

### Vision

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Using ICT

### Mission

To champion and  
harness ICT to  
enable efficient  
and effective  
access in the  
delivery of public  
service for the  
public office and  
public service.

# Government of Kenya

## Request for Bids Goods

(One-Envelope Bidding Process)

### Procurement of:

Supply, Delivery and Installation of WiFi routers  
and related goods for 55 universities and TVETs in  
Kenya:

Lot 1: 13 No. Institutions;

Lot 2: 15 No Institutions;

Lot 3: 18 No. Institutions;

Lot 4: 9 No. Institutions;

**RFB No:** KE-ICTA-486639-GO-RFB

**Project:** Kenya Digital Economy Acceleration Project

**Purchaser:** The Information and Communications  
Technology Authority

**Country:** Kenya

**Issued on:** 17<sup>th</sup> June 2025



**The Information and Communications Technology Authority**  
**Kenya Digital Economy Acceleration Project (KDEAP)**  
**ICTA-Program Implementation Unit**  
**Specific Procurement Notice**  
**Request for Bids**  
**Goods**  
**(One-Envelope Bidding Process)**

**Country:** Kenya

**Name of Project:** Kenya Digital Economy Acceleration Project

**Contract Title:**

Supply, Delivery and Installation of WiFi routers and related goods for 55 universities and TVETs in Kenya in Four Lots:

Lot 1: 13 No. Institutions;

Lot 2: 15No Institutions;

Lot 3: 18 No. Institutions;

Lot 4: 9 No. Institutions;

**Credit No.:** 7289-KE and 7290-KE

**RFB Reference No.:** KE-ICTA-486639-GO-RFB

**Issued on:** 17<sup>th</sup> May 2025

1. The Government of Kenya has received financing from the World Bank toward the cost of the Kenya Digital Economy Acceleration Project and intends to apply part of the proceeds toward payments under the contract for Supply, Delivery and Installation of WiFi routers and related goods for 55 universities and TVETs in Kenya in Four Lots: Lot 1: 13 No. Institutions; Lot 2: 15No Institutions; Lot 3: 18 No. Institutions; Lot 4: 9 No. Institutions;.
2. The Information and Communications Technology Authority (ICTA) now invites sealed Bids from eligible Bidders for Supply, Delivery and Installation of WiFi routers and related goods for 55 universities and TVETs in Kenya as shown below:

Lot Number	Description	Quantity	Delivery Period from contract commencement date	Location
Lot 1	WiFi routers and related goods	13	4 calendar months	LOT 1- Coast and North Eastern Regions Locations As per Annex 1
LOT 2	WiFi routers and related goods	15	4 calendar months	LOT 2 - Nairobi & Central and Eastern Regions Locations As per Annex 1
LOT 3	WiFi routers and related goods	18	4 calendar months	LOT 3 - North Rift & South Rift Regions Locations As per Annex per Annex 1
LOT 4	WiFi routers and related goods	9	4 calendar months	LOT 4 – Nyanza and Western Regions Locations As per Annex 1

3. Bidders may Bid for one or more lots, as further defined in the request for bids document. Bidders must quote for all items and all quantities in a lot. The evaluation will be undertaken on a lot-by-lot basis.
4. Bidding will be conducted through international competitive procurement using a Request for Bids (RFB) as specified in the World Bank’s “Procurement Regulations for IPF Borrowers” First published 2016 and revised September,2023 (“Procurement Regulations”), and is open to all eligible Bidders as defined in the Procurement Regulations.
5. Interested eligible Bidders may obtain further information from ICTA, Deputy Director, Supply Chain Management through email [procurement@ict.go.ke](mailto:procurement@ict.go.ke) and inspect the bidding document during office hours 0900 to 1600 hours East African Time (EAT) at the address given below or on the ICTA’s website <https://www.icta.go.ke/tenders> or PPIP <https://tenders.go.ke/tenders>
6. The bidding document in English may be downloaded free of charge from the ICTA’s website <https://www.icta.go.ke/tenders> or Public Procurement Information Portal website

<https://www.tenders.go.ke> Bidders who download the bidding documents are invited to notify the procuring entity by email with full contact details if they intended to participate, as this will facilitate issuance of notifications by the procuring entity, to all bidders where necessary.

7. Bids must be delivered to the address below on or before **1000Hrs EAT on 31<sup>st</sup> July 2025** Electronic Bidding will not be permitted. Late Bids will be rejected. Bids will be publicly opened in the presence of the Bidders' designated representatives and anyone who chooses to attend at the address below on **1000Hrs EAT on 31<sup>st</sup> July 2025**
8. All Bids must be accompanied by a Bid Security of **Kes. 3 Million LOT 1** or equivalent in a freely convertible currency, **Kes. 3 Million LOT 2** or equivalent in a freely convertible currency, **Kes. 3 Million LOT 3** or equivalent in a freely convertible currency & **Kes. 3 Million LOT 4** or equivalent in a freely convertible currency
9. Attention is drawn to the Procurement Regulations requiring the Borrower to disclose information on the successful bidder's beneficial ownership, as part of the Contract Award Notice, using the Beneficial Ownership Disclosure Form as included in the bidding document.
10. The address(es) referred to above is (are):

**Stanley Kamanguya, OGW**  
**Chief Executive Officer**  
**The Information and Communications Technology Authority**  
**12<sup>th</sup> Floor, Telposta Towers, Kenyatta Avenue**  
**Nairobi, Kenya.**  
**(+254) 20 667 6999**  
[procurement@ict.go.ke](mailto:procurement@ict.go.ke) / [info@ict.go.ke](mailto:info@ict.go.ke) /  
[www.icta.go.ke](http://www.icta.go.ke)

# Standard Procurement Document

## Table of Contents

<b>PART 1 – Bidding Procedures.....</b>	<b>7</b>
Section I - Instructions to Bidders .....	9
Section II - Bid Data Sheet (BDS).....	39
Section III - Evaluation and Qualification Criteria.....	45
Section IV - Bidding Forms .....	229
Section V - Eligible Countries .....	245
Section VI - Fraud and Corruption .....	247
<b>PART 2 – Supply Requirements.....</b>	<b>251</b>
Section VII - Schedule of Requirements .....	253
<b>PART 3 - Contract .....</b>	<b>291</b>
Section VIII - General Conditions of Contract .....	292
Section IX - Special Conditions of Contract.....	317
Section X - Contract Forms .....	325



## **PART 1 – Bidding Procedures**





# Section I - Instructions to Bidders

## Contents

<b>A. General.....</b>	<b>11</b>
1. Scope of Bid.....	11
2. Source of Funds .....	11
3. Fraud and Corruption.....	12
4. Eligible Bidders .....	12
5. Eligible Goods and Related Services.....	15
<b>B. Contents of Request for Bids Document .....</b>	<b>15</b>
6. Sections of Bidding Document .....	15
7. Clarification of Bidding Document .....	16
8. Amendment of Bidding Document.....	16
<b>C. Preparation of Bids .....</b>	<b>17</b>
9. Cost of Bidding.....	17
10. Language of Bid.....	17
11. Documents Comprising the Bid.....	17
12. Letter of Bid and Price Schedules.....	18
13. Alternative Bids .....	18
14. Bid Prices and Discounts .....	18
15. Currencies of Bid and Payment .....	20
16. Documents Establishing the Eligibility and Conformity of the Goods and Related Services .....	21
17. Documents Establishing the Eligibility and Qualifications of the Bidder.....	21
18. Period of Validity of Bids .....	22
19. Bid Security .....	23
20. Format and Signing of Bid.....	24
<b>D. Submission and Opening of Bids .....</b>	<b>25</b>
21. Sealing and Marking of Bids .....	25
22. Deadline for Submission of Bids .....	26
23. Late Bids .....	26
24. Withdrawal, Substitution, and Modification of Bids .....	26
25. Bid Opening .....	27
<b>E. Evaluation and Comparison of Bids.....</b>	<b>28</b>
26. Confidentiality .....	28
27. Clarification of Bids.....	29
<b>28. Deviations, Reservations, and Omissions.....</b>	<b>29</b>
29. Determination of Responsiveness.....	29

30.	Nonconformities, Errors and Omissions .....	30
31.	Correction of Arithmetical Errors .....	30
32.	Conversion to Single Currency .....	31
33.	Margin of Preference .....	31
34.	Evaluation of Bids.....	31
35.	Comparison of Bids .....	33
36.	Abnormally Low Bids.....	33
37.	Qualification of the Bidder .....	33
38.	Purchaser’s Right to Accept Any Bid, and to Reject Any or All Bids .....	34
39.	Standstill Period .....	34
40.	Notification of Intention to Award .....	34

**F. Award of Contract..... 35**

41.	Award Criteria .....	35
42.	Purchaser’s Right to Vary Quantities at Time of Award .....	35
43.	Notification of Award .....	35
44.	Debriefing by the Purchaser.....	36
45.	Signing of Contract .....	37
46.	Performance Security .....	37
47.	Procurement Related Complaint .....	38

## Section I. Instructions to Bidders

### A. General

#### 1. Scope of Bid

- 1.1 In connection with the Specific Procurement Notice, Request for Bids (RFB), specified **in the Bid Data Sheet (BDS)**, the Purchaser, as specified **in the BDS**, issues this bidding document for the supply of Goods and, if applicable, any Related Services incidental thereto, as specified in Section VII, Schedule of Requirements. The name, identification and number of lots (contracts) of this RFB are **specified in the BDS**.
- 1.2 Throughout this bidding document:
- (a) the term “in writing” means communicated in written form (e.g., by mail, e-mail, fax, including if **specified in the BDS**, distributed or received through the electronic-procurement system used by the Purchaser) with proof of receipt;
  - (b) if the context so requires, “singular” means “plural” and vice versa; and
  - (c) “Day” means calendar day, unless otherwise specified as “Business Day”. A Business Day is any day that is an official working day of the Borrower. It excludes the Borrower’s official public holidays.

#### 2. Source of Funds

- 2.1 The Borrower or Recipient (hereinafter called “Borrower”) **specified in the BDS** has applied for or received financing (hereinafter called “funds”) from the International Bank for Reconstruction and Development or the International Development Association (hereinafter called “the Bank”) in an amount **specified in the BDS**, toward the project named **in the BDS**. The Borrower intends to apply a portion of the funds to eligible payments under the contract for which this bidding document is issued.
- 2.2 Payment by the Bank will be made only at the request of the Borrower and upon approval by the Bank in accordance with the terms and conditions of the Loan (or other financing) Agreement. The Loan (or other financing) Agreement prohibits a withdrawal from the Loan account for the purpose of any payment to persons or entities, or for any import of goods, if such payment or import is prohibited by

decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations. No party other than the Borrower shall derive any rights from the Loan (or other financing) Agreement or have any claim to the proceeds of the Loan (or other financing).

### **3. Fraud and Corruption**

- 3.1 The Bank requires compliance with the Bank's Anti-Corruption Guidelines and its prevailing sanctions policies and procedures as set forth in the WBG's Sanctions Framework, as set forth in Section VI, Fraud and Corruption.
- 3.2 In further pursuance of this policy, Bidders shall permit and shall cause their agents (where declared or not), subcontractors, subconsultants, service providers, suppliers, and personnel, to permit the Bank to inspect all accounts, records and other documents relating to any initial selection process, prequalification process, bid submission, proposal submission, and contract performance (in the case of award), and to have them audited by auditors appointed by the Bank.

### **4. Eligible Bidders**

- 4.1 A Bidder may be a firm that is a private entity, a state-owned enterprise or institution subject to ITB 4.6, or any combination of such entities in the form of a joint venture (JV) under an existing agreement or with the intent to enter into such an agreement supported by a letter of intent. In the case of a joint venture, all members shall be jointly and severally liable for the execution of the entire Contract in accordance with the Contract terms. The JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the members of the JV during the Bidding process and, in the event the JV is awarded the Contract, during contract execution. Unless specified **in the BDS**, there is no limit on the number of members in a JV.
- 4.2 A Bidder shall not have a conflict of interest. Any Bidder found to have a conflict of interest shall be disqualified. A Bidder may be considered to have a conflict of interest for the purpose of this Bidding process, if the Bidder:
- (a) directly or indirectly controls, is controlled by or is under common control with another Bidder; or
  - (b) receives or has received any direct or indirect subsidy from another Bidder; or
  - (c) has the same legal representative as another Bidder; or

- (d) has a relationship with another Bidder, directly or through common third parties, that puts it in a position to influence the Bid of another Bidder, or influence the decisions of the Purchaser regarding this Bidding process; or
  - (e) or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the works that are the subject of the Bid; or
  - (f) or any of its affiliates has been hired (or is proposed to be hired) by the Purchaser or Borrower for the Contract implementation; or
  - (g) would be providing goods, works, or non-consulting services resulting from or directly related to consulting services for the preparation or implementation of the project specified in the BDS ITB 2.1 that it provided or were provided by any affiliate that directly or indirectly controls, is controlled by, or is under common control with that firm; or
  - (h) has a close business or family relationship with a professional staff of the Borrower (or of the project implementing agency, or of a recipient of a part of the loan) who: (i) are directly or indirectly involved in the preparation of the bidding document or specifications of the Contract, and/or the Bid evaluation process of such Contract; or (ii) would be involved in the implementation or supervision of such Contract unless the conflict stemming from such relationship has been resolved in a manner acceptable to the Bank throughout the Bidding process and execution of the Contract.
- 4.3 A firm that is a Bidder (either individually or as a JV member) shall not participate in more than one Bid, except for permitted alternative Bids. This includes participation as a subcontractor. Such participation shall result in the disqualification of all Bids in which the firm is involved. A firm that is not a Bidder or a JV member, may participate as a subcontractor in more than one Bid.
- 4.4 A Bidder may have the nationality of any country, subject to the restrictions pursuant to ITB 4.8. A Bidder shall be deemed to have the nationality of a country if the Bidder is constituted, incorporated or registered in and operates in conformity with the provisions of the laws of that country, as evidenced by its articles of incorporation (or equivalent documents of constitution or association) and its registration documents, as the case may be. This criterion also shall

apply to the determination of the nationality of proposed subcontractors or subconsultants for any part of the Contract including related Services.

- 4.5 A Bidder that has been sanctioned by the Bank, pursuant to the Bank's Anti-Corruption Guidelines, in accordance with its prevailing sanctions policies and procedures as set forth in the WBG's Sanctions Framework as described in Section VI paragraph 2.2 d., shall be ineligible to be prequalified for, initially selected for, bid for, propose for, or be awarded a Bank-financed contract or benefit from a Bank-financed contract, financially or otherwise, during such period of time as the Bank shall have determined. The list of debarred firms and individuals is available at the electronic address specified in the BDS.
- 4.6 Bidders that are state-owned enterprises or institutions in the Purchaser's Country may be eligible to compete and be awarded a Contract(s) only if they can establish, in a manner acceptable to the Bank, that they (i) are legally and financially autonomous (ii) operate under commercial law, and (iii) are not under supervision of the Purchaser.
- 4.7 A Bidder shall not be under suspension from Bidding by the Purchaser as the result of the operation of a Bid-Securing Declaration or Proposal-Securing Declaration.
- 4.8 Firms and individuals may be ineligible if so indicated in Section V, Eligible Countries, and (a) as a matter of law or official regulations, the Borrower's country prohibits commercial relations with that country, provided that the Bank is satisfied that such exclusion does not preclude effective competition for the supply of goods or the contracting of works or services required; or (b) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Borrower's country prohibits any import of goods or contracting of works or services from that country, or any payments to any country, person, or entity in that country.
- 4.9 A Bidder shall provide such documentary evidence of eligibility satisfactory to the Purchaser, as the Purchaser shall reasonably request.
- 4.10 A firm that is under a sanction of debarment by the Borrower from being awarded a contract is eligible to participate in this procurement, unless the Bank, at the Borrower's request, is satisfied that the debarment;

- (a) relates to fraud or corruption; and
- (b) followed a judicial or administrative proceeding that afforded the firm adequate due process.

**5. Eligible Goods and Related Services**

- 5.1 All the Goods and Related Services to be supplied under the Contract and financed by the Bank may have their origin in any country in accordance with Section V, Eligible Countries.
- 5.2 For purposes of this ITB, the term “goods” includes commodities, raw material, machinery, equipment, and industrial plants; and “related services” includes services such as insurance, installation, training, and initial maintenance.
- 5.3 The term “origin” means the country where the goods have been mined, grown, cultivated, produced, manufactured or processed; or, through manufacture, processing, or assembly, another commercially recognized article results that differs substantially in its basic characteristics from its components.

**B. Contents of Request for Bids Document**

**6. Sections of Bidding Document**

- 6.1 The bidding document consist of Parts 1, 2, and 3, which include all the sections indicated below, and should be read in conjunction with any Addenda issued in accordance with ITB 8.

**PART 1 Bidding Procedures**

- Section I - Instructions to Bidders (ITB)
- Section II - Bidding Data Sheet (BDS)
- Section III - Evaluation and Qualification Criteria
- Section IV - Bidding Forms
- Section V - Eligible Countries
- Section VI - Fraud and Corruption

**PART 2 Supply Requirements**

- Section VII - Schedule of Requirements

**PART 3 Contract**

- Section VIII - General Conditions of Contract (GCC)

- Section IX - Special Conditions of Contract (SCC)
- Section X - Contract Forms

- 6.2 The Specific Procurement Notice, Request for Bids (RFB), issued by the Purchaser is not part of this bidding document.
- 6.3 Unless obtained directly from the Purchaser, the Purchaser is not responsible for the completeness of the document, responses to requests for clarification, the Minutes of the pre-Bid meeting (if any), or Addenda to the bidding document in accordance with ITB 8. In case of any contradiction, documents obtained directly from the Purchaser shall prevail.
- 6.4 The Bidder is expected to examine all instructions, forms, terms, and specifications in the bidding document and to furnish with its Bid all information or documentation as is required by the bidding document.

## 7. Clarification of Bidding Document

- 7.1 A Bidder requiring any clarification of the bidding document shall contact the Purchaser in writing at the Purchaser's address specified **in the BDS**. The Purchaser will respond in writing to any request for clarification, provided that such request is received prior to the deadline for submission of Bids within a period specified **in the BDS**. The Purchaser shall forward copies of its response to all Bidders who have acquired the bidding document in accordance with ITB 6.3, including a description of the inquiry but without identifying its source. If so specified **in the BDS**, the Purchaser shall also promptly publish its response at the web page identified **in the BDS**. Should the clarification result in changes to the essential elements of the bidding document, the Purchaser shall amend the bidding document following the procedure under ITB 8 and ITB 22.2.

## 8. Amendment of Bidding Document

- 8.1 At any time prior to the deadline for submission of Bids, the Purchaser may amend the bidding document by issuing addenda.
- 8.2 Any addendum issued shall be part of the bidding document and shall be communicated in writing to all who have obtained the bidding document from the Purchaser in accordance with ITB 6.3. The Purchaser shall also promptly publish the addendum on the Purchaser's web page in accordance with ITB 7.1.



- 8.3 To give prospective Bidders reasonable time in which to take an addendum into account in preparing their Bids, the Purchaser may, at its discretion, extend the deadline for the submission of Bids, pursuant to ITB 22.2.

### C. Preparation of Bids

#### 9. Cost of Bidding

- 9.1 The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the Purchaser shall not be responsible or liable for those costs, regardless of the conduct or outcome of the Bidding process.

#### 10. Language of Bid

- 10.1 The Bid, as well as all correspondence and documents relating to the Bid exchanged by the Bidder and the Purchaser, shall be written in the language specified **in the BDS**. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages into the language specified **in the BDS**, in which case, for purposes of interpretation of the Bid, such translation shall govern.

#### 11. Documents Comprising the Bid

- 11.1 The Bid shall comprise the following:
- (a) **Letter of Bid** prepared in accordance with ITB 12;
  - (b) **Price Schedules**: completed in accordance with ITB 12 and ITB 14;
  - (c) **Bid Security** or **Bid-Securing Declaration**, in accordance with ITB 19.1;
  - (d) **Alternative Bid**: if permissible, in accordance with ITB 13;
  - (e) **Authorization**: written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 20.3;
  - (f) **Qualifications**: documentary evidence in accordance with ITB 17 establishing the Bidder's qualifications to perform the Contract if its Bid is accepted;
  - (g) **Bidder's Eligibility**: documentary evidence in accordance with ITB 17 establishing the Bidder's eligibility to bid;
  - (h) **Eligibility of Goods and Related Services**: documentary evidence in accordance with ITB 16, establishing the eligibility of the Goods and Related Services to be supplied by the Bidder;

(i) **Conformity:** documentary evidence in accordance with ITB 16 and 30, that the Goods and Related Services conform to the bidding document; and

(j) any other document required **in the BDS**.

11.2 In addition to the requirements under ITB 11.1, Bids submitted by a JV shall include a copy of the Joint Venture Agreement entered into by all members. Alternatively, a letter of intent to execute a Joint Venture Agreement in the event of a successful Bid shall be signed by all members and submitted with the Bid, together with a copy of the proposed Agreement.

11.3 The Bidder shall furnish in the Letter of Bid information on commissions and gratuities, if any, paid or to be paid to agents or any other party relating to this Bid.

## **12. Letter of Bid and Price Schedules**

12.1 The Letter of Bid and Price Schedules shall be prepared using the relevant forms furnished in Section IV, Bidding Forms. The forms must be completed without any alterations to the text, and no substitutes shall be accepted except as provided under ITB 20.3. All blank spaces shall be filled in with the information requested.

## **13. Alternative Bids**

13.1 Unless otherwise specified **in the BDS**, alternative Bids shall not be considered.

## **14. Bid Prices and Discounts**

14.1 The prices and discounts quoted by the Bidder in the Letter of Bid and in the Price Schedules shall conform to the requirements specified below.

14.2 All lots (contracts) and items must be listed and priced separately in the Price Schedules.

14.3 The price to be quoted in the Letter of Bid in accordance with ITB 12.1 shall be the total price of the Bid, excluding any discounts offered.

14.4 The Bidder shall quote any discounts and indicate the methodology for their application in the Letter of Bid, in accordance with ITB 12.1.

14.5 Prices quoted by the Bidder shall be fixed during the Bidder's performance of the Contract and not subject to variation on any account, unless otherwise specified **in the BDS**. A Bid submitted with an adjustable price quotation shall be treated as nonresponsive and shall be rejected, pursuant to ITB 29. However, if in accordance with **the BDS**, prices quoted by the Bidder shall be subject to adjustment during the performance of the Contract, a Bid

submitted with a fixed price quotation shall not be rejected, but the price adjustment shall be treated as zero.

- 14.6 If so specified in ITB 1.1, Bids are being invited for individual lots (contracts) or for any combination of lots (packages). Unless otherwise specified **in the BDS**, prices quoted shall correspond to 100 % of the items specified for each lot and to 100% of the quantities specified for each item of a lot. Bidders wishing to offer discounts for the award of more than one Contract shall specify in their Bid the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Discounts shall be submitted in accordance with ITB 14.4 provided the Bids for all lots (contracts) are opened at the same time.
- 14.7 The terms EXW, CIP, and other similar terms shall be governed by the rules prescribed in the current edition of Incoterms, published by the International Chamber of Commerce, as specified **in the BDS**.
- 14.8 Prices shall be quoted as specified in each Price Schedule included in Section IV, Bidding Forms. The disaggregation of price components is required solely for the purpose of facilitating the comparison of Bids by the Purchaser. This shall not in any way limit the Purchaser's right to contract on any of the terms offered. In quoting prices, the Bidder shall be free to use transportation through carriers registered in any eligible country, in accordance with Section V, Eligible Countries. Similarly, the Bidder may obtain insurance services from any eligible country in accordance with Section V, Eligible Countries. Prices shall be entered in the following manner:
- (a) For Goods manufactured in the Purchaser's Country:
- (i) the price of the Goods quoted EXW (ex-works, ex-factory, ex warehouse, ex showroom, or off-the-shelf, as applicable), including all customs duties and sales and other taxes already paid or payable on the components and raw material used in the manufacture or assembly of the Goods;
  - (ii) any Purchaser's Country sales tax and other taxes which will be payable on the Goods if the Contract is awarded to the Bidder; and
  - (iii) the price for inland transportation, insurance, and other local services required to convey the Goods to their final destination (Project Site) specified **in the BDS**.

- (b) For Goods manufactured outside the Purchaser's Country, to be imported:
  - (i) the price of the Goods, quoted CIP named place of destination, in the Purchaser's Country, as specified **in the BDS**;
  - (ii) the price for inland transportation, insurance, and other local services required to convey the Goods from the named place of destination to their final destination (Project Site) specified **in the BDS**;
- (c) For Goods manufactured outside the Purchaser's Country, already imported:
  - (i) the price of the Goods, including the original import value of the Goods; plus, any mark-up (or rebate); plus any other related local cost, and custom duties and other import taxes already paid or to be paid on the Goods already imported;
  - (ii) the custom duties and other import taxes already paid (need to be supported with documentary evidence) or to be paid on the Goods already imported;
  - (iii) the price of the Goods, obtained as the difference between (i) and (ii) above;
  - (iv) any Purchaser's Country sales and other taxes which will be payable on the Goods if the Contract is awarded to the Bidder; and
  - (v) the price for inland transportation, insurance, and other local services required to convey the Goods to their final destination (Project Site) specified **in the BDS**.
- (d) for Related Services, other than inland transportation and other services required to convey the Goods to their final destination, whenever such Related Services are specified in the Schedule of Requirements, the price of each item comprising the Related Services (inclusive of any applicable taxes).

## 15. Currencies of Bid and Payment

- 15.1 The currency(ies) of the Bid and the currency(ies) of payments shall be the same. The Bidder shall quote in the currency of the Purchaser's Country the portion of the Bid price that corresponds to expenditures incurred in the currency of the Purchaser's Country, unless otherwise specified **in the BDS**.

- 15.2 The Bidder may express the Bid price in any currency. If the Bidder wishes to be paid in a combination of amounts in different currencies, it may quote its price accordingly but shall use no more than three foreign currencies in addition to the currency of the Purchaser's Country.

**16. Documents  
Establishing the  
Eligibility and  
Conformity of the  
Goods and Related  
Services**

- 16.1 To establish the eligibility of the Goods and Related Services in accordance with ITB 5, Bidders shall complete the country of origin declarations in the Price Schedule Forms, included in Section IV, Bidding Forms.
- 16.2 To establish the conformity of the Goods and Related Services to the bidding document, the Bidder shall furnish as part of its Bid the documentary evidence that the Goods conform to the technical specifications and standards specified in Section VII, Schedule of Requirements.
- 16.3 The documentary evidence may be in the form of literature, drawings or data, and shall consist of a detailed item by item description of the essential technical and performance characteristics of the Goods and Related Services, demonstrating substantial responsiveness of the Goods and Related Services to the technical specification, and if applicable, a statement of deviations and exceptions to the provisions of the Section VII, Schedule of Requirements.
- 16.4 The Bidder shall also furnish a list giving full particulars, including available sources and current prices of spare parts, special tools, etc., necessary for the proper and continuing functioning of the Goods during the period **specified in the BDS** following commencement of the use of the goods by the Purchaser.
- 16.5 Standards for workmanship, process, material, and equipment, as well as references to brand names or catalogue numbers specified by the Purchaser in the Schedule of Requirements, are intended to be descriptive only and not restrictive. The Bidder may offer other standards of quality, brand names, and/or catalogue numbers, provided that it demonstrates, to the Purchaser's satisfaction, that the substitutions ensure substantial equivalence or are superior to those specified in the Section VII, Schedule of Requirements.

**17. Documents  
Establishing the  
Eligibility and  
Qualifications of the  
Bidder**

- 17.1 To establish Bidder's eligibility in accordance with ITB 4, Bidders shall complete the Letter of Bid, included in Section IV, Bidding Forms.

17.2 The documentary evidence of the Bidder's qualifications to perform the Contract if its Bid is accepted shall establish to the Purchaser's satisfaction:

- (a) that, if required **in the BDS**, a Bidder that does not manufacture or produce the Goods it offers to supply shall submit the Manufacturer's Authorization using the form included in Section IV, Bidding Forms to demonstrate that it has been duly authorized by the manufacturer or producer of the Goods to supply these Goods in the Purchaser's Country;
- (b) that, if required **in the BDS**, in case of a Bidder not doing business within the Purchaser's Country, the Bidder is or will be (if awarded the Contract) represented by an Agent in the country equipped and able to carry out the Supplier's maintenance, repair and spare parts-stocking obligations prescribed in the Conditions of Contract and/or Technical Specifications; and
- (c) that the Bidder meets each of the qualification criterion specified in Section III, Evaluation and Qualification Criteria.

**18. Period of Validity of Bids**

18.1 Bids shall remain valid until the date **specified in the BDS** or any extended date if amended by the Purchaser in accordance with ITB 8. A Bid that is not valid until the date **specified in the BDS**, or any extended date if amended by the Purchaser in accordance with ITB 8, shall be rejected by the Purchaser as nonresponsive.

18.2 In exceptional circumstances, prior to the expiry of the Bid validity, the Purchaser may request Bidders to extend the period of validity of their Bids. The request and the responses shall be made in writing. If a Bid Security is requested in accordance with ITB 19, it shall also be extended for a corresponding period. A Bidder may refuse the request without forfeiting its Bid Security. A Bidder granting the request shall not be required or permitted to modify its Bid, except as provided in ITB 18.3.

18.3 If the award is delayed by a period exceeding fifty-six (56) days beyond the expiry of the initial Bid validity period, the Contract price shall be determined as follows:

- (a) in the case of fixed price contracts, the Contract price shall be the Bid price adjusted by the factor specified **in the BDS**;

- (b) in the case of adjustable price contracts, no adjustment shall be made;
- (c) in any case, Bid evaluation shall be based on the Bid price without taking into consideration the applicable correction from those indicated above.

## 19. Bid Security

- 19.1 The Bidder shall furnish as part of its Bid, either a Bid-Securing Declaration or a Bid Security, as specified **in the BDS**, in original form and, in the case of a Bid Security, in the amount and currency specified **in the BDS**.
- 19.2 A Bid Securing Declaration shall use the form included in Section IV, Bidding Forms.
- 19.3 If a Bid Security is specified pursuant to ITB 19.1, the Bid Security shall be a demand guarantee in any of the following forms at the Bidder's option:
  - (a) an unconditional guarantee issued by a bank or non-bank financial institution (such as an insurance, bonding or surety company);
  - (b) an irrevocable letter of credit;
  - (c) a cashier's or certified check; or
  - (d) another security specified **in the BDS**,from a reputable source, and an eligible country. If an unconditional guarantee is issued by a non-bank financial institution located outside the Purchaser's Country, the issuing non-bank financial institution shall have a correspondent financial institution located in the Purchaser's Country to make it enforceable unless the Purchaser has agreed in writing, prior to Bid submission, that a correspondent financial institution is not required. In the case of a bank guarantee, the Bid Security shall be submitted either using the Bid Security Form included in Section IV, Bidding Forms, or in another substantially similar format approved by the Purchaser prior to Bid submission. The Bid Security shall be valid for twenty-eight (28) days beyond the original date of expiry of the Bid validity, or beyond any extended date if requested under ITB 18.2.
- 19.4 If a Bid Security is specified pursuant to ITB 19.1, any Bid not accompanied by a substantially responsive Bid Security shall be rejected by the Purchaser as non-responsive.
- 19.5 If a Bid Security is specified pursuant to ITB 19.1, the Bid Security of unsuccessful Bidders shall be returned as promptly as possible upon the successful Bidder's signing

the Contract and furnishing the Performance Security pursuant to ITB 46.

19.6 The Bid Security of the successful Bidder shall be returned as promptly as possible once the successful Bidder has signed the Contract and furnished the required Performance Security.

19.7 The Bid Security may be forfeited:

- (a) if a Bidder withdraws its Bid prior to the expiry date of Bid validity specified by the Bidder on the Letter of Bid or any extended date provided by the Bidder; or
- (b) if the successful Bidder fails to:
  - (i) sign the Contract in accordance with ITB 45; or
  - (ii) furnish a Performance Security in accordance with ITB 46.

19.8 The Bid Security or Bid- Securing Declaration of a JV must be in the name of the JV that submits the Bid. If the JV has not been legally constituted into a legally enforceable JV at the time of Bidding, the Bid Security or Bid-Securing Declaration shall be in the names of all future members as named in the letter of intent referred to in ITB 4.1 and ITB 11.2.

19.9 If a Bid Security is not required **in the BDS**, pursuant to ITB 19.1, and

- (a) if a Bidder withdraws its Bid during the period of Bid validity specified by the Bidder on the Letter of Bid, or any extended date provided by the Bidder; or
- (b) if the successful Bidder fails to: sign the Contract in accordance with ITB 45; or furnish a performance security in accordance with ITB 46;

the Borrower may, if provided for **in the BDS**, declare the Bidder ineligible to be awarded a contract by the Purchaser for a period of time as stated **in the BDS**.

## 20. Format and Signing of Bid

20.1 The Bidder shall prepare one original of the documents comprising the Bid as described in ITB 11 and clearly mark it "ORIGINAL." Alternative Bids, if permitted in accordance with ITB 13, shall be clearly marked "ALTERNATIVE." In addition, the Bidder shall submit copies of the Bid, in the number **specified in the BDS** and clearly mark them "COPY." In the event of any discrepancy between the original and the copies, the original shall prevail.



- 20.2 Bidders shall mark as “CONFIDENTIAL” information in their Bids which is confidential to their business. This may include proprietary information, trade secrets, or commercial or financially sensitive information.
- 20.3 The original and all copies of the Bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder. This authorization shall consist of a written confirmation as specified **in the BDS** and shall be attached to the Bid. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the Bid where entries or amendments have been made shall be signed or initialed by the person signing the Bid.
- 20.4 In case the Bidder is a JV, the Bid shall be signed by an authorized representative of the JV on behalf of the JV, and so as to be legally binding on all the members as evidenced by a power of attorney signed by their legally authorized representatives.
- 20.5 Any inter-lineation, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the Bid.

#### **D. Submission and Opening of Bids**

##### **21. Sealing and Marking of Bids**

- 21.1 The Bidder shall deliver the Bid in a single, sealed envelope (one-envelope Bidding process). Within the single envelope the Bidder shall place the following separate, sealed envelopes:
- (a) in an envelope marked “ORIGINAL”, all documents comprising the Bid, as described in ITB 11; and
  - (b) in an envelope marked “COPIES”, all required copies of the Bid; and,
  - (c) if alternative Bids are permitted in accordance with ITB 13, and if relevant:
    - i. in an envelope marked “ORIGINAL -ALTERNATIVE”, the alternative Bid; and
    - ii. in the envelope marked “COPIES – ALTERNATIVE BID” all required copies of the alternative Bid.
- 21.2 The inner and outer envelopes, shall:
- (a) bear the name and address of the Bidder;

- (b) be addressed to the Purchaser in accordance with ITB 22.1;
- (c) bear the specific identification of this Bidding process indicated in ITB 1.1; and
- (d) bear a warning not to open before the time and date for Bid opening.

21.3 If all envelopes are not sealed and marked as required, the Purchaser will assume no responsibility for the misplacement or premature opening of the Bid.

## **22. Deadline for Submission of Bids**

22.1 Bids must be received by the Purchaser at the address and no later than the date and time specified **in the BDS**. When so specified **in the BDS**, Bidders shall have the option of submitting their Bids electronically. Bidders submitting Bids electronically shall follow the electronic Bid submission procedures specified **in the BDS**.

22.2 The Purchaser may, at its discretion, extend the deadline for the submission of Bids by amending the bidding document in accordance with ITB 8, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.

## **23. Late Bids**

23.1 The Purchaser shall not consider any Bid that arrives after the deadline for submission of Bids, in accordance with ITB 22. Any Bid received by the Purchaser after the deadline for submission of Bids shall be declared late, rejected, and returned unopened to the Bidder.

## **24. Withdrawal, Substitution, and Modification of Bids**

24.1 A Bidder may withdraw, substitute, or modify its Bid after it has been submitted by sending a written notice, duly signed by an authorized representative, and shall include a copy of the authorization (the power of attorney) in accordance with ITB 20.3, (except that withdrawal notices do not require copies). The corresponding substitution or modification of the Bid must accompany the respective written notice. All notices must be:

- (a) prepared and submitted in accordance with ITB 20 and 21 (except that withdrawal notices do not require copies), and in addition, the respective envelopes shall be clearly marked “WITHDRAWAL,” “SUBSTITUTION,” or “MODIFICATION;” and

- (b) received by the Purchaser prior to the deadline prescribed for submission of Bids, in accordance with ITB 22.

- 24.2 Bids requested to be withdrawn in accordance with ITB 24.1 shall be returned unopened to the Bidders.
- 24.3 No Bid may be withdrawn, substituted, or modified in the interval between the deadline for submission of Bids and the expiration of the period of Bid validity specified by the Bidder on the Letter of Bid or any extension thereof.

## 25. Bid Opening

- 25.1 Except as in the cases specified in ITB 23 and ITB 24.2, the Purchaser shall, at the Bid opening, publicly open and read out all Bids received by the deadline at the date, time and place specified **in the BDS** in the presence of Bidders' designated representatives and anyone who chooses to attend Any specific electronic Bid opening procedures required if electronic bidding is permitted in accordance with ITB 22.1, shall be as specified **in the BDS**.
- 25.2 First, envelopes marked "WITHDRAWAL" shall be opened and read out and the envelope with the corresponding Bid shall not be opened, but returned to the Bidder. If the withdrawal envelope does not contain a copy of the "power of attorney" confirming the signature as a person duly authorized to sign on behalf of the Bidder, the corresponding Bid will be opened. No Bid withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at Bid opening.
- 25.3 Next, envelopes marked "SUBSTITUTION" shall be opened and read out and exchanged with the corresponding Bid being substituted, and the substituted Bid shall not be opened, but returned to the Bidder. No Bid substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at Bid opening.
- 25.4 Next, envelopes marked "MODIFICATION" shall be opened and read out with the corresponding Bid. No Bid modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at Bid opening.
- 25.5 Next, all remaining envelopes shall be opened one at a time, reading out: the name of the Bidder and whether there is a modification; the total Bid Prices, per lot (contract) if applicable, including any discounts and alternative Bids; the

presence or absence of a Bid Security, if required; and any other details as the Purchaser may consider appropriate.

- 25.6 Only Bids, alternative Bids and discounts that are opened and read out at Bid opening shall be considered further in the evaluation. The Letter of Bid and the Price Schedules are to be initialed by representatives of the Purchaser attending Bid opening in the manner specified **in the BDS**.
- 25.7 The Purchaser shall neither discuss the merits of any Bid nor reject any Bid (except for late Bids, in accordance with ITB 23.1).
- 25.8 The Purchaser shall prepare a record of the Bid opening that shall include, as a minimum:
- (a) the name of the Bidder and whether there is a withdrawal, substitution, or modification;
  - (b) the Bid Price, per lot (contract) if applicable, including any discounts;
  - (c) any alternative Bids;
  - (d) the presence or absence of a Bid Security or Bid-Securing Declaration if one was required.
- 25.9 The Bidders' representatives who are present shall be requested to sign the record. The omission of a Bidder's signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be distributed to all Bidders.

## **E. Evaluation and Comparison of Bids**

### **26. Confidentiality**

- 26.1 Information relating to the evaluation of Bids and recommendation of contract award, shall not be disclosed to Bidders or any other persons not officially concerned with the Bidding process until the information on Intention to Award the Contract is transmitted to all Bidders in accordance with ITB 40.
- 26.2 Any effort by a Bidder to influence the Purchaser in the evaluation or contract award decisions may result in the rejection of its Bid.
- 26.3 Notwithstanding ITB 26.2, from the time of Bid opening to the time of Contract Award, if any Bidder wishes to contact the Purchaser on any matter related to the Bidding process, it should do so in writing.

- 27. Clarification of Bids**
- 27.1 To assist in the examination, evaluation, comparison of the Bids, and qualification of the Bidders, the Purchaser may, at its discretion, ask any Bidder for a clarification of its Bid. Any clarification submitted by a Bidder in respect to its Bid and that is not in response to a request by the Purchaser shall not be considered. The Purchaser's request for clarification and the response shall be in writing. No change, including any voluntary increase or decrease, in the prices or substance of the Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Purchaser in the Evaluation of the Bids, in accordance with ITB 31.
- 27.2 If a Bidder does not provide clarifications of its Bid by the date and time set in the Purchaser's request for clarification, its Bid may be rejected.
- 28. Deviations, Reservations, and Omissions**
- 28.1 During the evaluation of Bids, the following definitions apply:
- (a) "Deviation" is a departure from the requirements specified in the bidding document;
  - (b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the bidding document; and
  - (c) "Omission" is the failure to submit part or all of the information or documentation required in the bidding document.
- 29. Determination of Responsiveness**
- 29.1 The Purchaser's determination of a Bid's responsiveness is to be based on the contents of the Bid itself, as defined in ITB 11.
- 29.2 A substantially responsive Bid is one that meets the requirements of the bidding document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that:
- (a) if accepted, would:
    - (i) affect in any substantial way the scope, quality, or performance of the Goods and Related Services specified in the Contract; or
    - (ii) limit in any substantial way, inconsistent with the bidding document, the Purchaser's rights or the Bidder's obligations under the Contract; or

- (b) if rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive Bids.

29.3 The Purchaser shall examine the technical aspects of the Bid submitted in accordance with ITB 16 and ITB 17, in particular, to confirm that all requirements of Section VII, Schedule of Requirements have been met without any material deviation or reservation, or omission.

29.4 If a Bid is not substantially responsive to the requirements of bidding document, it shall be rejected by the Purchaser and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.

**30. Nonconformities,  
Errors and  
Omissions**

30.1 Provided that a Bid is substantially responsive, the Purchaser may waive any nonconformities in the Bid.

30.2 Provided that a Bid is substantially responsive, the Purchaser may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities or omissions in the Bid related to documentation requirements. Such omission shall not be related to any aspect of the price of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.

30.3 Provided that a Bid is substantially responsive, the Purchaser shall rectify quantifiable nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component, by adding the average price of the item or component quoted by substantially responsive Bidders. If the price of the item or component cannot be derived from the price of other substantially responsive Bids, the Purchaser shall use its best estimate.

**31. Correction of  
Arithmetical Errors**

31.1 Provided that the Bid is substantially responsive, the Purchaser shall correct arithmetical errors on the following basis:

- (a) if there is a discrepancy between the unit price and the line item total that is obtained by multiplying the unit price by the quantity, the unit price shall prevail and the line item total shall be corrected, unless in the opinion of the Purchaser there is an obvious misplacement of the decimal point in the unit price, in

which case the line item total as quoted shall govern and the unit price shall be corrected;

- (b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and
- (c) if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.

31.2 Bidders shall be requested to accept correction of arithmetical errors. Failure to accept the correction in accordance with ITB 31.1, shall result in the rejection of the Bid.

### **32. Conversion to Single Currency**

32.1 For evaluation and comparison purposes, the currency(ies) of the Bid shall be converted in a single currency as specified **in the BDS**.

