acceptable.	VCV, CCV and MDCV are all acceptable.
122	Vol.1 Section VIII - Particular Conditions] Clause 14.6.4 Minimum Amount of Interim Payment Certificates	8% of the Accepted Contract Amount.	We have noted that Minimum Interim Payment certificate shall be 8% of Accepted contract amount. We request to remove this condition as this will affect the Contractor's cashflow Contractor and hamper the site progress.	Accepted. There shall be no minimum interim payment certificate amount
123			After the clarification, Ketraco has confirmed that OPGW is not applicable for this project.  please offer the technical data sheet for the underground optical fiber cables.	Refer to query 27



**Procurement Of 132 kV Underground Cable Nanyuki – Rumuruti Transmission Line (AfDB Funded), Tender No.: KETRACO/PT/009/2021**

**Clarification List - 03**





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**Clarification List - 03**

**RISER STRUCTURE FENCING**

The proposed riser structure fencing shall measure -10m x 10m x 2.4m High. It shall be constructed of 12.5 Gauge x 2.4m high chain link fence with 3 rows of 12.5 Gauge barbed wire on 3m high cranked precast concrete posts spaced at 3m centre/centre. The precast concrete fencing posts shall be on some mass concrete surround not less than 600mm deep. The riser structure fencing shall have a steel gate. The design of the steel gate shall be to Engineer's approval.

The precast concrete fencing posts shall be designed to BS 8110, EN 13369 or BS 12839:2012- Elements for fences to Project Manager's approval.

**TECHNICAL DATASHEETS FOR ARMORED FIBER OPTIC CABLE**

Data about offered equipment to be filled in by the bidder.

Name of Manufacturer: \_\_\_\_\_

Model: \_\_\_\_\_

Type: \_\_\_\_\_

DESCRIPTION	UNIT	REQUIRED	OFFERED
<b>GENERAL</b>			
REFERENCE STANDARDS			
Color code of fiber optic cables	Yes	EIA/TIA 598	
Definition and test methods for the relevant parameters of single-mode fibers	Yes	ITU-TG.655	
Outdoor cables- family specification for duct and directly buried optical telecommunication cable	Yes	IEC 60794-3-10	
Definition and test methods for the relevant parameters of single-mode fibers	Yes	ITU-T G.650	
Optical fiber Part 1: Generic specifications	Yes	IEC 60793-1	
Optical fiber Part 2: Product specifications	Yes	IEC 60793-2	
Other Reference Standards	Yes	IEC9001, ISO14001	
GENERAL			
Double jacket outer diameter	No*mm		
Type tests	Yes	Yes	
Maximum pulling Tension	N		
Cable offered has been in operation for more than 5 years.	YES	YES. Provide Completion certificate	
<b>OPTICAL CHARACTERISTICS</b>			
Total number of Optical Fibers	Number	48 as per project spec	
Number of Fibers per buffer tube (max)	Number	12	
Fiber Type/Mode		G.655/Single Mode	
Operating wavelengths	nm	1550, 1625	
Maximum Transmission Rate	Gbps	40	



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Mode field Diameter at 1550nm	μm	(8-11)±0.6	
Cable cut off wavelength	nm	<1450	
Macro bending loss			
(100 turns; Φ50 mm) @1550 nm	dB	≤ 0.05	
(100 turns; Φ50 mm) @1625 nm	dB	≤ 0.10	
Attenuation Coefficient			
At 1550nm	dB/km	0.22	
At 1625nm	dB/km	0.24	
PMD Coefficient	ps/√km	<0.2	
DIMENSIONAL SPECIFICATIONS			
Core concentricity error	μm	<0.8	
Cladding Non-circularity	%	<1.0	
Cladding diameter	μm/μm	125 +/- 1	
MECHANICAL SPECIFICATIONS			
Proof stress	Gpa	≥0.69	
Transport and storage temperature range	deg C	-40 to + 75	
Max. tensile load Short term	N	2700N, long term: 800N	
Crush resistance	N/cm	2200 N/10cm	
Minimal installation bending radius		15 x OD	
Minimal operation bending radius		10 x OD	
PHYSICAL SPECIFICATIONS			
Cable OD	mm	12.5mm+/-5%	
Cable weight	kg/km	144kg/km+/-15%	
Operation temperature range	deg C	-30 to + 70	
Installation temperature range	deg C	-30 to + 60	
CABLE CONSTRUCTION LAYERS			
Outer sheath (PE)	Yes		
Corrugated steel tape	Yes		
Water blocking tape	Yes		
Loose tube, fiber and water blocking yarn	Yes		
Central strength member	Yes		
Water blocking yarn	Yes		
Strength member	Yes		
Rip cord	Yes		