### **33. Margin of Preference**

33.1 Unless otherwise specified **in the BDS**, a margin of preference shall not apply.

### **34. Evaluation of Bids**

34.1 The Purchaser shall use the criteria and methodologies listed in this ITB and Section III, Evaluation and Qualification criteria. No other evaluation criteria or methodologies shall be permitted. By applying the criteria and methodologies, the Purchaser shall determine the Most Advantageous Bid. This is the Bid of the Bidder that meets the qualification criteria and whose Bid has been determined to be:

- (a) substantially responsive to the bidding document; and
- (b) the lowest evaluated cost.

34.2 To evaluate a Bid, the Purchaser shall consider the following:

- (a) evaluation will be done for Items or Lots (contracts), as specified **in the BDS**; and the Bid Price as quoted in accordance with ITB 14;
- (b) price adjustment for correction of arithmetic errors in accordance with ITB 31.1;
- (c) price adjustment due to discounts offered in accordance with ITB 14.4;

- (d) converting the amount resulting from applying (a) to (c) above, if relevant, to a single currency in accordance with ITB 32;
  - (e) price adjustment due to quantifiable nonmaterial nonconformities in accordance with ITB 30.3; and
  - (f) the additional evaluation factors are specified in Section III, Evaluation and Qualification Criteria.
- 34.3 The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in Bid evaluation.
- 34.4 If this bidding document allows Bidders to quote separate prices for different lots (contracts), the methodology to determine the lowest evaluated cost of the lot (contract) combinations, including any discounts offered in the Letter of Bid, is specified in Section III, Evaluation and Qualification Criteria.
- 34.5 The Purchaser's evaluation of a Bid will exclude and not take into account:
- (a) in the case of Goods manufactured in the Purchaser's Country, sales and other similar taxes, which will be payable on the goods if a contract is awarded to the Bidder;
  - (b) in the case of Goods manufactured outside the Purchaser's Country, already imported or to be imported, customs duties and other import taxes levied on the imported Good, sales and other similar taxes, which will be payable on the Goods if the contract is awarded to the Bidder;
  - (c) any allowance for price adjustment during the period of execution of the contract, if provided in the Bid.
- 34.6 The Purchaser's evaluation of a Bid may require the consideration of other factors, in addition to the Bid Price quoted in accordance with ITB 14. These factors may be related to the characteristics, performance, and terms and conditions of purchase of the Goods and Related Services. The effect of the factors selected, if any, shall be expressed in monetary terms to facilitate comparison of Bids, unless otherwise specified **in the BDS** from amongst those set out in Section III, Evaluation and Qualification Criteria. The criteria and methodologies to be used shall be as specified in ITB 34.2(f).



- 35. Comparison of Bids**
- 35.1 The Purchaser shall compare the evaluated costs of all substantially responsive Bids established in accordance with ITB 34.2 to determine the Bid that has the lowest evaluated cost. The comparison shall be on the basis of CIP (place of final destination) prices for imported goods and EXW prices, plus cost of inland transportation and insurance to place of destination, for goods manufactured within the Borrower's country, together with prices for any required installation, training, commissioning and other services. The evaluation of prices shall not take into account custom duties and other taxes levied on imported goods quoted CIP and sales and similar taxes levied in connection with the sale or delivery of goods.
- 36. Abnormally Low Bids**
- 36.1 An Abnormally Low Bid is one where the Bid price, in combination with other constituent elements of the Bid, appears unreasonably low to the extent that the Bid price raises material concerns with the Purchaser as to the capability of the Bidder to perform the Contract for the offered Bid price.
- 36.2 In the event of identification of a potentially Abnormally Low Bid, the Purchaser shall seek written clarification from the Bidder, including a detailed price analyses of its Bid price in relation to the subject matter of the contract, scope, delivery schedule, allocation of risks and responsibilities and any other requirements of the bidding document.
- 36.3 After evaluation of the price analyses, in the event that the Purchaser determines that the Bidder has failed to demonstrate its capability to perform the contract for the offered Bid price, the Purchaser shall reject the Bid.
- 37. Qualification of the Bidder**
- 37.1 The Purchaser shall determine, to its satisfaction, whether the eligible Bidder that is selected as having submitted the lowest evaluated cost and substantially responsive Bid, meets the qualifying criteria specified in Section III, Evaluation and Qualification Criteria.
- 37.2 The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB 17. The determination shall not take into consideration the qualifications of other firms such as the Bidder's subsidiaries, parent entities, affiliates, subcontractors (other than specialized subcontractors if permitted in the bidding document), or any other firm(s) different from the Bidder.

- 37.3 Prior to Contract award, the Purchaser will verify that the successful Bidder (including each member of a JV) is not disqualified by the Bank due to noncompliance with contractual SEA/SH prevention and response obligations. The Purchaser will conduct the same verification for each subcontractor proposed by the successful Bidder. If any proposed subcontractor does not meet the requirement, the Purchaser will require the Bidder to propose a replacement subcontractor.
- 37.4 An affirmative determination shall be a prerequisite for award of the Contract to the Bidder. A negative determination shall result in disqualification of the Bid, in which event the Purchaser shall proceed to the Bidder who offers a substantially responsive Bid with the next lowest evaluated cost to make a similar determination of that Bidder's qualifications to perform satisfactorily.
- 38. Purchaser's Right to Accept Any Bid, and to Reject Any or All Bids**
- 38.1 The Purchaser reserves the right to accept or reject any Bid, and to annul the Bidding process and reject all Bids at any time prior to Contract Award, without thereby incurring any liability to Bidders. In case of annulment, all Bids submitted and specifically, bid securities, shall be promptly returned to the Bidders.
- 39. Standstill Period**
- 39.1 The Contract shall not be awarded earlier than the expiry of the Standstill Period. The Standstill Period shall be ten (10) Business Days unless extended in accordance with ITB 44. The Standstill Period commences the day after the date the Purchaser has transmitted to each Bidder the Notification of Intention to Award the Contract. Where only one Bid is submitted, or if this contract is in response to an emergency situation recognized by the Bank, the Standstill Period shall not apply.
- 40. Notification of Intention to Award**
- 40.1 The Purchaser shall send to each Bidder the Notification of Intention to Award the Contract to the successful Bidder. The Notification of Intention to Award shall contain, at a minimum, the following information:
- (a) the name and address of the Bidder submitting the successful Bid;
  - (b) the Contract price of the successful Bid;
  - (c) the names of all Bidders who submitted Bids, and their Bid prices as readout, and as evaluated;
  - (d) a statement of the reason(s) the Bid (of the unsuccessful Bidder to whom the notification is

addressed) was unsuccessful, unless the price information in c) above already reveals the reason;

- (e) the expiry date of the Standstill Period;
- (f) instructions on how to request a debriefing and/or submit a complaint during the standstill period.

## **F. Award of Contract**

### **41. Award Criteria**

41.1 Subject to ITB 38, the Purchaser shall award the Contract to the Bidder offering the Most Advantageous Bid. The Most Advantageous Bid is the Bid of the Bidder that meets the qualification criteria and whose Bid has been determined to be:

- (a) substantially responsive to the bidding document; and
- (b) the lowest evaluated cost.

### **42. Purchaser's Right to Vary Quantities at Time of Award**

42.1 At the time the Contract is awarded, the Purchaser reserves the right to increase or decrease the quantity of Goods and Related Services originally specified in Section VII, Schedule of Requirements, provided this does not exceed the percentages specified **in the BDS**, and without any change in the unit prices or other terms and conditions of the Bid and the bidding document.

### **43. Notification of Award**

43.1 Prior to the date of expiry of the Bid validity and upon expiry of the Standstill Period, specified in ITB 39.1 or any extension thereof, and upon satisfactorily addressing any complaint that has been filed within the Standstill Period, the Purchaser shall notify the successful Bidder, in writing, that its Bid has been accepted. The notification of award (hereinafter and in the Contract Forms called the "Letter of Acceptance") shall specify the sum that the Purchaser will pay the Supplier in consideration of the execution of the Contract (hereinafter and in the Conditions of Contract and Contract Forms called "the Contract Price").

43.2 Within ten (10) Business Days after the date of transmission of the Letter of Acceptance, the Purchaser shall publish the Contract Award Notice which shall contain, at a minimum, the following information:

- (a) name and address of the Purchaser;
- (b) name and reference number of the contract being awarded, and the selection method used;

- (c) names of all Bidders that submitted Bids, and their Bid prices as read out at Bid opening, and as evaluated;
- (d) names of all Bidders whose Bids were rejected either as nonresponsive or as not meeting qualification criteria, or were not evaluated, with the reasons therefor;
- (e) the name of the successful Bidder, the final total contract price, the contract duration and a summary of its scope; and
- (f) successful Bidder's Beneficial Ownership Disclosure Form.

43.3 The Contract Award Notice shall be published on the Purchaser's website with free access if available, or in at least one newspaper of national circulation in the Purchaser's Country, or in the official gazette. The Purchaser shall also publish the contract award notice in UNDB online.

43.4 Until a formal Contract is prepared and executed, the Letter of Acceptance shall constitute a binding Contract.

#### **44. Debriefing by the Purchaser**

44.1 On receipt of the Purchaser's Notification of Intention to Award referred to in ITB 40.1, an unsuccessful Bidder has three (3) Business Days to make a written request to the Purchaser for a debriefing. The Purchaser shall provide a debriefing to all unsuccessful Bidders whose request is received within this deadline.

44.2 Where a request for debriefing is received within the deadline, the Purchaser shall provide a debriefing within five (5) Business Days, unless the Purchaser decides, for justifiable reasons, to provide the debriefing outside this timeframe. In that case, the standstill period shall automatically be extended until five (5) Business Days after such debriefing is provided. If more than one debriefing is so delayed, the standstill period shall not end earlier than five (5) Business Days after the last debriefing takes place. The Purchaser shall promptly inform, by the quickest means available, all Bidders of the extended standstill period

44.3 Where a request for debriefing is received by the Purchaser later than the three (3)-Business Day deadline, the Purchaser should provide the debriefing as soon as practicable, and normally no later than fifteen (15) Business Days from the date of publication of Public Notice of Award of contract.

Requests for debriefing received outside the three (3)-day deadline shall not lead to extension of the standstill period.

- 44.4 Debriefings of unsuccessful Bidders may be done in writing or verbally. The Bidders shall bear their own costs of attending such a debriefing meeting.

#### **45. Signing of Contract**

- 45.1 The Purchaser shall send to the successful Bidder the Letter of Acceptance including the Contract Agreement, and a request to submit the Beneficial Ownership Disclosure Form providing additional information on its beneficial ownership. The Beneficial Ownership Disclosure Form shall be submitted within eight (8) Business Days of receiving this request.

- 45.2 The successful Bidder shall sign, date and return to the Purchaser, the Contract Agreement within twenty-eight (28) days of its receipt.

- 45.3 Notwithstanding ITB 45.2 above, in case signing of the Contract Agreement is prevented by any export restrictions attributable to the Purchaser, to the country of the Purchaser, or to the use of the products/goods, systems or services to be supplied, where such export restrictions arise from trade regulations from a country supplying those products/goods, systems or services, the Bidder shall not be bound by its Bid, always provided however, that the Bidder can demonstrate to the satisfaction of the Purchaser and of the Bank that signing of the Contract Agreement has not been prevented by any lack of diligence on the part of the Bidder in completing any formalities, including applying for permits, authorizations and licenses necessary for the export of the products/goods, systems or services under the terms of the Contract.

#### **46. Performance Security**

- 46.1 Within twenty-eight (28) days of the receipt of Letter of Acceptance from the Purchaser, the successful Bidder, if required, shall furnish the Performance Security in accordance with the GCC 18, using for that purpose the Performance Security Form included in Section X, Contract Forms, or another Form acceptable to the Purchaser. If the Performance Security furnished by the successful Bidder is in the form of a bond, it shall be issued by a bonding or insurance company that has been determined by the successful Bidder to be acceptable to the Purchaser. A foreign institution providing a bond shall have a correspondent financial institution located in the Purchaser's

Country, unless the Purchaser has agreed in writing that a correspondent financial institution is not required.

- 46.2 Failure of the successful Bidder to submit the above-mentioned Performance Security or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security. In that event the Purchaser may award the Contract to the Bidder offering the next Most Advantageous Bid.

**47. Procurement Related  
Complaint**

- 47.1 The procedures for making a Procurement-related Complaint are as specified in the BDS.

## Section II - Bid Data Sheet (BDS)

The following specific data for the goods to be procured shall complement, supplement, or amend the provisions in the Instructions to Bidders (ITB). Whenever there is a conflict, the provisions herein shall prevail over those in ITB.

ITB Reference	A. General
ITB 1.1	<p>The reference number of the Request for Bids (RFB) is : <b>KE-ICTA-486639-GO-RFB</b></p> <p>The Purchaser is: <b>The Information and Communications Technology Authority</b></p> <p>The name of the RFB is: <b>Supply, Delivery and Installation of WiFi routers and related goods for 55 universities and TVETs in Kenya: Lot 1: 13 No. Institutions; Lot 2: 15No Institutions; Lot 3: 18 No. Institutions; Lot 4: 9 No. Institutions</b></p> <p>The number and identification of lots (contracts) comprising this RFB is: <b>four</b></p> <p><b>Lot 1: 13 No. Institutions;</b></p> <p><b>Lot 2: 15No Institutions;</b></p> <p><b>Lot 3: 18 No. Institutions;</b></p> <p><b>Lot 4: 9 No. Institutions;</b></p>
ITB 2.1	<p>The Borrower is: <b>The Government of Kenya, through the ICT Authority, which is the implementing agency.</b></p> <p>Loan or Financing Agreement amount: <b>USD. 390 Million</b></p> <p>The name of the Project is: <b>Kenya Digital Economy Acceleration Project</b></p>
ITB 4.1	Maximum number of members in the Joint Venture (JV) shall be: <b>2</b>
ITB 4.5	A list of debarred firms and individuals is available on the Bank's external website: <a href="http://www.worldbank.org/debarr">http://www.worldbank.org/debarr</a> .
	<b>B. Contents of Bidding Document</b>
ITB 7.1	For <u><b>Clarification of Bid purposes</b></u> only, the Purchaser's address is:

	<p>Attention: <b>Deputy Director, Supply Chain Management</b></p> <p>Address: <b>P.O. Box 27150-00100</b></p> <p>Floor/ Room number: <b>12<sup>th</sup> Floor, Telposta Towers</b></p> <p>City: <b>Nairobi</b></p> <p>ZIP Code: <b>Not Applicable</b></p> <p>Country: <b>Kenya</b></p> <p>Telephone: <b>(+254) 20 667 6999</b></p> <p>Facsimile number: <b>Not Applicable</b></p> <p>Electronic mail address: <a href="mailto:procurement@ict.go.ke">procurement@ict.go.ke</a></p> <p>Requests for clarification should be received by the Purchaser no later than: <b>14 days</b></p> <p>Web page: <a href="http://www.icta.go.ke">www.icta.go.ke</a> / <a href="http://www.tenders.go.ke">www.tenders.go.ke</a></p>
	<b>C. Preparation of Bids</b>
<b>ITB 10.1</b>	<p>The language of the Bid is: <b>English</b></p> <p>All correspondence exchange shall be in <b>English</b> language.</p> <p>Language for translation of supporting documents and printed literature is <b>English</b></p>
<b>ITB 11.1 (j)</b>	<p>The Bidder shall submit the following additional documents in its Bid:</p> <p style="text-align: center;"><b>Not Applicable</b></p>
<b>ITB 13.1</b>	Alternative Bids <b>shall not be</b> considered.
<b>ITB 14.5</b>	The prices quoted by the Bidder <b>shall not</b> be subject to adjustment during the performance of the Contract.
<b>ITB 14.6</b>	<p>Prices quoted for each lot (contract) shall correspond at least <b>100</b> percent of the items specified for each lot (contract).</p> <p>Prices quoted for each item of a lot shall correspond at least to <b>100</b> percent of the quantities specified for this item of a lot.</p>
<b>ITB 14.7</b>	The Incoterms edition is: <b>Incoterms 2020</b>
<b>ITB 14.8 (b)(i)</b>	Place of destination: <b>As indicated on Annex 1.</b>



<b>ITB 14.8 (a)(iii), (b)(ii) and (c)(v)</b>	Final Destination (Project Site): <b>As indicated on Annex 1.</b>
<b>ITB 15.1</b>	The Bidder is required to quote in the currency of the Purchaser's Country the portion of the Bid price that corresponds to expenditures incurred in that currency.
<b>ITB 16.4</b>	Period of time the Goods are expected to be functioning (for the purpose of spare parts): <b>5 Years</b>
<b>ITB 17.2 (a)</b>	Manufacturer's authorization is: <b>Required</b>
<b>ITB 17.2 (b)</b>	After sales service is: <b>required within the warranty period</b>
<b>ITB 18.1</b>	The Bid shall be valid until: <b>20<sup>th</sup> November 2025</b>
<b>ITB 18.3 (a)</b>	The Bid price shall be adjusted by the following factor(s): <b>Not Applicable</b>
<b>ITB 19.1</b>	A Bid Security <b>shall be</b> required. A Bid-Securing Declaration <b>shall not be</b> required. The amount and currency of the Bid Security shall be <b>Kes. 3 Million (Kes Shillings Three Million) for LOT 1 or equivalent in a freely convertible currency, Kes. 3 Million (Kes Shillings Three Million) for LOT 2 or equivalent in a freely convertible currency, Kes. 3 Million (Kes Shillings Three Million) for LOT 3 or equivalent in a freely convertible currency &amp; Kes. 3 Million (Kes Shillings Three Million) for LOT 4 or equivalent in a freely convertible currency</b>
<b>ITB 19.3 (d)</b>	Other types of acceptable securities: <b>Not Applicable</b>
<b>ITB 20.1</b>	In addition to the original of the Bid, the number of copies is: <b>1 copy and 1 digital copy in USB format.</b> In the event of any discrepancy between the original and the digital format (USB), the original shall prevail"
<b>ITB 20.3</b>	The written confirmation of authorization to sign on behalf of the Bidder shall consist of: <b>a signed Power of Attorney</b>
	<b>D. Submission and Opening of Bids</b>
<b>ITB 22.1</b>	For <u><b>Bid submission purposes</b></u> only, the Purchaser's address is: Attention: <b>Chief Executive Officer</b> Street Address: <b>Telposta Towers, Kenyatta Avenue</b>

	<p>Floor/ Room number: <b>12<sup>th</sup> Floor, Boardroom</b></p> <p>City: <b>Nairobi</b></p> <p>ZIP/Postal Code: <b>Not Applicable</b></p> <p>Country: <b>Kenya</b></p> <p><b>The deadline for Bid submission is:</b></p> <p>Date: <b>31<sup>st</sup> July 2025</b></p> <p>Time: <b>1000 Hours EAT</b></p> <p>Bidders <b>shall not</b> have the option of submitting their Bids electronically.</p>
<b>ITB 25.1</b>	<p>The Bid opening shall take place at:</p> <p>Street Address: <b>Telposta Towers, Kenyatta Avenue</b></p> <p>Floor/ Room number: <b>12<sup>th</sup> Floor, Boardroom</b></p> <p>City: <b>Nairobi</b></p> <p>Country: <b>Kenya</b></p> <p>Date: <b>31<sup>st</sup> July 2025</b></p> <p>Time: <b>1000 Hours EAT</b></p>
<b>ITB 25.6</b>	<p>The Letter of Bid and Price Schedules shall be initialed by <b>all</b> representatives of the Purchaser conducting Bid opening.</p> <p><b>Each Bid shall be initialed by all representatives and shall be numbered, any modification to the unit or total price shall be initialed by the Representative of the Purchaser, etc.</b></p>
<b>E. Evaluation and Comparison of Bids</b>	
<b>ITB 32.1</b>	<p>The currency that shall be used for Bid evaluation and comparison purposes to convert at the selling exchange rate all Bid prices expressed in various currencies into a single currency is: <b>Kenya Shillings</b></p> <p>The source of exchange rate shall be: <b>Central Bank of Kenya</b></p> <p>The date for the exchange rate shall be: <b>Bid Submission Deadline</b></p>
<b>ITB 33.1</b>	A margin of domestic preference <i>shall not</i> apply.
<b>ITB 34.2(a)</b>	<p>Evaluation will be done for <b>Lots (contracts)</b></p> <p>Note:</p> <p><b>Bids will be evaluated lot by lot. If a Price Schedule shows items listed but not priced, their prices shall be assumed to be included in the</b></p>

	<p><b>prices of other items. An item not listed in the Price Schedule shall be assumed to be not included in the Bid, and provided that the Bid is substantially responsive, the average or highest price (as specified in the BDS) of the item quoted by substantially responsive Bidders will be added to the Bid price and the equivalent total cost of the Bid so determined will be used for price comparison.</b></p>
<b>ITB 34.6</b>	<p>The adjustments shall be determined using the following criteria, from amongst those set out in Section III, Evaluation and Qualification Criteria:</p> <ul style="list-style-type: none"> <li>(a) Deviation in Delivery schedule: <b>No</b></li> <li>(b) Deviation in payment schedule: <b>No</b></li> <li>(c) the cost of major replacement component, mandatory spare parts, and service: <b>No</b></li> <li>(d) the availability in the Purchaser's Country of spare parts and after-sales services for the equipment offered in the Bid <b>No</b></li> <li>(e) Life cycle costs: the costs during the life of the goods or equipment <b>No</b></li> <li>(f) The performance and productivity of the equipment offered; <b>No</b></li> <li>(g) Evaluation criteria</li> </ul>
	<p><b>F. Award of Contract</b></p>
<b>ITB 42</b>	<p>The maximum percentage by which quantities may be increased is: <b>15 percent</b></p> <p>The maximum percentage by which quantities may be decreased is: <b>15 percent</b></p>
<b>ITB 47.1</b>	<p>The procedures for making a Procurement-related Complaint are detailed in the "<a href="#">Procurement Regulations for IPF Borrowers</a> (Annex III)." If a Bidder wishes to make a Procurement-related Complaint, the Bidder should submit its complaint following these procedures, in writing (by the quickest means available, that is either by email or fax), to:</p> <p><b>For the attention:</b> Stanley Kamanguya, OGW</p> <p><b>Title/position:</b> Chief Executive Officer</p> <p><b>Purchaser:</b> Information and Communications Technology Authority</p> <p><b>Email address:</b> <a href="mailto:info@ict.go.ke">info@ict.go.ke</a> / <a href="mailto:procurement@ict.go.ke">procurement@ict.go.ke</a></p> <p>In summary, a Procurement-related Complaint may challenge any of the following:</p> <ol style="list-style-type: none"> <li>1. the terms of the Bidding Documents; and</li> </ol>

	2. the Purchaser's decision to award the contract.
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**Section III - Evaluation and Qualification  
Criteria**

**Contents**

**2. Evaluation (ITB 34) ..... 46**

**3. Qualification (ITB 37)..... 226**

## Most Advantageous Bid

The Purchaser shall use the criteria and methodologies listed in Section 2 and 3 below to determine the Most Advantageous Bid. The Most Advantageous Bid is the Bid of the Bidder that meets the qualification criteria and whose Bid has been determined to be:

- (a) substantially responsive to the bidding document; and
- (b) the lowest evaluated cost.

## 2. Evaluation (ITB 34)

### 2.1. Evaluation Criteria (ITB 34.6)

The Purchaser's evaluation of a Bid may take into account, in addition to the Bid Price quoted in accordance with ITB 14.8, one or more of the following factors as specified in ITB 34.2(f) and in BDS referring to ITB 34.6, using the following criteria and methodologies.

- (a) Delivery schedule. (As per Incoterms specified in the BDS) **NOT APPLICABLE**

The Goods specified in the List of Goods are required to be delivered within the acceptable time range (after the earliest and before the final date, both dates inclusive) specified in Section VII, Schedule of Requirements. No credit will be given to deliveries before the earliest date, and Bids offering delivery after the final date shall be treated as nonresponsive. Within this acceptable period, an adjustment of **Not Applicable**, will be added, for evaluation purposes only, to the Bid price of Bids offering deliveries later than the "Earliest Delivery Date" specified in Section VII, Schedule of Requirements.

- (b) Deviation in payment schedule. **NOT APPLICABLE**

- (i) *Bidders shall state their Bid price for the payment schedule outlined in the SCC. Bids shall be evaluated on the basis of this base price. Bidders are, however, permitted to state an alternative payment schedule and indicate the reduction in Bid price they wish to offer for such alternative payment schedule. The Purchaser may consider the alternative payment schedule and the reduced Bid price offered by the Bidder selected on the basis of the base price for the payment schedule outlined in the SCC.*

**or**

- (i) *The SCC stipulates the payment schedule specified by the Purchaser. If a Bid deviates from the schedule and if such deviation is considered acceptable to the Purchaser, the Bid will be evaluated by calculating interest earned for any earlier payments involved in the terms outlined in the Bid as compared with those stipulated in the SCC, at the rate per annum [insert adjustment rate].*
- (c) Cost of major replacement components, mandatory spare parts, and service. *[insert one of the following]*

- (i) *The list of items and quantities of major assemblies, components, and selected spare parts, likely to be required during the initial period of operation specified in the BDS 16.4, is in the List of Goods. An adjustment equal to the total cost of these items, at the unit prices quoted in each Bid, shall be added to the Bid price, for evaluation purposes only.*

**or**

- (i) *The Purchaser will draw up a list of high-usage and high-value items of components and spare parts, along with estimated quantities of usage in the initial period of operation specified in the BDS 16.4. The total cost of these items and quantities will be computed from spare parts unit prices submitted by the Bidder and added to the Bid price, for evaluation purposes only.*
- (d) Availability in the Purchaser's Country of spare parts and after sales services for equipment offered in the Bid. **NOT APPLICABLE**

An adjustment equal to the cost to the Purchaser of establishing the minimum service facilities and parts inventories if quoted separately, shall be added to the Bid price, for evaluation purposes only.

- (e) Life Cycle Costs – **NOT APPLICABLE**

If specified in BDS 34.6, an adjustment to take into account the additional life cycle costs for the period specified below, such as the operating and maintenance costs of the Goods, will be added to the Bid price, for evaluation purposes only. The adjustment will be evaluated in accordance with the methodology specified below and the following information:

*[Note to Purchaser: Life cycle costing should be used when the costs of operation and/or maintenance over the specified life of the goods are estimated to be considerable in comparison with the initial cost and may vary among different Bids. Life cycle costs shall be evaluated on a net present value basis. If life cycle costs apply, then specify the factors required to determine them for evaluation purposes.*

*[Either amend the following text as required, or delete if life cycle cost is not applicable]*

- (i) number of years for life cycle cost determination *[insert the number of years]*;
- (ii) the discount rate to be applied to determine the net present value of future operation and maintenance costs (recurrent costs) is *[insert the discount rate]*;
- (iii) the annual operating and maintenance costs (recurrent costs) shall be determined on the basis of the following methodology: *[insert methodology]*;
- (iv) and the following information is required from bidders *[insert any information required from bidders, including prices]*.
- (f) Performance and productivity of the equipment: **NOT APPLICABLE**

- (i) Performance and productivity of the equipment. An adjustment representing the capitalized cost of additional operating costs over the life of the goods will be added to the Bid price, for evaluation purposes if specified in the BDS 34.6. The adjustment will be evaluated based on the drop in the guaranteed performance or efficiency offered in the Bid below the norm of 100, using the methodology specified below.

*[insert the methodology and criteria if applicable]*

**or**

- (i) An adjustment to take into account the productivity of the goods offered in the Bid will be added to the Bid price, for evaluation purposes only, if specified in BDS 34.6. The adjustment will be evaluated based on the cost per unit of the actual productivity of goods offered in the Bid with respect to minimum required values, using the methodology specified below.

*[insert the methodology and criteria if applicable]*

- (g) Specific additional criteria **NOT APPLICABLE**

*[Other specific additional criteria to be considered in the evaluation, and the evaluation method shall be detailed in BDS 34.6][If specific **sustainable procurement technical requirements** have been specified in Section VII-Specification, **either** state that (i) those requirements will be evaluated on a pass/fail (compliance basis) **or** otherwise (ii) in addition to evaluating those requirements on a pass/fail (compliance basis), if applicable, specify the monetary adjustments to be applied to Bid Prices for comparison purposes on account of Bids that exceed the specified minimum sustainable procurement technical requirements.]*

## **2.2. Multiple Contracts (ITB 34.4)**

If in accordance with ITB 1.1, Bids are invited for individual lots or for any combination of lots, the contract will be awarded to the Bidder or Bidders offering a substantially responsive Bid(s) and the lowest evaluated cost to the Purchaser for combined lots, after considering all possible combination of lots, subject to the selected Bidder(s) meeting the required qualification criteria (this Section III, Sub-Section ITB 37 Qualification Requirements) for a lot or combination of lots as the case may be.

In determining Bidder or Bidders that offer the total lowest evaluated cost to the Purchaser for combined lots, the Purchaser shall apply the following steps in sequence:

- (a) evaluate individual lots to determine the substantially responsive Bids and corresponding evaluated costs;
- (b) for each lot, rank the substantially responsive Bids starting from the lowest evaluated cost for the lot;



- (c) apply to the evaluated costs listed in b) above, any applicable discounts/price reductions offered by a Bidder (s) for the award of multiple contracts based on the discounts and the methodology for their application offered by the respective Bidder; and
- (d) determine contract award on the basis of the combination of lots that offer the total lowest evaluated cost to the Purchaser.

### **2.3. Alternative Bids (ITB 13.1) – NOT APPLICABLE**

*An alternative if permitted under ITB 13.1, will be evaluated as follows:*

*[insert one of the following]*

“A Bidder may submit an alternative Bid only with a Bid for the base case. The Purchaser shall only consider the alternative Bids offered by the Bidder whose Bid for the base case was determined to be the Most Advantageous Bid.”

**or**

“A Bidder may submit an alternative Bid with or without a Bid for the base case. The Purchaser shall consider Bids offered for alternatives as specified in the Technical Specifications of Section VII, Schedule of Requirements. All Bids received, for the base case, as well as alternative Bids meeting the specified requirements, shall be evaluated on their own merits in accordance with the same procedures, as specified in the ITB 34.”

**COMPLIANCE WITH TECHNICAL SPECIFICATIONS****WiFi Routers and related Goods - LOT 1**

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
24 Port 10G SFP+ Layer 3 Core Switch	<p>Top of rack, 1RU rack-mountable managed switch with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>● Minimum of 24 No. ports of 1/10/25G (SFP/SFP+)</li> <li>● Minimum of 4 No. ports of 40GbE/100GbE (QSFP+/QSFP28)</li> <li>● Minimum switching capacity of 1.6 Tbps</li> <li>● Support for minimum of 80,000 MAC addresses in the MAC address table</li> <li>● Support for Layer 3 routing (Static Routes and dynamic routing using OSPFv2, IS-IS, IS-ISv6, BGP4, BGP6)</li> <li>● Support for VLANs and IEEE 802.1Q (4,094 VLAN IDs) VLAN tagging with minimum 1,000 configurable active VLANs</li> <li>● Support for spanning-tree protocol for both Rapid Per-VLAN Spanning Tree (RPVST+) and Multiple Spanning Tree Protocol (MSPT)</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• Support for remote management, configuration and authentication (SNMPv2, SNMPv3, SSH, TACACS+, RADIUS)</li> <li>• Redundant Power Supplies (1+1 Redundancy)</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next six years. Attach Evidence</li> <li>• Original Equipment Manufacturer/vendor of the proposed switch MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> <li>• Three-year (3) warranty and support</li> </ul> <p>Attach data sheet</p>	
L3 Edge switch 48-Port GigEthernet PoE+ Switch	<p>Top of rack, 1RU rack-mountable managed switch with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Minimum of 48 No. RJ-45 autosensing 10/100/1000 PoE+ ports</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
with 10Gbps SFP+ Uplinks	<ul style="list-style-type: none"> <li>● Minimum of 4 No. SFP+ 1/10GbE ports</li> <li>● Minimum of 2 No. MultiGigabit stack ports</li> <li>● Minimum switching capacity of 170Gbps with a forwarding performance of 130 Mpps</li> <li>● Supports full POE+</li> <li>● Support for minimum of 30,000 MAC addresses in the MAC address table</li> <li>● Support for Layer 3 routing (Static Routes and dynamic routing using OSPFv2)</li> <li>● Support for VLANs and IEEE 802.1Q (4,094 VLAN IDs) VLAN tagging with 1,000 configurable VLANs</li> <li>● Support for spanning-tree protocol for both Rapid Per-VLAN Spanning Tree (RPVST+) and Multiple Spanning Tree Protocol (MSPT)</li> <li>● Support for remote management, configuration and authentication (SNMPv2, SNMPv3, SSH, TACACS+, RADIUS)</li> <li>● Redundant power supply modules</li> <li>● Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	<ul style="list-style-type: none"> <li>Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next Six years. Attach Evidence</li> <li>Original Equipment Manufacturer/vendor of the proposed switch MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> <li>Three-year (3) warranty and support</li> </ul> <p>Attach data sheet</p>	
L3 Edge switch 24-Port GigEthernet PoE+ Switch with 10Gbps SFP+ Uplinks	<p>Top of rack, 1RU rack-mountable managed switch with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>1. Minimum of 24 No. RJ-45 autosensing 10/100/1000 PoE+ ports</li> <li>Minimum of 4 No. SFP+ 1/10GbE ports</li> <li>Minimum of 2 No. MultiGigabit stack ports</li> <li>Minimum switching capacity of 125Gbps with a forwarding performance of 95 Mpps</li> <li>Supports full POE+</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• Support for minimum of 30,000 MAC addresses in the MAC address table</li> <li>• Support for Layer 3 routing (Static Routes and dynamic routing using OSPFv2)</li> <li>• Support for VLANs and IEEE 802.1Q (4,094 VLAN IDs) VLAN tagging with 1,000 configurable VLANs</li> <li>• Support for spanning-tree protocol for both Rapid Per-VLAN Spanning Tree (RPVST+) and Multiple Spanning Tree Protocol (MSPT)</li> <li>• Support for remote management, configuration and authentication (SNMPv2, SNMPv3, SSH, TACACS+, RADIUS)</li> <li>• Redundant power supply modules</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next Six years. Attach Evidence</li> <li>• Original Equipment Manufacturer/vendor of the proposed switch MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<p>Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</p> <ul style="list-style-type: none"> <li>• Three-year (3) warranty and support</li> </ul> <p>Attach data sheet</p>	
Indoor Wireless Access Point	<p>Indoor wireless access point (WLAN AP) with support for Wi-Fi 6 software-configurable dual radio, 5 GHz 4x4 MIMO and 2.4 GHz 2x2 MIMO, achieving a data rate of 5.3 Gbps. The WiFi access points should specifically meet the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Support WPA3 with specific support for WPA3 Enterprise</li> <li>• Support for 802.1x standard for network authentication of wireless clients</li> <li>• Support for minimum of 150 associated active clients (concurrent connected end user devices)</li> <li>• Support for built-in smart antennas to improve on signal quality</li> <li>• Support for minimum of 16 No. SSIDs two (2) of which MUST support 802.1x network authentication</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• Support for WIFI-6 standards such as OFDMA, TWT, MU-MIMO and BSS coloring</li> <li>• Support for VLAN assignment per SSID and based on network authentication (802.1x VLAN assignment based on radius attributes)</li> <li>• Support for IoT</li> <li>• Communication between the WLAN AP and the management system MUST be through encrypted channels</li> <li>• Maximum power consumption should not exceed 21W</li> <li>• Support for powering through PoE</li> <li>• Operating temperature: Between 0°C to 50°C</li> <li>• Support for minimum of 2 No. RJ45 network interface ports capable of negotiating both 100Mbps and 1Gbps speed</li> <li>• Included with relevant mounting brackets</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next four years. Attach Evidence.</li> </ul>	



<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	<ul style="list-style-type: none"> <li>Original Equipment Manufacturer/vendor of the proposed access point MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> <li>Three-year (3) warranty and support</li> </ul> <p>Management using a centralized WLAN Controller (or equivalent centralized management system for software updates and configuration) is mandatory Attach data sheet</p>	
Outdoor Wireless Access Point	<p>Outdoor Hardened (IP68) wireless access point (WLAN AP) with support for Wi-Fi 6 software-configurable dual radio, 5 GHz 2x2 MIMO and 2.4 GHz 2x2 MIMO achieving a device performance of 1.7 Gbps. The WiFi access points should specifically meet the following minimum specifications:</p> <ul style="list-style-type: none"> <li>Support WPA3 with specific support for WPA3 Enterprise</li> <li>Support for 802.1x standard for network authentication of wireless clients</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• Support for minimum of 500 associated active clients (concurrent connected end user devices)</li> <li>• Support for external smart antennas to improve on signal quality</li> <li>• Support for WIFI-6 standards such as OFDMA, TWT, MU-MIMO and BSS coloring</li> <li>• Support for minimum of 16 No. SSIDs two (2) of which MUST support 802.1x network authentication</li> <li>• Support for VLAN assignment per SSID and also based on network authentication (802.1x VLAN assignment based on radius attributes)</li> <li>• Communication between the WLAN AP and the management system MUST be through encrypted channels</li> <li>• Operating temperature: -40°C to 65°C</li> <li>• Support for powering through PoE</li> <li>• Support for minimum of 1 No. RJ45 network interface port capable of negotiating both 100Mbps and 1Gbps speed</li> <li>• Included with relevant mounting brackets</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next four years. Attach Evidence.</li> <li>• Original Equipment Manufacturer/vendor of the proposed access point MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> <li>• Three-year (3) warranty and support</li> </ul> <p>Management using a centralized WLAN Controller (or equivalent centralized management system for software updates and configuration) is mandatory Attach data sheet</p>	
Wireless Access/LAN Controller	<ul style="list-style-type: none"> <li>• The WLC should support manage 250 access points</li> <li>• The WLC should support 5000 users.</li> <li>• The WLC should provide 5 Gbps forwarding performance.</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• The WLC should have at least 2x1G SFP interfaces fully populated with MMF 1G SFPs</li> <li>• The WLC should support the establishment of CAPWAP tunnels with APs using IPv4 and IPv6 dual stacks.</li> <li>• The WLC should support intelligent roaming based on 802.11k and 802.11v, enabling clients with low roaming sensitivity to roam to the optimal AP.</li> <li>• The WLC should support automatically switch 2.4 GHz radios to 5 GHz radios through automatic negotiation between APs, reducing 2.4 GHz co-channel interference and increasing system capacity.</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next four years. Attach Evidence.</li> <li>• Original Equipment Manufacturer/vendor of the proposed controller MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	<ul style="list-style-type: none"> <li>• Three-year (3) warranty and support</li> </ul> Attach data sheet	
Install Wireless AP with Accessories	<ul style="list-style-type: none"> <li>• Install AP as per ICTA standards</li> <li>• inclusive of trunking and LAN cabling</li> </ul>	
2 KVA Rack mountable UPS	Single-phase 2 KVA double-conversion on-line rack-mountable UPS with the following minimum specifications: <ul style="list-style-type: none"> <li>• Minimum output power capacity of 1.2KW</li> <li>• Minimum output power factor of 0.8</li> <li>• Nominal Output Voltage 230V, 50Hz</li> <li>• Input Voltage range 220VAC – 240VAC, 50Hz</li> <li>• 4 No. IEC 60320 C13 Output Connections</li> <li>• IEC 60320 C14 Input connections</li> <li>• Online, double-conversion power conditioning</li> <li>• Minimum runtime of 15 minutes at Half Load</li> <li>• Included with relevant mounting brackets for 19-inch rack/cabinet</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not have an ongoing End of Life (EOL) announcement by the OEM</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	Attach data sheet	
3 KVA Single-Phase UPS	<p>Single-phase 3KVA UPS with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Minimum output power capacity of 4KW</li> <li>• Minimum output power factor of 0.8</li> <li>• Number of phases, 1ph</li> <li>• Nominal Output Voltage 230V, 50Hz</li> <li>• Input Voltage range 220VAC – 240VAC, 50Hz</li> <li>• Parallel configuration support for minimum 2 units</li> <li>• Minimum runtime of 15 minutes at Half Load</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not have an ongoing End of Life (EOL) announcement by the OEM</li> </ul> <p>Attach data sheet</p>	
Supply and install 3-core 4 mm flexible Cable Roll	3-core Electrical Flexible PVC Cable 4mm twin with earth for 300v/500V rating. Cable should have stranded copper conductors meeting BS 6004 and KS453 standard	
Supply and	<ul style="list-style-type: none"> <li>• The cable size should be 4 mm<sup>2</sup></li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
Install of yellow green earthing cable		
Supply and install Earth rod	The earth rod should pure copper and 1.5 metres long, with accessories	
22U Network Cabinet with a 4Way Horizontal Mount Power Distribution Unit (PDU)	<p>Standard-Depth 22U 19-inch Server Cabinet Rack Enclosure including vertical mounting rails and mesh door with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Rack Enclosure depth of 800 mm</li> <li>• Rack height of 22U</li> <li>• Support mounting of 19-inch copper patch panels, optical distribution frames, network switches, rack-mountable UPS</li> <li>• 1 No. 4 Way UK Plug Power Distribution Unit Horizontal</li> <li>• Floor Standing Steel Rack Enclosure with 4 No. castor wheels with fan venting at the top (fan included)</li> </ul> <p>Attach data sheet</p>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
15U Network Cabinet with a 4Way Horizontal Mount Power Distribution Unit (PDU)	<p>Standard-Depth 15U 19-inch Server Cabinet Rack Enclosure including vertical mounting rails and mesh door with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Rack Enclosure depth of 800 mm</li> <li>• Rack height of 15U</li> <li>• Support mounting of 19-inch copper patch panels, optical distribution frames, network switches, rack-mountable UPS</li> <li>• 1 No. 4 Way UK Plug Power Distribution Unit Horizontal</li> <li>• Floor Standing Steel Rack Enclosure with 4 No. castor wheels or Wall-mountable rack enclosure with fan venting at the top (fan included)</li> </ul> <p>Attach data sheet</p>	
Cat 6A U/UTP Pure Copper Ethernet Cable 305M (Indoor)	<p>23AWG Cat 6 U/UTP copper cable with HDPE insulation enclosed in PVC flame-retardant jacket for indoor installations. The minimum specifications are as follows:</p> <ul style="list-style-type: none"> <li>• Indoor environment use</li> <li>• Riser flammability rating</li> <li>• Support installation temperature of 50°C</li> <li>• 23AWg solid copper conductor</li> </ul>	



<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	<ul style="list-style-type: none"> <li>Overall length of 305 meters</li> </ul> Attach data sheet	
Cat 6A F/UTP Pure Copper Ethernet Cable 305M (Outdoor)	23AWG Cat 6 U/UTP Outside Plant (OSP) copper cable with PE insulation enclosed in abrasion-resistant HDPE flame-retardant jacket for outdoor installations. The minimum specifications are as follows: <ul style="list-style-type: none"> <li>Outdoor environment use</li> <li>Ability for the insulation to withstand moisture migration in underground and wet applications</li> <li>Outdoor flammability rating</li> <li>Must be UV-Resistant</li> <li>Support installation temperature of 70°C</li> <li>23AWg solid copper conductor</li> <li>Overall length of 305 meters</li> </ul> Attach data sheet	
F/UTP Category 6A Dual Outlets Module (Data points)	Pair of Cat 6A RJ45 keystone modules with support for 10Gbit Ethernet applications Attach data sheet	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
Flash Mount Faceplates – F/UTP Category 6A Double	Single gang faceplate with support for 2 outlet ports. Faceplate should support mounting onto single gang opening and include a label pocket for identification/labeling Attach data sheet	
F/UTP Category 6A Wall UTP-RJ45Patch cord (0.25M)	Cat 6A 24 AWG UTP Copper Patch Cord of 0.25 meter length with minimum specifications below: <ul style="list-style-type: none"> <li>• 24AWg solid copper conductor</li> <li>• Overall length of 1 meter</li> <li>• T568B wiring scheme</li> <li>• Must support IEEE 802.3af (PoE), IEEE 802.3at (PoE+), and IEEE 802.3bt Type 3 and 4 (PoE++) PoE compatibility.</li> </ul> Attach data sheet	
F/UTP Category 6A 48 PATCH PANEL 1 U568A/B	Cat 6A UTP Flat Punchdown steel Patch Panel with support for terminating 4-pair, 22–26 AWG, twisted pair cable. The patch panels should meet the following minimum specifications: <ul style="list-style-type: none"> <li>• Must be rack-mountable on a 19-inch rack</li> <li>• Support for RJ45 module type</li> <li>• Minimum of 48 ports fully populated with keystones</li> <li>• Support for both T568A and T568B wiring schemes</li> </ul>	

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	Attach data sheet	
F/UTP Category 6A 24 PATCH PANEL 1 U568A/B	Cat 6A UTP Flat Punchdown steel Patch Panel with support for terminating 4-pair, 22–26 AWG, twisted pair cable. The patch panels should meet the following minimum specifications: <ul style="list-style-type: none"> <li>• Must be rack-mountable on a 19-inch rack</li> <li>• Support for RJ45 module type</li> <li>• Minimum of 24 ports fully populated with keystones</li> <li>• Support for both T568A and T568B wiring schemes</li> </ul> Attach data sheet	
Cable managers 2U	Horizontal Cable Manager mountable onto a 19-inch rack or cabinet. The cable manager MUST meet the following minimum specifications: <ul style="list-style-type: none"> <li>• Support for management of copper, and fiber optic cables</li> <li>• 2 RU with dual-hinging front cover</li> <li>• Should be mountable horizontally</li> </ul> Attach data sheet	
Cable managers 1U	Horizontal Cable Manager mountable onto a 19-inch rack or cabinet. The cable manager MUST meet the following minimum specifications:	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Data sheet (Yes/No)</b>
	<ul style="list-style-type: none"> <li>• Support for management of copper, and fiber optic cables</li> <li>• 1 RU with dual-hinging front cover</li> <li>• Should be mountable horizontally</li> </ul> Attach data sheet	
Galvanized Metallic Trunking 150mm x50mm & accessories	Galvanized double-compartment metal trunking cover and base with base loop perforation. Each piece of metal trunking MUST be at least 2.4 meters in length Attach data sheet	
Galvanized Metallic Trunking 100mm x50mm & accessories	Galvanized double-compartment metal trunking cover and base with base loop perforation. Each piece of metal trunking MUST be at least 2.4 meters in length Attach data sheet	
Galvanized Metallic Trunking 25mm x50mm & accessories	Galvanized double-compartment metal trunking cover and base with base loop perforation. Each piece of metal trunking MUST be at least 2.4 meters in length	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
<p>Install metal Trunking size 25×50mm/50×100mm/50×150mm with accessories and auxiliary work</p>	<ul style="list-style-type: none"> <li>• Trunking should be installed neatly on the surface of walls, columns or beams and be truly vertical or horizontal.</li> <li>• Overhead trunking should be suitably supported by means of mild steel hangers' brackets or other suitable devices.</li> <li>• Trunking should be provided with removable side cover, easy bend at all turning angles and, where required, appropriate outlet holes with grommets.</li> <li>• The height of the trunking installed should not cause any installation and maintenance problem.</li> <li>• Cutting and combine the trunking when necessary</li> <li>• Detect/locate the presence of the electricity system before drilling. size 30x55mm for trunking (25*50 mm)</li> <li>• Drilling/boring the floor slab by the appropriate drilling/boring machine without cutting holes through the building structured area (e.g., beam, column E structure wall etc.).</li> <li>• Make good the hole surface by cement mortar and paint coating</li> <li>• Seal the holes with silicon.</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
Supply and Install Flexible corrugated PVC pipe $\leq$ 50mm with accessories.	<ul style="list-style-type: none"> <li>• Cutting suitable length of PVC pipe.</li> <li>• Smooth all duct ends</li> <li>• Fixing PVC Pipe on Wall/Ceiling by supporting with saddles/ brackets.</li> <li>• Fixing Junction Box at all turning angles or every 10m if necessary.</li> <li>• Labelling for identification.</li> </ul>	
40mm Flex Conduits	40mm PVC Flexible Conduit per meter length	
Install indoor/Outdoor Cat.6, 4-Pair UTP Cable	<ul style="list-style-type: none"> <li>• Lay the outdoor cat6 as per design, what layed in trunk or duct as straight as flat, no bind, enlarged regular and fastened by plastic ties as per specification.</li> <li>• Supply and install and label the cat 6 cable as per specification, the labelling must be waterproof.</li> <li>• The primary media for horizontal cabling will be 4-pair Unshielded Twisted Pair (UTP) which must meet or exceed ANSI/TIA/EIA-568-B and ISO/IEC 11801 standards.</li> <li>• Unshielded Twisted Pair (UTP) Category 6A quality cable shall be employed for either outdoor or indoor</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<p>cable.</p> <ul style="list-style-type: none"> <li>• Each room to be networked shall have wall plates installed and each outlet terminated with 8-pin modular jacks (RJ-45).</li> <li>• Each designated network interface will have capacity to support Giga Ethernet.</li> <li>• Each cable will be required to move through the tie if firmly pulled.</li> <li>• Cables should not be crushed using cable ties.</li> <li>• Cable conduits must not be overfilled.</li> <li>• All cables must pass through Trunking and should not be seen from the outside</li> <li>• There shall be no splicing of any of the cables installed. Intermediate cross-connects and transition points are not allowed.</li> <li>• All user area patch chords shall be at least 3m in length</li> <li>• Data outlets shall be flash mounted on the metal Trunking.</li> <li>• All user area patch chords and cabinet patch chords will be supplied to match the total number of data outlets.</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
Install Category 6A PATCH PANELS	<ul style="list-style-type: none"> <li>• All patch panels must conform to ANSI/TIA/EIA-568A.</li> <li>• Patch panels must be equipped with RJ45 contacts of Category 6A sockets with a capacity of 24/48 RJ45 ports.</li> <li>• All patch panels, including fiber optic patch panels must be rack mounted</li> <li>• All panels and racks must be earthed to provide electrical safety for users and screening to prevent electromagnetic radiation.</li> <li>• Except for the patch cords used to connect NICs to the RJ45 sockets, all patch cords must be labeled at each extremity with soft PVC support and indelible marking (stamping or similar method). For all other components, the label type should be of stiff plastic PVC type.</li> </ul> <p>Attach data sheets for the Patch panels and ODFs</p>	
48-Port Optical Distribution Frame (Fiber Patch Panel) & Accessories (LC	<p>19-inch rackmount and modularized fiber optic distribution frame for indoor fiber optic cables connection storage, distribution and management. The ODF must meet the following minimum requirements:</p> <ul style="list-style-type: none"> <li>• Minimum core Capacity of 48 No.</li> </ul>	



TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
adapters & pigtails)	<ul style="list-style-type: none"> <li>• Minimum cable ports of 8 No.</li> <li>• Support for LC fiber optical adapters</li> <li>• Support for ribbon and single fiber</li> <li>• MUST be fully populated with fiber optic pigtails and LC/UPC adapters</li> <li>• Support for optical wavelengths of 1310nm and 1550nm</li> <li>• Insertion loss MUST be less than 0.2dBm</li> </ul> <p>Attach data sheets</p>	
24-Port Optical Distribution Frame (Fiber Patch Panel) & Accessories (LC adapters & pigtails)	<p>19-inch rackmount and modularized fiber optic distribution frame for indoor fiber optic cables connection storage, distribution and management. The ODF must meet the following minimum requirements:</p> <ul style="list-style-type: none"> <li>• Minimum core Capacity of 24 No.</li> <li>• Minimum cable ports of 8 No.</li> <li>• Support for LC fiber optical adapters</li> <li>• Support for ribbon and single fiber</li> <li>• MUST be fully populated with fiber optic pigtails and LC/UPC adapters</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	<ul style="list-style-type: none"> <li>• Support for optical wavelengths of 1310nm and 1550nm</li> <li>• Insertion loss MUST be less than 0.2dBm</li> </ul> <p>Attach data sheets</p>	
12-Port Optical Distribution Frame (Fiber Patch Panel) & Accessories (LC adapters & pigtails)	<p>19-inch rackmount and modularized fiber optic distribution frame for indoor fiber optic cables connection storage, distribution and management. The ODF must meet the following minimum requirements:</p> <ul style="list-style-type: none"> <li>• Minimum core Capacity of 12 No.</li> <li>• Minimum cable ports of 8 No.</li> <li>• Support for LC fiber optical adapters</li> <li>• Support for ribbon and single fiber</li> <li>• MUST be fully populated with fiber optic pigtails and LC/UPC adapters</li> <li>• Support for optical wavelengths of 1310nm and 1550nm</li> <li>• Insertion loss MUST be less than 0.2dBm</li> </ul> <p>Attach data sheets</p>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
Install Fiber Patch Panel) & Accessories	<ul style="list-style-type: none"> <li>• All patch panels/ODFs must conform to ANSI/TIA/EIA-568A.</li> <li>• All patch panels must be rack mounted</li> <li>• All panels and racks must be earthed to provide electrical safety for users and screening to prevent electromagnetic radiation.</li> <li>• Fiber Optic patching should be done from the cabinet housing optic boxes/panels as well as the optic electronic equipment.</li> <li>• All patch cords must be labeled at each extremity with soft PVC support and indelible marking (stamping or similar method). For all other components, the label type should be of stiff plastic PVC type.</li> </ul> <p>Attach data sheets for the Patch panels and ODFs</p>	
LC Duplex adapters	Duplex fiber LC connectors LC/UPC duplex unibody adapter with flange	
SM Fiber Patch Cord 1M	<p>1 meter Fiber Optic Cable, Single-Mode Duplex 9/125 housed in a LSZH (Low-Smoke, Zero-Halogen) flame retardant jacket with specifications below:</p> <ul style="list-style-type: none"> <li>• 2x LC/UPC Single Mode male connectors</li> <li>• OS1 (9/125)</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT		Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
		<ul style="list-style-type: none"> <li>• LSZH (Low-Smoke, Zero-Halogen) cable jacket</li> <li>• Support for ITU-T G.652, including ITU-T G.652A, ITU-T G.652B, ITU-T G.652C and G.652D</li> </ul> Cable length of 1 meter	
Supply of ADSS OFC 12/24/48 Core		Supply and install and installation of ADSS OFC 12/24/48 Core with accessories. <ul style="list-style-type: none"> <li><input type="checkbox"/> Aqua #00D1D1 with Red Stripes on Jacket/ Sheathing</li> <li><input type="checkbox"/> Labelling as per ICTA standards</li> <li><input type="checkbox"/> ITU G652 Compliant</li> <li><input type="checkbox"/> Must be compliant with underground ADSS specs below</li> <li><input type="checkbox"/> Attach Brochure</li> </ul>	
Overhead ADSS cable specifications		ADSS  Installation of OFC ADSS Cable <ol style="list-style-type: none"> <li>Laying overhead cable</li> <li>Installation of Two thimble eye bolt, 0.25-inch-thick strand wire, concrete attached anchor bolt.</li> <li>The cable shall meet the specifications below:</li> </ol>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT				Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)																																																																			
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		<ul style="list-style-type: none"> <li>a. ADSS Fittings (as per design)</li> <li>b. Installation with through bolt or banding</li> <li>c. Versatile design can be used as a stringing block (with inserts removed)</li> <li>d. Tangent suspension for spans up to 600 ft.</li> <li>e. Meets IEEE 1591.2</li> <li>f. Installation J-Hooks               <ul style="list-style-type: none"> <li>a. Tangent suspension for spans up to 600ft</li> <li>b. Less than 20 degrees angle on cable routes between spans (For Angles greater than 20 degrees, double deadend or false deadend)</li> </ul> </li> <li>g. Installation of Stay (Pole support)               <ul style="list-style-type: none"> <li>a. Stay Block, stay wire and Stay Rod (as per design)</li> </ul> </li> </ul>	
Supply of underground OFC 12/24/48 Core	Supply and installation of OFC 12/24/48 Core with accessories. <ul style="list-style-type: none"> <li><input type="checkbox"/> Aqua #00D1D1with Red Stripes on Jacket/ Sheathing</li> <li><input type="checkbox"/> Labelling as per ICTA standards</li> </ul>		

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	<input type="checkbox"/> ITU G652 Compliant <input type="checkbox"/> Must be compliant with underground OFC specs below Attach Brochure																
Underground OFC cable specifications	<p>Underground OFC Specs All fiber Optic Cables must comply with the following specs:</p> <p>a) Maximum Attenuation</p> <table border="1"> <thead> <tr> <th>Wavelength (nm)</th><th>Maximum Value (dB/Km) (Before cable)</th><th>Maximum Value (dB/Km) (After cable)</th></tr> </thead> <tbody> <tr> <td>1310</td><td>≤ 0.34</td><td>≤ 0.35</td></tr> <tr> <td>1383</td><td>≤ 0.34</td><td>≤ 0.35</td></tr> <tr> <td>1550</td><td>≤ 0.21</td><td>≤ 0.22</td></tr> <tr> <td>1625</td><td>≤ 0.23</td><td>≤ 0.24</td></tr> </tbody> </table> <p>b) The Variance of attenuation in any given wavelength should not be more than 0.05 dB/Km            c) The Macro-bend loss for fibre wrapped around a mandrel of diameters higher than 60mm and up to 100 turns should be ≤0.1 dB at wavelength (<math>\lambda</math>)</p>	Wavelength (nm)	Maximum Value (dB/Km) (Before cable)	Maximum Value (dB/Km) (After cable)	1310	≤ 0.34	≤ 0.35	1383	≤ 0.34	≤ 0.35	1550	≤ 0.21	≤ 0.22	1625	≤ 0.23	≤ 0.24	
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		<div>1625nm.</div> <div>d) Cut off Wavelength. Fibre should be able to carry wavelengths from <math>\lambda=1260\text{nm}</math> upwards.</div> <div>e) Maximum Dispersion:</div> <div>f) Zero Dispersion Wavelength <math>1300\text{ nm} \leq \lambda_0 \leq 1324\text{ nm}</math></div> <div>g) Zero Dispersion Slope <math>S_0 \leq 0.092\text{ ps}/(\text{nm}^2 * \text{Km})</math></div> <table><tr><th>Wavelength (nm)</th><th>Maximum Value (ps/nm*Km)</th></tr><tr><td>1550</td><td><math>\leq 18</math></td></tr></table> <div>h) He Polarization Mode Dispersion (PMD) Link Design Value or PMDQ (PMD of concatenated length of fibre) should comply with IEC 60794-3: 2001, section 5.5, Method 1 (m=20, Q=0.01%). <math>\text{PMDQ} \leq 0.1\text{ ps}/\sqrt{\text{Km}}</math> (ps per root Km).</div> <div>i) Environmental Specs: The fibre should be able to operate with induced attenuation <math>\leq 0.05\text{ dB/Km}</math> at temperatures from -0oC to +85oC and humidity of up to 85% RH.</div> <div>j) The cable adopts a semi-dry water blocking structure, making clean and tidy coiling operations possible. In this way, the environment cleanness and coiling efficiency are improved.</div>	Wavelength (nm)	Maximum Value (ps/nm*Km)	1550	$\leq 18$	
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	<p>k) The cable will have 6 cores per tube and 16 tubes per cable.</p> <p>l) The cable will be labelled as per ICTA Fiber Optic-Backbone, Metro and Last Mile Infrastructure standard (ICTA.2.001.2021) to allow for identification</p> <p>m) The natural bending length of duct OFC is 7-10m per km. Generally, when OFC pass hand hole/manhole, the bending length is 0.5-1m.OFC reservation shall be 15m at each side of the OFC joint.</p> <p>n) Cable reservation of equipment-room OFC: At the side of the equipment-room, the length of reservation cable is a minimum 15m.</p> <p>o) cables will have specifications as stipulated in the IEC 60794 -3 test criteria as follows:</p> <table border="1"> <thead> <tr> <th>Item</th><th>Description</th><th>Spec Ac</th></tr> </thead> <tbody> <tr> <td>1</td><td>Maximum Fibres Per Tube</td><td>12</td></tr> <tr> <td>2</td><td>Minimum Number of Tubes</td><td>8</td></tr> <tr> <td>3</td><td>Weight</td><td>≤ 98 Kg</td></tr> <tr> <td>4</td><td>Outer Diameter</td><td>≤ 12.2mm</td></tr> <tr> <td>5</td><td>Minimum Bend Radius at</td><td>183 mm</td></tr> </tbody> </table>	Item	Description	Spec Ac	1	Maximum Fibres Per Tube	12	2	Minimum Number of Tubes	8	3	Weight	≤ 98 Kg	4	Outer Diameter	≤ 12.2mm	5	Minimum Bend Radius at	183 mm	
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OFC Installation - Underground	<p>The OFC Implementation Civil Work should be done on Turnkey Basis:</p> <ul style="list-style-type: none"> <li>• Preparatory works: Engineering measurement (Survey and Design)</li> <li>• Route cleaning, calibration and cleaning of existing duct if applicable,</li> <li>• Trenching including excavation, backfilling, laying warning tape, and compaction in all soils. The trench width should be 300mm, the trench depth should be 1200mm in soils excluding rocky soil, 800mm in soft rock, 400mm in hard rock.</li> <li>• Breaking and reinstatement of road surface.</li> <li>• Laying ducts: 2'0. D.32mm HDPE and 1*O.D.40mm HDPE Pipe in trench or duct.</li> </ul>																

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>● Installation of RC manhole: Averagely, install at an interval of 200m in town or city</li> <li>● Road crossing by trenching or thrust boring or directional drilling for different grade of roads in Kenya as per specification, including 110mm HDPE pipe installation.</li> <li>● Bridge crossing by bridge attachment, trenching and drilling as per design</li> <li>● River crossing by trenching or non-trenching, including C15 concrete envelope protection and scree bag protection as per specification.</li> <li>● 20mm*200mm C15 concrete envelope protection in rocky trench or where else required.</li> <li>● Other O.F.O cable duct protection, such as slope protection, stone pitching, gabion protection, etc. as per specification.</li> <li>● BOSAL works for site or building entry including supplying all the BOSAL work materials.</li> <li>● The bidders work shall follow all the project specification requirements and other standards.</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	<ul style="list-style-type: none"> <li>The Bidders shall be responsible for all security for site activities where requires</li> </ul>	
OFC Installation – Overhead	<ol style="list-style-type: none"> <li>Pole erection – Includes digging a hole and installation of a dressed pole.</li> <li>Lying overhead cable.</li> <li>Installation of Two thimble eye bolt, 0.25- inch-thick strand wire, concrete attached anchor bolt.</li> </ol>	
O.F. Cable Splicing & Test	<ol style="list-style-type: none"> <li>Splicing and testing of fibers in the field.</li> <li>Attenuation coefficient, length, position and loss of all splice joints shall be measured in accordance with IEC 793-1 and EIA 455 standards using an Optical Time Domain Reflectometer (OTDR) and a buffer fiber should be used in the measurements. The results shall be recorded as a trace and in a table format. The length of fiber should be tested at the same time.</li> </ol>	
O.F Cable Termination & Test	<ol style="list-style-type: none"> <li>O.F termination by fusion. Testing after installation of the cables and termination rack</li> <li>All cores should be terminated.</li> </ol>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
Supply and install HDPE pipe with Silicon core(26/32mm) and necessary accessories	<ul style="list-style-type: none"> <li>• High density polyethylene (HDPE) with silicone inner layer</li> <li>• These ducts must have 32mm exterior side and 26mm inner diameter and must support OFC by blowing at a km distance using a 10-bar pressure.</li> <li>• The drum length is 2km.</li> <li>• The duct will be white in colour, with</li> <li>• 2mm thick single red strip externally (at every 90° angle) and cream on the inner side.</li> <li>• The duct should be translucent for ease of maintenance and should be made of all virgin materials.</li> <li>• Duct labelling will be as follows: =HDPE Silicon Duct= = <math>\phi</math> 32/26mm G.O.K-I.C.T.</li> <li>• A-2019= =. Spacing of the labelling will be</li> <li>• 1.0m. (The year will be changed to the right year of manufacture)</li> <li>• Supply and Install and install the</li> <li>• HDPE pipe including Supply and Install and</li> <li>• installation of all the couplers, end plugs, etc.</li> <li>• Minimum technical specs</li> <li>• Density: 0.95 g/cm<sup>3</sup> - DIN 53 479</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	<ul style="list-style-type: none"> <li>• Tensile strength at break: 23 – 30 N/mm<sup>2</sup> - DIN 53 455</li> <li>• Ball indentation hardness: 30 – 65 N/mm<sup>2</sup> - DIN 53 456</li> <li>• Notched bar impact strength: &gt; 5 mJ/mm<sup>2</sup> - DIN 53 453</li> <li>• Thermal conductivity: 0.40 – 0.46 W/m K - DIN 52 612</li> <li>• Coefficient of elongation: 1.5–2.0 x 10<sup>-4</sup> K<sup>-1</sup> - DIN 52 328</li> <li>• Dielectric strength: 800 – 900 kV/cm - DIN 53 481</li> <li>• Specific insulation resistance: 10<sup>16</sup> Ohm. Cm - DIN 53 482</li> </ul> <p>Attach Brochure</p>	
Supply and Install Warning Tape	<ul style="list-style-type: none"> <li>• The warning tape shall be made of PVC or PE having approximately 10 cm in width and 0.1mm in thickness.</li> <li>• The background colour of the warning tape shall be yellow.</li> <li>• The mark words shall be enlarged up to the full width of the warning tape and shall be durably printed in black colour 2 meters apart.</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	The words “CAUTION: Do not dig! O.F.C Cable underneath: Government of Kenya Contact 0206676999” shall be displayed on the warning tape at intervals of half (0.5) meters.	
Supply and Install Handhole with cover and necessary accessories	<ul style="list-style-type: none"> <li>• Plastic material</li> <li>• Approximate Inner dimension: depth is 900mm, diameter is 1000mm.</li> <li>• cable run directions at least.</li> <li>• Joint box hanging mechanism at least.</li> <li>• Cover branded Government of Kenya I.C.T.A and ICTA logo.</li> <li>• Body branded Government of Kenya</li> </ul>	
Supply and Install dressed wooden pole	Chemical treated wooden pole, 8m and 12M length, top diameter 140-200mm, top cover should be galvanized steel material, the diameter should be 100mm more than top diameter of the pole.	
Supply and install of reinforced concrete precast small manhole with polymer	<ul style="list-style-type: none"> <li>• Dig the manhole pit which is fit for the manhole installation.</li> <li>• This reinforced concrete manhole can be pre-casted or cast-in-place.</li> <li>• Install the manhole and passive components such as</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
cover and lock mechanics with accessory	bolts, nuts, brackets <ul style="list-style-type: none"> <li>• Polymer cover installation.</li> <li>• Labelling shall be painted on both cover and body after installation, the serial number will follow design.</li> <li>• Backfill and compact the soil after manhole installation.</li> <li>• The size of the manhole is 1000mm*800mm*1300mm (L*W*D)</li> <li>• Concrete grade to be C20.</li> </ul>	
96 Core Dome Splice Enclosure	Fiber optic PP plastic+UV resistance dome splice closure with trays for fiber splicing. Minimum requirements are: <ul style="list-style-type: none"> <li>• Minimum number of cores supported, 96 cores</li> <li>• Fiber cable size support: 8mm – 18mm</li> <li>• Minimum number of cassettes, 6 No.</li> </ul> 31 Support for installations upto of 60°C working environments	
24 Core Fiber Access Terminal (FAT)	Fiber Access Terminal (FAT) 24 Core (loaded with LC duplex pigtails and adapters)	



TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
4 Core Fiber Access Terminal (FAT)	Fiber Access Terminal (FAT) 4 Core (loaded with LC duplex pigtails and adapters)	
Fiber Access Terminal Box (ATB)	Access Terminal Box (ATB) - Loaded with SC simplex adapters and pigtails	

**Note: Bidder MUST attach product datasheet that highlights the features matching each requirements/specification. Stating compliance without providing a product datasheet will be deemed non-compliant**

### Details Scope of Works - LOT 1

S/No	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
1	Procure a Wired & Wireless network solution to deliver intranet & internet services within the institution that will provide reliable connectivity and value-added services to students, teaching and non-teaching staff across the campus. <i>Provide a Detailed technical proposal</i>	
2	Integrate the Solution to the existing Network services at the institutions to reach all common areas of use, which include lecture halls, student residential areas, library, graduation squares, laboratories, public access areas, student centre, resting areas among others. <i>Provide Network Integration Plan</i>	
3	Interpolate the Solution to Support a large number of concurrent users without compromising network performance, enable seamless roaming for users moving between different areas of the campus. <i>Provide Interpolability &amp; Roaming plan</i>	
4	Implement network security of Authentication & Access, implement measures to protect against unauthorized access & data breaches and log all events on the Campus Wi-Fi network <i>Provide a plan for implementation of Network Security</i>	
5	Supply of associated licenses, software and original equipment manufacturer (OEM) support for the equipment, software's and all components supplied. All licenses are required to be perpetual during acquisitions and shall not result to recurrent costs in future.  <i>Provide a list of licenses , type, validity and function</i>	
6	Provide the Interconnection between the learning institution and the Wide Area Network, where none exists as proposed in the high level design.	

S/No	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
7	Offer industry standardized & Certified technical trainings to all the components of the project (Fiber, Wireless, Switching, Routing, Wireless Local Area Networks, Session Control & Management, Authentication & Wireless Security, Network Optimization & Support, Power Systems & Management) <i>Provide a detailed Training Plan (Content, Venue, Duration &amp; Number of trainees)</i>	
8	Provide 3 year Support and maintenance services for all the sub-systems and components constructed. <i>Provide a detail Support &amp; Maintenance of the completed infrastructure</i>	
9	<ul style="list-style-type: none"> <li>• Project Actualization Process</li> <li>• Site Planning</li> <li>• Implementation.</li> <li>• User Acceptance Testing</li> <li>• Commissioning</li> <li>• As-Built Documentation</li> <li>• Training</li> </ul> <i>Provide a detailed project work plan</i>	

**Note: Bidder MUST attach product datasheet that highlights the features matching each requirements/specification. Stating compliance without providing a product datasheet will be deemed non-compliant**

#### Qualification Criteria - LOT 1

S/No	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	Technical Qualification of the Firm	

S/No	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
1	<p>The firm must have a proven track record in implementing large-scale network infrastructure projects in similar environments. The firm should demonstrate skills in designing, implementing and delivering projects of complex nature. The firm should demonstrate at least 2 similar projects undertaken in the last 5 years. The projects should be of comparable monetary value to the scope of this project.</p> <p><i>Provide a Proof in the form of contracts/LPOs and Completion Certificates/Inspection Certificates for each project.</i></p>	
	Financial Capability of the Firm	
2	<p>A minimum of two (2) in number of similar contracts, similarity being in nature, complexity that incorporated supply, installation, configuration, commissioning and maintenance a similar project in nature and value, specified below that have been satisfactorily and substantially completed during the last 5 years:</p> <p>One contract, with a minimum value of at least KES 120 million.</p> <p><i>Provide a Proof in the form of contracts/LPOs for each.</i></p>	
	Liquidity	
3	<p>The Bidder shall demonstrate that is has access to, or has available, liquid assets, lines of credit or other financial means sufficient to meet cash flow requirements of KES 120 million or equivalent.</p>	

<b>S/No</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	<i>Provide evidence of liquidity (Letter of credit or Bank Balances)</i>	

### Project Approach, Environment and Social Safeguards - LOT 1

<b>S/No</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	Project Timelines	
<b>1</b>	<p>The supply, delivery &amp; installation works for all the items in the BoQ/Activity Schedules should be delivered and installed at the place of destination within four (4) months from the date of contract signing.</p> <p><i>Provide a detailed project plan fitting the timelines and a letter as a commitment</i></p>	
	Code of Conduct for Contractor's Personnel (ES)	
<b>2</b>	<p>Submit its Code of Conduct that will apply to Contractor's Personnel (as defined in Sub- Clause 1 (ii) of the General Conditions of Contract), to ensure compliance with the Contractor's Environmental and Social (ES) obligations under the Contract. The Bidder shall use for this purpose the Code of Conduct form provided in Section IV</p>	
	Management Strategies and Implementation Plans (MSIP) to manage the (ES) risks	
<b>3</b>	<p>The Bidder shall submit Management Strategies and Implementation Plans (MSIPs) to manage the</p>	

S/No	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<p>following key Environmental and Social (ES) risks:</p> <ul style="list-style-type: none"><li>• Sexual Exploitation, and Abuse (SEA) prevention and response action plan.</li><li>• Environmental Safety Plan .</li><li>• Site Access Plan</li><li>• Network Disruption Plan.</li></ul>	

**WiFi Routers and related Goods - LOT 2**

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
24 Port 10G SFP+ Layer 3 Core Switch	<p>Top of rack, 1RU rack-mountable managed switch with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Minimum of 24 No. ports of 1/10/25G (SFP/SFP+)</li> <li>• Minimum of 4 No. ports of 40GbE/100GbE (QSFP+/QSFP28)</li> <li>• Minimum switching capacity of 1.6 Tbps</li> <li>• Support for minimum of 80,000 MAC addresses in the MAC address table</li> <li>• Support for Layer 3 routing (Static Routes and dynamic routing using OSPFv2, IS-IS, IS-ISv6, BGP4, BGP6)</li> <li>• Support for VLANs and IEEE 802.1Q (4,094 VLAN IDs) VLAN tagging with minimum 1,000 configurable active VLANs</li> <li>• Support for spanning-tree protocol for both Rapid Per-VLAN Spanning Tree (RPVST+) and Multiple Spanning Tree Protocol (MSPT)</li> <li>• Support for remote management, configuration and authentication (SNMPv2, SNMPv3, SSH, TACACS+, RADIUS)</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	<ul style="list-style-type: none"> <li>• Redundant Power Supplies (1+1 Redundancy)</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next six years. Attach Evidence</li> <li>• Original Equipment Manufacturer/vendor of the proposed switch MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> <li>• Three-year (3) warranty and support</li> </ul> <p>Attach data sheet</p>	
L3 Edge switch 48-Port GigEthernet PoE+ Switch with 10Gbps SFP+ Uplinks	<p>Top of rack, 1RU rack-mountable managed switch with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Minimum of 48 No. RJ-45 autosensing 10/100/1000 PoE+ ports</li> <li>• Minimum of 4 No. SFP+ 1/10GbE ports</li> <li>• Minimum of 2 No. MultiGigabit stack ports</li> </ul>	



TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• Minimum switching capacity of 170Gbps with a forwarding performance of 130 Mpps</li> <li>• Supports full POE+</li> <li>• Support for minimum of 30,000 MAC addresses in the MAC address table</li> <li>• Support for Layer 3 routing (Static Routes and dynamic routing using OSPFv2)</li> <li>• Support for VLANs and IEEE 802.1Q (4,094 VLAN IDs) VLAN tagging with 1,000 configurable VLANs</li> <li>• Support for spanning-tree protocol for both Rapid Per-VLAN Spanning Tree (RPVST+) and Multiple Spanning Tree Protocol (MSPT)</li> <li>• Support for remote management, configuration and authentication (SNMPv2, SNMPv3, SSH, TACACS+, RADIUS)</li> <li>• Redundant power supply modules</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next Six years. Attach Evidence</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	<ul style="list-style-type: none"> <li>Original Equipment Manufacturer/vendor of the proposed switch MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> <li>Three-year (3) warranty and support</li> </ul> <p>Attach data sheet</p>	
L3 Edge switch 24-Port GigEthernet PoE+ Switch with 10Gbps SFP+ Uplinks	<p>Top of rack, 1RU rack-mountable managed switch with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>1. Minimum of 24 No. RJ-45 autosensing 10/100/1000 PoE+ ports</li> <li>Minimum of 4 No. SFP+ 1/10GbE ports</li> <li>Minimum of 2 No. MultiGigabit stack ports</li> <li>Minimum switching capacity of 125Gbps with a forwarding performance of 95 Mpps</li> <li>Supports full POE+</li> <li>Support for minimum of 30,000 MAC addresses in the MAC address table</li> <li>Support for Layer 3 routing (Static Routes and dynamic routing using OSPFv2)</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• Support for VLANs and IEEE 802.1Q (4,094 VLAN IDs) VLAN tagging with 1,000 configurable VLANs</li> <li>• Support for spanning-tree protocol for both Rapid Per-VLAN Spanning Tree (RPVST+) and Multiple Spanning Tree Protocol (MSPT)</li> <li>• Support for remote management, configuration and authentication (SNMPv2, SNMPv3, SSH, TACACS+, RADIUS)</li> <li>• Redundant power supply modules</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next Six years. Attach Evidence</li> <li>• Original Equipment Manufacturer/vendor of the proposed switch MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> <li>• Three-year (3) warranty and support</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	Attach data sheet	
Indoor Wireless Access Point	<p>Indoor wireless access point (WLAN AP) with support for Wi-Fi 6 software-configurable dual radio, 5 GHz 4x4 MIMO and 2.4 GHz 2x2 MIMO, achieving a data rate of 5.3 Gbps. The WiFi access points should specifically meet the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Support WPA3 with specific support for WPA3 Enterprise</li> <li>• Support for 802.1x standard for network authentication of wireless clients</li> <li>• Support for minimum of 150 associated active clients (concurrent connected end user devices)</li> <li>• Support for built-in smart antennas to improve on signal quality</li> <li>• Support for minimum of 16 No. SSIDs two (2) of which MUST support 802.1x network authentication</li> <li>• Support for WIFI-6 standards such as OFDMA, TWT, MU-MIMO and BSS coloring</li> <li>• Support for VLAN assignment per SSID and based on network authentication (802.1x VLAN assignment based on radius attributes)</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• Support for IoT</li> <li>• Communication between the WLAN AP and the management system MUST be through encrypted channels</li> <li>• Maximum power consumption should not exceed 21W</li> <li>• Support for powering through PoE</li> <li>• Operating temperature: Between 0°C to 50°C</li> <li>• Support for minimum of 2 No. RJ45 network interface ports capable of negotiating both 100Mbps and 1Gbps speed</li> <li>• Included with relevant mounting brackets</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next four years. Attach Evidence.</li> <li>• Original Equipment Manufacturer/vendor of the proposed access point MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<p>consecutive years, at the time of bidding. Attach Evidence</p> <ul style="list-style-type: none"> <li>Three-year (3) warranty and support</li> </ul> <p>Management using a centralized WLAN Controller (or equivalent centralized management system for software updates and configuration) is mandatory</p> <p>Attach data sheet</p>	
Outdoor Wireless Access Point	<p>Outdoor Hardened (IP68) wireless access point (WLAN AP) with support for Wi-Fi 6 software-configurable dual radio, 5 GHz 2x2 MIMO and 2.4 GHz 2x2 MIMO achieving a device performance of 1.7 Gbps. The WiFi access points should specifically meet the following minimum specifications:</p> <ul style="list-style-type: none"> <li>Support WPA3 with specific support for WPA3 Enterprise</li> <li>Support for 802.1x standard for network authentication of wireless clients</li> <li>Support for minimum of 500 associated active clients (concurrent connected end user devices)</li> <li>Support for external smart antennas to improve on signal quality</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• Support for WIFI-6 standards such as OFDMA, TWT, MU-MIMO and BSS coloring</li> <li>• Support for minimum of 16 No. SSIDs two (2) of which MUST support 802.1x network authentication</li> <li>• Support for VLAN assignment per SSID and also based on network authentication (802.1x VLAN assignment based on radius attributes)</li> <li>• Communication between the WLAN AP and the management system MUST be through encrypted channels</li> <li>• Operating temperature: -40°C to 65°C</li> <li>• Support for powering through PoE</li> <li>• Support for minimum of 1 No. RJ45 network interface port capable of negotiating both 100Mbps and 1Gbps speed</li> <li>• Included with relevant mounting brackets</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next four years. Attach Evidence.</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>Original Equipment Manufacturer/vendor of the proposed access point MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> <li>Three-year (3) warranty and support</li> </ul> <p>Management using a centralized WLAN Controller (or equivalent centralized management system for software updates and configuration) is mandatory Attach data sheet</p>	
Wireless Access/LAN Controller	<ul style="list-style-type: none"> <li>The WLC should support manage 250 access points</li> <li>The WLC should support 5000 users.</li> <li>The WLC should provide 5 Gbps forwarding performance.</li> <li>The WLC should have at least 2x1G SFP interfaces fully populated with MMF 1G SFPs</li> <li>The WLC should support the establishment of CAPWAP tunnels with APs using IPv4 and IPv6 dual stacks.</li> </ul>	



TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• The WLC should support intelligent roaming based on 802.11k and 802.11v, enabling clients with low roaming sensitivity to roam to the optimal AP.</li> <li>• The WLC should support automatically switch 2.4 GHz radios to 5 GHz radios through automatic negotiation between APs, reducing 2.4 GHz co-channel interference and increasing system capacity.</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next four years. Attach Evidence.</li> <li>• Original Equipment Manufacturer/vendor of the proposed controller MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> <li>• Three-year (3) warranty and support</li> </ul> <p>Attach data sheet</p>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
Install Wireless AP with Accessories	<ul style="list-style-type: none"> <li>• Install AP as per ICTA standards</li> <li>• inclusive of trunking and LAN cabling</li> </ul>	
2 KVA Rack mountable UPS	<p>Single-phase 2 KVA double-conversion on-line rack-mountable UPS with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Minimum output power capacity of 1.2KW</li> <li>• Minimum output power factor of 0.8</li> <li>• Nominal Output Voltage 230V, 50Hz</li> <li>• Input Voltage range 220VAC – 240VAC, 50Hz</li> <li>• 4 No. IEC 60320 C13 Output Connections</li> <li>• IEC 60320 C14 Input connections</li> <li>• Online, double-conversion power conditioning</li> <li>• Minimum runtime of 15 minutes at Half Load</li> <li>• Included with relevant mounting brackets for 19-inch rack/cabinet</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not have an ongoing End of Life (EOL) announcement by the OEM</li> </ul> <p>Attach data sheet</p>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
3 KVA Single-Phase UPS	<p>Single-phase 3KVA UPS with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Minimum output power capacity of 4KW</li> <li>• Minimum output power factor of 0.8</li> <li>• Number of phases, 1ph</li> <li>• Nominal Output Voltage 230V, 50Hz</li> <li>• Input Voltage range 220VAC – 240VAC, 50Hz</li> <li>• Parallel configuration support for minimum 2 units</li> <li>• Minimum runtime of 15 minutes at Half Load</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not have an ongoing End of Life (EOL) announcement by the OEM</li> </ul> <p>Attach data sheet</p>	
Supply and install 3-core 4 mm flexible Cable Roll	3-core Electrical Flexible PVC Cable 4mm twin with earth for 300v/500V rating. Cable should have stranded copper conductors meeting BS 6004 and KS453 standard	
Supply and Install of yellow green earthing	<ul style="list-style-type: none"> <li>• The cable size should be 4 mm<sup>2</sup></li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Data sheet (Yes/No)</b>
cable		
Supply and install Earth rod	The earth rod should pure copper and 1.5 metres long, with accessories	
22U Network Cabinet with a 4Way Horizontal Mount Power Distribution Unit (PDU)	<p>Standard-Depth 22U 19-inch Server Cabinet Rack Enclosure including vertical mounting rails and mesh door with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Rack Enclosure depth of 800 mm</li> <li>• Rack height of 22U</li> <li>• Support mounting of 19-inch copper patch panels, optical distribution frames, network switches, rack-mountable UPS</li> <li>• 1 No. 4 Way UK Plug Power Distribution Unit Horizontal</li> <li>• Floor Standing Steel Rack Enclosure with 4 No. castor wheels with fan venting at the top (fan included)</li> </ul> <p>Attach data sheet</p>	
15U Network Cabinet with a 4Way Horizontal	<p>Standard-Depth 15U 19-inch Server Cabinet Rack Enclosure including vertical mounting rails and mesh door with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Rack Enclosure depth of 800 mm</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
Mount Power Distribution Unit (PDU)	<ul style="list-style-type: none"> <li>• Rack height of 15U</li> <li>• Support mounting of 19-inch copper patch panels, optical distribution frames, network switches, rack-mountable UPS</li> <li>• 1 No. 4 Way UK Plug Power Distribution Unit Horizontal</li> <li>• Floor Standing Steel Rack Enclosure with 4 No. castor wheels or Wall-mountable rack enclosure with fan venting at the top (fan included)</li> </ul> <p>Attach data sheet</p>	
Cat 6A U/UTP Pure Copper Ethernet Cable 305M (Indoor)	<p>23AWG Cat 6 U/UTP copper cable with HDPE insulation enclosed in PVC flame-retardant jacket for indoor installations. The minimum specifications are as follows:</p> <ul style="list-style-type: none"> <li>• Indoor environment use</li> <li>• Riser flammability rating</li> <li>• Support installation temperature of 50°C</li> <li>• 23AWg solid copper conductor</li> <li>• Overall length of 305 meters</li> </ul> <p>Attach data sheet</p>	
Cat 6A F/UTP Pure Copper	23AWG Cat 6 U/UTP Outside Plant (OSP) copper cable with PE insulation enclosed in abrasion-resistant HDPE flame-	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Data sheet (Yes/No)
Ethernet Cable 305M (Outdoor)	retardant jacket for outdoor installations. The minimum specifications are as follows: <ul style="list-style-type: none"> <li>• Outdoor environment use</li> <li>• Ability for the insulation to withstand moisture migration in underground and wet applications</li> <li>• Outdoor flammability rating</li> <li>• Must be UV-Resistant</li> <li>• Support installation temperature of 70°C</li> <li>• 23AWg solid copper conductor</li> <li>• Overall length of 305 meters</li> </ul> Attach data sheet	
F/UTP Category 6A Dual Outlets Module (Data points)	Pair of Cat 6A RJ45 keystone modules with support for 10Gbit Ethernet applications Attach data sheet	
Flash Mount Faceplates – F/UTP Category 6A Double	Single gang faceplate with support for 2 outlet ports. Faceplate should support mounting onto single gang opening and include a label pocket for identification/labeling Attach data sheet	
F/UTP Category 6A Wall UTP-	Cat 6A 24 AWG UTP Copper Patch Cord of 0.25 meter length with minimum specifications below:	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
RJ45Patch cord (0.25M)	<ul style="list-style-type: none"> <li>• 24AWg solid copper conductor</li> <li>• Overall length of 1 meter</li> <li>• T568B wiring scheme</li> <li>• Must support IEEE 802.3af (PoE), IEEE 802.3at (PoE+), and IEEE 802.3bt Type 3 and 4 (PoE++) PoE compatibility.</li> </ul> <p>Attach data sheet</p>	
F/UTP Category 6A 48 PATCH PANEL 1 U568A/B	<p>Cat 6A UTP Flat Punchdown steel Patch Panel with support for terminating 4-pair, 22–26 AWG, twisted pair cable. The patch panels should meet the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Must be rack-mountable on a 19-inch rack</li> <li>• Support for RJ45 module type</li> <li>• Minimum of 48 ports fully populated with keystones</li> <li>• Support for both T568A and T568B wiring schemes</li> </ul> <p>Attach data sheet</p>	
F/UTP Category 6A 24 PATCH PANEL 1 U568A/B	<p>Cat 6A UTP Flat Punchdown steel Patch Panel with support for terminating 4-pair, 22–26 AWG, twisted pair cable. The patch panels should meet the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Must be rack-mountable on a 19-inch rack</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	<ul style="list-style-type: none"> <li>• Support for RJ45 module type</li> <li>• Minimum of 24 ports fully populated with keystones</li> <li>• Support for both T568A and T568B wiring schemes</li> </ul> Attach data sheet	
Cable managers 2U	Horizontal Cable Manager mountable onto a 19-inch rack or cabinet. The cable manager MUST meet the following minimum specifications: <ul style="list-style-type: none"> <li>• Support for management of copper, and fiber optic cables</li> <li>• 2 RU with dual-hinging front cover</li> <li>• Should be mountable horizontally</li> </ul> Attach data sheet	
Cable managers 1U	Horizontal Cable Manager mountable onto a 19-inch rack or cabinet. The cable manager MUST meet the following minimum specifications: <ul style="list-style-type: none"> <li>• Support for management of copper, and fiber optic cables</li> <li>• 1 RU with dual-hinging front cover</li> <li>• Should be mountable horizontally</li> </ul> Attach data sheet	



<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
Galvanized Metallic Trunking 150mm x50mm & accessories	Galvanized double-compartment metal trunking cover and base with base loop perforation. Each piece of metal trunking MUST be at least 2.4 meters in length Attach data sheet	
Galvanized Metallic Trunking 100mm x50mm & accessories	Galvanized double-compartment metal trunking cover and base with base loop perforation. Each piece of metal trunking MUST be at least 2.4 meters in length Attach data sheet	
Galvanized Metallic Trunking 25mm x50mm & accessories	Galvanized double-compartment metal trunking cover and base with base loop perforation. Each piece of metal trunking MUST be at least 2.4 meters in length	
Install metal Trunking size 25×50mm/50×100mm/50×150mm with	<ul style="list-style-type: none"> <li>• Trunking should be installed neatly on the surface of walls, columns or beams and be truly vertical or horizontal.</li> <li>• Overhead trunking should be suitably supported by means of mild steel hangers' brackets or other suitable devices.</li> <li>• Trunking should be provided with removable side</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
accessories and auxiliary work	<p>cover, easy bend at all turning angles and, where required, appropriate outlet holes with grommets.</p> <ul style="list-style-type: none"> <li>• The height of the trunking installed should not cause any installation and maintenance problem.</li> <li>• Cutting and combine the trunking when necessary</li> <li>• Detect/locate the presence of the electricity system before drilling. size</li> <li>• 30x55mm for trunking (25*50 mm)</li> <li>• Drilling/boring the floor slab by the appropriate drilling/boring machine without cutting holes through the building structured area (e.g., beam, column E structure wall etc.).</li> <li>• Make good the hole surface by cement mortar and paint coating</li> <li>• Seal the holes with silicon.</li> </ul>	
Supply and Install Flexible corrugated PVC pipe ≤ 50mm with	<ul style="list-style-type: none"> <li>• Cutting suitable length of PVC pipe.</li> <li>• Smooth all duct ends</li> <li>• Fixing PVC Pipe on Wall/Ceiling by supporting with saddles/ brackets.</li> <li>• Fixing Junction Box at all turning angles or every 10m if necessary.</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
accessories.	<ul style="list-style-type: none"> <li>• Labelling for identification.</li> </ul>	
40mm Flex Conduits	40mm PVC Flexible Conduit per meter length	
Install indoor/Outdoor Cat.6, 4-Pair UTP Cable	<ul style="list-style-type: none"> <li>• Lay the outdoor cat6 as per design, what layed in trunk or duct as straight as flat, no bind, enlarged regular and fastened by plastic ties as per specification.</li> <li>• Supply and install and label the cat 6 cable as per specification, the labelling must be waterproof.</li> <li>• The primary media for horizontal cabling will be 4-pair Unshielded Twisted Pair (UTP) which must meet or exceed ANSI/TIA/EIA-568-B and ISO/IEC 11801 standards.</li> <li>• Unshielded Twisted Pair (UTP) Category 6A quality cable shall be employed for either outdoor or indoor cable.</li> <li>• Each room to be networked shall have wall plates installed and each outlet terminated with 8-pin modular jacks (RJ-45).</li> <li>• Each designated network interface will have capacity to support Giga Ethernet.</li> <li>• Each cable will be required to move through the tie if</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	<p>firmly pulled.</p> <ul style="list-style-type: none"> <li>• Cables should not be crushed using cable ties.</li> <li>• Cable conduits must not be overfilled.</li> <li>• All cables must pass through Trunking and should not be seen from the outside</li> <li>• There shall be no splicing of any of the cables installed. Intermediate cross-connects and transition points are not allowed.</li> <li>• All user area patch chords shall be at least 3m in length</li> <li>• Data outlets shall be flash mounted on the metal Trunking.</li> <li>• All user area patch chords and cabinet patch chords will be supplied to match the total number of data outlets.</li> </ul>	
Install Category 6A PATCH PANELs	<ul style="list-style-type: none"> <li>• All patch panels must conform to ANSI/TIA/EIA-568A.</li> <li>• Patch panels must be equipped with RJ45 contacts of Category 6A sockets with a capacity of 24/48 RJ45 ports.</li> <li>• All patch panels, including fiber optic patch panels must be rack mounted</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	<ul style="list-style-type: none"> <li>• All panels and racks must be earthed to provide electrical safety for users and screening to prevent electromagnetic radiation.</li> <li>• Except for the patch cords used to connect NICs to the RJ45 sockets, all patch cords must be labeled at each extremity with soft PVC support and indelible marking (stamping or similar method). For all other components, the label type should be of stiff plastic PVC type.</li> </ul> <p>Attach data sheets for the Patch panels and ODFs</p>	
48-Port Optical Distribution Frame (Fiber Patch Panel) & Accessories (LC adapters & pigtails)	<p>19-inch rackmount and modularized fiber optic distribution frame for indoor fiber optic cables connection storage, distribution and management. The ODF must meet the following minimum requirements:</p> <ul style="list-style-type: none"> <li>• Minimum core Capacity of 48 No.</li> <li>• Minimum cable ports of 8 No.</li> <li>• Support for LC fiber optical adapters</li> <li>• Support for ribbon and single fiber</li> <li>• MUST be fully populated with fiber optic pigtails and LC/UPC adapters</li> <li>• Support for optical wavelengths of 1310nm and 1550nm</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	<ul style="list-style-type: none"> <li>• Insertion loss MUST be less than 0.2dBm</li> </ul> <p>Attach data sheets</p>	
24-Port Optical Distribution Frame (Fiber Patch Panel) & Accessories (LC adapters & pigtails)	<p>19-inch rackmount and modularized fiber optic distribution frame for indoor fiber optic cables connection storage, distribution and management. The ODF must meet the following minimum requirements:</p> <ul style="list-style-type: none"> <li>• Minimum core Capacity of 24 No.</li> <li>• Minimum cable ports of 8 No.</li> <li>• Support for LC fiber optical adapters</li> <li>• Support for ribbon and single fiber</li> <li>• MUST be fully populated with fiber optic pigtails and LC/UPC adapters</li> <li>• Support for optical wavelengths of 1310nm and 1550nm</li> <li>• Insertion loss MUST be less than 0.2dBm</li> </ul> <p>Attach data sheets</p>	
12-Port Optical Distribution Frame (Fiber	19-inch rackmount and modularized fiber optic distribution frame for indoor fiber optic cables connection storage,	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
Patch Panel) & Accessories (LC adapters & pigtails)	<p>distribution and management. The ODF must meet the following minimum requirements:</p> <ul style="list-style-type: none"> <li>• Minimum core Capacity of 12 No.</li> <li>• Minimum cable ports of 8 No.</li> <li>• Support for LC fiber optical adapters</li> <li>• Support for ribbon and single fiber</li> <li>• MUST be fully populated with fiber optic pigtails and LC/UPC adapters</li> <li>• Support for optical wavelengths of 1310nm and 1550nm</li> <li>• Insertion loss MUST be less than 0.2dBm</li> </ul> <p>Attach data sheets</p>	
Install Fiber Patch Panel) & Accessories	<ul style="list-style-type: none"> <li>• All patch panels/ODFs must conform to ANSI/TIA/EIA-568A.</li> <li>• All patch panels must be rack mounted</li> <li>• All panels and racks must be earthed to provide electrical safety for users and screening to prevent electromagnetic radiation.</li> <li>• Fiber Optic patching should be done from the cabinet housing optic boxes/panels as well as the optic electronic equipment.</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>All patch cords must be labeled at each extremity with soft PVC support and indelible marking (stamping or similar method). For all other components, the label type should be of stiff plastic PVC type.</li> </ul> Attach data sheets for the Patch panels and ODFs	
LC Duplex adapters	Duplex fiber LC connectors LC/UPC duplex unibody adapter with flange	
SM Fiber Patch Cord 1M	1 meter Fiber Optic Cable, Single-Mode Duplex 9/125 housed in a LSZH (Low-Smoke, Zero-Halogen) flame retardant jacket with specifications below: <ul style="list-style-type: none"> <li>2x LC/UPC Single Mode male connectors</li> <li>OS1 (9/125)</li> <li>LSZH (Low-Smoke, Zero-Halogen) cable jacket</li> <li>Support for ITU-T G.652, including ITU-T G.652A, ITU-T G.652B, ITU-T G.652C and G.652D</li> </ul> Cable length of 1 meter	
Supply of ADSS OFC 12/24/48 Core	Supply and install and installation of ADSS OFC 12/24/48 Core with accessories. <ul style="list-style-type: none"> <li><input type="checkbox"/> Aqua #00D1D1 with Red Stripes on Jacket/ Sheathing</li> <li><input type="checkbox"/> Labelling as per ICTA standards</li> <li><input type="checkbox"/> ITU G652 Compliant</li> </ul>	



TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT		Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)																
	<div><input type="checkbox"/> Must be compliant with underground ADSS specs below</div> <div><input type="checkbox"/> Attach Brochure</div>																		
Overhead ADSS cable specifications		<div>ADSS</div> <div>Installation of OFC ADSS Cable</div> <div><div>h. Laying overhead cable</div><div>i. Installation of Two thimble eye bolt, 0.25-inch-thick strand wire, concrete attached anchor bolt.</div><div>j. The cable shall meet the specifications below:</div></div> <table><tr><td>Description</td><td>Trunk Specs</td></tr><tr><td>ITU Spec</td><td>G.652</td></tr><tr><td>Fibre Count</td><td>48</td></tr><tr><td>Fibres Per Tube</td><td>6</td></tr><tr><td>Minimum Number of Tubes</td><td>4</td></tr><tr><td>Weight (Include Messenger)</td><td>≤ 403 Kg/Km</td></tr><tr><td>Outer Diameter</td><td>≤ 14.3mm</td></tr><tr><td>Cable Height (End to end cable + Messenger)</td><td>≤ 25.9mm</td></tr></table>	Description	Trunk Specs	ITU Spec	G.652	Fibre Count	48	Fibres Per Tube	6	Minimum Number of Tubes	4	Weight (Include Messenger)	≤ 403 Kg/Km	Outer Diameter	≤ 14.3mm	Cable Height (End to end cable + Messenger)	≤ 25.9mm	
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TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT				Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
		Minimum Bend Radius in operation	143 mm		160 mm
		Pole to Pole Span at 1.5% Install Sag.	100m		100m
		ITU Spec	G.652		G.652
		Cable Slack Storage Coil at Joints	30m		30m
		Maximum Tensile Strength Long Term	890 N		890 N
		Cable Operating Temperature	-40oC - 70oC		-40oC - 70oC
		k. Installation of Cable storage bracket a. Galvanized Metal Bracket l. Installation of ADSS Clamp a. ADSS Fittings (as per design) b. Installation with through bolt or banding c. Versatile design can be used as a stringing block (with inserts removed) d. Tangent suspension for spans up to 600 ft. e. Meets IEEE 1591.2 m. Installation J-Hooks a. Tangent suspension for spans up to 600ft			

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT		Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
		b. Less than 20 degrees angle on cable routes between spans (For Angles greater than 20 degrees, double deadend or false deadend) n. Installation of Stay (Pole support) a. Stay Block, stay wire and Stay Rod (as per design)	
Supply of underground OFC 12/24/48 Core	Supply and installation of OFC 12/24/48 Core with accessories. <input type="checkbox"/> Aqua #00D1D1 with Red Stripes on Jacket/ Sheathing <input type="checkbox"/> Labelling as per ICTA standards <input type="checkbox"/> ITU G652 Compliant <input type="checkbox"/> Must be compliant with underground OFC specs below Attach Brochure		
Underground OFC cable specifications		Underground OFC Specs All fiber Optic Cables must comply with the following specs:  p) Maximum Attenuation	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT			Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)																					
		<table><tr><th>Wavelength (nm)</th><th>Maximum Value (dB/Km) (Before cable)</th><th>Maximum Value (dB/Km) (After cable)</th></tr><tr><td></td><td></td><td></td></tr><tr><td>1310</td><td>≤ 0.34</td><td>≤ 0.35</td></tr><tr><td>1383</td><td>≤ 0.34</td><td>≤ 0.35</td></tr><tr><td>1550</td><td>≤ 0.21</td><td>≤ 0.22</td></tr><tr><td>1625</td><td>≤ 0.23</td><td>≤ 0.24</td></tr></table> <p>q) The Variance of attenuation in any given wavelength should not be more than 0.05 dB/Km</p> <p>r) The Macro-bend loss for fibre wrapped around a mandrel of diameters higher than 60mm and up to 100 turns should be ≤0.1 dB at wavelength (λ) 1625nm.</p> <p>s) Cut off Wavelength. Fibre should be able to carry wavelengths from λ=1260nm upwards.</p> <p>t) Maximum Dispersion:</p> <p>u) Zero Dispersion Wavelength 1300 nm ≤ λ0 ≤ 1324 nm</p> <p>v) Zero Dispersion Slope S0 ≤ 0.092 ps/ (nm2 * Km)</p> <table><tr><th>Wavelength (nm)</th><th>Maximum Value (ps/nm*Km)</th></tr><tr><td></td><td></td></tr></table>	Wavelength (nm)	Maximum Value (dB/Km) (Before cable)	Maximum Value (dB/Km) (After cable)				1310	≤ 0.34	≤ 0.35	1383	≤ 0.34	≤ 0.35	1550	≤ 0.21	≤ 0.22	1625	≤ 0.23	≤ 0.24	Wavelength (nm)	Maximum Value (ps/nm*Km)			
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TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT		Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	1550	≤ 18	
	<p>w) He Polarization Mode Dispersion (PMD) Link Design Value or PMDQ (PMD of concatenated length of fibre) should comply with IEC 60794-3: 2001, section 5.5, Method 1 (m=20, Q=0.01%). PMDQ ≤ 0.1 ps/√Km (ps per root Km).</p> <p>x) Environmental Specs: The fibre should be able to operate with induced attenuation ≤ 0.05 dB/Km at temperatures from -0oC to +85oC and humidity of up to 85% RH.</p> <p>y) The cable adopts a semi-dry water blocking structure, making clean and tidy coiling operations possible. In this way, the environment cleanness and coiling efficiency are improved.</p> <p>z) The cable will have 6 cores per tube and 16 tubes per cable.</p> <p>aa) The cable will be labelled as per ICTA Fiber Optic-Backbone, Metro and Last Mile Infrastructure standard (ICTA.2.001.2021) to allow for identification</p> <p>bb) The natural bending length of duct OFC is 7-10m per km. Generally, when OFC pass hand hole/manhole, the bending length is 0.5-1m.OFC</p>		

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)																														
	<p>reservation shall be 15m at each side of the OFC joint.</p> <p>cc) Cable reservation of equipment-room OFC: At the side of the equipment-room, the length of reservation cable is a minimum 15m.</p> <p>dd) cables will have specifications as stipulated in the IEC 60794 -3 test criteria as follows:</p> <table border="1"> <thead> <tr> <th>Item</th><th>Description</th><th>Spec Ac</th></tr> </thead> <tbody> <tr> <td>1</td><td>Maximum Fibres Per Tube</td><td>12</td></tr> <tr> <td>2</td><td>Minimum Number of Tubes</td><td>8</td></tr> <tr> <td>3</td><td>Weight</td><td>≤ 98 Kg</td></tr> <tr> <td>4</td><td>Outer Diameter</td><td>≤ 12.2mm</td></tr> <tr> <td>5</td><td>Minimum Bend Radius at Installation</td><td>183 mm</td></tr> <tr> <td>6</td><td>Minimum Bend Radius in operation</td><td>122 mm</td></tr> <tr> <td>7</td><td>Tensile Strength Short Term</td><td>2700 N</td></tr> <tr> <td>8</td><td>Tensile Strength Long Term</td><td>890 N</td></tr> <tr> <td>9</td><td>Cable Operating Temperature</td><td>-0oC - 8</td></tr> </tbody> </table>	Item	Description	Spec Ac	1	Maximum Fibres Per Tube	12	2	Minimum Number of Tubes	8	3	Weight	≤ 98 Kg	4	Outer Diameter	≤ 12.2mm	5	Minimum Bend Radius at Installation	183 mm	6	Minimum Bend Radius in operation	122 mm	7	Tensile Strength Short Term	2700 N	8	Tensile Strength Long Term	890 N	9	Cable Operating Temperature	-0oC - 8	
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OFC Installation - Underground	The OFC Implementation Civil Work should be done on Turnkey Basis:																															

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• Preparatory works: Engineering measurement (Survey and Design)</li> <li>• Route cleaning, calibration and cleaning of existing duct if applicable,</li> <li>• Trenching including excavation, backfilling, laying warning tape, and compaction in all soils. The trench width should be 300mm, the trench depth should be 1200mm in soils excluding rocky soil, 800mm in soft rock, 400mm in hard rock.</li> <li>• Breaking and reinstatement of road surface.</li> <li>• Laying ducts: 2'0. D.32mm HDPE and 1*O.D.40mm HDPE Pipe in trench or duct.</li> <li>• Installation of RC manhole: Averagely, install at an interval of 200m in town or city</li> <li>• Road crossing by trenching or thrust boring or directional drilling for different grade of roads in Kenya as per specification, including 110mm HDPE pipe installation.</li> <li>• Bridge crossing by bridge attachment, trenching and drilling as per design</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Data sheet (Yes/No)</b>
	<ul style="list-style-type: none"> <li>• River crossing by trenching or non-trenching, including C15 concrete envelope protection and scree bag protection as per specification.</li> <li>• 20mm*200mm C15 concrete envelope protection in rocky trench or where else required.</li> <li>• Other O.F.O cable duct protection, such as slope protection, stone pitching, gabion protection, etc. as per specification.</li> <li>• BOSAL works for site or building entry including supplying all the BOSAL work materials.</li> <li>• The bidders work shall follow all the project specification requirements and other standards.</li> <li>• The Bidders shall be responsible for all security for site activities where requires</li> </ul>	
OFC Installation – Overhead	<ol style="list-style-type: none"> <li>1. Pole erection – Includes digging a hole and installation of a dressed pole.</li> <li>2. Lying overhead cable.</li> <li>3. Installation of Two thimble eye bolt, 0.25- inch-thick strand wire, concrete attached anchor bolt.</li> </ol>	



<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
O.F. Cable Splicing &Test	<ol style="list-style-type: none"> <li>1. Splicing and testing of fibers in the field.</li> <li>2. Attenuation coefficient, length, position and loss of all splice joints shall be measured in accordance with IEC 793-1 and EIA 455 standards using an Optical Time Domain Reflectometer (OTDR) and a buffer fiber should be used in the measurements. The results shall be recorded as a trace and in a table format. The length of fiber should be tested at the same time.</li> </ol>	
O.F Cable Termination &Test	<ol style="list-style-type: none"> <li>1. OFC termination by fusion. Testing after installation of the cables and termination rack</li> <li>2. All cores should be terminated.</li> </ol>	
Supply and install HDPE pipe with Silicon core(26/32mm) and necessary accessories	<ul style="list-style-type: none"> <li>• High density polyethylene (HDPE) with silicone inner layer</li> <li>• These ducts must have 32mm exterior side and 26mm inner diameter and must support OFC by blowing at a km distance using a 10-bar pressure.</li> <li>• The drum length is 2km.</li> <li>• The duct will be white in colour, with</li> <li>• 2mm thick single red strip externally (at every 90° angle) and cream on the inner side.</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• The duct should be translucent for ease of maintenance and should be made of all virgin materials.</li> <li>• Duct labelling will be as follows: =HDPE Silicon Duct= = <math>\phi</math> 32/26mm G.O.K-I.C.T.</li> <li>• A-2019= =. Spacing of the labelling will be 1.0m. (The year will be changed to the right year of manufacture)</li> <li>• Supply and Install and install the</li> <li>• HDPE pipe including Supply and Install and</li> <li>• installation of all the couplers, end plugs, etc.</li> <li>• Minimum technical specs</li> <li>• Density: 0.95 g/cm<sup>3</sup> - DIN 53 479</li> <li>• Tensile strength at break: 23 – 30 N/mm<sup>2</sup> - DIN 53 455</li> <li>• Ball indentation hardness: 30 – 65 N/mm<sup>2</sup> - DIN 53 456</li> <li>• Notched bar impact strength: &gt; 5 mJ/mm<sup>2</sup> - DIN 53 453</li> <li>• Thermal conductivity: 0.40 – 0.46 W/m K - DIN 52 612</li> <li>• Coefficient of elongation: 1.5–2.0 x 10<sup>-4</sup> K<sup>-1</sup> - DIN 52 328</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	<ul style="list-style-type: none"> <li>• Dielectric strength: 800 – 900 kV/cm - DIN 53 481</li> <li>• Specific insulation resistance: 1016 Ohm. Cm - DIN 53 482</li> </ul> <p>Attach Brochure</p>	
Supply and Install Warning Tape	<ul style="list-style-type: none"> <li>• The warning tape shall be made of PVC or PE having approximately 10 cm in width and 0.1mm in thickness.</li> <li>• The background colour of the warning tape shall be yellow.</li> <li>• The mark words shall be enlarged up to the full width of the warning tape and shall be durably printed in black colour 2 meters apart.</li> </ul> <p>The words “CAUTION: Do not dig! O.F.C Cable underneath: Government of Kenya Contact 0206676999” shall be displayed on the warning tape at intervals of half (0.5) meters.</p>	
Supply and Install Handhole with cover and necessary accessories	<ul style="list-style-type: none"> <li>• Plastic material</li> <li>• Approximate Inner dimension: depth is 900mm, diameter is 1000mm.</li> <li>• cable run directions at least.</li> <li>• Joint box hanging mechanism at least.</li> <li>• Cover branded Government of Kenya I.C.T.A and</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	ICTA logo. • Body branded Government of Kenya 23	
Supply and Install dressed wooden pole	Chemical treated wooden pole, 8m and 12M length, top diameter 140-200mm, top cover should be galvanized steel material, the diameter should be 100mm more than top diameter of the pole.	
Supply and install of reinforced concrete precast small manhole with polymer cover and lock mechanics with accessory	<ul style="list-style-type: none"> <li>• Dig the manhole pit which is fit for the manhole installation.</li> <li>• This reinforced concrete manhole can be pre-casted or cast-in-place.</li> <li>• Install the manhole and passive components such as bolts, nuts, brackets</li> <li>• Polymer cover installation.</li> <li>• Labelling shall be painted on both cover and body after installation, the serial number will follow design.</li> <li>• Backfill and compact the soil after manhole installation.</li> <li>• The size of the manhole is 1000mm*800mm*1300mm (L*W*D)</li> <li>• Concrete grade to be C20.</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
96 Core Dome Splice Enclosure	Fiber optic PP plastic+UV resistance dome splice closure with trays for fiber splicing. Minimum requirements are: <ul style="list-style-type: none"> <li>• Minimum number of cores supported, 96 cores</li> <li>• Fiber cable size support: 8mm – 18mm</li> <li>• Minimum number of cassettes, 6 No.</li> </ul> 32 Support for installations upto of 60°C working environments	
24 Core Fiber Access Terminal (FAT)	Fiber Access Terminal (FAT) 24 Core (loaded with LC duplex pigtails and adapters)	
4 Core Fiber Access Terminal (FAT)	Fiber Access Terminal (FAT) 4 Core (loaded with LC duplex pigtails and adapters)	
Fiber Access Terminal Box (ATB)	Access Terminal Box (ATB) - Loaded with SC simplex adapters and pigtails	

**Note: Bidder MUST attach product datasheet that highlights the features matching each requirements/specification. Stating compliance without providing a product datasheet will be deemed non-compliant**

**Details Scope of Works - LOT 2**

<b>S/No</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
<b>1</b>	Procure a Wired & Wireless network solution to deliver intranet & internet services within the institution that will provide reliable connectivity and value-added services to students, teaching and non-teaching staff across the campus. <i>Provide a Detailed technical proposal</i>	
<b>2</b>	Integrate the Solution to the existing Network services at the institutions to reach all common areas of use, which include lecture halls, student residential areas, library, graduation squares, laboratories, public access areas, student centre, resting areas among others. <i>Provide Network Integration Plan</i>	
<b>3</b>	Interpolate the Solution to Support a large number of concurrent users without compromising network performance, enable seamless roaming for users moving between different areas of the campus. <i>Provide Interpolability &amp; Roaming plan</i>	
<b>4</b>	Implement network security of Authentication & Access, implement measures to protect against unauthorized access & data breaches and log all events on the Campus Wi-Fi network <i>Provide a plan for implementation of Network Security</i>	
<b>5</b>	Supply of associated licenses, software and original equipment manufacturer (OEM) support for the equipment, software's and all components supplied. All licenses are required to be perpetual during acquisitions and shall not result to recurrent costs in future.  <i>Provide a list of licenses , type, validity and function</i>	
<b>6</b>	Provide the Interconnection between the learning institution and the Wide Area Network, where none exists as proposed in the high level design.	

S/No	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
7	Offer industry standardized & Certified technical trainings to all the components of the project (Fiber, Wireless, Switching, Routing, Wireless Local Area Networks, Session Control & Management, Authentication & Wireless Security, Network Optimization & Support, Power Systems & Management) <i>Provide a detailed Training Plan (Content, Venue, Duration &amp; Number of trainees)</i>	
8	Provide 3 year Support and maintenance services for all the sub-systems and components constructed. <i>Provide a detail Support &amp; Maintenance of the completed infrastructure</i>	
9	<ul style="list-style-type: none"> <li>• Project Actualization Process</li> <li>• Site Planning</li> <li>• Implementation.</li> <li>• User Acceptance Testing</li> <li>• Commissioning</li> <li>• As-Built Documentation</li> <li>• Training</li> </ul> <i>Provide a detailed project work plan</i>	

**Note: Bidder MUST attach product datasheet that highlights the features matching each requirements/specification. Stating compliance without providing a product datasheet will be deemed non-compliant**

#### Qualification Criteria - LOT 2

S/No	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	Technical Qualification of the Firm	

S/No	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
1	<p>The firm must have a proven track record in implementing large-scale network infrastructure projects in similar environments. The firm should demonstrate skills in designing, implementing and delivering projects of complex nature. The firm should demonstrate at least 2 similar projects undertaken in the last 5 years. The projects should be of comparable monetary value to the scope of this project.</p> <p><i>Provide a Proof in the form of contracts/LPOs and Completion Certificates/Inspection Certificates for each project.</i></p>	
	Financial Capability of the Firm	
2	<p>A minimum of two (2) in number of similar contracts, similarity being in nature, complexity that incorporated supply, installation, configuration, commissioning and maintenance a similar project in nature and value, specified below that have been satisfactorily and substantially completed during the last 5 years:</p> <p>One contract, with a minimum value of at least KES 120 million.</p> <p><i>Provide a Proof in the form of contracts/LPOs for each.</i></p>	
	Liquidity	
3	<p>The Bidder shall demonstrate that is has access to, or has available, liquid assets, lines of credit or other financial means sufficient to meet cash flow requirements of KES 120 million or equivalent.</p>	



<b>S/No</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	<i>Provide evidence of liquidity (Letter of credit or Bank Balances)</i>	

### Project Approach, Environment and Social Safeguards - LOT 2

<b>S/No</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	Project Timelines	
<b>1</b>	<p>The supply, delivery &amp; installation works for all the items in the BoQ/Activity Schedules should be delivered and installed at the place of destination within four (4) months from the date of contract signing.</p> <p><i>Provide a detailed project plan fitting the timelines and a letter as a commitment</i></p>	
	Code of Conduct for Contractor's Personnel (ES)	
<b>2</b>	<p>Submit its Code of Conduct that will apply to Contractor's Personnel (as defined in Sub- Clause 1 (ii) of the General Conditions of Contract), to ensure compliance with the Contractor's Environmental and Social (ES) obligations under the Contract. The Bidder shall use for this purpose the Code of Conduct form provided in Section IV</p>	
	Management Strategies and Implementation Plans (MSIP) to manage the (ES) risks	
<b>3</b>	<p>The Bidder shall submit Management Strategies and Implementation Plans (MSIPs) to manage the</p>	

S/No	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<p>following key Environmental and Social (ES) risks:</p> <ul style="list-style-type: none"><li>• Sexual Exploitation, and Abuse (SEA) prevention and response action plan.</li><li>• Environmental Safety Plan .</li><li>• Site Access Plan</li><li>• Network Disruption Plan.</li></ul>	

**WiFi Routers and related Goods - LOT 3**

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
24 Port 10G SFP+ Layer 3 Core Switch	<p>Top of rack, 1RU rack-mountable managed switch with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Minimum of 24 No. ports of 1/10/25G (SFP/SFP+)</li> <li>• Minimum of 4 No. ports of 40GbE/100GbE (QSFP+/QSFP28)</li> <li>• Minimum switching capacity of 1.6 Tbps</li> <li>• Support for minimum of 80,000 MAC addresses in the MAC address table</li> <li>• Support for Layer 3 routing (Static Routes and dynamic routing using OSPFv2, IS-IS, IS-ISv6, BGP4, BGP6)</li> <li>• Support for VLANs and IEEE 802.1Q (4,094 VLAN IDs) VLAN tagging with minimum 1,000 configurable active VLANs</li> <li>• Support for spanning-tree protocol for both Rapid Per-VLAN Spanning Tree (RPVST+) and Multiple Spanning Tree Protocol (MSPT)</li> <li>• Support for remote management, configuration and authentication (SNMPv2, SNMPv3, SSH, TACACS+, RADIUS)</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• Redundant Power Supplies (1+1 Redundancy)</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next six years. Attach Evidence</li> <li>• Original Equipment Manufacturer/vendor of the proposed switch MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> <li>• Three-year (3) warranty and support</li> </ul> <p>Attach data sheet</p>	
L3 Edge switch 48-Port GigEthernet PoE+ Switch with 10Gbps SFP+ Uplinks	<p>Top of rack, 1RU rack-mountable managed switch with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Minimum of 48 No. RJ-45 autosensing 10/100/1000 PoE+ ports</li> <li>• Minimum of 4 No. SFP+ 1/10GbE ports</li> <li>• Minimum of 2 No. MultiGigabit stack ports</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• Minimum switching capacity of 170Gbps with a forwarding performance of 130 Mpps</li> <li>• Supports full POE+</li> <li>• Support for minimum of 30,000 MAC addresses in the MAC address table</li> <li>• Support for Layer 3 routing (Static Routes and dynamic routing using OSPFv2)</li> <li>• Support for VLANs and IEEE 802.1Q (4,094 VLAN IDs) VLAN tagging with 1,000 configurable VLANs</li> <li>• Support for spanning-tree protocol for both Rapid Per-VLAN Spanning Tree (RPVST+) and Multiple Spanning Tree Protocol (MSPT)</li> <li>• Support for remote management, configuration and authentication (SNMPv2, SNMPv3, SSH, TACACS+, RADIUS)</li> <li>• Redundant power supply modules</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next Six years. Attach Evidence</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	<ul style="list-style-type: none"> <li>Original Equipment Manufacturer/vendor of the proposed switch MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> <li>Three-year (3) warranty and support</li> </ul> <p>Attach data sheet</p>	
L3 Edge switch 24-Port GigEthernet PoE+ Switch with 10Gbps SFP+ Uplinks	<p>Top of rack, 1RU rack-mountable managed switch with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>1. Minimum of 24 No. RJ-45 autosensing 10/100/1000 PoE+ ports</li> <li>Minimum of 4 No. SFP+ 1/10GbE ports</li> <li>Minimum of 2 No. MultiGigabit stack ports</li> <li>Minimum switching capacity of 125Gbps with a forwarding performance of 95 Mpps</li> <li>Supports full POE+</li> <li>Support for minimum of 30,000 MAC addresses in the MAC address table</li> <li>Support for Layer 3 routing (Static Routes and dynamic routing using OSPFv2)</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• Support for VLANs and IEEE 802.1Q (4,094 VLAN IDs) VLAN tagging with 1,000 configurable VLANs</li> <li>• Support for spanning-tree protocol for both Rapid Per-VLAN Spanning Tree (RPVST+) and Multiple Spanning Tree Protocol (MSPT)</li> <li>• Support for remote management, configuration and authentication (SNMPv2, SNMPv3, SSH, TACACS+, RADIUS)</li> <li>• Redundant power supply modules</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next Six years. Attach Evidence</li> <li>• Original Equipment Manufacturer/vendor of the proposed switch MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> <li>• Three-year (3) warranty and support</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	Attach data sheet	
Indoor Wireless Access Point	<p>Indoor wireless access point (WLAN AP) with support for Wi-Fi 6 software-configurable dual radio, 5 GHz 4x4 MIMO and 2.4 GHz 2x2 MIMO, achieving a data rate of 5.3 Gbps. The WiFi access points should specifically meet the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Support WPA3 with specific support for WPA3 Enterprise</li> <li>• Support for 802.1x standard for network authentication of wireless clients</li> <li>• Support for minimum of 150 associated active clients (concurrent connected end user devices)</li> <li>• Support for built-in smart antennas to improve on signal quality</li> <li>• Support for minimum of 16 No. SSIDs two (2) of which MUST support 802.1x network authentication</li> <li>• Support for WIFI-6 standards such as OFDMA, TWT, MU-MIMO and BSS coloring</li> <li>• Support for VLAN assignment per SSID and based on network authentication (802.1x VLAN assignment based on radius attributes)</li> </ul>	



TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• Support for IoT</li> <li>• Communication between the WLAN AP and the management system MUST be through encrypted channels</li> <li>• Maximum power consumption should not exceed 21W</li> <li>• Support for powering through PoE</li> <li>• Operating temperature: Between 0°C to 50°C</li> <li>• Support for minimum of 2 No. RJ45 network interface ports capable of negotiating both 100Mbps and 1Gbps speed</li> <li>• Included with relevant mounting brackets</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next four years. Attach Evidence.</li> <li>• Original Equipment Manufacturer/vendor of the proposed access point MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<p>consecutive years, at the time of bidding. Attach Evidence</p> <ul style="list-style-type: none"> <li>• Three-year (3) warranty and support</li> </ul> <p>Management using a centralized WLAN Controller (or equivalent centralized management system for software updates and configuration) is mandatory</p> <p>Attach data sheet</p>	
Outdoor Wireless Access Point	<p>Outdoor Hardened (IP68) wireless access point (WLAN AP) with support for Wi-Fi 6 software-configurable dual radio, 5 GHz 2x2 MIMO and 2.4 GHz 2x2 MIMO achieving a device performance of 1.7 Gbps. The WiFi access points should specifically meet the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Support WPA3 with specific support for WPA3 Enterprise</li> <li>• Support for 802.1x standard for network authentication of wireless clients</li> <li>• Support for minimum of 500 associated active clients (concurrent connected end user devices)</li> <li>• Support for external smart antennas to improve on signal quality</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• Support for WIFI-6 standards such as OFDMA, TWT, MU-MIMO and BSS coloring</li> <li>• Support for minimum of 16 No. SSIDs two (2) of which MUST support 802.1x network authentication</li> <li>• Support for VLAN assignment per SSID and also based on network authentication (802.1x VLAN assignment based on radius attributes)</li> <li>• Communication between the WLAN AP and the management system MUST be through encrypted channels</li> <li>• Operating temperature: -40°C to 65°C</li> <li>• Support for powering through PoE</li> <li>• Support for minimum of 1 No. RJ45 network interface port capable of negotiating both 100Mbps and 1Gbps speed</li> <li>• Included with relevant mounting brackets</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next four years. Attach Evidence.</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>Original Equipment Manufacturer/vendor of the proposed access point MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> <li>Three-year (3) warranty and support</li> </ul> <p>Management using a centralized WLAN Controller (or equivalent centralized management system for software updates and configuration) is mandatory Attach data sheet</p>	
Wireless Access/LAN Controller	<ul style="list-style-type: none"> <li>The WLC should support manage 250 access points</li> <li>The WLC should support 5000 users.</li> <li>The WLC should provide 5 Gbps forwarding performance.</li> <li>The WLC should have at least 2x1G SFP interfaces fully populated with MMF 1G SFPs</li> <li>The WLC should support the establishment of CAPWAP tunnels with APs using IPv4 and IPv6 dual stacks.</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• The WLC should support intelligent roaming based on 802.11k and 802.11v, enabling clients with low roaming sensitivity to roam to the optimal AP.</li> <li>• The WLC should support automatically switch 2.4 GHz radios to 5 GHz radios through automatic negotiation between APs, reducing 2.4 GHz co-channel interference and increasing system capacity.</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next four years. Attach Evidence.</li> <li>• Original Equipment Manufacturer/vendor of the proposed controller MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> <li>• Three-year (3) warranty and support</li> </ul> <p>Attach data sheet</p>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
Install Wireless AP with Accessories	<ul style="list-style-type: none"> <li>• Install AP as per ICTA standards</li> <li>• inclusive of trunking and LAN cabling</li> </ul>	
2 KVA Rack mountable UPS	<p>Single-phase 2 KVA double-conversion on-line rack-mountable UPS with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Minimum output power capacity of 1.2KW</li> <li>• Minimum output power factor of 0.8</li> <li>• Nominal Output Voltage 230V, 50Hz</li> <li>• Input Voltage range 220VAC – 240VAC, 50Hz</li> <li>• 4 No. IEC 60320 C13 Output Connections</li> <li>• IEC 60320 C14 Input connections</li> <li>• Online, double-conversion power conditioning</li> <li>• Minimum runtime of 15 minutes at Half Load</li> <li>• Included with relevant mounting brackets for 19-inch rack/cabinet</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not have an ongoing End of Life (EOL) announcement by the OEM</li> </ul> <p>Attach data sheet</p>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
3 KVA Single-Phase UPS	<p>Single-phase 3KVA UPS with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Minimum output power capacity of 4KW</li> <li>• Minimum output power factor of 0.8</li> <li>• Number of phases, 1ph</li> <li>• Nominal Output Voltage 230V, 50Hz</li> <li>• Input Voltage range 220VAC – 240VAC, 50Hz</li> <li>• Parallel configuration support for minimum 2 units</li> <li>• Minimum runtime of 15 minutes at Half Load</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not have an ongoing End of Life (EOL) announcement by the OEM</li> </ul> <p>Attach data sheet</p>	
Supply and install 3-core 4 mm flexible Cable Roll	3-core Electrical Flexible PVC Cable 4mm twin with earth for 300v/500V rating. Cable should have stranded copper conductors meeting BS 6004 and KS453 standard	
Supply and Install of yellow green earthing	<ul style="list-style-type: none"> <li>• The cable size should be 4 mm<sup>2</sup></li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Data sheet (Yes/No)</b>
cable		
Supply and install Earth rod	The earth rod should pure copper and 1.5 metres long, with accessories	
22U Network Cabinet with a 4Way Horizontal Mount Power Distribution Unit (PDU)	<p>Standard-Depth 22U 19-inch Server Cabinet Rack Enclosure including vertical mounting rails and mesh door with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Rack Enclosure depth of 800 mm</li> <li>• Rack height of 22U</li> <li>• Support mounting of 19-inch copper patch panels, optical distribution frames, network switches, rack-mountable UPS</li> <li>• 1 No. 4 Way UK Plug Power Distribution Unit Horizontal</li> <li>• Floor Standing Steel Rack Enclosure with 4 No. castor wheels with fan venting at the top (fan included)</li> </ul> <p>Attach data sheet</p>	
15U Network Cabinet with a 4Way Horizontal	<p>Standard-Depth 15U 19-inch Server Cabinet Rack Enclosure including vertical mounting rails and mesh door with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Rack Enclosure depth of 800 mm</li> </ul>	



<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
Mount Power Distribution Unit (PDU)	<ul style="list-style-type: none"> <li>• Rack height of 15U</li> <li>• Support mounting of 19-inch copper patch panels, optical distribution frames, network switches, rack-mountable UPS</li> <li>• 1 No. 4 Way UK Plug Power Distribution Unit Horizontal</li> <li>• Floor Standing Steel Rack Enclosure with 4 No. castor wheels or Wall-mountable rack enclosure with fan venting at the top (fan included)</li> </ul> <p>Attach data sheet</p>	
Cat 6A U/UTP Pure Copper Ethernet Cable 305M (Indoor)	<p>23AWG Cat 6 U/UTP copper cable with HDPE insulation enclosed in PVC flame-retardant jacket for indoor installations. The minimum specifications are as follows:</p> <ul style="list-style-type: none"> <li>• Indoor environment use</li> <li>• Riser flammability rating</li> <li>• Support installation temperature of 50°C</li> <li>• 23AWg solid copper conductor</li> <li>• Overall length of 305 meters</li> </ul> <p>Attach data sheet</p>	
Cat 6A F/UTP Pure Copper	23AWG Cat 6 U/UTP Outside Plant (OSP) copper cable with PE insulation enclosed in abrasion-resistant HDPE flame-	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Data sheet (Yes/No)</b>
Ethernet Cable 305M (Outdoor)	retardant jacket for outdoor installations. The minimum specifications are as follows: <ul style="list-style-type: none"> <li>• Outdoor environment use</li> <li>• Ability for the insulation to withstand moisture migration in underground and wet applications</li> <li>• Outdoor flammability rating</li> <li>• Must be UV-Resistant</li> <li>• Support installation temperature of 70°C</li> <li>• 23AWg solid copper conductor</li> <li>• Overall length of 305 meters</li> </ul> Attach data sheet	
F/UTP Category 6A Dual Outlets Module (Data points)	Pair of Cat 6A RJ45 keystone modules with support for 10Gbit Ethernet applications Attach data sheet	
Flash Mount Faceplates – F/UTP Category 6A Double	Single gang faceplate with support for 2 outlet ports. Faceplate should support mounting onto single gang opening and include a label pocket for identification/labeling Attach data sheet	
F/UTP Category 6A Wall UTP-	Cat 6A 24 AWG UTP Copper Patch Cord of 0.25 meter length with minimum specifications below:	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
RJ45Patch cord (0.25M)	<ul style="list-style-type: none"> <li>• 24AWg solid copper conductor</li> <li>• Overall length of 1 meter</li> <li>• T568B wiring scheme</li> <li>• Must support IEEE 802.3af (PoE), IEEE 802.3at (PoE+), and IEEE 802.3bt Type 3 and 4 (PoE++) PoE compatibility.</li> </ul> <p>Attach data sheet</p>	
F/UTP Category 6A 48 PATCH PANEL 1 U568A/B	<p>Cat 6A UTP Flat Punchdown steel Patch Panel with support for terminating 4-pair, 22–26 AWG, twisted pair cable. The patch panels should meet the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Must be rack-mountable on a 19-inch rack</li> <li>• Support for RJ45 module type</li> <li>• Minimum of 48 ports fully populated with keystones</li> <li>• Support for both T568A and T568B wiring schemes</li> </ul> <p>Attach data sheet</p>	
F/UTP Category 6A 24 PATCH PANEL 1 U568A/B	<p>Cat 6A UTP Flat Punchdown steel Patch Panel with support for terminating 4-pair, 22–26 AWG, twisted pair cable. The patch panels should meet the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Must be rack-mountable on a 19-inch rack</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• Support for RJ45 module type</li> <li>• Minimum of 24 ports fully populated with keystones</li> <li>• Support for both T568A and T568B wiring schemes</li> </ul> Attach data sheet	
Cable managers 2U	Horizontal Cable Manager mountable onto a 19-inch rack or cabinet. The cable manager MUST meet the following minimum specifications: <ul style="list-style-type: none"> <li>• Support for management of copper, and fiber optic cables</li> <li>• 2 RU with dual-hinging front cover</li> <li>• Should be mountable horizontally</li> </ul> Attach data sheet	
Cable managers 1U	Horizontal Cable Manager mountable onto a 19-inch rack or cabinet. The cable manager MUST meet the following minimum specifications: <ul style="list-style-type: none"> <li>• Support for management of copper, and fiber optic cables</li> <li>• 1 RU with dual-hinging front cover</li> <li>• Should be mountable horizontally</li> </ul> Attach data sheet	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
Galvanized Metallic Trunking 150mm x50mm & accessories	Galvanized double-compartment metal trunking cover and base with base loop perforation. Each piece of metal trunking MUST be at least 2.4 meters in length Attach data sheet	
Galvanized Metallic Trunking 100mm x50mm & accessories	Galvanized double-compartment metal trunking cover and base with base loop perforation. Each piece of metal trunking MUST be at least 2.4 meters in length Attach data sheet	
Galvanized Metallic Trunking 25mm x50mm & accessories	Galvanized double-compartment metal trunking cover and base with base loop perforation. Each piece of metal trunking MUST be at least 2.4 meters in length	
Install metal Trunking size 25×50mm/50×100mm/50×150mm with	<ul style="list-style-type: none"> <li>• Trunking should be installed neatly on the surface of walls, columns or beams and be truly vertical or horizontal.</li> <li>• Overhead trunking should be suitably supported by means of mild steel hangers' brackets or other suitable devices.</li> <li>• Trunking should be provided with removable side</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
accessories and auxiliary work	<p>cover, easy bend at all turning angles and, where required, appropriate outlet holes with grommets.</p> <ul style="list-style-type: none"> <li>• The height of the trunking installed should not cause any installation and maintenance problem.</li> <li>• Cutting and combine the trunking when necessary</li> <li>• Detect/locate the presence of the electricity system before drilling. size</li> <li>• 30x55mm for trunking (25*50 mm)</li> <li>• Drilling/boring the floor slab by the appropriate drilling/boring machine without cutting holes through the building structured area (e.g., beam, column E structure wall etc.).</li> <li>• Make good the hole surface by cement mortar and paint coating</li> <li>• Seal the holes with silicon.</li> </ul>	
Supply and Install Flexible corrugated PVC pipe ≤ 50mm with	<ul style="list-style-type: none"> <li>• Cutting suitable length of PVC pipe.</li> <li>• Smooth all duct ends</li> <li>• Fixing PVC Pipe on Wall/Ceiling by supporting with saddles/ brackets.</li> <li>• Fixing Junction Box at all turning angles or every 10m if necessary.</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
accessories.	<ul style="list-style-type: none"> <li>• Labelling for identification.</li> </ul>	
40mm Flex Conduits	40mm PVC Flexible Conduit per meter length	
Install indoor/Outdoor Cat.6, 4-Pair UTP Cable	<ul style="list-style-type: none"> <li>• Lay the outdoor cat6 as per design, what layed in trunk or duct as straight as flat, no bind, enlarged regular and fastened by plastic ties as per specification.</li> <li>• Supply and install and label the cat 6 cable as per specification, the labelling must be waterproof.</li> <li>• The primary media for horizontal cabling will be 4-pair Unshielded Twisted Pair (UTP) which must meet or exceed ANSI/TIA/EIA-568-B and ISO/IEC 11801 standards.</li> <li>• Unshielded Twisted Pair (UTP) Category 6A quality cable shall be employed for either outdoor or indoor cable.</li> <li>• Each room to be networked shall have wall plates installed and each outlet terminated with 8-pin modular jacks (RJ-45).</li> <li>• Each designated network interface will have capacity to support Giga Ethernet.</li> <li>• Each cable will be required to move through the tie if</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	<p>firmly pulled.</p> <ul style="list-style-type: none"> <li>• Cables should not be crushed using cable ties.</li> <li>• Cable conduits must not be overfilled.</li> <li>• All cables must pass through Trunking and should not be seen from the outside</li> <li>• There shall be no splicing of any of the cables installed. Intermediate cross-connects and transition points are not allowed.</li> <li>• All user area patch chords shall be at least 3m in length</li> <li>• Data outlets shall be flash mounted on the metal Trunking.</li> <li>• All user area patch chords and cabinet patch chords will be supplied to match the total number of data outlets.</li> </ul>	
Install Category 6A PATCH PANELs	<ul style="list-style-type: none"> <li>• All patch panels must conform to ANSI/TIA/EIA-568A.</li> <li>• Patch panels must be equipped with RJ45 contacts of Category 6A sockets with a capacity of 24/48 RJ45 ports.</li> <li>• All patch panels, including fiber optic patch panels must be rack mounted</li> </ul>	



<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	<ul style="list-style-type: none"> <li>• All panels and racks must be earthed to provide electrical safety for users and screening to prevent electromagnetic radiation.</li> <li>• Except for the patch cords used to connect NICs to the RJ45 sockets, all patch cords must be labeled at each extremity with soft PVC support and indelible marking (stamping or similar method). For all other components, the label type should be of stiff plastic PVC type.</li> </ul> <p>Attach data sheets for the Patch panels and ODFs</p>	
48-Port Optical Distribution Frame (Fiber Patch Panel) & Accessories (LC adapters & pigtails)	<p>19-inch rackmount and modularized fiber optic distribution frame for indoor fiber optic cables connection storage, distribution and management. The ODF must meet the following minimum requirements:</p> <ul style="list-style-type: none"> <li>• Minimum core Capacity of 48 No.</li> <li>• Minimum cable ports of 8 No.</li> <li>• Support for LC fiber optical adapters</li> <li>• Support for ribbon and single fiber</li> <li>• MUST be fully populated with fiber optic pigtails and LC/UPC adapters</li> <li>• Support for optical wavelengths of 1310nm and 1550nm</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	<ul style="list-style-type: none"> <li>• Insertion loss MUST be less than 0.2dBm</li> </ul> <p>Attach data sheets</p>	
24-Port Optical Distribution Frame (Fiber Patch Panel) & Accessories (LC adapters & pigtails)	<p>19-inch rackmount and modularized fiber optic distribution frame for indoor fiber optic cables connection storage, distribution and management. The ODF must meet the following minimum requirements:</p> <ul style="list-style-type: none"> <li>• Minimum core Capacity of 24 No.</li> <li>• Minimum cable ports of 8 No.</li> <li>• Support for LC fiber optical adapters</li> <li>• Support for ribbon and single fiber</li> <li>• MUST be fully populated with fiber optic pigtails and LC/UPC adapters</li> <li>• Support for optical wavelengths of 1310nm and 1550nm</li> <li>• Insertion loss MUST be less than 0.2dBm</li> </ul> <p>Attach data sheets</p>	
12-Port Optical Distribution Frame (Fiber	19-inch rackmount and modularized fiber optic distribution frame for indoor fiber optic cables connection storage,	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
Patch Panel) & Accessories (LC adapters & pigtails)	<p>distribution and management. The ODF must meet the following minimum requirements:</p> <ul style="list-style-type: none"> <li>• Minimum core Capacity of 12 No.</li> <li>• Minimum cable ports of 8 No.</li> <li>• Support for LC fiber optical adapters</li> <li>• Support for ribbon and single fiber</li> <li>• MUST be fully populated with fiber optic pigtails and LC/UPC adapters</li> <li>• Support for optical wavelengths of 1310nm and 1550nm</li> <li>• Insertion loss MUST be less than 0.2dBm</li> </ul> <p>Attach data sheets</p>	
Install Fiber Patch Panel) & Accessories	<ul style="list-style-type: none"> <li>• All patch panels/ODFs must conform to ANSI/TIA/EIA-568A.</li> <li>• All patch panels must be rack mounted</li> <li>• All panels and racks must be earthed to provide electrical safety for users and screening to prevent electromagnetic radiation.</li> <li>• Fiber Optic patching should be done from the cabinet housing optic boxes/panels as well as the optic electronic equipment.</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>All patch cords must be labeled at each extremity with soft PVC support and indelible marking (stamping or similar method). For all other components, the label type should be of stiff plastic PVC type.</li> </ul> Attach data sheets for the Patch panels and ODFs	
LC Duplex adapters	Duplex fiber LC connectors LC/UPC duplex unibody adapter with flange	
SM Fiber Patch Cord 1M	1 meter Fiber Optic Cable, Single-Mode Duplex 9/125 housed in a LSZH (Low-Smoke, Zero-Halogen) flame retardant jacket with specifications below: <ul style="list-style-type: none"> <li>2x LC/UPC Single Mode male connectors</li> <li>OS1 (9/125)</li> <li>LSZH (Low-Smoke, Zero-Halogen) cable jacket</li> <li>Support for ITU-T G.652, including ITU-T G.652A, ITU-T G.652B, ITU-T G.652C and G.652D</li> </ul> Cable length of 1 meter	
Supply of ADSS OFC 12/24/48 Core	Supply and install and installation of ADSS OFC 12/24/48 Core with accessories. <ul style="list-style-type: none"> <li><input type="checkbox"/> Aqua #00D1D1 with Red Stripes on Jacket/ Sheathing</li> <li><input type="checkbox"/> Labelling as per ICTA standards</li> <li><input type="checkbox"/> ITU G652 Compliant</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT		Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)																
	<input type="checkbox"/> Must be compliant with underground ADSS specs below <input type="checkbox"/> Attach Brochure																		
Overhead ADSS cable specifications		<div>ADSS</div> <div>Installation of OFC ADSS Cable</div> <div>           o. Laying overhead cable            p. Installation of Two thimble eye bolt, 0.25-inch-thick strand wire, concrete attached anchor bolt.            q. The cable shall meet the specifications below:         </div> <table> <tr> <td>Description</td> <td>Trunk Specs</td> </tr> <tr> <td>ITU Spec</td> <td>G.652</td> </tr> <tr> <td>Fibre Count</td> <td>48</td> </tr> <tr> <td>Fibres Per Tube</td> <td>6</td> </tr> <tr> <td>Minimum Number of Tubes</td> <td>4</td> </tr> <tr> <td>Weight (Include Messenger)</td> <td>≤ 403 Kg/Km</td> </tr> <tr> <td>Outer Diameter</td> <td>≤ 14.3mm</td> </tr> <tr> <td>Cable Height (End to end cable + Messenger)</td> <td>≤ 25.9mm</td> </tr> </table>	Description	Trunk Specs	ITU Spec	G.652	Fibre Count	48	Fibres Per Tube	6	Minimum Number of Tubes	4	Weight (Include Messenger)	≤ 403 Kg/Km	Outer Diameter	≤ 14.3mm	Cable Height (End to end cable + Messenger)	≤ 25.9mm	
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TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT				Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
		Minimum Bend Radius in operation	143 mm		160 mm
		Pole to Pole Span at 1.5% Install Sag.	100m		100m
		ITU Spec	G.652		G.652
		Cable Slack Storage Coil at Joints	30m		30m
		Maximum Tensile Strength Long Term	890 N		890 N
		Cable Operating Temperature	-40oC - 70oC		-40oC - 70oC
		r. Installation of Cable storage bracket a. Galvanized Metal Bracket s. Installation of ADSS Clamp a. ADSS Fittings (as per design) b. Installation with through bolt or banding c. Versatile design can be used as a stringing block (with inserts removed) d. Tangent suspension for spans up to 600 ft. e. Meets IEEE 1591.2 t. Installation J-Hooks a. Tangent suspension for spans up to 600ft			

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT		Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
		b. Less than 20 degrees angle on cable routes between spans (For Angles greater than 20 degrees, double deadend or false deadend) u. Installation of Stay (Pole support) a. Stay Block, stay wire and Stay Rod (as per design)	
Supply of underground OFC 12/24/48 Core	Supply and installation of OFC 12/24/48 Core with accessories. <input type="checkbox"/> Aqua #00D1D1 with Red Stripes on Jacket/ Sheathing <input type="checkbox"/> Labelling as per ICTA standards <input type="checkbox"/> ITU G652 Compliant <input type="checkbox"/> Must be compliant with underground OFC specs below Attach Brochure		
Underground OFC cable specifications		Underground OFC Specs All fiber Optic Cables must comply with the following specs:  ee) Maximum Attenuation	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT			Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)																					
		<table><tr><th>Wavelength (nm)</th><th>Maximum Value (dB/Km) (Before cable)</th><th>Maximum Value (dB/Km) (After cable)</th></tr><tr><td></td><td></td><td></td></tr><tr><td>1310</td><td>≤ 0.34</td><td>≤ 0.35</td></tr><tr><td>1383</td><td>≤ 0.34</td><td>≤ 0.35</td></tr><tr><td>1550</td><td>≤ 0.21</td><td>≤ 0.22</td></tr><tr><td>1625</td><td>≤ 0.23</td><td>≤ 0.24</td></tr></table> <p>ff) The Variance of attenuation in any given wavelength should not be more than 0.05 dB/Km</p> <p>gg) The Macro-bend loss for fibre wrapped around a mandrel of diameters higher than 60mm and up to 100 turns should be ≤0.1 dB at wavelength (λ) 1625nm.</p> <p>hh) Cut off Wavelength. Fibre should be able to carry wavelengths from λ=1260nm upwards.</p> <p>ii) Maximum Dispersion:</p> <p>jj) Zero Dispersion Wavelength 1300 nm ≤ λ0 ≤ 1324 nm</p> <p>kk) Zero Dispersion Slope S0 ≤ 0.092 ps/ (nm2 * Km)</p> <table><tr><th>Wavelength (nm)</th><th>Maximum Value (ps/nm*Km)</th></tr><tr><td></td><td></td></tr></table>	Wavelength (nm)	Maximum Value (dB/Km) (Before cable)	Maximum Value (dB/Km) (After cable)				1310	≤ 0.34	≤ 0.35	1383	≤ 0.34	≤ 0.35	1550	≤ 0.21	≤ 0.22	1625	≤ 0.23	≤ 0.24	Wavelength (nm)	Maximum Value (ps/nm*Km)			
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TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT		Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	1550	≤ 18	
	<p>ll) He Polarization Mode Dispersion (PMD) Link Design Value or PMDQ (PMD of concatenated length of fibre) should comply with IEC 60794-3: 2001, section 5.5, Method 1 (m=20, Q=0.01%). PMDQ ≤ 0.1 ps/√Km (ps per root Km).</p> <p>mm) Environmental Specs: The fibre should be able to operate with induced attenuation ≤ 0.05 dB/Km at temperatures from -0oC to +85oC and humidity of up to 85% RH.</p> <p>nn) The cable adopts a semi-dry water blocking structure, making clean and tidy coiling operations possible. In this way, the environment cleanness and coiling efficiency are improved.</p> <p>oo) The cable will have 6 cores per tube and 16 tubes per cable.</p> <p>pp) The cable will be labelled as per ICTA Fiber Optic-Backbone, Metro and Last Mile Infrastructure standard (ICTA.2.001.2021) to allow for identification</p> <p>qq) The natural bending length of duct OFC is 7-10m per km. Generally, when OFC pass hand hole/manhole, the bending length is 0.5-1m.OFC</p>		

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)																														
	<p>reservation shall be 15m at each side of the OFC joint.</p> <p>rr) Cable reservation of equipment-room OFC: At the side of the equipment-room, the length of reservation cable is a minimum 15m.</p> <p>ss) cables will have specifications as stipulated in the IEC 60794 -3 test criteria as follows:</p> <table border="1"> <thead> <tr> <th>Item</th><th>Description</th><th>Spec Ac</th></tr> </thead> <tbody> <tr> <td>1</td><td>Maximum Fibres Per Tube</td><td>12</td></tr> <tr> <td>2</td><td>Minimum Number of Tubes</td><td>8</td></tr> <tr> <td>3</td><td>Weight</td><td>≤ 98 Kg</td></tr> <tr> <td>4</td><td>Outer Diameter</td><td>≤ 12.2m</td></tr> <tr> <td>5</td><td>Minimum Bend Radius at Installation</td><td>183 mm</td></tr> <tr> <td>6</td><td>Minimum Bend Radius in operation</td><td>122 mm</td></tr> <tr> <td>7</td><td>Tensile Strength Short Term</td><td>2700 N</td></tr> <tr> <td>8</td><td>Tensile Strength Long Term</td><td>890 N</td></tr> <tr> <td>9</td><td>Cable Operating Temperature</td><td>-0oC - 8</td></tr> </tbody> </table>	Item	Description	Spec Ac	1	Maximum Fibres Per Tube	12	2	Minimum Number of Tubes	8	3	Weight	≤ 98 Kg	4	Outer Diameter	≤ 12.2m	5	Minimum Bend Radius at Installation	183 mm	6	Minimum Bend Radius in operation	122 mm	7	Tensile Strength Short Term	2700 N	8	Tensile Strength Long Term	890 N	9	Cable Operating Temperature	-0oC - 8	
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OFC Installation - Underground	The OFC Implementation Civil Work should be done on Turnkey Basis:																															

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• Preparatory works: Engineering measurement (Survey and Design)</li> <li>• Route cleaning, calibration and cleaning of existing duct if applicable,</li> <li>• Trenching including excavation, backfilling, laying warning tape, and compaction in all soils. The trench width should be 300mm, the trench depth should be 1200mm in soils excluding rocky soil, 800mm in soft rock, 400mm in hard rock.</li> <li>• Breaking and reinstatement of road surface.</li> <li>• Laying ducts: 2'0. D.32mm HDPE and 1*O.D.40mm HDPE Pipe in trench or duct.</li> <li>• Installation of RC manhole: Averagely, install at an interval of 200m in town or city</li> <li>• Road crossing by trenching or thrust boring or directional drilling for different grade of roads in Kenya as per specification, including 110mm HDPE pipe installation.</li> <li>• Bridge crossing by bridge attachment, trenching and drilling as per design</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Data sheet (Yes/No)
	<ul style="list-style-type: none"> <li>• River crossing by trenching or non-trenching, including C15 concrete envelope protection and scree bag protection as per specification.</li> <li>• 20mm*200mm C15 concrete envelope protection in rocky trench or where else required.</li> <li>• Other O.F.O cable duct protection, such as slope protection, stone pitching, gabion protection, etc. as per specification.</li> <li>• BOSAL works for site or building entry including supplying all the BOSAL work materials.</li> <li>• The bidders work shall follow all the project specification requirements and other standards.</li> <li>• The Bidders shall be responsible for all security for site activities where requires</li> </ul>	
OFC Installation – Overhead	<ol style="list-style-type: none"> <li>1. Pole erection – Includes digging a hole and installation of a dressed pole.</li> <li>2. Lying overhead cable.</li> <li>3. Installation of Two thimble eye bolt, 0.25- inch-thick strand wire, concrete attached anchor bolt.</li> </ol>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
O.F. Cable Splicing &Test	<ol style="list-style-type: none"> <li>1. Splicing and testing of fibers in the field.</li> <li>2. Attenuation coefficient, length, position and loss of all splice joints shall be measured in accordance with IEC 793-1 and EIA 455 standards using an Optical Time Domain Reflectometer (OTDR) and a buffer fiber should be used in the measurements. The results shall be recorded as a trace and in a table format. The length of fiber should be tested at the same time.</li> </ol>	
O.F Cable Termination &Test	<ol style="list-style-type: none"> <li>1. OFC termination by fusion. Testing after installation of the cables and termination rack</li> <li>2. All cores should be terminated.</li> </ol>	
Supply and install HDPE pipe with Silicon core(26/32mm) and necessary accessories	<ul style="list-style-type: none"> <li>• High density polyethylene (HDPE) with silicone inner layer</li> <li>• These ducts must have 32mm exterior side and 26mm inner diameter and must support OFC by blowing at a km distance using a 10-bar pressure.</li> <li>• The drum length is 2km.</li> <li>• The duct will be white in colour, with</li> <li>• 2mm thick single red strip externally (at every 90° angle) and cream on the inner side.</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• The duct should be translucent for ease of maintenance and should be made of all virgin materials.</li> <li>• Duct labelling will be as follows: =HDPE Silicon Duct= = <math>\phi</math> 32/26mm G.O.K-I.C.T.</li> <li>• A-2019= =. Spacing of the labelling will be 1.0m. (The year will be changed to the right year of manufacture)</li> <li>• Supply and Install and install the</li> <li>• HDPE pipe including Supply and Install and</li> <li>• installation of all the couplers, end plugs, etc.</li> <li>• Minimum technical specs</li> <li>• Density: 0.95 g/cm<sup>3</sup> - DIN 53 479</li> <li>• Tensile strength at break: 23 – 30 N/mm<sup>2</sup> - DIN 53 455</li> <li>• Ball indentation hardness: 30 – 65 N/mm<sup>2</sup> - DIN 53 456</li> <li>• Notched bar impact strength: &gt; 5 mJ/mm<sup>2</sup> - DIN 53 453</li> <li>• Thermal conductivity: 0.40 – 0.46 W/m K - DIN 52 612</li> <li>• Coefficient of elongation: 1.5–2.0 x 10<sup>-4</sup></li> <li>• K-1 - DIN 52 328</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	<ul style="list-style-type: none"> <li>Dielectric strength: 800 – 900 kV/cm - DIN 53 481</li> <li>Specific insulation resistance: 1016 Ohm. Cm - DIN 53 482</li> </ul> <p>Attach Brochure</p>	
Supply and Install Warning Tape	<ul style="list-style-type: none"> <li>The warning tape shall be made of PVC or PE having approximately 10 cm in width and 0.1mm in thickness.</li> <li>The background colour of the warning tape shall be yellow.</li> <li>The mark words shall be enlarged up to the full width of the warning tape and shall be durably printed in black colour 2 meters apart.</li> </ul> <p>The words “CAUTION: Do not dig! O.F.C Cable underneath: Government of Kenya Contact 0206676999” shall be displayed on the warning tape at intervals of half (0.5) meters.</p>	
Supply and Install Handhole with cover and necessary accessories	<ul style="list-style-type: none"> <li>Plastic material</li> <li>Approximate Inner dimension: depth is 900mm, diameter is 1000mm.</li> <li>cable run directions at least.</li> <li>Joint box hanging mechanism at least.</li> <li>Cover branded Government of Kenya I.C.T.A and</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	ICTA logo. • Body branded Government of Kenya 24	
Supply and Install dressed wooden pole	Chemical treated wooden pole, 8m and 12M length, top diameter 140-200mm, top cover should be galvanized steel material, the diameter should be 100mm more than top diameter of the pole.	
Supply and install of reinforced concrete precast small manhole with polymer cover and lock mechanics with accessory	<ul style="list-style-type: none"> <li>• Dig the manhole pit which is fit for the manhole installation.</li> <li>• This reinforced concrete manhole can be pre-casted or cast-in-place.</li> <li>• Install the manhole and passive components such as bolts, nuts, brackets</li> <li>• Polymer cover installation.</li> <li>• Labelling shall be painted on both cover and body after installation, the serial number will follow design.</li> <li>• Backfill and compact the soil after manhole installation.</li> <li>• The size of the manhole is 1000mm*800mm*1300mm (L*W*D)</li> <li>• Concrete grade to be C20.</li> </ul>	



TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
96 Core Dome Splice Enclosure	Fiber optic PP plastic+UV resistance dome splice closure with trays for fiber splicing. Minimum requirements are: <ul style="list-style-type: none"> <li>• Minimum number of cores supported, 96 cores</li> <li>• Fiber cable size support: 8mm – 18mm</li> <li>• Minimum number of cassettes, 6 No.</li> </ul> 33 Support for installations upto of 60°C working environments	
24 Core Fiber Access Terminal (FAT)	Fiber Access Terminal (FAT) 24 Core (loaded with LC duplex pigtails and adapters)	
4 Core Fiber Access Terminal (FAT)	Fiber Access Terminal (FAT) 4 Core (loaded with LC duplex pigtails and adapters)	
Fiber Access Terminal Box (ATB)	Access Terminal Box (ATB) - Loaded with SC simplex adapters and pigtails	

**Note: Bidder MUST attach product datasheet that highlights the features matching each requirements/specification. Stating compliance without providing a product datasheet will be deemed non-compliant**

**Details Scope of Works - LOT 3**

<b>S/No</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
<b>1</b>	Procure a Wired & Wireless network solution to deliver intranet & internet services within the institution that will provide reliable connectivity and value-added services to students, teaching and non-teaching staff across the campus. <i>Provide a Detailed technical proposal</i>	
<b>2</b>	Integrate the Solution to the existing Network services at the institutions to reach all common areas of use, which include lecture halls, student residential areas, library, graduation squares, laboratories, public access areas, student centre, resting areas among others. <i>Provide Network Integration Plan</i>	
<b>3</b>	Interpolate the Solution to Support a large number of concurrent users without compromising network performance, enable seamless roaming for users moving between different areas of the campus. <i>Provide Interpolability &amp; Roaming plan</i>	
<b>4</b>	Implement network security of Authentication & Access, implement measures to protect against unauthorized access & data breaches and log all events on the Campus Wi-Fi network <i>Provide a plan for implementation of Network Security</i>	
<b>5</b>	Supply of associated licenses, software and original equipment manufacturer (OEM) support for the equipment, software's and all components supplied. All licenses are required to be perpetual during acquisitions and shall not result to recurrent costs in future.  <i>Provide a list of licenses , type, validity and function</i>	
<b>6</b>	Provide the Interconnection between the learning institution and the Wide Area Network, where none exists as proposed in the high level design.	

S/No	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
7	Offer industry standardized & Certified technical trainings to all the components of the project (Fiber, Wireless, Switching, Routing, Wireless Local Area Networks, Session Control & Management, Authentication & Wireless Security, Network Optimization & Support, Power Systems & Management) <i>Provide a detailed Training Plan (Content, Venue, Duration &amp; Number of trainees)</i>	
8	Provide 3 year Support and maintenance services for all the sub-systems and components constructed. <i>Provide a detail Support &amp; Maintenance of the completed infrastructure</i>	
9	<ul style="list-style-type: none"> <li>• Project Actualization Process</li> <li>• Site Planning</li> <li>• Implementation.</li> <li>• User Acceptance Testing</li> <li>• Commissioning</li> <li>• As-Built Documentation</li> <li>• Training</li> </ul> <i>Provide a detailed project work plan</i>	

**Note: Bidder MUST attach product datasheet that highlights the features matching each requirements/specification. Stating compliance without providing a product datasheet will be deemed non-compliant**

### Qualification Criteria - LOT 3

S/No	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	Technical Qualification of the Firm	

S/No	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
1	<p>The firm must have a proven track record in implementing large-scale network infrastructure projects in similar environments. The firm should demonstrate skills in designing, implementing and delivering projects of complex nature. The firm should demonstrate at least 2 similar projects undertaken in the last 5 years. The projects should be of comparable monetary value to the scope of this project.</p> <p><i>Provide a Proof in the form of contracts/LPOs and Completion Certificates/Inspection Certificates for each project.</i></p>	
	Financial Capability of the Firm	
2	<p>A minimum of two (2) in number of similar contracts, similarity being in nature, complexity that incorporated supply, installation, configuration, commissioning and maintenance a similar project in nature and value, specified below that have been satisfactorily and substantially completed during the last 5 years:</p> <p>One contract, with a minimum value of at least KES 120 million.</p> <p><i>Provide a Proof in the form of contracts/LPOs for each.</i></p>	
	Liquidity	
3	<p>The Bidder shall demonstrate that is has access to, or has available, liquid assets, lines of credit or other financial means sufficient to meet cash flow requirements of KES 120 million or equivalent.</p>	

<b>S/No</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	<i>Provide evidence of liquidity (Letter of credit or Bank Balances)</i>	

### Project Approach, Environment and Social Safeguards - LOT 3

<b>S/No</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	Project Timelines	
<b>1</b>	<p>The supply, delivery &amp; installation works for all the items in the BoQ/Activity Schedules should be delivered and installed at the place of destination within four (4) months from the date of contract signing.</p> <p><i>Provide a detailed project plan fitting the timelines and a letter as a commitment</i></p>	
	Code of Conduct for Contractor's Personnel (ES)	
<b>2</b>	Submit its Code of Conduct that will apply to Contractor's Personnel (as defined in Sub- Clause 1 (ii) of the General Conditions of Contract), to ensure compliance with the Contractor's Environmental and Social (ES) obligations under the Contract. The Bidder shall use for this purpose the Code of Conduct form provided in Section IV	
	Management Strategies and Implementation Plans (MSIP) to manage the (ES) risks	
<b>3</b>	The Bidder shall submit Management Strategies and Implementation Plans (MSIPs) to manage the	

S/No	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<p>following key Environmental and Social (ES) risks:</p> <ul style="list-style-type: none"><li>• Sexual Exploitation, and Abuse (SEA) prevention and response action plan.</li><li>• Environmental Safety Plan .</li><li>• Site Access Plan</li><li>• Network Disruption Plan.</li></ul>	

**WiFi Routers and related Goods - LOT 4**

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
24 Port 10G SFP+ Layer 3 Core Switch	<p>Top of rack, 1RU rack-mountable managed switch with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Minimum of 24 No. ports of 1/10/25G (SFP/SFP+)</li> <li>• Minimum of 4 No. ports of 40GbE/100GbE (QSFP+/QSFP28)</li> <li>• Minimum switching capacity of 1.6 Tbps</li> <li>• Support for minimum of 80,000 MAC addresses in the MAC address table</li> <li>• Support for Layer 3 routing (Static Routes and dynamic routing using OSPFv2, IS-IS, IS-ISv6, BGP4, BGP6)</li> <li>• Support for VLANs and IEEE 802.1Q (4,094 VLAN IDs) VLAN tagging with minimum 1,000 configurable active VLANs</li> <li>• Support for spanning-tree protocol for both Rapid Per-VLAN Spanning Tree (RPVST+) and Multiple Spanning Tree Protocol (MSPT)</li> <li>• Support for remote management, configuration and authentication (SNMPv2, SNMPv3, SSH, TACACS+, RADIUS)</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	<ul style="list-style-type: none"> <li>• Redundant Power Supplies (1+1 Redundancy)</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next six years. Attach Evidence</li> <li>• Original Equipment Manufacturer/vendor of the proposed switch MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> <li>• Three-year (3) warranty and support</li> </ul> <p>Attach data sheet</p>	
L3 Edge switch 48-Port GigEthernet PoE+ Switch with 10Gbps SFP+ Uplinks	<p>Top of rack, 1RU rack-mountable managed switch with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Minimum of 48 No. RJ-45 autosensing 10/100/1000 PoE+ ports</li> <li>• Minimum of 4 No. SFP+ 1/10GbE ports</li> <li>• Minimum of 2 No. MultiGigabit stack ports</li> </ul>	



TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• Minimum switching capacity of 170Gbps with a forwarding performance of 130 Mpps</li> <li>• Supports full POE+</li> <li>• Support for minimum of 30,000 MAC addresses in the MAC address table</li> <li>• Support for Layer 3 routing (Static Routes and dynamic routing using OSPFv2)</li> <li>• Support for VLANs and IEEE 802.1Q (4,094 VLAN IDs) VLAN tagging with 1,000 configurable VLANs</li> <li>• Support for spanning-tree protocol for both Rapid Per-VLAN Spanning Tree (RPVST+) and Multiple Spanning Tree Protocol (MSPT)</li> <li>• Support for remote management, configuration and authentication (SNMPv2, SNMPv3, SSH, TACACS+, RADIUS)</li> <li>• Redundant power supply modules</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next Six years. Attach Evidence</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>Original Equipment Manufacturer/vendor of the proposed switch MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> <li>Three-year (3) warranty and support</li> </ul> <p>Attach data sheet</p>	
L3 Edge switch 24-Port GigEthernet PoE+ Switch with 10Gbps SFP+ Uplinks	<p>Top of rack, 1RU rack-mountable managed switch with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>1. Minimum of 24 No. RJ-45 autosensing 10/100/1000 PoE+ ports</li> <li>Minimum of 4 No. SFP+ 1/10GbE ports</li> <li>Minimum of 2 No. MultiGigabit stack ports</li> <li>Minimum switching capacity of 125Gbps with a forwarding performance of 95 Mpps</li> <li>Supports full POE+</li> <li>Support for minimum of 30,000 MAC addresses in the MAC address table</li> <li>Support for Layer 3 routing (Static Routes and dynamic routing using OSPFv2)</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• Support for VLANs and IEEE 802.1Q (4,094 VLAN IDs) VLAN tagging with 1,000 configurable VLANs</li> <li>• Support for spanning-tree protocol for both Rapid Per-VLAN Spanning Tree (RPVST+) and Multiple Spanning Tree Protocol (MSPT)</li> <li>• Support for remote management, configuration and authentication (SNMPv2, SNMPv3, SSH, TACACS+, RADIUS)</li> <li>• Redundant power supply modules</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next Six years. Attach Evidence</li> <li>• Original Equipment Manufacturer/vendor of the proposed switch MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> <li>• Three-year (3) warranty and support</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	Attach data sheet	
Indoor Wireless Access Point	<p>Indoor wireless access point (WLAN AP) with support for Wi-Fi 6 software-configurable dual radio, 5 GHz 4x4 MIMO and 2.4 GHz 2x2 MIMO, achieving a data rate of 5.3 Gbps. The WiFi access points should specifically meet the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Support WPA3 with specific support for WPA3 Enterprise</li> <li>• Support for 802.1x standard for network authentication of wireless clients</li> <li>• Support for minimum of 150 associated active clients (concurrent connected end user devices)</li> <li>• Support for built-in smart antennas to improve on signal quality</li> <li>• Support for minimum of 16 No. SSIDs two (2) of which MUST support 802.1x network authentication</li> <li>• Support for WIFI-6 standards such as OFDMA, TWT, MU-MIMO and BSS coloring</li> <li>• Support for VLAN assignment per SSID and based on network authentication (802.1x VLAN assignment based on radius attributes)</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• Support for IoT</li> <li>• Communication between the WLAN AP and the management system MUST be through encrypted channels</li> <li>• Maximum power consumption should not exceed 21W</li> <li>• Support for powering through PoE</li> <li>• Operating temperature: Between 0°C to 50°C</li> <li>• Support for minimum of 2 No. RJ45 network interface ports capable of negotiating both 100Mbps and 1Gbps speed</li> <li>• Included with relevant mounting brackets</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next four years. Attach Evidence.</li> <li>• Original Equipment Manufacturer/vendor of the proposed access point MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<p>consecutive years, at the time of bidding. Attach Evidence</p> <ul style="list-style-type: none"> <li>• Three-year (3) warranty and support</li> </ul> <p>Management using a centralized WLAN Controller (or equivalent centralized management system for software updates and configuration) is mandatory</p> <p>Attach data sheet</p>	
Outdoor Wireless Access Point	<p>Outdoor Hardened (IP68) wireless access point (WLAN AP) with support for Wi-Fi 6 software-configurable dual radio, 5 GHz 2x2 MIMO and 2.4 GHz 2x2 MIMO achieving a device performance of 1.7 Gbps. The WiFi access points should specifically meet the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Support WPA3 with specific support for WPA3 Enterprise</li> <li>• Support for 802.1x standard for network authentication of wireless clients</li> <li>• Support for minimum of 500 associated active clients (concurrent connected end user devices)</li> <li>• Support for external smart antennas to improve on signal quality</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• Support for WIFI-6 standards such as OFDMA, TWT, MU-MIMO and BSS coloring</li> <li>• Support for minimum of 16 No. SSIDs two (2) of which MUST support 802.1x network authentication</li> <li>• Support for VLAN assignment per SSID and also based on network authentication (802.1x VLAN assignment based on radius attributes)</li> <li>• Communication between the WLAN AP and the management system MUST be through encrypted channels</li> <li>• Operating temperature: -40°C to 65°C</li> <li>• Support for powering through PoE</li> <li>• Support for minimum of 1 No. RJ45 network interface port capable of negotiating both 100Mbps and 1Gbps speed</li> <li>• Included with relevant mounting brackets</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next four years. Attach Evidence.</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>Original Equipment Manufacturer/vendor of the proposed access point MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> <li>Three-year (3) warranty and support</li> </ul> <p>Management using a centralized WLAN Controller (or equivalent centralized management system for software updates and configuration) is mandatory Attach data sheet</p>	
Wireless Access/LAN Controller	<ul style="list-style-type: none"> <li>The WLC should support manage 250 access points</li> <li>The WLC should support 5000 users.</li> <li>The WLC should provide 5 Gbps forwarding performance.</li> <li>The WLC should have at least 2x1G SFP interfaces fully populated with MMF 1G SFPs</li> <li>The WLC should support the establishment of CAPWAP tunnels with APs using IPv4 and IPv6 dual stacks.</li> </ul>	



TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• The WLC should support intelligent roaming based on 802.11k and 802.11v, enabling clients with low roaming sensitivity to roam to the optimal AP.</li> <li>• The WLC should support automatically switch 2.4 GHz radios to 5 GHz radios through automatic negotiation between APs, reducing 2.4 GHz co-channel interference and increasing system capacity.</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next four years. Attach Evidence.</li> <li>• Original Equipment Manufacturer/vendor of the proposed controller MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> <li>• Three-year (3) warranty and support</li> </ul> <p>Attach data sheet</p>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
Install Wireless AP with Accessories	<ul style="list-style-type: none"> <li>• Install AP as per ICTA standards</li> <li>• inclusive of trunking and LAN cabling</li> </ul>	
2 KVA Rack mountable UPS	<p>Single-phase 2 KVA double-conversion on-line rack-mountable UPS with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Minimum output power capacity of 1.2KW</li> <li>• Minimum output power factor of 0.8</li> <li>• Nominal Output Voltage 230V, 50Hz</li> <li>• Input Voltage range 220VAC – 240VAC, 50Hz</li> <li>• 4 No. IEC 60320 C13 Output Connections</li> <li>• IEC 60320 C14 Input connections</li> <li>• Online, double-conversion power conditioning</li> <li>• Minimum runtime of 15 minutes at Half Load</li> <li>• Included with relevant mounting brackets for 19-inch rack/cabinet</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not have an ongoing End of Life (EOL) announcement by the OEM</li> </ul> <p>Attach data sheet</p>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
3 KVA Single-Phase UPS	<p>Single-phase 3KVA UPS with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Minimum output power capacity of 4KW</li> <li>• Minimum output power factor of 0.8</li> <li>• Number of phases, 1ph</li> <li>• Nominal Output Voltage 230V, 50Hz</li> <li>• Input Voltage range 220VAC – 240VAC, 50Hz</li> <li>• Parallel configuration support for minimum 2 units</li> <li>• Minimum runtime of 15 minutes at Half Load</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not have an ongoing End of Life (EOL) announcement by the OEM</li> </ul> <p>Attach data sheet</p>	
Supply and install 3-core 4 mm flexible Cable Roll	3-core Electrical Flexible PVC Cable 4mm twin with earth for 300v/500V rating. Cable should have stranded copper conductors meeting BS 6004 and KS453 standard	
Supply and Install of yellow green earthing	<ul style="list-style-type: none"> <li>• The cable size should be 4 mm<sup>2</sup></li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Data sheet (Yes/No)</b>
cable		
Supply and install Earth rod	The earth rod should pure copper and 1.5 metres long, with accessories	
22U Network Cabinet with a 4Way Horizontal Mount Power Distribution Unit (PDU)	<p>Standard-Depth 22U 19-inch Server Cabinet Rack Enclosure including vertical mounting rails and mesh door with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Rack Enclosure depth of 800 mm</li> <li>• Rack height of 22U</li> <li>• Support mounting of 19-inch copper patch panels, optical distribution frames, network switches, rack-mountable UPS</li> <li>• 1 No. 4 Way UK Plug Power Distribution Unit Horizontal</li> <li>• Floor Standing Steel Rack Enclosure with 4 No. castor wheels with fan venting at the top (fan included)</li> </ul> <p>Attach data sheet</p>	
15U Network Cabinet with a 4Way Horizontal	<p>Standard-Depth 15U 19-inch Server Cabinet Rack Enclosure including vertical mounting rails and mesh door with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Rack Enclosure depth of 800 mm</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
Mount Power Distribution Unit (PDU)	<ul style="list-style-type: none"> <li>• Rack height of 15U</li> <li>• Support mounting of 19-inch copper patch panels, optical distribution frames, network switches, rack-mountable UPS</li> <li>• 1 No. 4 Way UK Plug Power Distribution Unit Horizontal</li> <li>• Floor Standing Steel Rack Enclosure with 4 No. castor wheels or Wall-mountable rack enclosure with fan venting at the top (fan included)</li> </ul> <p>Attach data sheet</p>	
Cat 6A U/UTP Pure Copper Ethernet Cable 305M (Indoor)	<p>23AWG Cat 6 U/UTP copper cable with HDPE insulation enclosed in PVC flame-retardant jacket for indoor installations. The minimum specifications are as follows:</p> <ul style="list-style-type: none"> <li>• Indoor environment use</li> <li>• Riser flammability rating</li> <li>• Support installation temperature of 50°C</li> <li>• 23AWg solid copper conductor</li> <li>• Overall length of 305 meters</li> </ul> <p>Attach data sheet</p>	
Cat 6A F/UTP Pure Copper	23AWG Cat 6 U/UTP Outside Plant (OSP) copper cable with PE insulation enclosed in abrasion-resistant HDPE flame-	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Data sheet (Yes/No)</b>
Ethernet Cable 305M (Outdoor)	retardant jacket for outdoor installations. The minimum specifications are as follows: <ul style="list-style-type: none"> <li>• Outdoor environment use</li> <li>• Ability for the insulation to withstand moisture migration in underground and wet applications</li> <li>• Outdoor flammability rating</li> <li>• Must be UV-Resistant</li> <li>• Support installation temperature of 70°C</li> <li>• 23AWg solid copper conductor</li> <li>• Overall length of 305 meters</li> </ul> Attach data sheet	
F/UTP Category 6A Dual Outlets Module (Data points)	Pair of Cat 6A RJ45 keystone modules with support for 10Gbit Ethernet applications Attach data sheet	
Flash Mount Faceplates – F/UTP Category 6A Double	Single gang faceplate with support for 2 outlet ports. Faceplate should support mounting onto single gang opening and include a label pocket for identification/labeling Attach data sheet	
F/UTP Category 6A Wall UTP-	Cat 6A 24 AWG UTP Copper Patch Cord of 0.25 meter length with minimum specifications below:	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
RJ45Patch cord (0.25M)	<ul style="list-style-type: none"> <li>• 24AWg solid copper conductor</li> <li>• Overall length of 1 meter</li> <li>• T568B wiring scheme</li> <li>• Must support IEEE 802.3af (PoE), IEEE 802.3at (PoE+), and IEEE 802.3bt Type 3 and 4 (PoE++) PoE compatibility.</li> </ul> <p>Attach data sheet</p>	
F/UTP Category 6A 48 PATCH PANEL 1 U568A/B	<p>Cat 6A UTP Flat Punchdown steel Patch Panel with support for terminating 4-pair, 22–26 AWG, twisted pair cable. The patch panels should meet the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Must be rack-mountable on a 19-inch rack</li> <li>• Support for RJ45 module type</li> <li>• Minimum of 48 ports fully populated with keystones</li> <li>• Support for both T568A and T568B wiring schemes</li> </ul> <p>Attach data sheet</p>	
F/UTP Category 6A 24 PATCH PANEL 1 U568A/B	<p>Cat 6A UTP Flat Punchdown steel Patch Panel with support for terminating 4-pair, 22–26 AWG, twisted pair cable. The patch panels should meet the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Must be rack-mountable on a 19-inch rack</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• Support for RJ45 module type</li> <li>• Minimum of 24 ports fully populated with keystones</li> <li>• Support for both T568A and T568B wiring schemes</li> </ul> Attach data sheet	
Cable managers 2U	Horizontal Cable Manager mountable onto a 19-inch rack or cabinet. The cable manager MUST meet the following minimum specifications: <ul style="list-style-type: none"> <li>• Support for management of copper, and fiber optic cables</li> <li>• 2 RU with dual-hinging front cover</li> <li>• Should be mountable horizontally</li> </ul> Attach data sheet	
Cable managers 1U	Horizontal Cable Manager mountable onto a 19-inch rack or cabinet. The cable manager MUST meet the following minimum specifications: <ul style="list-style-type: none"> <li>• Support for management of copper, and fiber optic cables</li> <li>• 1 RU with dual-hinging front cover</li> <li>• Should be mountable horizontally</li> </ul> Attach data sheet	



<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
Galvanized Metallic Trunking 150mm x50mm & accessories	Galvanized double-compartment metal trunking cover and base with base loop perforation. Each piece of metal trunking MUST be at least 2.4 meters in length Attach data sheet	
Galvanized Metallic Trunking 100mm x50mm & accessories	Galvanized double-compartment metal trunking cover and base with base loop perforation. Each piece of metal trunking MUST be at least 2.4 meters in length Attach data sheet	
Galvanized Metallic Trunking 25mm x50mm & accessories	Galvanized double-compartment metal trunking cover and base with base loop perforation. Each piece of metal trunking MUST be at least 2.4 meters in length	
Install metal Trunking size 25×50mm/50×100mm/50×150mm with	<ul style="list-style-type: none"> <li>• Trunking should be installed neatly on the surface of walls, columns or beams and be truly vertical or horizontal.</li> <li>• Overhead trunking should be suitably supported by means of mild steel hangers' brackets or other suitable devices.</li> <li>• Trunking should be provided with removable side</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
accessories and auxiliary work	<p>cover, easy bend at all turning angles and, where required, appropriate outlet holes with grommets.</p> <ul style="list-style-type: none"> <li>• The height of the trunking installed should not cause any installation and maintenance problem.</li> <li>• Cutting and combine the trunking when necessary</li> <li>• Detect/locate the presence of the electricity system before drilling. size</li> <li>• 30x55mm for trunking (25*50 mm)</li> <li>• Drilling/boring the floor slab by the appropriate drilling/boring machine without cutting holes through the building structured area (e.g., beam, column E structure wall etc.).</li> <li>• Make good the hole surface by cement mortar and paint coating</li> <li>• Seal the holes with silicon.</li> </ul>	
Supply and Install Flexible corrugated PVC pipe ≤ 50mm with	<ul style="list-style-type: none"> <li>• Cutting suitable length of PVC pipe.</li> <li>• Smooth all duct ends</li> <li>• Fixing PVC Pipe on Wall/Ceiling by supporting with saddles/ brackets.</li> <li>• Fixing Junction Box at all turning angles or every 10m if necessary.</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
accessories.	<ul style="list-style-type: none"> <li>• Labelling for identification.</li> </ul>	
40mm Flex Conduits	40mm PVC Flexible Conduit per meter length	
Install indoor/Outdoor Cat.6, 4-Pair UTP Cable	<ul style="list-style-type: none"> <li>• Lay the outdoor cat6 as per design, what layed in trunk or duct as straight as flat, no bind, enlarged regular and fastened by plastic ties as per specification.</li> <li>• Supply and install and label the cat 6 cable as per specification, the labelling must be waterproof.</li> <li>• The primary media for horizontal cabling will be 4-pair Unshielded Twisted Pair (UTP) which must meet or exceed ANSI/TIA/EIA-568-B and ISO/IEC 11801 standards.</li> <li>• Unshielded Twisted Pair (UTP) Category 6A quality cable shall be employed for either outdoor or indoor cable.</li> <li>• Each room to be networked shall have wall plates installed and each outlet terminated with 8-pin modular jacks (RJ-45).</li> <li>• Each designated network interface will have capacity to support Giga Ethernet.</li> <li>• Each cable will be required to move through the tie if</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<p>firmly pulled.</p> <ul style="list-style-type: none"> <li>• Cables should not be crushed using cable ties.</li> <li>• Cable conduits must not be overfilled.</li> <li>• All cables must pass through Trunking and should not be seen from the outside</li> <li>• There shall be no splicing of any of the cables installed. Intermediate cross-connects and transition points are not allowed.</li> <li>• All user area patch chords shall be at least 3m in length</li> <li>• Data outlets shall be flush mounted on the metal Trunking.</li> <li>• All user area patch chords and cabinet patch chords will be supplied to match the total number of data outlets.</li> </ul>	
Install Category 6A PATCH PANELs	<ul style="list-style-type: none"> <li>• All patch panels must conform to ANSI/TIA/EIA-568A.</li> <li>• Patch panels must be equipped with RJ45 contacts of Category 6A sockets with a capacity of 24/48 RJ45 ports.</li> <li>• All patch panels, including fiber optic patch panels must be rack mounted</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• All panels and racks must be earthed to provide electrical safety for users and screening to prevent electromagnetic radiation.</li> <li>• Except for the patch cords used to connect NICs to the RJ45 sockets, all patch cords must be labeled at each extremity with soft PVC support and indelible marking (stamping or similar method). For all other components, the label type should be of stiff plastic PVC type.</li> </ul> <p>Attach data sheets for the Patch panels and ODFs</p>	
48-Port Optical Distribution Frame (Fiber Patch Panel) & Accessories (LC adapters & pigtails)	<p>19-inch rackmount and modularized fiber optic distribution frame for indoor fiber optic cables connection storage, distribution and management. The ODF must meet the following minimum requirements:</p> <ul style="list-style-type: none"> <li>• Minimum core Capacity of 48 No.</li> <li>• Minimum cable ports of 8 No.</li> <li>• Support for LC fiber optical adapters</li> <li>• Support for ribbon and single fiber</li> <li>• MUST be fully populated with fiber optic pigtails and LC/UPC adapters</li> <li>• Support for optical wavelengths of 1310nm and 1550nm</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• Insertion loss MUST be less than 0.2dBm</li> </ul> <p>Attach data sheets</p>	
24-Port Optical Distribution Frame (Fiber Patch Panel) & Accessories (LC adapters & pigtails)	<p>19-inch rackmount and modularized fiber optic distribution frame for indoor fiber optic cables connection storage, distribution and management. The ODF must meet the following minimum requirements:</p> <ul style="list-style-type: none"> <li>• Minimum core Capacity of 24 No.</li> <li>• Minimum cable ports of 8 No.</li> <li>• Support for LC fiber optical adapters</li> <li>• Support for ribbon and single fiber</li> <li>• MUST be fully populated with fiber optic pigtails and LC/UPC adapters</li> <li>• Support for optical wavelengths of 1310nm and 1550nm</li> <li>• Insertion loss MUST be less than 0.2dBm</li> </ul> <p>Attach data sheets</p>	
12-Port Optical Distribution Frame (Fiber	19-inch rackmount and modularized fiber optic distribution frame for indoor fiber optic cables connection storage,	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
Patch Panel) & Accessories (LC adapters & pigtails)	<p>distribution and management. The ODF must meet the following minimum requirements:</p> <ul style="list-style-type: none"> <li>• Minimum core Capacity of 12 No.</li> <li>• Minimum cable ports of 8 No.</li> <li>• Support for LC fiber optical adapters</li> <li>• Support for ribbon and single fiber</li> <li>• MUST be fully populated with fiber optic pigtails and LC/UPC adapters</li> <li>• Support for optical wavelengths of 1310nm and 1550nm</li> <li>• Insertion loss MUST be less than 0.2dBm</li> </ul> <p>Attach data sheets</p>	
Install Fiber Patch Panel) & Accessories	<ul style="list-style-type: none"> <li>• All patch panels/ODFs must conform to ANSI/TIA/EIA-568A.</li> <li>• All patch panels must be rack mounted</li> <li>• All panels and racks must be earthed to provide electrical safety for users and screening to prevent electromagnetic radiation.</li> <li>• Fiber Optic patching should be done from the cabinet housing optic boxes/panels as well as the optic electronic equipment.</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>All patch cords must be labeled at each extremity with soft PVC support and indelible marking (stamping or similar method). For all other components, the label type should be of stiff plastic PVC type.</li> </ul> Attach data sheets for the Patch panels and ODFs	
LC Duplex adapters	Duplex fiber LC connectors LC/UPC duplex unibody adapter with flange	
SM Fiber Patch Cord 1M	1 meter Fiber Optic Cable, Single-Mode Duplex 9/125 housed in a LSZH (Low-Smoke, Zero-Halogen) flame retardant jacket with specifications below: <ul style="list-style-type: none"> <li>2x LC/UPC Single Mode male connectors</li> <li>OS1 (9/125)</li> <li>LSZH (Low-Smoke, Zero-Halogen) cable jacket</li> <li>Support for ITU-T G.652, including ITU-T G.652A, ITU-T G.652B, ITU-T G.652C and G.652D</li> </ul> Cable length of 1 meter	
Supply of ADSS OFC 12/24/48 Core	Supply and install and installation of ADSS OFC 12/24/48 Core with accessories. <ul style="list-style-type: none"> <li><input type="checkbox"/> Aqua #00D1D1 with Red Stripes on Jacket/ Sheathing</li> <li><input type="checkbox"/> Labelling as per ICTA standards</li> <li><input type="checkbox"/> ITU G652 Compliant</li> </ul>	



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	<div><input type="checkbox"/> Must be compliant with underground ADSS specs below</div> <div><input type="checkbox"/> Attach Brochure</div>																		
Overhead ADSS cable specifications		<div>ADSS</div> <div>Installation of OFC ADSS Cable</div> <div><div>v. Laying overhead cable</div><div>w. Installation of Two thimble eye bolt, 0.25-inch-thick strand wire, concrete attached anchor bolt.</div><div>x. The cable shall meet the specifications below:</div></div> <table><tr><td>Description</td><td>Trunk Specs</td></tr><tr><td>ITU Spec</td><td>G.652</td></tr><tr><td>Fibre Count</td><td>48</td></tr><tr><td>Fibres Per Tube</td><td>6</td></tr><tr><td>Minimum Number of Tubes</td><td>4</td></tr><tr><td>Weight (Include Messenger)</td><td>≤ 403 Kg/Km</td></tr><tr><td>Outer Diameter</td><td>≤ 14.3mm</td></tr><tr><td>Cable Height (End to end cable + Messenger)</td><td>≤ 25.9mm</td></tr></table>	Description	Trunk Specs	ITU Spec	G.652	Fibre Count	48	Fibres Per Tube	6	Minimum Number of Tubes	4	Weight (Include Messenger)	≤ 403 Kg/Km	Outer Diameter	≤ 14.3mm	Cable Height (End to end cable + Messenger)	≤ 25.9mm	
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TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT				Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
		Minimum Bend Radius in operation	143 mm		160 mm
		Pole to Pole Span at 1.5% Install Sag.	100m		100m
		ITU Spec	G.652		G.652
		Cable Slack Storage Coil at Joints	30m		30m
		Maximum Tensile Strength Long Term	890 N		890 N
		Cable Operating Temperature	-40oC - 70oC		-40oC - 70oC
		y. Installation of Cable storage bracket a. Galvanized Metal Bracket z. Installation of ADSS Clamp a. ADSS Fittings (as per design) b. Installation with through bolt or banding c. Versatile design can be used as a stringing block (with inserts removed) d. Tangent suspension for spans up to 600 ft. e. Meets IEEE 1591.2 aa. Installation J-Hooks a. Tangent suspension for spans up to 600ft			

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT		Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
		b. Less than 20 degrees angle on cable routes between spans (For Angles greater than 20 degrees, double deadend or false deadend) bb. Installation of Stay (Pole support) a. Stay Block, stay wire and Stay Rod (as per design)	
Supply of underground OFC 12/24/48 Core	Supply and installation of OFC 12/24/48 Core with accessories. <input type="checkbox"/> Aqua #00D1D1 with Red Stripes on Jacket/ Sheathing <input type="checkbox"/> Labelling as per ICTA standards <input type="checkbox"/> ITU G652 Compliant <input type="checkbox"/> Must be compliant with underground OFC specs below Attach Brochure		
Underground OFC cable specifications		Underground OFC Specs All fiber Optic Cables must comply with the following specs:  tt) Maximum Attenuation	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT			Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)																					
		<table><tr><th>Wavelength (nm)</th><th>Maximum Value (dB/Km) (Before cable)</th><th>Maximum Value (dB/Km) (After cable)</th></tr><tr><td></td><td></td><td></td></tr><tr><td>1310</td><td>≤ 0.34</td><td>≤ 0.35</td></tr><tr><td>1383</td><td>≤ 0.34</td><td>≤ 0.35</td></tr><tr><td>1550</td><td>≤ 0.21</td><td>≤ 0.22</td></tr><tr><td>1625</td><td>≤ 0.23</td><td>≤ 0.24</td></tr></table> <p>uu) The Variance of attenuation in any given wavelength should not be more than 0.05 dB/Km</p> <p>vv) The Macro-bend loss for fibre wrapped around a mandrel of diameters higher than 60mm and up to 100 turns should be ≤0.1 dB at wavelength (λ) 1625nm.</p> <p>ww) Cut off Wavelength. Fibre should be able to carry wavelengths from λ=1260nm upwards.</p> <p>xx) Maximum Dispersion:</p> <p>yy) Zero Dispersion Wavelength 1300 nm ≤ λ0 ≤ 1324 nm</p> <p>zz) Zero Dispersion Slope S0 ≤ 0.092 ps/ (nm2 * Km)</p> <table><tr><th>Wavelength (nm)</th><th>Maximum Value (ps/nm*Km)</th></tr><tr><td></td><td></td></tr></table>	Wavelength (nm)	Maximum Value (dB/Km) (Before cable)	Maximum Value (dB/Km) (After cable)				1310	≤ 0.34	≤ 0.35	1383	≤ 0.34	≤ 0.35	1550	≤ 0.21	≤ 0.22	1625	≤ 0.23	≤ 0.24	Wavelength (nm)	Maximum Value (ps/nm*Km)			
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	1550	≤ 18	
	aaa) He Polarization Mode Dispersion (PMD) Link Design Value or PMDQ (PMD of concatenated length of fibre) should comply with IEC 60794-3: 2001, section 5.5, Method 1 (m=20, Q=0.01%). PMDQ ≤ 0.1 ps/√Km (ps per root Km). bbb) Environmental Specs: The fibre should be able to operate with induced attenuation ≤ 0.05 dB/Km at temperatures from -0oC to +85oC and humidity of up to 85% RH. ccc) The cable adopts a semi-dry water blocking structure, making clean and tidy coiling operations possible. In this way, the environment cleanness and coiling efficiency are improved. ddd) The cable will have 6 cores per tube and 16 tubes per cable.  eee) The cable will be labelled as per ICTA Fiber Optic-Backbone, Metro and Last Mile Infrastructure standard (ICTA.2.001.2021) to allow for identification  fff) The natural bending length of duct OFC is 7-10m per km. Generally, when OFC pass hand hole/manhole, the bending length is 0.5-1m.OFC		

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)																														
	<p>reservation shall be 15m at each side of the OFC joint.</p> <p>ggg) Cable reservation of equipment-room OFC: At the side of the equipment-room, the length of reservation cable is a minimum 15m.</p> <p>hhh) cables will have specifications as stipulated in the IEC 60794 -3 test criteria as follows:</p> <table border="1"> <thead> <tr> <th>Item</th><th>Description</th><th>Spec Ac</th></tr> </thead> <tbody> <tr> <td>1</td><td>Maximum Fibres Per Tube</td><td>12</td></tr> <tr> <td>2</td><td>Minimum Number of Tubes</td><td>8</td></tr> <tr> <td>3</td><td>Weight</td><td>≤ 98 Kg</td></tr> <tr> <td>4</td><td>Outer Diameter</td><td>≤ 12.2mm</td></tr> <tr> <td>5</td><td>Minimum Bend Radius at Installation</td><td>183 mm</td></tr> <tr> <td>6</td><td>Minimum Bend Radius in operation</td><td>122 mm</td></tr> <tr> <td>7</td><td>Tensile Strength Short Term</td><td>2700 N</td></tr> <tr> <td>8</td><td>Tensile Strength Long Term</td><td>890 N</td></tr> <tr> <td>9</td><td>Cable Operating Temperature</td><td>-0oC - 8</td></tr> </tbody> </table>	Item	Description	Spec Ac	1	Maximum Fibres Per Tube	12	2	Minimum Number of Tubes	8	3	Weight	≤ 98 Kg	4	Outer Diameter	≤ 12.2mm	5	Minimum Bend Radius at Installation	183 mm	6	Minimum Bend Radius in operation	122 mm	7	Tensile Strength Short Term	2700 N	8	Tensile Strength Long Term	890 N	9	Cable Operating Temperature	-0oC - 8	
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TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
OFC Installation - Underground	<p>The OFC Implementation Civil Work should be done on Turnkey Basis:</p> <ul style="list-style-type: none"> <li>• Preparatory works: Engineering measurement (Survey and Design)</li> <li>• Route cleaning, calibration and cleaning of existing duct if applicable,</li> <li>• Trenching including excavation, backfilling, laying warning tape, and compaction in all soils. The trench width should be 300mm, the trench depth should be 1200mm in soils excluding rocky soil, 800mm in soft rock, 400mm in hard rock.</li> <li>• Breaking and reinstatement of road surface.</li> <li>• Laying ducts: 2'0. D.32mm HDPE and 1*O.D.40mm HDPE Pipe in trench or duct.</li> <li>• Installation of RC manhole: Averagely, install at an interval of 200m in town or city</li> <li>• Road crossing by trenching or thrust boring or directional drilling for different grade of roads in Kenya as per specification, including 110mm HDPE pipe installation.</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Data sheet (Yes/No)</b>
	<ul style="list-style-type: none"> <li>● Bridge crossing by bridge attachment, trenching and drilling as per design</li> <li>● River crossing by trenching or non-trenching, including C15 concrete envelope protection and scree bag protection as per specification.</li> <li>● 20mm*200mm C15 concrete envelope protection in rocky trench or where else required.</li> <li>● Other O.F.O cable duct protection, such as slope protection, stone pitching, gabion protection, etc. as per specification.</li> <li>● BOSAL works for site or building entry including supplying all the BOSAL work materials.</li> <li>● The bidders work shall follow all the project specification requirements and other standards.</li> <li>● The Bidders shall be responsible for all security for site activities where requires</li> </ul>	
OFC Installation – Overhead	<ol style="list-style-type: none"> <li>1. Pole erection – Includes digging a hole and installation of a dressed pole.</li> <li>2. Lying overhead cable.</li> <li>3. Installation of Two thimble eye bolt, 0.25- inch-thick</li> </ol>	



TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	strand wire, concrete attached anchor bolt.	
O.F. Cable Splicing &Test	<ol style="list-style-type: none"> <li>1. Splicing and testing of fibers in the field.</li> <li>2. Attenuation coefficient, length, position and loss of all splice joints shall be measured in accordance with IEC 793-1 and EIA 455 standards using an Optical Time Domain Reflectometer (OTDR) and a buffer fiber should be used in the measurements. The results shall be recorded as a trace and in a table format. The length of fiber should be tested at the same time.</li> </ol>	
O.F Cable Termination &Test	<ol style="list-style-type: none"> <li>1. OFC termination by fusion. Testing after installation of the cables and termination rack</li> <li>2. All cores should be terminated.</li> </ol>	
Supply and install HDPE pipe with Silicon core(26/32mm) and necessary accessories	<ul style="list-style-type: none"> <li>• High density polyethylene (HDPE) with silicone inner layer</li> <li>• These ducts must have 32mm exterior side and 26mm inner diameter and must support OFC by blowing at a km distance using a 10-bar pressure.</li> <li>• The drum length is 2km.</li> <li>• The duct will be white in colour, with</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>• 2mm thick single red strip externally (at every 90° angle) and cream on the inner side.</li> <li>• The duct should be translucent for ease of maintenance and should be made of all virgin materials.</li> <li>• Duct labelling will be as follows: =HDPE Silicon Duct= = <math>\phi</math> 32/26mm G.O.K-I.C.T.</li> <li>• A-2019= =. Spacing of the labelling will be</li> <li>• 1.0m. (The year will be changed to the right year of manufacture)</li> <li>• Supply and Install and install the</li> <li>• HDPE pipe including Supply and Install and</li> <li>• installation of all the couplers, end plugs, etc.</li> <li>• Minimum technical specs</li> <li>• Density: 0.95 g/cm<sup>3</sup> - DIN 53 479</li> <li>• Tensile strength at break: 23 – 30</li> <li>• N/mm<sup>2</sup> - DIN 53 455</li> <li>• Ball indentation hardness: 30 – 65</li> <li>• N/mm<sup>2</sup> - DIN 53 456</li> <li>• Notched bar impact strength: &gt; 5 mJ/mm<sup>2</sup> - DIN 53 453</li> <li>• Thermal conductivity: 0.40 – 0.46 W/m</li> <li>• K - DIN 52 612</li> </ul>	

<b>TECHNICAL SPECIFICATIONS LAPTOP</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	<ul style="list-style-type: none"> <li>• Coefficient of elongation: 1.5–2.0 x 10<sup>-4</sup></li> <li>• K-1 - DIN 52 328</li> <li>• Dielectric strength: 800 – 900 kV/cm - DIN 53 481</li> <li>• Specific insulation resistance: 1016 Ohm. Cm - DIN 53 482</li> </ul> <p>Attach Brochure</p>	
Supply and Install Warning Tape	<ul style="list-style-type: none"> <li>• The warning tape shall be made of PVC or PE having approximately 10 cm in width and 0.1mm in thickness.</li> <li>• The background colour of the warning tape shall be yellow.</li> <li>• The mark words shall be enlarged up to the full width of the warning tape and shall be durably printed in black colour 2 meters apart.</li> </ul> <p>The words “CAUTION: Do not dig! O.F.C Cable underneath: Government of Kenya Contact 0206676999” shall be displayed on the warning tape at intervals of half (0.5) meters.</p>	
Supply and Install Handhole with cover and necessary accessories	<ul style="list-style-type: none"> <li>• Plastic material</li> <li>• Approximate Inner dimension: depth is 900mm, diameter is 1000mm.</li> <li>• cable run directions at least.</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<ul style="list-style-type: none"> <li>Joint box hanging mechanism at least.</li> <li>Cover branded Government of Kenya I.C.T.A and ICTA logo.</li> <li>Body branded Government of Kenya</li> </ul>	
Supply and Install dressed wooden pole	<p>25</p> <p>Chemical treated wooden pole, 8m and 12M length, top diameter 140-200mm, top cover should be galvanized steel material, the diameter should be 100mm more than top diameter of the pole.</p>	
Supply and install of reinforced concrete precast small manhole with polymer cover and lock mechanics with accessory	<ul style="list-style-type: none"> <li>Dig the manhole pit which is fit for the manhole installation.</li> <li>This reinforced concrete manhole can be pre-casted or cast-in-place.</li> <li>Install the manhole and passive components such as bolts, nuts, brackets</li> <li>Polymer cover installation.</li> <li>Labelling shall be painted on both cover and body after installation, the serial number will follow design.</li> <li>Backfill and compact the soil after manhole installation.</li> <li>The size of the manhole is</li> </ul>	

TECHNICAL SPECIFICATIONS LAPTOP	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	1000mm*800mm*1300mm (L*W*D) • Concrete grade to be C20.	
96 Core Dome Splice Enclosure	Fiber optic PP plastic+UV resistance dome splice closure with trays for fiber splicing. Minimum requirements are: <ul style="list-style-type: none"> <li>• Minimum number of cores supported, 96 cores</li> <li>• Fiber cable size support: 8mm – 18mm</li> <li>• Minimum number of cassettes, 6 No.</li> </ul> 34 Support for installations upto of 60°C working environments	
24 Core Fiber Access Terminal (FAT)	Fiber Access Terminal (FAT) 24 Core (loaded with LC duplex pigtails and adapters)	
4 Core Fiber Access Terminal (FAT)	Fiber Access Terminal (FAT) 4 Core (loaded with LC duplex pigtails and adapters)	
Fiber Access Terminal Box (ATB)	Access Terminal Box (ATB) - Loaded with SC simplex adapters and pigtails	

**Note: Bidder MUST attach product datasheet that highlights the features matching each requirements/specification. Stating compliance without providing a product datasheet will be deemed non-compliant**

#### Details Scope of Works - LOT 4

S/No	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
1	Procure a Wired & Wireless network solution to deliver intranet & internet services within the institution that will provide reliable connectivity and value-added services to students, teaching and non-teaching staff across the campus. <i>Provide a Detailed technical proposal</i>	
2	Integrate the Solution to the existing Network services at the institutions to reach all common areas of use, which include lecture halls, student residential areas, library, graduation squares, laboratories, public access areas, student centre, resting areas among others. <i>Provide Network Integration Plan</i>	
3	Interpolate the Solution to Support a large number of concurrent users without compromising network performance, enable seamless roaming for users moving between different areas of the campus. <i>Provide Interpolability &amp; Roaming plan</i>	
4	Implement network security of Authentication & Access, implement measures to protect against unauthorized access & data breaches and log all events on the Campus Wi-Fi network <i>Provide a plan for implementation of Network Security</i>	
5	Supply of associated licenses, software and original equipment manufacturer (OEM) support for the equipment, software's and all components supplied. All licenses are required to be perpetual during acquisitions and shall not result to recurrent costs in future.	

S/No	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<i>Provide a list of licenses , type, validity and function</i>	
6	Provide the Interconnection between the learning institution and the Wide Area Network, where none exists as proposed in the high level design.	
7	Offer industry standardized & Certified technical trainings to all the components of the project (Fiber, Wireless, Switching, Routing, Wireless Local Area Networks, Session Control & Management, Authentication & Wireless Security, Network Optimization & Support, Power Systems & Management) <i>Provide a detailed Training Plan (Content, Venue, Duration &amp; Number of trainees)</i>	
8	Provide 3 year Support and maintenance services for all the sub-systems and components constructed. <i>Provide a detail Support &amp; Maintenance of the completed infrastructure</i>	
9	<ul style="list-style-type: none"> <li>• Project Actualization Process</li> <li>• Site Planning</li> <li>• Implementation.</li> <li>• User Acceptance Testing</li> <li>• Commissioning</li> <li>• As-Built Documentation</li> <li>• Training</li> </ul> <i>Provide a detailed project work plan</i>	

**Note: Bidder MUST attach product datasheet that highlights the features matching each requirements/specification. Stating compliance without providing a product datasheet will be deemed non-compliant**

#### Qualification Criteria - LOT 4

S/No	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	Technical Qualification of the Firm	
1	<p>The firm must have a proven track record in implementing large-scale network infrastructure projects in similar environments. The firm should demonstrate skills in designing, implementing and delivering projects of complex nature. The firm should demonstrate at least 2 similar projects undertaken in the last 5 years. The projects should be of comparable monetary value to the scope of this project.</p> <p><i>Provide a Proof in the form of contracts/LPOs and Completion Certificates/Inspection Certificates for each project.</i></p>	
	Financial Capability of the Firm	
2	<p>A minimum of two (2) in number of similar contracts, similarity being in nature, complexity that incorporated supply, installation, configuration, commissioning and maintenance a similar project in nature and value, specified below that have been satisfactorily and substantially completed during the last 5 years:</p> <p>One contract, with a minimum value of at least KES 120 million.</p> <p><i>Provide a Proof in the form of contracts/LPOs for each.</i></p>	
	Liquidity	
3	<p>The Bidder shall demonstrate that it has access to, or has available, liquid assets, lines of credit or other financial means sufficient to meet cash flow requirements of KES 120 million or equivalent.</p>	



<b>S/No</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	<i>Provide evidence of liquidity (Letter of credit or Bank Balances)</i>	

### Project Approach, Environment and Social Safeguards - LOT 4

<b>S/No</b>	<b>MINIMUM REQUIREMENT</b>	<b>Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)</b>
	Project Timelines	
<b>1</b>	<p>The supply, delivery &amp; installation works for all the items in the BoQ/Activity Schedules should be delivered and installed at the place of destination within four (4) months from the date of contract signing.</p> <p><i>Provide a detailed project plan fitting the timelines and a letter as a commitment</i></p>	
	Code of Conduct for Contractor's Personnel (ES)	
<b>2</b>	<p>Submit its Code of Conduct that will apply to Contractor's Personnel (as defined in Sub- Clause 1 (ii) of the General Conditions of Contract), to ensure compliance with the Contractor's Environmental and Social (ES) obligations under the Contract. The Bidder shall use for this purpose the Code of Conduct form provided in Section IV</p>	
	Management Strategies and Implementation Plans (MSIP) to manage the (ES) risks	
<b>3</b>	<p>The Bidder shall submit Management Strategies and Implementation Plans (MSIPs) to manage the</p>	

S/No	MINIMUM REQUIREMENT	Bidder Must State Their Compliance with the Specification and reference each spec to the provided Product Datasheet (Yes/No)
	<p>following key Environmental and Social (ES) risks:</p> <ul style="list-style-type: none"> <li>• Sexual Exploitation, and Abuse (SEA) prevention and response action plan.</li> <li>• Environmental Safety Plan .</li> <li>• Site Access Plan</li> <li>• Network Disruption Plan.</li> </ul>	

### 3. Qualification (ITB 37)

#### 3.1 Qualification Criteria (ITB 37.1)

After determining the substantially responsive Bid which offers the lowest-evaluated cost in accordance with ITB 34, and, if applicable, the assessment of any Abnormally Low Bid (in accordance with ITB 36) the Purchaser shall carry out the post-qualification of the Bidder in accordance with ITB 37, using only the requirements specified. Requirements not included in the text below shall not be used in the evaluation of the Bidder's qualifications.

- (a) **Financial Capability:** The Bidder shall submit audited financial statements or, if not required by the law of the Bidder's country, other financial statements acceptable to the Purchaser, for the last **three** years prior to bid submission deadline, demonstrating the current soundness of the Bidder's financial position. For a joint venture, this requirement shall be met by each member;
- (b) **Specific Experience:** The Bidder shall demonstrate that it has successfully completed at least **two** contracts within the last **five** years prior to bid submission deadline, each with a value of at least **Kes. 120 Million each for LOT 1, Kes. 120 Million each for LOT 2, Kes. 120 Million each for LOT 3 & Kes. 120 Million each for LOT 4** that have been successfully and substantially completed and that are similar in nature and complexity to the Goods and Related Services under the Contract. For a joint venture, this requirement may be met by all members combined.

- (c) **Documentary Evidence:** The Bidder shall furnish documentary evidence to demonstrate that the goods it offers meet the following usage requirement: **product datasheets for each laptop and interactive smart board**

**d) Manufacturing experience and Technical Capacity:** For the items under the Contract that the bidder is a manufacturer, the Bidder shall furnish documentary evidence to demonstrate that:

- (i) it has manufactured goods of similar nature and complexity for at least five years, prior to the bid submission deadline; and
- (ii) its annual production capacity of goods of similar nature and complexity for each of the last five years prior to the bid submission deadline, is at least four times the quantities specified under the contract.

( e) **Manufacturer's authorization:** A Bidder who does not manufacture an item/s where a manufacturer authorization is required in accordance with BDS ITB 17.2 (a), the Bidder shall provide evidence of being duly authorized by a manufacturer (Manufacturer's Authorization Form, Section IV, Bidding Forms), meeting the criteria in (d) (i) and (ii) above, to supply the Goods;

At the time of Contract Award, the Bidder (including each subcontractor proposed by the Bidder) shall not be subject to disqualification by the Bank for non-compliance with SEA/SH obligations.



## Section IV - Bidding Forms

### Table of Forms

<b>Letter of Bid.....</b>	<b>230</b>
<b>Bidder Information Form .....</b>	<b>233</b>
<b>Bidder's JV Members Information Form .....</b>	<b>234</b>
<b>Sexual Exploitation and Abuse (SEA) and/or Sexual Harassment Performance Declaration.....</b>	<b>235</b>
<b>Price Schedule: Goods Manufactured Outside the Purchaser's Country, to be Imported .....</b>	<b>237</b>
<b>Price Schedule: Goods Manufactured Outside the Purchaser's Country, already imported* .....</b>	<b>238</b>
<b>Price Schedule: Goods Manufactured in the Purchaser's Country .....</b>	<b>239</b>
<b>Price and Completion Schedule - Related Services .....</b>	<b>240</b>
<b>Form of Bid Security .....</b>	<b>241</b>

## Letter of Bid

***INSTRUCTIONS TO BIDDERS: DELETE THIS BOX ONCE YOU HAVE COMPLETED THE DOCUMENT***

*The Bidder must prepare this Letter of Bid on stationery with its letterhead clearly showing the Bidder's complete name and business address.*

*Note: All italicized text is to help Bidders in preparing this form.*

**Date of this Bid submission:** *[insert date (as day, month and year) of Bid submission]*

**RFB No.:** *[insert number of RFB process]*

**Request for Bid No.:** *[insert identification]*

**Alternative No.:** *[insert identification No if this is a Bid for an alternative]*

**To:** *[insert complete name of Purchaser]*

- (a) **No reservations:** We have examined and have no reservations to the bidding document, including Addenda issued in accordance with Instructions to Bidders (ITB 8);
- (b) **Eligibility:** We meet the eligibility requirements and have no conflict of interest in accordance with ITB 4;
- (c) **Bid/Proposal-Securing Declaration:** We have not been suspended nor declared ineligible by the Purchaser based on execution of a Bid-Securing Declaration or Proposal-Securing Declaration in the Purchaser's Country in accordance with ITB 4.7;
- (d) **Sexual Exploitation and Abuse (SEA) and/or Sexual Harassment (SH):** *[select the appropriate option from (i) to (iii) below and delete the others. In case of JV members and/or subcontractors, indicate the status of disqualification by the Bank of each JV member and/or subcontractor].*

We, including any of our subcontractors:

- (i) *[have not been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations.]*
- (ii) *[are subject to disqualification by the Bank for non-compliance with SEA/ SH obligations.]*
- (iii) *[had been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations, and were removed from the disqualification list. An arbitral award on the disqualification case has been made in our favor.]*

- (e) **Conformity:** We offer to supply in conformity with the bidding document and in accordance with the Delivery Schedules specified in the Schedule of Requirements the following Goods: *[insert a brief description of the Goods and Related Services]*;
- (f) **Bid Price:** The total price of our Bid, excluding any discounts offered in item (f) below is:
- Option 1, in case of one lot: Total price is: *[insert the total price of the Bid in words and figures, indicating the various amounts and the respective currencies]*;
- Or
- Option 2, in case of multiple lots: (a) Total price of each lot *[insert the total price of each lot in words and figures, indicating the various amounts and the respective currencies]*; and (b) Total price of all lots (sum of all lots) *[insert the total price of all lots in words and figures, indicating the various amounts and the respective currencies]*;
- (g) **Discounts:** The discounts offered and the methodology for their application are:
- (i) The discounts offered are: *[Specify in detail each discount offered.]*
- (ii) The exact method of calculations to determine the net price after application of discounts is shown below: *[Specify in detail the method that shall be used to apply the discounts]*;
- (h) **Bid Validity:** Our Bid shall be valid until *[insert day, month and year in accordance with ITB 18.1]*, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (i) **Performance Security:** If our Bid is accepted, we commit to obtain a performance security in accordance with the bidding document;
- (j) **One Bid per Bidder:** We are not submitting any other Bid(s) as an individual Bidder, and we are not participating in any other Bid(s) as a Joint Venture member, or as a subcontractor, and meet the requirements of ITB 4.3, other than alternative Bids submitted in accordance with ITB 13;
- (k) **Suspension and Debarment:** We, along with any of our subcontractors, suppliers, consultants, manufacturers, or service providers for any part of the contract, are not subject to, and not controlled by any entity or individual that is subject to, a temporary suspension or a debarment imposed by the World Bank Group or a debarment imposed by the World Bank Group in accordance with the Agreement for Mutual Enforcement of Debarment Decisions between the World Bank and other development banks. Further, we are not ineligible under the Purchaser's Country laws or official regulations or pursuant to a decision of the United Nations Security Council;

- (l) **State-owned enterprise or institution:** *[select the appropriate option and delete the other] [We are not a state-owned enterprise or institution] / [We are a state-owned enterprise or institution but meet the requirements of ITB 4.6];*
- (m) **Commissions, gratuities, fees:** We have paid, or will pay the following commissions, gratuities, or fees with respect to the Bidding process or execution of the Contract: *[insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity]*

Name of Recipient	Address	Reason	Amount

(If none has been paid or is to be paid, indicate “none.”)

- (n) **Binding Contract:** We understand that this Bid, together with your written acceptance thereof included in your Letter of Acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed;
- (o) **Purchaser Not Bound to Accept:** We understand that you are not bound to accept the lowest evaluated cost Bid, the Most Advantageous Bid or any other Bid that you may receive; and
- (p) **Fraud and Corruption:** We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf engages in any type of Fraud and Corruption.

**Name of the Bidder:** *\*[insert complete name of the Bidder]*

**Name of the person duly authorized to sign the Bid on behalf of the Bidder:** *\*\*[insert complete name of person duly authorized to sign the Bid]*

**Title of the person signing the Bid:** *[insert complete title of the person signing the Bid]*

**Signature of the person named above:** *[insert signature of person whose name and capacity are shown above]*

**Date signed** *[insert date of signing]* **day of** *[insert month]*, *[insert year]*

\*: In the case of the Bid submitted by a Joint Venture specify the name of the Joint Venture as Bidder.

\*\*: Person signing the Bid shall have the power of attorney given by the Bidder. The power of attorney shall be attached with the Bid Schedules.



## Bidder Information Form

*[The Bidder shall fill in this Form in accordance with the instructions indicated below. No alterations to its format shall be permitted and no substitutions shall be accepted.]*

Date: *[insert date (as day, month and year) of Bid submission]*

RFB No.: *[insert number of RFB process]*

Alternative No.: *[insert identification No if this is a Bid for an alternative]*

Page \_\_\_\_\_ of \_\_\_\_\_ pages

1. Bidder's Name <i>[insert Bidder's legal name]</i>
2. In case of JV, legal name of each member: <i>[insert legal name of each member in JV]</i>
3. Bidder's actual or intended country of registration: <i>[insert actual or intended country of registration]</i>
4. Bidder's year of registration: <i>[insert Bidder's year of registration]</i>
5. Bidder's Address in country of registration: <i>[insert Bidder's legal address in country of registration]</i>
6. Bidder's Authorized Representative Information  Name: <i>[insert Authorized Representative's name]</i> Address: <i>[insert Authorized Representative's Address]</i> Telephone/Fax numbers: <i>[insert Authorized Representative's telephone/fax numbers]</i> Email Address: <i>[insert Authorized Representative's email address]</i>
7. Attached are copies of original documents of <i>[check the box(es) of the attached original documents]</i>  <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above, in accordance with ITB 4.4. <input type="checkbox"/> In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB 4.1. <input type="checkbox"/> In case of state-owned enterprise or institution, in accordance with ITB 4.6 documents establishing: <ul style="list-style-type: none"> <li>• Legal and financial autonomy</li> <li>• Operation under commercial law</li> <li>• Establishing that the Bidder is not under the supervision of the Purchaser</li> </ul>
8. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership. The successful Bidder shall provide additional information on beneficial ownership, using the Beneficial Ownership Disclosure Form.

## Bidder's JV Members Information Form

*[The Bidder shall fill in this Form in accordance with the instructions indicated below. The following table shall be filled in for the Bidder and for each member of a Joint Venture].*

Date: *[insert date (as day, month and year) of Bid submission]*

RFB No.: *[insert number of Bidding process]*

Alternative No.: *[insert identification No if this is a Bid for an alternative]*

Page \_\_\_\_\_ of \_\_\_\_\_ pages

1. Bidder's Name: <i>[insert Bidder's legal name]</i>
2. Bidder's JV Member's name: <i>[insert JV's Member legal name]</i>
3. Bidder's JV Member's country of registration: <i>[insert JV's Member country of registration]</i>
4. Bidder's JV Member's year of registration: <i>[insert JV's Member year of registration]</i>
5. Bidder's JV Member's legal address in country of registration: <i>[insert JV's Member legal address in country of registration]</i>
6. Bidder's JV Member's authorized representative information Name: <i>[insert name of JV's Member authorized representative]</i> Address: <i>[insert address of JV's Member authorized representative]</i> Telephone/Fax numbers: <i>[insert telephone/fax numbers of JV's Member authorized representative]</i> Email Address: <i>[insert email address of JV's Member authorized representative]</i>
7. Attached are copies of original documents of <i>[check the box(es) of the attached original documents]</i>  <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above, in accordance with ITB 4.4.  <input type="checkbox"/> In case of a state-owned enterprise or institution, documents establishing legal and financial autonomy, operation in accordance with commercial law, and that they are not under the supervision of the Purchaser, in accordance with ITB 4.6.
8. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership. The successful Bidder shall provide additional information on beneficial ownership for each JV member using the Beneficial Ownership Disclosure Form.

## Sexual Exploitation and Abuse (SEA) and/or Sexual Harassment Performance Declaration

*[The following table shall be filled in by the Bidder, each member of a Joint Venture and each subcontractor proposed by the Bidder]*

Bidder's Name: *[insert full name]*

Date: *[insert day, month, year]*

Joint Venture Member's or Subcontractor's Name: *[insert full name]*

RFB No. and title: *[insert RFB number and title]*

Page *[insert page number]* of *[insert total number]* pages

<b>SEA and/or SH Declaration</b> <b>in accordance with Section III, Qualification Criteria, and Requirements</b>
<p>We:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> (a) have not been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations</li> <li><input type="checkbox"/> (b) are subject to disqualification by the Bank for non-compliance with SEA/ SH obligations</li> <li><input type="checkbox"/> (c) had been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations and were removed from the disqualification list. An arbitral award on the disqualification case has been made in our favor.</li> </ul>
<p><b><i>[If (c) above is applicable, attach evidence of an arbitral award reversing the findings on the issues underlying the disqualification.]</i></b></p>

## Price Schedule Forms

*[The Bidder shall fill in these Price Schedule Forms in accordance with the instructions indicated. The list of line items in column 1 of the **Price Schedules** shall coincide with the List of Goods and Related Services specified by the Purchaser in the Schedule of Requirements.]*

## Price Schedule: Goods Manufactured Outside the Purchaser's Country, to be Imported

(Group C Bids, goods to be imported)  Currencies in accordance with ITB 15							Date: _____ RFB No: _____  Alternative No: _____ Page N° _____ of _____	
1	2	3	4	5	6	7	8	9
Line Item N°	Description of Goods	Country of Origin	Delivery Date as defined by Incoterms	Quantity and physical unit	Unit price CIP <i>[insert place of destination]</i> in accordance with ITB 14.8(b)(i)	CIP Price per line item (Col. 5x6)	Price per line item for inland transportation and other services required in the Purchaser's Country to convey the Goods to their final destination specified in BDS	Total Price per Line item (Col. 7+8)
<i>[insert number of the item]</i>	<i>[insert name of good]</i>	<i>[insert country of origin of the Good]</i>	<i>[insert quoted Delivery Date]</i>	<i>[insert number of units to be supplied and name of the physical unit]</i>	<i>[insert unit price CIP per unit]</i>	<i>[insert total CIP price per line item]</i>	<i>[insert the corresponding price per line item]</i>	<i>[insert total price of the line item]</i>
Total Price								

Name of Bidder *[insert complete name of Bidder]* Signature of Bidder *[signature of person signing the Bid]* Date *[Insert Date]*

## Price Schedule: Goods Manufactured Outside the Purchaser's Country, already imported\*

(Group C Bids, Goods already imported)  Currencies in accordance with ITB 15										Date: _____ RFB No: _____ Alternative No: _____ Page N° _____ of _____	
1	2	3	4	5	6	7	8	9	10	11	12
Line Item N°	Description of Goods	Country of Origin	Delivery Date as defined by Incoterms	Quantity and physical unit	Unit price including Custom Duties and Import Taxes paid, in accordance with ITB 14.8(c)(i)	Custom Duties and Import Taxes paid per unit in accordance with ITB 14.8(c)(ii) , [to be supported by documents]	Unit Price net of custom duties and import taxes, in accordance with ITB 14.8 (c) (iii) (Col. 6 minus Col.7)	Price per line item net of Custom Duties and Import Taxes paid, in accordance with ITB 14.8(c)(i) (Col. 5×8)	Price per line item for inland transportation and other services required in the Purchaser's Country to convey the goods to their final destination, as specified in BDS in accordance with ITB 14.8 (c)(v)	Sales and other taxes paid or payable per item if Contract is awarded (in accordance with ITB 14.8(c)(iv)	Total Price per line item (Col. 9+10)
<i>[insert number of the item]</i>	<i>[insert name of Goods]</i>	<i>[insert country of origin of the Good]</i>	<i>[insert quoted Delivery Date]</i>	<i>[insert number of units to be supplied and name of the physical unit]</i>	<i>[insert unit price per unit]</i>	<i>[insert custom duties and taxes paid per unit]</i>	<i>[insert unit price net of custom duties and import taxes]</i>	<i>[ insert price per line item net of custom duties and import taxes]</i>	<i>[insert price per line item for inland transportation and other services required in the Purchaser's Country]</i>	<i>[insert sales and other taxes payable per item if Contract is awarded]</i>	<i>[insert total price per line item]</i>
Total Bid Price											

Name of Bidder *[insert complete name of Bidder]* Signature of Bidder *[signature of person signing the Bid]* Date *[insert date]*

\* *[For previously imported Goods, the quoted price shall be distinguishable from the original import value of these Goods declared to customs and shall include any rebate or mark-up of the local agent or representative and all local costs except import duties and taxes, which have been and/or have to be paid by the Purchaser. For clarity the Bidders are asked to quote the price including import duties, and additionally to provide the import duties and the price net of import duties which is the difference of those values.]*

## Price Schedule: Goods Manufactured in the Purchaser's Country

Purchaser's Country _____		(Group A and B Bids)  Currencies in accordance with ITB 15				Date: _____ RFB No: _____ Alternative No: _____ Page N° _____ of _____			
1	2	3	4	5	6	7	8 <sup>1</sup>	9	10
Line Item N°	Description of Goods	Delivery Date as defined by Incoterms	Quantity and physical unit	Unit price EXW	Total EXW price per line item (Col. 4x5)	Price per line item for inland transportation and other services required in the Purchaser's Country to convey the Goods to their final destination	Cost of local labor, raw materials and components with origin in the Purchaser's Country % of Col. 5	Sales and other taxes payable per line item if Contract is awarded (in accordance with ITB 14.8(a)(ii))	Total Price per line item (Col. 6+7)
<i>[insert number of the item]</i>	<i>[insert name of Good]</i>	<i>[insert quoted Delivery Date]</i>	<i>[insert number of units to be supplied and name of the physical unit]</i>	<i>[insert EXW unit price]</i>	<i>[insert total EXW price per line item]</i>	<i>[insert the corresponding price per line item]</i>	<i>[Insert cost of local labor, raw material and components from within the Purchase's country as a % of the EXW price per line item]</i>	<i>[insert sales and other taxes payable per line item if Contract is awarded]</i>	<i>[insert total price per item]</i>
<b>Total Price</b>									

Name of Bidder *[insert complete name of Bidder]* Signature of Bidder *[signature of person signing the Bid]* Date *[insert date]*

<sup>1</sup> *[Delete Column 8 if domestic preference is not applicable, which should normally be the case for off-the-shelf Goods]*

## Price and Completion Schedule - Related Services

Currencies in accordance with ITB 15						Date: _____ RFB No: _____ Alternative No: _____ Page N° _____ of _____
1	2	3	4	5	6	7
Service N°	Description of Services (excludes inland transportation and other services required in the Purchaser's Country to convey the goods to their final destination)	Country of Origin	Delivery Date at place of Final destination	Quantity and physical unit	Unit price	Total Price per Service (Col. 5*6 or estimate)
<i>[insert number of the Service ]</i>	<i>[insert name of Services]</i>	<i>[insert country of origin of the Services]</i>	<i>[insert delivery date at place of final destination per Service]</i>	<i>[insert number of units to be supplied and name of the physical unit]</i>	<i>[insert unit price per item]</i>	<i>[insert total price per item]</i>
<b>Total Bid Price</b>						

Name of Bidder *[insert complete name of Bidder]* Signature of Bidder *[signature of person signing the Bid]* Date *[insert date]*



## Form of Bid Security

### (Bank Guarantee)

*[The bank shall fill in this Bank Guarantee Form in accordance with the instructions indicated.]*

*[Guarantor letterhead or SWIFT identifier code]*

**Beneficiary:** *[Purchaser to insert its name and address]*

**RFB No.:** *[Purchaser to insert reference number for the Request for Bids]*

**Alternative No.:** *[Insert identification No if this is a Bid for an alternative]*

**Date:** *[Insert date of issue]*

**BID GUARANTEE No.:** *[Insert guarantee reference number]*

**Guarantor:** *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that \_\_\_\_\_ *[insert name of the Bidder, which in the case of a joint venture shall be the name of the joint venture (whether legally constituted or prospective) or the names of all members thereof]* (hereinafter called "the Applicant") has submitted or will submit to the Beneficiary its Bid (hereinafter called "the Bid") for the execution of \_\_\_\_\_ under Request for Bids No. \_\_\_\_\_ ("the RFB").

Furthermore, we understand that, according to the Beneficiary's conditions, Bids must be supported by a Bid guarantee.

At the request of the Applicant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of \_\_\_\_\_ (\_\_\_\_\_) upon receipt by us of the Beneficiary's complying demand, supported by the Beneficiary's statement, whether in the demand itself or a separate signed document accompanying or identifying the demand, stating that either the Applicant:

- (a) has withdrawn its Bid prior to the Bid validity expiry date set forth in the Applicant's Letter of Bid, or any extended date provided by the Applicant; or
- (b) having been notified of the acceptance of its Bid by the Beneficiary prior to the expiry date of the Bid validity or any extension thereof provided by the Applicant has failed to:
  - (i) sign the contract agreement, or
  - (ii) furnish the performance security, in accordance with the Instructions to Bidders ("ITB") of the Beneficiary's bidding document.

This guarantee will expire: (a) if the Applicant is the successful Bidder, upon our receipt of copies of the Contract agreement signed by the Applicant and the performance security issued to the Beneficiary in relation to such Contract agreement; or (b) if the Applicant is not the successful Bidder, upon the earlier of (i) our receipt of a copy of the Beneficiary's notification to the Applicant of the results of the Bidding process; or (ii) twenty-eight days after the expiry date of the Bid validity.

Consequently, any demand for payment under this guarantee must be received by us at the office indicated above on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758.

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*[Signature(s)]*

***Note: All italicized text is for use in preparing this form and shall be deleted from the final product.***

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## Section V - Eligible Countries

### **Eligibility for the Provision of Goods, Works and Non Consulting Services in Bank-Financed Procurement**

In reference to ITB 4.8 and ITB 5.1, for the information of the Bidders, at the present time firms, goods and services from the following countries are excluded from this Bidding process:

Under ITB 4.8(a) and ITB 5.1: **None**

Under ITB 4.8(b) and ITB 5.1: **None**



# Section VI - Fraud and Corruption

**(Section VI shall not be modified)**

## 1. Purpose

1.1 The Bank's Anti-Corruption Guidelines and this annex apply with respect to procurement under Bank Investment Project Financing operations.

## 2. Requirements

2.1 The Bank requires that Borrowers (including beneficiaries of Bank financing); bidders (applicants/proposers), consultants, contractors and suppliers; any sub-contractors, sub-consultants, service providers or suppliers; any agents (whether declared or not); and any of their personnel, observe the highest standard of ethics during the procurement process, selection and contract execution of Bank-financed contracts, and refrain from Fraud and Corruption.

2.2 To this end, the Bank:

- a. Defines, for the purposes of this provision, the terms set forth below as follows:
  - i. "corrupt practice" is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;
  - ii. "fraudulent practice" is any act or omission, including misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain financial or other benefit or to avoid an obligation;
  - iii. "collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;
  - iv. "coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
  - v. "obstructive practice" is:
    - (a) deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive, or collusive practice; and/or threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or

- (b) acts intended to materially impede the exercise of the Bank's inspection and audit rights provided for under paragraph 2.2 e. below.
- b. Rejects a proposal for award if the Bank determines that the firm or individual recommended for award, any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/ or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;
- c. In addition to the legal remedies set out in the relevant Legal Agreement, may take other appropriate actions, including declaring misprocurement, if the Bank determines at any time that representatives of the Borrower or of a recipient of any part of the proceeds of the loan engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices during the procurement process, selection and/or execution of the contract in question, without the Borrower having taken timely and appropriate action satisfactory to the Bank to address such practices when they occur, including by failing to inform the Bank in a timely manner at the time they knew of the practices;
- d. Pursuant to the Bank's Anti- Corruption Guidelines, and in accordance with the Bank's prevailing sanctions policies and procedures, may sanction a firm or individual, either indefinitely or for a stated period of time, including by publicly declaring such firm or individual ineligible (i) to be awarded or otherwise benefit from a Bank-financed contract, financially or in any other manner;<sup>1</sup> (ii) to be a nominated<sup>2</sup> sub-contractor, consultant, manufacturer or supplier, or service provider of an otherwise eligible firm being awarded a Bank-financed contract; and (iii) to receive the proceeds of any loan made by the Bank or otherwise to participate further in the preparation or implementation of any Bank-financed project;
- e. Requires that a clause be included in bidding/request for proposals documents and in contracts financed by a Bank loan, requiring (i) bidders (applicants/proposers), consultants, contractors, and suppliers, and their sub-contractors, sub-consultants, service providers, suppliers, agents, personnel, permit the Bank to inspect<sup>3</sup> all accounts, records and other documents relating

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<sup>1</sup> For the avoidance of doubt, a sanctioned party's ineligibility to be awarded a contract shall include, without limitation, (i) applying for pre-qualification, expressing interest in a consultancy, and bidding, either directly or as a nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider, in respect of such contract, and (ii) entering into an addendum or amendment introducing a material modification to any existing contract.

<sup>2</sup> A nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider (different names are used depending on the particular bidding document) is one which has been: (i) included by the bidder in its pre-qualification application or bid because it brings specific and critical experience and know-how that allow the bidder to meet the qualification requirements for the particular bid; or (ii) appointed by the Borrower.

<sup>3</sup> Inspections in this context usually are investigative (i.e., forensic) in nature. They involve fact-finding activities undertaken by the Bank or persons appointed by the Bank to address specific matters related to investigations/audits, such as evaluating the veracity of an allegation of possible Fraud and Corruption, through the appropriate mechanisms. Such activity includes but is not limited to: accessing and examining a firm's or individual's financial records and information, and making copies thereof as relevant; accessing and examining any other documents, data and information (whether in hard copy or electronic format) deemed relevant for the investigation/audit, and making copies thereof as



to the procurement process, selection and/or contract execution, and to have them audited by auditors appointed by the Bank.

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relevant; interviewing staff and other relevant individuals; performing physical inspections and site visits; and obtaining third party verification of information.



## **PART 2 – Supply Requirements**



# Section VII - Schedule of Requirements

## Contents

1. List of Goods and Delivery Schedule ..... 255

2. List of Related Services and Completion Schedule ..... 256

3. Technical Specifications ..... 257

2. Technical Specifications for All the four Lots ..... 263

4. Drawings ..... 288

5. Inspections and Tests ..... 288



## 1. List of Goods and Delivery Schedule

Line Item N°	Description of Goods	Quantity	Physical unit	Final Destination (Project Site) as specified in BDS	Delivery (as per Incoterms) Date		
					Earliest Delivery Date	Latest Delivery Date	Bidder's offered Delivery date [to be provided by the Bidder]
LOT 1							
1	Supply and Delivery of WiFi routers and related goods	13	Unit	Coast and North Eastern Regions	120 Days	150 Days	
LOT 2							
1	Supply and Delivery of WiFi routers and related goods	15	Unit	Nairobi & Central and Eastern Regions	120 Days	150 Days	
LOT 3							
1	Supply and Delivery of WiFi routers and related goods	18	Unit	North Rift & South Rift Regions	120 Days	150 Days	
LOT 4							
1	Supply and Delivery of WiFi routers and related goods	9	Unit	Nyanza and Western Regions	120 Days	150 Days	

## 2. List of Related Services and Completion Schedule

Service	Description of Service	Quantity <sup>1</sup>	Physical Unit	Place where Services shall be performed	Final Completion Date(s) of Services
1	Installation of WiFi routers and related goods	13	Unit	Coast and North Eastern Regions	120
2	Installation of WiFi routers and related goods	15	Unit	Nairobi & Central and Eastern Regions	120
3	Installation of WiFi routers and related goods	18	Unit	North Rift & South Rift Regions	120
4	Installation of WiFi routers and related goods	9	Unit	Nyanza and Western Regions	120



### **3. Technical Specifications**

#### **Detailed Technical Specifications and Standards for all the four Lots**

##### **i. Background**

The Government of Kenya is currently engaged in a highly ambitious effort to roll out broadband services across the county using the Digital Superhighway programs. The Ministry of Education through the State Department of Higher Education intends to accelerate internet use in higher education institutions in order to contribute directly to the national strategy of economic growth and poverty reduction. The role of Information and Communication Technologies (ICTs) to improve the quality and delivery of Higher Education to address the challenges is a key catalyst for the transformation of education and to accelerate the current positive progress toward achieving the quality of education at higher education institutions.

The State Department of higher education and ICT Authority intends to pilot campus Wi-Fi networks across a selected number of higher education institutions in Kenya, with a long term view to pick the learning lessons and roll out the program to all the institutions of higher education. The identified educational institutions will benefit from campus Wi-Fi component of KDEAP in the pilot phase. This includes selected public universities, Technical Vocational Education Training Institutions (TVETs), Teacher Training Colleges (TTCs) and Kenya School of Government (KSG).

The Campus Wi-Fi aims to improve the teaching and learning environment of the selected educational institutions. This project involves setting up a campus Wi-Fi network at selected common areas, such as lecture halls, student residential areas, library, graduation squares, and resting areas among others. The project also involves setting up stable backup power system, Authentication & Access Systems, Integrated Campus Fiber Network within the Institutions and external connectivity to internet service providers.

##### **ii. Objectives**

The key objectives of this project are as follows:

- Procure a Wired & Wireless network solution to deliver intranet & internet services within the institution that will provide reliable connectivity and value-added services to students, teaching and non-teaching staff across the campus.
- Integrate the Solution to the existing Network services at the institutions to reach all common areas of use, which include lecture halls, student residential areas, library, graduation squares, laboratories, public access areas, student centre, resting areas among others.

- Interpolate the Solution to Support a large number of concurrent users without compromising network performance, enable seamless roaming for users moving between different areas of the campus.
- Implement network security of Authentication & Access, implement measures to protect against unauthorized access & data breaches and log all events on the Campus Wi-Fi network
- Supply of associated licenses, software and original equipment manufacturer (OEM) support for the equipment, software's and all components supplied. All licenses are required to be perpetual during acquisitions and shall not result to recurrent costs in future.
- Provide the Interconnect between the learning institution and the Wide Area Network where none exists.
- Offer industry standardized & Certified technical trainings to all the components of the project (Fiber, Wireless, Switching, Routing, Wireless Local Area Networks, Session Control & Management, Authentication & Wireless Security, Servers & Virtualizations, Storage Management, Network Management Platforms, Network Optimization & Support, Power Systems & Management)
- Provide 3 year Support and maintenance services for all the sub-systems and components constructed.

### iii. Description of the Scope of Work

The scope of this project includes the supply, implementation, and support of a robust network infrastructure that can accommodate the growing needs of the university community. The network should support a large number of simultaneous users, offer seamless connectivity, and provide excellent coverage throughout the campus. The solution should address both indoor and outdoor areas. The learning institutions have existing infrastructure within campus which requires proper integration without interruption of the learning business.

This project is aimed at improving the connectivity inside campuses of learning institutions including the halls of residences of students. The total student population is estimated to be benefit in this phase is 75,000 students for the 55 learning institutions, once all learning institutions of higher education are connected.

### iv. Key Areas for Coverage

**The following are the main areas of campus wifi deployment**

**Table 2: Key Areas for Coverage within Campus**

<b>UNIVERSITIES, TVETS &amp; TTCS</b>
1. Administration Building, Lecture halls
2. University Libraries

3. Student Resource Center
4. Computer Labs
5. Student Common Areas
6. Student Hostels
7. Graduation Square
8. Jitume Labs

## 1.12 Project Implementation Process

### a) Site Planning

The contractor will be expected to plans all the sites scheduled for installations, the contractor will be expected to ensure.

- i. The clients is duly notified of the project, timelines and expected outcome
- ii. The key contacts for the execution are provided by the learning institutions, where necessary the University will appoint the Project Implementation Team.
- iii. Identify and Document all risks related to existing and new infrastructure and propose mitigation measures.
- iv. Identify Decommissioned electronics that may hinder new network deployments and plan to dispose them to an e-waste facility.
- v. Identify the designated installation sites, acquire and get approved (signed) site access authority from the beneficiary institution detailing the equipment that shall be installed in each specific site.
- vi. Schedule the installation times after consultation with the Institution in-charge. The timings are recommended to be scheduled during term/semester breaks or off-peak periods.
- vii. The Contractor jointly with the benefitting institutions is required to obtain a secure facility to hold all the materials during deployment phase. The contractor shall ensure extra Security of the stored materials. The contractor will be held liable for any Loss of material during installation.
- viii. Civil works at the beneficiary institutions shall follow the approved institutional ICT master plans, ICT plant routes and route maps
- ix. The vendor shall be responsible for reinstating and making good of all areas affected by any civil works during the implementation by the vendor
- x. Where there is no existing provision of ducts inside buildings, metallic surface trunking shall be used to avoid hacking of existing masonry installations.
- xi. Where new trenching is to be done for new fiber routes, all ducts for telecommunications shall be at least 1 meter deep with 0.8mx0.8m Polymer Cover hand-holes or overhead with 12m wooden poles.

- xii. The Contractor shall be expected to procure work and injury benefit insurance for its both casual , permanent and professional workers
- xiii. The Contractor staff shall always adhere to Environment Health & Safety Standards during the execution of the works.
- xiv. Where installation of WiFi access points is on telecommunication masts or difficult to access walls, the Contractor shall ensure that the staff uses appropriate rigging equipment.
- xv. The Contractor shall be expected to provide a Site readiness report incorporating all the requirements as provided, and all the necessary sign-off prior to implementation.

**b) Implementation.**

- i. The contractor is expected to provide a detailed work plan on execution of all activities of the project; the project plan will be approved once the Contract kick-offs.
- ii. All the Implementations will adhere to Legal, Regulatory and business functions Requirements as stipulated.
- iii. All equipment shall comply with the technical specifications provided; all passive works shall follow the installation procedures as guided.
- iv. The Contractor will be expected to coordinate with respective institutions during project implementation phase.
- v. All design changes made shall be captured using the change request procedure and approved by the contracting party prior to proceeding with the changes.
- vi. The Equipment & Materials used shall remain under the ownership of the Contractor until Acceptance and Handover is completed.
- vii. The contractor is required to reinstate all areas interfered with during the implementation.

**c) User Acceptance Testing**

The User Acceptance Test (UAT) will validate that the Campus WiFi infrastructure is installed, configured, and functioning as expected across all beneficiary educational institutions. This UAT will ensure that the system meets the needs of the end-users and fulfills the project objectives. The UAT will involve.

- i. All ICT equipment will be checked if properly housed and secured. The inspection of rack enclosures shall confirm that they are lockable and situated in secure rooms. The ventilation systems, top-of-rack fans or perforated doors, power distribution unit (PDU) shall be inside the rack. All racks are shall be securely lockable, with fully functional ventilation systems and the PDU installed as required.
- ii. The power infrastructure shall be verified to ensure a stable and clean power supply through the use of UPS systems. The installation of UPS systems will be checked and tested for voltage regulation, under-voltage, over-voltage protection mechanisms and uninterrupted power supply to the ICT equipment.
- iii. The fiber backbone infrastructure shall be tested and checked on fiber cabling and inter-building connections. Outdoor fiber optic installation depth, warning tapes and backfilling will be verified. The adherence to ITU G.652 installation standard will be checked. OTDR tests between buildings, Joints, ODF terminations will be checked.

- iv. The UTP structured copper cabling will be verified end to end (patch panel to WLAN access points). Fluke Test Tool Kit will be used to test each Cable quality and distance. Cable route and installation quality will be verified.
- v. The installation and configuration of network switches will be verified to ensure Mounting & grounding, services segmentation, Wi-Fi endpoints, and VoIP using VLANs. Remote management, NMS Visibility and Online Support & troubleshooting Setups will be verified.
- vi. The Wi-Fi access points will be verified to ensure optimal coverage, Connectivity and signal strength in the designated areas. Outdoor access points will be checked to ensure they are securely mounted and cover the intended outdoor spaces.
- vii. The centralized management system for the Wi-Fi infrastructure will be verified to ensure centralized monitoring and management capabilities for the entire Wi-Fi infrastructure from a redundant mechanism. Failure conditions shall be simulated to verify performance. Remote troubleshooting capabilities & alerts will be checked to ensure that problems can be addressed without on-site intervention.
- viii. The IP addressing scheme should conform to the institution's policy. Verify that the IP address space has been expanded & integrated to the existing scheme appropriately. VLAN segmentation, separation of data & VOIP traffic, including and Wi-Fi endpoints shall be verified.
- ix. Wi-Fi users will authenticate using unique credentials via AAA servers on different user groups, (students, lecturers, and staff). Network security policies shall be tested to confirm they are applied and working correctly based on the users' credentials. Wi-Fi roaming network functionality will be tested to ensure that users can seamlessly roam between Wi-Fi hotspots within the campus without the need to re-authenticate.
- x. The NMS monitoring and alert capabilities will be checked by simulating infrastructure issues, such as an access point failure, remote visibility, detect issues promptly and generate real-time alerts.
- xi. The Contractor shall prepare the UAT document with all the checks, All test cases must pass successfully without any major issues to ensure the infrastructure meets the performance, security, and functional requirements. Once all tests are completed successfully, the infrastructure will be contractually accepted.

**d) Commissioning & Effective date of Support**

- i. The Contractor will update the as-built documentation to reflect any changes made during the installation and testing phases.
- ii. The Contractor will provide detailed reports of the network configurations, including IP schemes, VLANs, AAA authentication setups, NMS setup, Virtualizations, etc.
- iii. Formal acceptance process will be initiated with the beneficiary institutions. The contracting party and the learning institution will review the project deliverables and sign off on the completed infrastructure.
- iv. The warranty and technical support will begin the day after the final day of UAT. It will cover a pre-defined period based on the contract terms. The warranty includes hardware failure coverage, firmware upgrades, system malfunction resolution, remote troubleshooting and regular system health checks.
- v. As the 3 year support period nears its end, notification to the beneficiary institutions will be done in order to make resource allocation to continuity.

**e) As-Built Documentation**

- i. The “As-built” document will include schema diagrams for passive cabling (OFC & UTP), interconnection diagrams for active equipment, and server and system drawings showing setups for network platforms, storage, security systems, switching and routing topologies, IP addressing, and integration with existing infrastructure. Also to include WAN interconnection topology, and power distribution, including failover and redundancy measures
- ii. The Security As-Built document will show physical setups, virtualizations, Authentication and security (AAA) systems along with associated licenses, OEMs, and support processes.
- iii. The Network Configuration Reports with detailed documentation of network configurations, including IP schemes, VLAN setups, routing protocols, switch configurations and Centralized Network Management System (NMS).
- iv. The Installation and Test Reports will include, OTDR test results, Fluke test kit results. Wi-Fi Access Point signal coverage strength tests verification, User Roaming Session results.
- v. The Commissioning and Handover Documentation signed by both the contracting party and beneficiary institutions. Support and warranty documentation, detailing the start dates, duration, and the scope of technical support.

**f) Training**

The Contractor shall offer industry certified training in a recognized training facility courses on the following

- i. **Optic Fiber Principles, Planning & Management. The Course** to focuses on planning and diagramming the physical cabling infrastructure for network projects. Concepts and Principles of optical fiber (OFC) create schema diagrams for cable routes, splicing points, and terminations, and manage cable trays and ducts. Designing redundancy and load-balancing pathways, addressing way leaves and permissions. Course to include practical exercise with splicing machine, planning with like AutoCAD or Visio and supporting with fiber optic tools (OTDR, laser pens, etc).
- ii. **Active Equipment and Wireless Systems Integration. Training on Switching, Routing & wireless concepts.** Wireless Network signals planning & optimizations. Sessions & signaling managements. Controller functions, Wireless Security & Management interconnections of active network devices like routers, switches, access points, and wireless controllers. Creating diagrams for component interconnections, and designing wireless networks with a focus on security and redundancy.
- iii. **IP Addressing and Routing Topologies.** Designing scalable IP addressing schemes and routing topologies, with an emphasis on integrating new equipment into existing infrastructures. Sub-netting and VLAN planning, routing protocols for large-scale campus Wi-Fi networks. Participants will also learn about efficient switching topologies. The practical exercise involves designing an IP addressing scheme and routing topology for a new network deployment, ensuring integration with an existing network.
- iv. **Authentication, Authorization, and Accounting (AAA) Management.** Concepts of AAA protocol, secure management of wireless access points, Switches and server

infrastructure, role-based access control (RBAC) and multi-factor authentication (MFA).

- v. **Power.** Designing power supply systems, load balancing, failover systems, and redundancy, power requirement calculations, creating power schema diagrams, and optimizing load distribution. UPS and generators concepts for critical infrastructure.

The above training shall have well documented manuals, practical sessions, and Certifications. The contractor is required to propose course content as part of tender response.

	Course	Trainees per Learning Institution	Minimum Training Periods (days)
1.	Optic Fiber Principles, Planning & Management		
2.	Active Equipment and Wireless Systems Integration.		
3.	IP Addressing and Routing Topologies		
4.	Authentication, Authorization, and Accounting (AAA) Management.		
5.	Power		

#### g) Implementation Project Plan

The bidders is expected to provide a detailed plan and written explanation for the actual project plan and for the activities that involved in implementing the project. Plan will include all activities to gather necessary information on current processes; design of any new processes; identification of transition activities to take the processes/systems to the new design; documentation of new/modified processes; training; and the actual execution of those activities. The project plan should indicate the activities, duration, number and skill level of resources needed.

## 2. Technical Specifications for All the four Lots

### THE TECHNICAL SPECIFICATIONS: SUPPLY AND INSTALLATION OF ICT EQUIPMENT

Table 1: Minimum Specifications of Active Network Equipment

#	Equipment	Minimum Specifications of Equipment
1.	24 Port 10G SFP+ Layer 3 Core Switch	<p>Top of rack, 1RU rack-mountable managed switch with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Minimum of 24 No. ports of 1/10/25G (SFP/SFP+)</li> <li>• Minimum of 4 No. ports of 40GbE/100GbE (QSFP+/QSFP28)</li> <li>• Minimum switching capacity of 1.6 Tbps</li> <li>• Support for minimum of 80,000 MAC addresses in the MAC address table</li> <li>• Support for Layer 3 routing (Static Routes and dynamic routing using OSPFv2, IS-IS, IS-ISv6, BGP4, BGP6)</li> <li>• Support for VLANs and IEEE 802.1Q (4,094 VLAN IDs) VLAN tagging with minimum 1,000 configurable active VLANs</li> <li>• Support for spanning-tree protocol for both Rapid Per-VLAN Spanning Tree (RPVST+) and Multiple Spanning Tree Protocol (MSPT)</li> <li>• Support for remote management, configuration and authentication (SNMPv2, SNMPv3, SSH, TACACS+, RADIUS)</li> <li>• Redundant Power Supplies (1+1 Redundancy)</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next six years. Attach Evidence</li> <li>• Original Equipment Manufacturer/vendor of the proposed switch MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> <li>• Three-year (3) warranty and support</li> <li>• Attach data sheet</li> </ul>
2.	L3 Edge switch 48-Port GigEthernet PoE+ Switch with 10Gbps SFP+ Uplinks	<p>Top of rack, 1RU rack-mountable managed switch with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Minimum of 48 No. RJ-45 autosensing 10/100/1000 PoE+ ports</li> <li>• Minimum of 4 No. SFP+ 1/10GbE ports</li> <li>• Minimum of 2 No. MultiGigabit stack ports</li> <li>• Minimum switching capacity of 170Gbps with a forwarding performance of 130 Mpps</li> </ul>



#	Equipment	Minimum Specifications of Equipment
		<ul style="list-style-type: none"> <li>• Supports full POE+</li> <li>• Support for minimum of 30,000 MAC addresses in the MAC address table</li> <li>• Support for Layer 3 routing (Static Routes and dynamic routing using OSPFv2)</li> <li>• Support for VLANs and IEEE 802.1Q (4,094 VLAN IDs) VLAN tagging with 1,000 configurable VLANs</li> <li>• Support for spanning-tree protocol for both Rapid Per-VLAN Spanning Tree (RPVST+) and Multiple Spanning Tree Protocol (MSPT)</li> <li>• Support for remote management, configuration and authentication (SNMPv2, SNMPv3, SSH, TACACS+, RADIUS)</li> <li>• Redundant power supply modules</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next Six years. Attach Evidence</li> <li>• Original Equipment Manufacturer/vendor of the proposed switch MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> <li>• Three-year (3) warranty and support</li> <li>• Attach data sheet</li> </ul>
3.	L3 Edge switch 24-Port GigEthernet PoE+ Switch with 10Gbps SFP+ Uplinks	<p>Top of rack, 1RU rack-mountable managed switch with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• 1. Minimum of 24 No. RJ-45 autosensing 10/100/1000 PoE+ ports</li> <li>• Minimum of 4 No. SFP+ 1/10GbE ports</li> <li>• Minimum of 2 No. MultiGigabit stack ports</li> <li>• Minimum switching capacity of 125Gbps with a forwarding performance of 95 Mpps</li> <li>• Supports full POE+</li> <li>• Support for minimum of 30,000 MAC addresses in the MAC address table</li> <li>• Support for Layer 3 routing (Static Routes and dynamic routing using OSPFv2)</li> </ul>

#	Equipment	Minimum Specifications of Equipment
		<ul style="list-style-type: none"> <li>• Support for VLANs and IEEE 802.1Q (4,094 VLAN IDs) VLAN tagging with 1,000 configurable VLANs</li> <li>• Support for spanning-tree protocol for both Rapid Per-VLAN Spanning Tree (RPVST+) and Multiple Spanning Tree Protocol (MSPT)</li> <li>• Support for remote management, configuration and authentication (SNMPv2, SNMPv3, SSH, TACACS+, RADIUS)</li> <li>• Redundant power supply modules</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next Six years. Attach Evidence</li> <li>• Original Equipment Manufacturer/vendor of the proposed switch MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> <li>• Three-year (3) warranty and support</li> <li>• Attach data sheet</li> </ul>
4.	Indoor Wireless Access Point	<p>Indoor wireless access point (WLAN AP) with support for Wi-Fi 6 software-configurable dual radio, 5 GHz 4x4 MIMO and 2.4 GHz 2x2 MIMO, achieving a data rate of 5.3 Gbps. The WiFi access points should specifically meet the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Support WPA3 with specific support for WPA3 Enterprise</li> <li>• Support for 802.1x standard for network authentication of wireless clients</li> <li>• Support for minimum of 150 associated active clients (concurrent connected end user devices)</li> <li>• Support for built-in smart antennas to improve on signal quality</li> <li>• Support for minimum of 16 No. SSIDs two (2) of which MUST support 802.1x network authentication</li> <li>• Support for WIFI-6 standards such as OFDMA, TWT, MU-MIMO and BSS coloring</li> </ul>

#	Equipment	Minimum Specifications of Equipment
		<ul style="list-style-type: none"> <li>● Support for VLAN assignment per SSID and based on network authentication (802.1x VLAN assignment based on radius attributes)</li> <li>● Support for IoT</li> <li>● Communication between the WLAN AP and the management system MUST be through encrypted channels</li> <li>● Maximum power consumption should not exceed 21W</li> <li>● Support for powering through PoE</li> <li>● Operating temperature: Between 0°C to 50°C</li> <li>● Support for minimum of 2 No. RJ45 network interface ports capable of negotiating both 100Mbps and 1Gbps speed</li> <li>● Included with relevant mounting brackets</li> <li>● Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>● Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next four years. Attach Evidence.</li> <li>● Original Equipment Manufacturer/vendor of the proposed access point MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> <li>● Three-year (3) warranty and support</li> </ul> <p>Management using a centralized WLAN Controller (or equivalent centralized management system for software updates and configuration) is mandatory Attach data sheet</p>
5.	Outdoor Wireless Access Point	<p>Outdoor Hardened (IP68) wireless access point (WLAN AP) with support for Wi-Fi 6 software-configurable dual radio, 5 GHz 2x2 MIMO and 2.4 GHz 2x2 MIMO achieving a device performance of 1.7 Gbps. The WiFi access points should specifically meet the following minimum specifications:</p> <ul style="list-style-type: none"> <li>● Support WPA3 with specific support for WPA3 Enterprise</li> <li>● Support for 802.1x standard for network authentication of wireless clients</li> <li>● Support for minimum of 500 associated active clients (concurrent connected end user devices)</li> </ul>

#	Equipment	Minimum Specifications of Equipment
		<ul style="list-style-type: none"> <li>• Support for external smart antennas to improve on signal quality</li> <li>• Support for WIFI-6 standards such as OFDMA, TWT, MU-MIMO and BSS coloring</li> <li>• Support for minimum of 16 No. SSIDs two (2) of which MUST support 802.1x network authentication</li> <li>• Support for VLAN assignment per SSID and also based on network authentication (802.1x VLAN assignment based on radius attributes)</li> <li>• Communication between the WLAN AP and the management system MUST be through encrypted channels</li> <li>• Operating temperature: -40°C to 65°C</li> <li>• Support for powering through PoE</li> <li>• Support for minimum of 1 No. RJ45 network interface port capable of negotiating both 100Mbps and 1Gbps speed</li> <li>• Included with relevant mounting brackets</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next four years. Attach Evidence.</li> <li>• Original Equipment Manufacturer/vendor of the proposed access point MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> <li>• Three-year (3) warranty and support</li> </ul> <p>Management using a centralized WLAN Controller (or equivalent centralized management system for software updates and configuration) is mandatory Attach data sheet</p>
6.	Wireless Access/LAN Controller	<ul style="list-style-type: none"> <li>• The WLC should support manage 250 access points</li> <li>• The WLC should support 5000 users.</li> <li>• The WLC should provide 5 Gbps forwarding performance.</li> <li>• The WLC should have at least 2x1G SFP interfaces fully populated with MMF 1G SFPs</li> </ul>

#	Equipment	Minimum Specifications of Equipment
		<ul style="list-style-type: none"> <li>• The WLC should support the establishment of CAPWAP tunnels with APs using IPv4 and IPv6 dual stacks.</li> <li>• The WLC should support intelligent roaming based on 802.11k and 802.11v, enabling clients with low roaming sensitivity to roam to the optimal AP.</li> <li>• The WLC should support automatically switch 2.4 GHz radios to 5 GHz radios through automatic negotiation between APs, reducing 2.4 GHz co-channel interference and increasing system capacity.</li> <li>• Proposed equipment should not be approaching End of Support (EOS) announcement by the OEM in the next four years. Attach Evidence.</li> <li>• Original Equipment Manufacturer/vendor of the proposed controller MUST be rated as a Leader in the Gartner Magic Quadrant for Enterprise Wired and Wireless LAN Infrastructure in the last three consecutive years, at the time of bidding. Attach Evidence</li> <li>• Three-year (3) warranty and support</li> </ul> <p>Attach data sheet</p>
7.	Install Wireless AP with Accessories	<ul style="list-style-type: none"> <li>• Install AP as per ICTA standards</li> <li>• inclusive of trunking and LAN cabling</li> </ul>

Table 2 : Power and electrical

#	Equipment	Minimum Specifications of Equipment
1.	2 KVA Rack mountable UPS	<p>Single-phase 2 KVA double-conversion on-line rack-mountable UPS with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Minimum output power capacity of 1.2KW</li> <li>• Minimum output power factor of 0.8</li> <li>• Nominal Output Voltage 230V, 50Hz</li> <li>• Input Voltage range 220VAC – 240VAC, 50Hz</li> <li>• 4 No. IEC 60320 C13 Output Connections</li> <li>• IEC 60320 C14 Input connections</li> </ul>

#	Equipment	Minimum Specifications of Equipment
		<ul style="list-style-type: none"> <li>• Online, double-conversion power conditioning</li> <li>• Minimum runtime of 15 minutes at Half Load</li> <li>• Included with relevant mounting brackets for 19-inch rack/cabinet</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not have an ongoing End of Life (EOL) announcement by the OEM</li> </ul> <p>Attach data sheet</p>
2.	3 KVA Single-Phase UPS	<p>Single-phase 3KVA UPS with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Minimum output power capacity of 4KW</li> <li>• Minimum output power factor of 0.8</li> <li>• Number of phases, 1ph</li> <li>• Nominal Output Voltage 230V, 50Hz</li> <li>• Input Voltage range 220VAC – 240VAC, 50Hz</li> <li>• Parallel configuration support for minimum 2 units</li> <li>• Minimum runtime of 15 minutes at Half Load</li> <li>• Original Equipment Manufacturer/vendor support of 3 years (Parts replacement and Software Updates)</li> <li>• Proposed equipment should not have an ongoing End of Life (EOL) announcement by the OEM</li> </ul> <p>Attach data sheet</p>
3.	Supply and install 3-core 4 mm flexible Cable Roll	3-core Electrical Flexible PVC Cable 4mm twin with earth for 300v/500V rating. Cable should have stranded copper conductors meeting BS 6004 and KS453 standard
4.	Supply and Install of yellow green earthing cable	<ul style="list-style-type: none"> <li>• The cable size should be 4 mm<sup>2</sup></li> </ul>
5.	Supply and install Earth rod	<ul style="list-style-type: none"> <li>• The earth rod should pure copper and 1.5 metres long, with accessories</li> </ul>

**Table 3: Minimum Requirements for Passive Equipment & Structured Cabling Materials**

#	Equipment	Minimum Specifications of Materials & Equipment
	22U Network Cabinet with a 4Way Horizontal Mount Power Distribution Unit (PDU)	<p>Standard-Depth 22U 19-inch Server Cabinet Rack Enclosure including vertical mounting rails and mesh door with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Rack Enclosure depth of 800 mm</li> <li>• Rack height of 22U</li> <li>• Support mounting of 19-inch copper patch panels, optical distribution frames, network switches, rack-mountable UPS</li> <li>• 1 No. 4 Way UK Plug Power Distribution Unit Horizontal</li> <li>• Floor Standing Steel Rack Enclosure with 4 No. castor wheels with fan venting at the top (fan included)</li> </ul> <p>Attach data sheet</p>
	15U Network Cabinet with a 4Way Horizontal Mount Power Distribution Unit (PDU)	<p>Standard-Depth 15U 19-inch Server Cabinet Rack Enclosure including vertical mounting rails and mesh door with the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Rack Enclosure depth of 800 mm</li> <li>• Rack height of 15U</li> <li>• Support mounting of 19-inch copper patch panels, optical distribution frames, network switches, rack-mountable UPS</li> <li>• 1 No. 4 Way UK Plug Power Distribution Unit Horizontal</li> <li>• Floor Standing Steel Rack Enclosure with 4 No. castor wheels or Wall-mountable rack enclosure with fan venting at the top (fan included)</li> </ul> <p>Attach data sheet</p>
	Cat 6A U/UTP Pure Copper Ethernet Cable 305M (Indoor)	<p>23AWG Cat 6 U/UTP copper cable with HDPE insulation enclosed in PVC flame-retardant jacket for indoor installations. The minimum specifications are as follows:</p> <ul style="list-style-type: none"> <li>• Indoor environment use</li> <li>• Riser flammability rating</li> <li>• Support installation temperature of 50°C</li> <li>• 23AWg solid copper conductor</li> <li>• Overall length of 305 meters</li> </ul> <p>Attach data sheet</p>

#	Equipment	Minimum Specifications of Materials & Equipment
	Cat 6A F/UTP Pure Copper Ethernet Cable 305M (Outdoor)	<p>23AWG Cat 6 U/UTP Outside Plant (OSP) copper cable with PE insulation enclosed in abrasion-resistant HDPE flame-retardant jacket for outdoor installations. The minimum specifications are as follows:</p> <ul style="list-style-type: none"> <li>• Outdoor environment use</li> <li>• Ability for the insulation to withstand moisture migration in underground and wet applications</li> <li>• Outdoor flammability rating</li> <li>• Must be UV-Resistant</li> <li>• Support installation temperature of 70°C</li> <li>• 23AWg solid copper conductor</li> <li>• Overall length of 305 meters</li> </ul> <p>Attach data sheet</p>
	F/UTP Category 6A Dual Outlets Module (Data points)	<p>Pair of Cat 6A RJ45 keystone modules with support for 10Gbit Ethernet applications</p> <p>Attach data sheet</p>
	Flash Mount Faceplates – F/UTP Category 6A Double	<p>Single gang faceplate with support for 2 outlet ports. Faceplate should support mounting onto single gang opening and include a label pocket for identification/labeling</p> <p>Attach data sheet</p>
	F/UTP Category 6A Wall UTP-RJ45Patch cord (0.25M)	<p>Cat 6A 24 AWG UTP Copper Patch Cord of 0.25 meter length with minimum specifications below:</p> <ul style="list-style-type: none"> <li>• 24AWg solid copper conductor</li> <li>• Overall length of 1 meter</li> <li>• T568B wiring scheme</li> <li>• Must support IEEE 802.3af (PoE), IEEE 802.3at (PoE+), and IEEE 802.3bt Type 3 and 4 (PoE++) PoE compatibility.</li> </ul> <p>Attach data sheet</p>
	F/UTP Category 6A 48 PATCH PANEL 1 U568A/B	<p>Cat 6A UTP Flat Punchdown steel Patch Panel with support for terminating 4-pair, 22–26 AWG, twisted pair cable. The patch panels should meet the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Must be rack-mountable on a 19-inch rack</li> <li>• Support for RJ45 module type</li> <li>• Minimum of 48 ports fully populated with keystones</li> <li>• Support for both T568A and T568B wiring schemes</li> </ul> <p>Attach data sheet</p>



#	Equipment	Minimum Specifications of Materials & Equipment
	F/UTP Category 6A 24 PATCH PANEL 1 U568A/B	<p>Cat 6A UTP Flat Punchdown steel Patch Panel with support for terminating 4-pair, 22–26 AWG, twisted pair cable. The patch panels should meet the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Must be rack-mountable on a 19-inch rack</li> <li>• Support for RJ45 module type</li> <li>• Minimum of 24 ports fully populated with keystones</li> <li>• Support for both T568A and T568B wiring schemes</li> </ul> <p>Attach data sheet</p>
	Cable managers 2U	<p>Horizontal Cable Manager mountable onto a 19-inch rack or cabinet. The cable manager <b>MUST</b> meet the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Support for management of copper, and fiber optic cables</li> <li>• 2 RU with dual-hinging front cover</li> <li>• Should be mountable horizontally</li> </ul> <p>Attach data sheet</p>
	Cable managers 1U	<p>Horizontal Cable Manager mountable onto a 19-inch rack or cabinet. The cable manager <b>MUST</b> meet the following minimum specifications:</p> <ul style="list-style-type: none"> <li>• Support for management of copper, and fiber optic cables</li> <li>• 1 RU with dual-hinging front cover</li> <li>• Should be mountable horizontally</li> </ul> <p>Attach data sheet</p>
	Galvanized Metallic Trunking 150mm x50mm & accessories	<p>Galvanized double-compartment metal trunking cover and base with base loop perforation. Each piece of metal trunking <b>MUST</b> be at least 2.4 meters in length</p> <p>Attach data sheet</p>
	Galvanized Metallic Trunking 100mm x50mm & accessories	<p>Galvanized double-compartment metal trunking cover and base with base loop perforation. Each piece of metal trunking <b>MUST</b> be at least 2.4 meters in length</p> <p>Attach data sheet</p>
	Galvanized Metallic Trunking 25mm x50mm & accessories	<p>Galvanized double-compartment metal trunking cover and base with base loop perforation. Each piece of metal trunking <b>MUST</b> be at least 2.4 meters in length</p>
	Install metal Trunking size 25×50mm/50×100mm/50×150m	<ul style="list-style-type: none"> <li>• Trunking should be installed neatly on the surface of walls, columns or beams and be truly vertical or horizontal.</li> </ul>

#	Equipment	Minimum Specifications of Materials & Equipment
	m with accessories and auxiliary work	<ul style="list-style-type: none"> <li>• Overhead trunking should be suitably supported by means of mild steel hangers' brackets or other suitable devices.</li> <li>• Trunking should be provided with removable side cover, easy bend at all turning angles and, where required, appropriate outlet holes with grommets.</li> <li>• The height of the trunking installed should not cause any installation and maintenance problem.</li> <li>• Cutting and combine the trunking when necessary</li> <li>• Detect/locate the presence of the electricity system before drilling. size</li> <li>• 30x55mm for trunking (25*50 mm)</li> <li>• Drilling/boring the floor slab by the appropriate drilling/boring machine without cutting holes through the building structured area (e.g., beam, column E structure wall etc.).</li> <li>• Make good the hole surface by cement mortar and paint coating</li> <li>• Seal the holes with silicon.</li> </ul>
	Supply and Install Flexible corrugated PVC pipe $\leq$ 50mm with accessories.	<ul style="list-style-type: none"> <li>• Cutting suitable length of PVC pipe.</li> <li>• Smooth all duct ends</li> <li>• Fixing PVC Pipe on Wall/Ceiling by supporting with saddles/ brackets.</li> <li>• Fixing Junction Box at all turning angles or every 10m if necessary.</li> <li>• Labelling for identification.</li> </ul>
	40mm Flex Conduits	40mm PVC Flexible Conduit per meter length
	Install indoor/Outdoor Cat.6, 4-Pair UTP Cable	<ul style="list-style-type: none"> <li>• Lay the outdoor cat6 as per design, what layed in trunk or duct as straight as flat, no bind, enlarged regular and fastened by plastic ties as per specification.</li> <li>• Supply and install and label the cat 6 cable as per specification, the labelling must be waterproof.</li> <li>• The primary media for horizontal cabling will be 4-pair Unshielded Twisted Pair (UTP) which must meet or exceed</li> </ul>

#	Equipment	Minimum Specifications of Materials & Equipment
		<p>ANSI/TIA/EIA-568-B and ISO/IEC 11801 standards.</p> <ul style="list-style-type: none"> <li>• Unshielded Twisted Pair (UTP) Category 6A quality cable shall be employed for either outdoor or indoor cable.</li> <li>• Each room to be networked shall have wall plates installed and each outlet terminated with 8-pin modular jacks (RJ-45).</li> <li>• Each designated network interface will have capacity to support Giga Ethernet.</li> <li>• Each cable will be required to move through the tie if firmly pulled.</li> <li>• Cables should not be crushed using cable ties.</li> <li>• Cable conduits must not be overfilled.</li> <li>• All cables must pass through Trunking and should not be seen from the outside</li> <li>• There shall be no splicing of any of the cables installed. Intermediate cross-connects and transition points are not allowed.</li> <li>• All user area patch chords shall be at least 3m in length</li> <li>• Data outlets shall be flash mounted on the metal Trunking.</li> <li>• All user area patch chords and cabinet patch chords will be supplied to match the total number of data outlets.</li> </ul>
	Install Category 6A PATCH PANELS	<ul style="list-style-type: none"> <li>• All patch panels must conform to ANSI/TIA/EIA-568A.</li> <li>• Patch panels must be equipped with RJ45 contacts of Category 6A sockets with a capacity of 24/48 RJ45 ports.</li> <li>• All patch panels, including fiber optic patch panels must be rack mounted</li> <li>• All panels and racks must be earthed to provide electrical safety for users and screening to prevent electromagnetic radiation.</li> <li>• Except for the patch cords used to connect NICs to the RJ45 sockets, all patch cords must be labeled at each extremity with soft PVC support and indelible marking (stamping or similar method). For all other</li> </ul>

#	Equipment	Minimum Specifications of Materials & Equipment
		<p>components, the label type should be of stiff plastic PVC type.</p> <ul style="list-style-type: none"> <li>• Attach data sheets for the Patch panels and ODFs</li> </ul>

**Table 4: Minimum Requirements for Fiber Optic Cabling Materials & Accessories**

#	Equipment	Minimum Specifications of Materials & Accessories
	48-Port Optical Distribution Frame (Fiber Patch Panel) & Accessories (LC adapters & pigtails)	<p>19-inch rackmount and modularized fiber optic distribution frame for indoor fiber optic cables connection storage, distribution and management. The ODF must meet the following minimum requirements:</p> <ul style="list-style-type: none"> <li>• Minimum core Capacity of 48 No.</li> <li>• Minimum cable ports of 8 No.</li> <li>• Support for LC fiber optical adapters</li> <li>• Support for ribbon and single fiber</li> <li>• MUST be fully populated with fiber optic pigtails and LC/UPC adapters</li> <li>• Support for optical wavelengths of 1310nm and 1550nm</li> <li>• Insertion loss MUST be less than 0.2dBm</li> </ul> <p>Attach data sheets</p>
	24-Port Optical Distribution Frame (Fiber Patch Panel) & Accessories (LC adapters & pigtails)	<p>19-inch rackmount and modularized fiber optic distribution frame for indoor fiber optic cables connection storage, distribution and management. The ODF must meet the following minimum requirements:</p> <ul style="list-style-type: none"> <li>• Minimum core Capacity of 24 No.</li> <li>• Minimum cable ports of 8 No.</li> <li>• Support for LC fiber optical adapters</li> <li>• Support for ribbon and single fiber</li> <li>• MUST be fully populated with fiber optic pigtails and LC/UPC adapters</li> <li>• Support for optical wavelengths of 1310nm and 1550nm</li> <li>• Insertion loss MUST be less than 0.2dBm</li> </ul> <p>Attach data sheets</p>

#	Equipment	Minimum Specifications of Materials & Accessories
	12-Port Optical Distribution Frame (Fiber Patch Panel) & Accessories (LC adapters & pigtails)	<p>19-inch rackmount and modularized fiber optic distribution frame for indoor fiber optic cables connection storage, distribution and management. The ODF must meet the following minimum requirements:</p> <ul style="list-style-type: none"> <li>• Minimum core Capacity of 12 No.</li> <li>• Minimum cable ports of 8 No.</li> <li>• Support for LC fiber optical adapters</li> <li>• Support for ribbon and single fiber</li> <li>• MUST be fully populated with fiber optic pigtails and LC/UPC adapters</li> <li>• Support for optical wavelengths of 1310nm and 1550nm</li> <li>• Insertion loss MUST be less than 0.2dBm</li> </ul> <p>Attach data sheets</p>
	Install Fiber Patch Panel) & Accessories	<ul style="list-style-type: none"> <li>• All patch panels/ODFs must conform to ANSI/TIA/EIA-568A.</li> <li>• All patch panels must be rack mounted</li> <li>• All panels and racks must be earthed to provide electrical safety for users and screening to prevent electromagnetic radiation.</li> <li>• Fiber Optic patching should be done from the cabinet housing optic boxes/panels as well as the optic electronic equipment.</li> <li>• All patch cords must be labeled at each extremity with soft PVC support and indelible marking (stamping or similar method). For all other components, the label type should be of stiff plastic PVC type.</li> </ul> <p>Attach data sheets for the Patch panels and ODFs</p>
	LC Duplex adapters	Duplex fiber LC connectors LC/UPC duplex unibody adapter with flange
	SM Fiber Patch Cord 1M	1 meter Fiber Optic Cable, Single-Mode Duplex 9/125 housed in a LSZH (Low-Smoke, Zero-Halogen) flame retardant jacket with specifications below:

#	Equipment	Minimum Specifications of Materials & Accessories																									
		<ul style="list-style-type: none"><li>• 2x LC/UPC Single Mode male connectors</li><li>• OS1 (9/125)</li><li>• LSZH (Low-Smoke, Zero-Halogen) cable jacket</li><li>• Support for ITU-T G.652, including ITU-T G.652A, ITU-T G.652B, ITU-T G.652C and G.652D</li><li>• Cable length of 1 meter</li></ul>																									
	Supply of ADSS OFC 12/24/48 Core	Supply and install and installation of ADSS OFC 12/24/48 Core with accessories. <input type="checkbox"/> Aqua #00D1D1 with Red Stripes on Jacket/ Sheathing <input type="checkbox"/> Labelling as per ICTA standards <input type="checkbox"/> ITU G652 Compliant <input type="checkbox"/> Must be compliant with underground ADSS specs below <input type="checkbox"/> Attach Brochure																									
	Overhead ADSS cable specifications		<div>ADSS</div> <div>Installation of OFC ADSS Cable cc. Laying overhead cable dd. Installation of Two thimble eye bolt, 0.25-inch-thick strand wire, concrete attached anchor bolt. ee. The cable shall meet the specifications below:</div> <table><tr><td>Description</td><td>Tr</td></tr><tr><td>ITU Spec</td><td>G.</td></tr><tr><td>Fibre Count</td><td>48</td></tr><tr><td>Fibres Per Tube</td><td>6</td></tr><tr><td>Minimum Number of Tubes</td><td>4</td></tr><tr><td>Weight (Include Messenger)</td><td>≤ 4</td></tr><tr><td>Outer Diameter</td><td>≤</td></tr><tr><td>Cable Height (End to end cable + Messenger)</td><td>≤ 2</td></tr><tr><td>Minimum Bend Radius in operation</td><td>14</td></tr><tr><td>Pole to Pole Span at 1.5% Install Sag.</td><td>10</td></tr><tr><td>ITU Spec</td><td>G.</td></tr><tr><td>Cable Slack Storage Coil at Joints</td><td>30</td></tr></table>	Description	Tr	ITU Spec	G.	Fibre Count	48	Fibres Per Tube	6	Minimum Number of Tubes	4	Weight (Include Messenger)	≤ 4	Outer Diameter	≤	Cable Height (End to end cable + Messenger)	≤ 2	Minimum Bend Radius in operation	14	Pole to Pole Span at 1.5% Install Sag.	10	ITU Spec	G.	Cable Slack Storage Coil at Joints	30
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			<table><tr><td>Maximum Tensile Strength Long Term</td><td>890</td></tr><tr><td>Cable Operating Temperature</td><td>-40</td></tr></table> <p>ff. Installation of Cable storage bracket</p> <p>a. Galvanized Metal Bracket</p> <p>gg. Installation of ADSS Clamp</p> <p>a. ADSS Fittings (as per design)</p> <p>b. Installation with through bolt or banding</p> <p>c. Versatile design can be used as a stringing block (with inserts removed)</p> <p>d. Tangent suspension for spans up to 600 ft.</p> <p>e. Meets IEEE 1591.2</p> <p>hh. Installation J-Hooks</p> <p>a. Tangent suspension for spans up to 600ft</p> <p>b. Less than 20 degrees angle on cable routes between spans (For Angles greater than 20 degrees, double deadend or false deadend)</p> <p>ii. Installation of Stay (Pole support)</p> <p>a. Stay Block, stay wire and Stay Rod (as per design)</p>	Maximum Tensile Strength Long Term	890	Cable Operating Temperature	-40
Maximum Tensile Strength Long Term	890						
Cable Operating Temperature	-40						
	Supply of underground OFC 12/24/48 Core	Supply and installation of OFC 12/24/48 Core with accessories. <input type="checkbox"/> Aqua #00D1D1 with Red Stripes on Jacket/ Sheathing <input type="checkbox"/> Labelling as per ICTA standards <input type="checkbox"/> ITU G652 Compliant <input type="checkbox"/> Must be compliant with underground OFC specs below					

#	Equipment	Minimum Specifications of Materials & Accessories																			
		Attach Brochure																			
	Underground OFC cable specifications	<div>Underground OFC Specs All fiber Optic Cables must comply with the following specs:</div> <div>iii) Maximum Attenuation</div> <table><thead><tr><th>Wavelength (nm)</th><th>Maximum Value (dB/Km) (Before cable)</th><th>Maximum Value (dB/Km) (After cable)</th></tr></thead><tbody><tr><td>1310</td><td>≤ 0.34</td><td>≤ 0.35</td></tr><tr><td>1383</td><td>≤ 0.34</td><td>≤ 0.35</td></tr><tr><td>1550</td><td>≤ 0.21</td><td>≤ 0.22</td></tr><tr><td>1625</td><td>≤ 0.23</td><td>≤ 0.24</td></tr></tbody></table> <div>jjj) The Variance of attenuation in any given wavelength should not be more than 0.05 dB/Km</div> <div>kkk) The Macro-bend loss for fibre wrapped around a mandrel of diameters higher than 60mm and up to 100 turns should be ≤0.1 dB at wavelength (λ) 1625nm.</div> <div>lll) Cut off Wavelength. Fibre should be able to carry wavelengths from λ=1260nm upwards.</div> <div>mmm) Maximum Dispersion:</div> <div>nnn) Zero Dispersion Wavelength 1300 nm ≤ λ0 ≤ 1324 nm</div> <div>ooo) Zero Dispersion Slope S0 ≤ 0.092 ps/ (nm<sup>2</sup> * Km)</div> <table><thead><tr><th>Wavelength (nm)</th><th>Maximum Value (ps/nm*Km)</th></tr></thead><tbody><tr><td>1550</td><td>≤ 18</td></tr></tbody></table> <div>ppp) He Polarization Mode Dispersion (PMD) Link Design Value or PMDQ (PMD of concatenated length of fibre) should comply with IEC 60794-3: 2001, section 5.5, Method 1 (m=20, Q=0.01%). PMDQ ≤ 0.1 ps/√Km (ps per root Km).</div> <div>qqq) Environmental Specs: The fibre should be able to operate with induced attenuation ≤ 0.05</div>	Wavelength (nm)	Maximum Value (dB/Km) (Before cable)	Maximum Value (dB/Km) (After cable)	1310	≤ 0.34	≤ 0.35	1383	≤ 0.34	≤ 0.35	1550	≤ 0.21	≤ 0.22	1625	≤ 0.23	≤ 0.24	Wavelength (nm)	Maximum Value (ps/nm*Km)	1550	≤ 18
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#	Equipment	Minimum Specifications of Materials & Accessories																					
			<p>dB/Km at temperatures from -0oC to +85oC and humidity of up to 85% RH.</p> <p>rrr) The cable adopts a semi-dry water blocking structure, making clean and tidy coiling operations possible. In this way, the environment cleanness and coiling efficiency are improved.</p> <p>sss) The cable will have 6 cores per tube and 16 tubes per cable.</p> <p>ttt) The cable will be labelled as per ICTA Fiber Optic-Backbone, Metro and Last Mile Infrastructure standard (ICTA.2.001.2021) to allow for identification</p> <p>uuu) The natural bending length of duct OFC is 7-10m per km. Generally, when OFC pass hand hole/manhole, the bending length is 0.5-1m.OFC reservation shall be 15m at each side of the OFC joint.</p> <p>vvv) Cable reservation of equipment-room OFC: At the side of the equipment-room, the length of reservation cable is a minimum 15m.</p> <p>www) cables will have specifications as stipulated in the IEC 60794 -3 test criteria as follows:</p> <table><tr><th>Item</th><th>Description</th></tr><tr><td>1</td><td>Maximum Fibres Per Tube</td></tr><tr><td>2</td><td>Minimum Number of Tubes</td></tr><tr><td>3</td><td>Weight</td></tr><tr><td>4</td><td>Outer Diameter</td></tr><tr><td>5</td><td>Minimum Bend Radius at Installation</td></tr><tr><td>6</td><td>Minimum Bend Radius in operation</td></tr><tr><td>7</td><td>Tensile Strength Short Term</td></tr><tr><td>8</td><td>Tensile Strength Long Term</td></tr><tr><td>9</td><td>Cable Operating Temperature</td></tr></table>	Item	Description	1	Maximum Fibres Per Tube	2	Minimum Number of Tubes	3	Weight	4	Outer Diameter	5	Minimum Bend Radius at Installation	6	Minimum Bend Radius in operation	7	Tensile Strength Short Term	8	Tensile Strength Long Term	9	Cable Operating Temperature
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9	Cable Operating Temperature																						

#	Equipment	Minimum Specifications of Materials & Accessories
	OFC Installation - Underground	<p>The OFC Implementation Civil Work should be done on Turnkey Basis:</p> <ul style="list-style-type: none"> <li>● Preparatory works: Engineering measurement (Survey and Design)</li> <li>● Route cleaning, calibration and cleaning of existing duct if applicable,</li> <li>● Trenching including excavation, backfilling, laying warning tape, and compaction in all soils. The trench width should be 300mm, the trench depth should be 1200mm in soils excluding rocky soil, 800mm in soft rock, 400mm in hard rock.</li> <li>● Breaking and reinstatement of road surface.</li> <li>● Laying ducts: 2'0. D.32mm HDPE and 1*O.D.40mm HDPE Pipe in trench or duct.</li> <li>● Installation of RC manhole: Averagely, install at an interval of 200m in town or city</li> <li>● Road crossing by trenching or thrust boring or directional drilling for different grade of roads in Kenya as per specification, including 110mm HDPE pipe installation.</li> <li>● Bridge crossing by bridge attachment, trenching and drilling as per design</li> <li>● River crossing by trenching or non-trenching, including C15 concrete envelope protection and scree bag protection as per specification.</li> <li>● 20mm*200mm C15 concrete envelope protection in rocky trench or where else required.</li> <li>● Other O.F.O cable duct protection, such as slope protection, stone pitching, gabion protection, etc. as per specification.</li> <li>● BOSAL works for site or building entry including supplying all the BOSAL work materials.</li> <li>● The bidders work shall follow all the project specification requirements and other standards.</li> </ul>

#	Equipment	Minimum Specifications of Materials & Accessories
		<ul style="list-style-type: none"> <li>The Bidders shall be responsible for all security for site activities where requires</li> </ul>
	OFC Installation – Overhead	<ol style="list-style-type: none"> <li>1. Pole erection – Includes digging a hole and installation of a dressed pole.</li> <li>2. Lying overhead cable.</li> <li>3. Installation of Two thimble eye bolt, 0.25-inch-thick strand wire, concrete attached anchor bolt.</li> </ol>
	O.F. Cable Splicing & Test	<ol style="list-style-type: none"> <li>1. Splicing and testing of fibers in the field.</li> <li>2. Attenuation coefficient, length, position and loss of all splice joints shall be measured in accordance with IEC 793-1 and EIA 455 standards using an Optical Time Domain Reflectometer (OTDR) and a buffer fiber should be used in the measurements. The results shall be recorded as a trace and in a table format. The length of fiber should be tested at the same time.</li> </ol>
	O.F Cable Termination & Test	<ol style="list-style-type: none"> <li>1. OFC termination by fusion. Testing after installation of the cables and termination rack</li> <li>2. All cores should be terminated.</li> </ol>
	Supply and install HDPE pipe with Silicon core (26/32mm) and necessary accessories	<ul style="list-style-type: none"> <li>High density polyethylene (HDPE) with silicone inner layer</li> <li>These ducts must have 32mm exterior side and 26mm inner diameter and must support OFC by blowing at a km distance using a 10-bar pressure.</li> <li>The drum length is 2km.</li> <li>The duct will be white in colour, with</li> <li>2mm thick single red strip externally (at every 90° angle) and cream on the inner side.</li> <li>The duct should be translucent for ease of maintenance and should be made of all virgin materials.</li> <li>Duct labelling will be as follows: =HDPE Silicon Duct= = <math>\phi</math> 32/26mm G.O.K-I.C.T.</li> <li>A-2019= =. Spacing of the labelling will be</li> </ul>

#	Equipment	Minimum Specifications of Materials & Accessories
		<ul style="list-style-type: none"> <li>• 1.0m. (The year will be changed to the right year of manufacture)</li> <li>• Supply and Install and install the</li> <li>• HDPE pipe including Supply and Install and</li> <li>• installation of all the couplers, end plugs, etc.</li> <li>• Minimum technical specs</li> <li>• Density: 0.95 g/cm<sup>3</sup> - DIN 53 479</li> <li>• Tensile strength at break: 23 – 30</li> <li>• N/mm<sup>2</sup> - DIN 53 455</li> <li>• Ball indentation hardness: 30 – 65</li> <li>• N/mm<sup>2</sup> - DIN 53 456</li> <li>• Notched bar impact strength: &gt; 5 mJ/mm<sup>2</sup> - DIN 53 453</li> <li>• Thermal conductivity: 0.40 – 0.46 W/m</li> <li>• K - DIN 52 612</li> <li>• Coefficient of elongation: 1.5–2.0 x 10<sup>-4</sup></li> <li>• K-1 - DIN 52 328</li> <li>• Dielectric strength: 800 – 900 kV/cm - DIN 53 481</li> <li>• Specific insulation resistance: 1016 Ohm. Cm - DIN 53 482</li> </ul> <p>Attach Brochure</p>
	Supply and Install Warning Tape	<ul style="list-style-type: none"> <li>• The warning tape shall be made of PVC or PE having approximately 10 cm in width and 0.1mm in thickness.</li> <li>• The background colour of the warning tape shall be yellow.</li> <li>• The mark words shall be enlarged up to the full width of the warning tape and shall be durably printed in black colour 2 meters apart.</li> </ul> <p>The words “CAUTION: Do not dig! O.F.C Cable underneath: Government of Kenya Contact 0206676999” shall be displayed on the warning tape at intervals of half (0.5) meters.</p>
	Supply and Install Handhole with cover and necessary accessories	<ul style="list-style-type: none"> <li>• Plastic material</li> <li>• Approximate Inner dimension: depth is 900mm, diameter is 1000mm.</li> <li>• cable run directions at least.</li> <li>• Joint box hanging mechanism at least.</li> <li>• Cover branded Government of Kenya I.C.T.A and ICTA logo.</li> </ul>

#	Equipment	Minimum Specifications of Materials & Accessories
		<ul style="list-style-type: none"> <li>Body branded Government of Kenya</li> </ul>
	Supply and Install dressed wooden pole	Chemical treated wooden pole, 8m and 12M length, top diameter 140-200mm, top cover should be galvanized steel material, the diameter should be 100mm more than top diameter of the pole.
	Supply and install of reinforced concrete precast small manhole with polymer cover and lock mechanics with accessory	<ul style="list-style-type: none"> <li>Dig the manhole pit which is fit for the manhole installation.</li> <li>This reinforced concrete manhole can be pre-casted or cast-in-place.</li> <li>Install the manhole and passive components such as bolts, nuts, brackets</li> <li>Polymer cover installation.</li> <li>Labelling shall be painted on both cover and body after installation, the serial number will follow design.</li> <li>Backfill and compact the soil after manhole installation.</li> <li>The size of the manhole is 1000mm*800mm*1300mm (L*W*D)</li> <li>Concrete grade to be C20.</li> </ul>
	96 Core Dome Splice Enclosure	<p>Fiber optic PP plastic+UV resistance dome splice closure with trays for fiber splicing. Minimum requirements are:</p> <ul style="list-style-type: none"> <li>Minimum number of cores supported, 96 cores</li> <li>Fiber cable size support: 8mm – 18mm</li> <li>Minimum number of cassettes, 6 No.</li> <li>Support for installations upto of 60°C working environments</li> </ul>
	24 Core Fiber Access Terminal (FAT)	Fiber Access Terminal (FAT) 24 Core (loaded with LC duplex pigtails and adapters)
	4 Core Fiber Access Terminal (FAT)	Fiber Access Terminal (FAT) 4 Core (loaded with LC duplex pigtails and adapters)
	Fiber Access Terminal Box (ATB)	Access Terminal Box (ATB) - Loaded with SC simplex adapters and pigtails

i. **Annex I: List of learning Institutions for Piloting.****Table 1: List of Proposed beneficiary Educational Institutions and their Locations**

Sno.	Institution	Level	Region	County	Latitude	Longitude
1	Muranga University	University	Central	Muranga	-0.715616	37.147096
2	Kagumo Teachers Training College	TTC	Central	Nyeri	-0.468508	36.999544
3	Kinangop Technical And Vocational College	TVC	Central	NYANDARUA	-0.738854	36.616813
4	Ndia Technical And Vocational College	TVC	Central	KIRINYAGA	-0.627672	37.214447
5	Nachu Technical And Vocational College	TVC	Central	KIAMBU	-1.266921	36.594063
6	Kamukunji Technical And Vocational College	TVC	Central	NAIROBI	1.2695402 74	36.8535437 3
7	Kenya School of Government- Lower Kabete	KSG	Central	NAIROBI	-1.239181	36.744343
8	Pwani University	University	Coast	Kilifi	-3.620882	39.846411
9	Shanzu Teachers Training College	TTC	Coast	Mombasa	-3.968604	39.741336
10	Taveta Technical And Vocational College	TVC	Coast	TAITA-TAVETA	3.3943263 97	37.6564449 4
11	Kinango Technical And Vocational College	TVC	Coast	KWALE	-4.139344	39.315718
12	Tana River Technical And Vocational College	TVC	Coast	TANA RIVER	-1.575396	39.976188
13	Lamu East Technical And Vocational College	TVC	Coast	LAMU	-2.074001	41.149267
14	Kenya School of Government - Mombasa	KSG	Coast	Mombasa	-4.070338	39.673577
15	Kenya School of Government -Matuga	KSG	Coast	Kwale	-4.168811	39.571183
16	Tharaka University	University	Eastern	Tharaka Nithi	-0.093129	37.989693
17	Kitui Teachers Training College	TTC	Eastern	Kitui	1.3712671 62	38.0020286 4
18	Runyenjes Technical Training Institute	TVC	Eastern	EMBU	-0.482926	37.660387
19	Masinga Technical And Vocational College	TVC	Eastern	MACHAKOS	-0.966241	37.621741
20	Wote Technical Training Institute	TVC	Eastern	MAKUENI	-1.804157	37.622281
21	Kiirua Technical Training Institute	TVC	Eastern	MERU	0.10635	37.565159
22	Kenya School of Government -Embu	KSG	Eastern	Embu	-0.513052	37.459276
23	Garissa University	University	North Eastern	Garissa	-0.448248	39.661989
24	Eldas Teachers Training College	TTC	North Eastern	Wajir	2.4973653 6	39.5650344 7
25	Mandera Technical Training Institute	TVC	North Eastern	MANDERA	3.944479	41.794645
26	Merti Technical And Vocational College	TVC	North Eastern	ISIOLO	1.064552	38.666629
27	Laisamis Technical And Vocational College	TVC	North Eastern	MARSABIT	1.6207633 9	37.8082915 8
28	Koitalel Samoei University College	University	North-Rift	Nandi	0.321524	35.175413
29	Bishop Mahon Teachers Training College	TTC	North-Rift	Turkana	3.124775	35.590766
30	Kitelakapel Technical And Vocational College	TVC	North-Rift	WEST POKOT	1.3909	35.023322

Sno.	Institution	Level	Region	County	Latitude	Longitude
31	Ziwa Technical Training Institute	TVC	North-Rift	UASIN GISHU	0.514277	35.26978
32	Kipsoen Technical And Vocational College	TVC	North-Rift	ELGEYO MARAKWET	0.624318	35.480459
33	Emining Technical Training Institute	TVC	North-Rift	BARINGO	0.0207642 53	35.9560523 4
34	Endebess Technical Training Institute	TVC	North-Rift	TRANS-NZOIA	1.056511	34.885839
35	Turbo Technical And Vocational College	TVC	North-Rift	UASIN GISHU	0.5683	35.1171
36	Eldama Ravine Technical And Vocational College	TVC	North-Rift	Baringo	0.03919	35.72863
37	Baringo North Technical Training Institute	TVC	North-Rift	BARINGO	0.625092	35.815148
38	Kenya School of Government Baringo	KSG	North-Rift	BARINGO	0.488927	35.738285
39	University Of Kabianga	University	South-Rift	Kericho	-0.447716	35.137363
40	Narok Teachers Training College	TTC	South-Rift	Narok	-1.057928	35.861342
41	Sotik Technical Training Institute	TVC	South-Rift	BOMET	0.7910264 55	35.1323910 1
42	Ngong Technical And Vocational Training	TVC	South-Rift	KAJIADO	-1.364115	36.660396
43	Laikipia East Technical And Vocational College	TVC	South-Rift	LAIKIPIA	-0.125843	36.693463
44	Molo Technical And Vocational College	TVC	South-Rift	NAKURU	0.2962910 55	35.7915867 8
45	Samburu Technical And Vocational College	TVC	South-Rift	SAMBURU	0.642737	37.673152
46	Rongo University	University	Nyanza	Migori	-0.82602	34.609811
47	Asumbi Teachers Training College	TTC	Nyanza	Homabay	-0.618796	34.616521
48	Riragia Technical And Vocational College	TVC	Nyanza	KISII	-0.540387	34.855591
49	Seme Technical And Vocational College	TVC	Nyanza	KISUMU	-0.09069	34.47734
50	Ekerubo Gietai Technical Training Institute	TVC	Nyanza	NYAMIRA	0.5912759 -	35.0291762 3
51	Ugenya Technical And Vocational College	TVC	Nyanza	SIAYA	0.2353670 95	34.2318648 7
52	Lugari Diploma Teachers Training College	TTC	Western	Kakamega	0.633277	34.960862
53	Sirisia Technical And Vocational College	TVC	Western	BUNGOMA	0.755375	34.510221
54	Sabatia Technical And Vocational College	TVC	Western	VIHIGA	0.137775	34.804208
55	Embu University	University	Nairobi & Central	Embu	0.5155926 5	37.45647

## 4. Drawings

### **Designs and Quantities Per Institution**

The Drawings and Bill of Material per Institutions can be downloaded from

[PUBLIC DOWNLOAD](#)

[https://1drv.ms/f/s!Aq\\_JP4MYHsFrjqpsBbIysO2hZc98jw?e=cvhK46](https://1drv.ms/f/s!Aq_JP4MYHsFrjqpsBbIysO2hZc98jw?e=cvhK46)



## **5. Inspections and Tests**

The following inspections and tests shall be performed:

- a) Physical inspection
- b) Power- on and Boot test
- c) Performance and hardware testing
- d) Stress test and Final Verification



## **PART 3 - Contract**

# Section VIII - General Conditions of Contract

## Table of Clauses

1. Definitions.....	294
2. Contract Documents .....	295
3. Fraud and Corruption.....	295
4. Interpretation .....	295
5. Language.....	296
6. Joint Venture, Consortium or Association .....	296
7. Eligibility.....	297
8. Notices .....	297
9. Governing Law.....	297
10. Settlement of Disputes .....	297
11. Inspections and Audit by the Bank .....	298
12. Scope of Supply .....	298
13. Delivery and Documents.....	298
14. Supplier's Responsibilities .....	299
15. Contract Price .....	300
16. Terms of Payment .....	300
17. Taxes and Duties .....	300
18. Performance Security .....	301
19. Copyright.....	301
20. Confidential Information .....	301
21. Subcontracting .....	302

<b>22. Specifications and Standards .....</b>	<b>302</b>
<b>23. Packing and Documents .....</b>	<b>303</b>
<b>24. Insurance .....</b>	<b>303</b>
<b>25. Transportation and Incidental Services.....</b>	<b>303</b>
<b>26. Inspections and Tests.....</b>	<b>304</b>
<b>27. Liquidated Damages .....</b>	<b>305</b>
<b>28. Warranty .....</b>	<b>305</b>
<b>29. Patent Indemnity.....</b>	<b>306</b>
<b>30. Limitation of Liability .....</b>	<b>307</b>
<b>31. Change in Laws and Regulations .....</b>	<b>308</b>
<b>32. Force Majeure .....</b>	<b>308</b>
<b>33. Change Orders and Contract Amendments.....</b>	<b>308</b>
<b>34. Extensions of Time.....</b>	<b>310</b>
<b>35. Termination .....</b>	<b>310</b>
<b>36. Assignment.....</b>	<b>311</b>
<b>37. Export Restriction.....</b>	<b>311</b>

## Section VIII - General Conditions of Contract

### 1. Definitions

1.1 The following words and expressions shall have the meanings hereby assigned to them:

- (a) **“Bank”** means the World Bank and refers to the International Bank for Reconstruction and Development (IBRD) or the International Development Association (IDA).
- (b) **“Contract”** means the Contract Agreement entered into between the Purchaser and the Supplier, together with the Contract Documents referred to therein, including all attachments, appendices, and all documents incorporated by reference therein.
- (c) **“Contract Documents”** means the documents listed in the Contract Agreement, including any amendments thereto.
- (d) **“Contract Price”** means the price payable to the Supplier as specified in the Contract Agreement, subject to such additions and adjustments thereto or deductions therefrom, as may be made pursuant to the Contract.
- (e) **“Day”** means calendar day.
- (f) **“Completion”** means the fulfillment of the Related Services by the Supplier in accordance with the terms and conditions set forth in the Contract.
- (g) **“GCC”** means the General Conditions of Contract.
- (h) **“Goods”** means all of the commodities, raw material, machinery and equipment, and/or other materials that the Supplier is required to supply to the Purchaser under the Contract.
- (i) **“Purchaser’s Country”** is the country specified in the **Special Conditions of Contract (SCC)**.
- (j) **“Purchaser”** means the entity purchasing the Goods and Related Services, as **specified in the SCC**.
- (k) **“Related Services”** means the services incidental to the supply of the goods, such as insurance, installation, training and initial maintenance and other such obligations of the Supplier under the Contract.
- (l) **“SCC”** means the Special Conditions of Contract.
- (m) **“Subcontractor”** means any person, private or government entity, or a combination of the above, to whom any part of the Goods to be supplied or execution of any

part of the Related Services is subcontracted by the Supplier.

- (n) **“Supplier”** means the person, private or government entity, or a combination of the above, whose Bid to perform the Contract has been accepted by the Purchaser and is named as such in the Contract Agreement.
- (o) **“The Project Site,”** where applicable, means the place named in the **SCC**.

## 2. **Contract Documents**

- 2.1 Subject to the order of precedence set forth in the Contract Agreement, all documents forming the Contract (and all parts thereof) are intended to be correlative, complementary, and mutually explanatory. The Contract Agreement shall be read as a whole.

## 3. **Fraud and Corruption**

- 3.1 The Bank requires compliance with the Bank’s Anti-Corruption Guidelines and its prevailing sanctions policies and procedures as set forth in the WBG’s Sanctions Framework, as set forth in Appendix 1 to the GCC.
- 3.2 The Purchaser requires the Supplier to disclose any commissions or fees that may have been paid or are to be paid to agents or any other party with respect to the Bidding process or execution of the Contract. The information disclosed must include at least the name and address of the agent or other party, the amount and currency, and the purpose of the commission, gratuity or fee.

## 4. **Interpretation**

- 4.1 If the context so requires it, singular means plural and vice versa.
- 4.2 Incoterms
  - (a) Unless inconsistent with any provision of the Contract, the meaning of any trade term and the rights and obligations of parties thereunder shall be as prescribed by Incoterms **specified in the SCC**.
  - (b) The terms EXW, CIP, FCA, CFR and other similar terms, when used, shall be governed by the rules prescribed in the current edition of Incoterms specified in the **SCC** and published by the International Chamber of Commerce in Paris, France.
- 4.3 Entire Agreement

The Contract constitutes the entire agreement between the Purchaser and the Supplier and supersedes all communications, negotiations and agreements (whether written or oral) of the parties with respect thereto made prior to the date of Contract.
- 4.4 Amendment

No amendment or other variation of the Contract shall be valid unless it is in writing, is dated, expressly refers to the Contract, and is signed by a duly authorized representative of each party thereto.

#### 4.5 Nonwaiver

- (a) Subject to GCC Sub-Clause 4.5(b) below, no relaxation, forbearance, delay, or indulgence by either party in enforcing any of the terms and conditions of the Contract or the granting of time by either party to the other shall prejudice, affect, or restrict the rights of that party under the Contract, neither shall any waiver by either party of any breach of Contract operate as waiver of any subsequent or continuing breach of Contract.
- (b) Any waiver of a party's rights, powers, or remedies under the Contract must be in writing, dated, and signed by an authorized representative of the party granting such waiver, and must specify the right and the extent to which it is being waived.

#### 4.6 Severability

If any provision or condition of the Contract is prohibited or rendered invalid or unenforceable, such prohibition, invalidity or unenforceability shall not affect the validity or enforceability of any other provisions and conditions of the Contract.

### 5. Language

- 5.1 The Contract as well as all correspondence and documents relating to the Contract exchanged by the Supplier and the Purchaser, shall be written in the language specified in the **SCC**. Supporting documents and printed literature that are part of the Contract may be in another language provided they are accompanied by an accurate translation of the relevant passages in the language specified, in which case, for purposes of interpretation of the Contract, this translation shall govern.
- 5.2 The Supplier shall bear all costs of translation to the governing language and all risks of the accuracy of such translation, for documents provided by the Supplier.

### 6. Joint Venture, Consortium or Association

- 6.1 If the Supplier is a joint venture, consortium, or association, all of the parties shall be jointly and severally liable to the Purchaser for the fulfillment of the provisions of the Contract and shall designate one party to act as a leader with authority to bind the joint venture, consortium, or association. The composition or the constitution of the joint venture, consortium, or association shall not be altered without the prior consent of the Purchaser.



- 7. Eligibility**
- 7.1 The Supplier and its Subcontractors shall have the nationality of an eligible country. A Supplier or Subcontractor shall be deemed to have the nationality of a country if it is a citizen or constituted, incorporated, or registered, and operates in conformity with the provisions of the laws of that country.
- 7.2 All Goods and Related Services to be supplied under the Contract and financed by the Bank shall have their origin in Eligible Countries. For the purpose of this Clause, origin means the country where the goods have been grown, mined, cultivated, produced, manufactured, or processed; or through manufacture, processing, or assembly, another commercially recognized article results that differs substantially in its basic characteristics from its components.
- 8. Notices**
- 8.1 Any notice given by one party to the other pursuant to the Contract shall be in writing to the address specified in the **SCC**. The term “in writing” means communicated in written form with proof of receipt.
- 8.2 A notice shall be effective when delivered or on the notice’s effective date, whichever is later.
- 9. Governing Law**
- 9.1 The Contract shall be governed by and interpreted in accordance with the laws of the Purchaser’s Country, unless otherwise specified in the **SCC**.
- 9.2 Throughout the execution of the Contract, the Supplier shall comply with the import of goods and services prohibitions in the Purchaser’s Country when:
- (a) as a matter of law or official regulations, the Borrower’s country prohibits commercial relations with that country; or
  - (b) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Borrower’s Country prohibits any import of goods from that country or any payments to any country, person, or entity in that country.
- 10. Settlement of Disputes**
- 10.1 The Purchaser and the Supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.
- 10.2 If, after twenty-eight (28) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the Purchaser or the Supplier may give notice to the other party of its intention to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect

of this matter may be commenced unless such notice is given. Any dispute or difference in respect of which a notice of intention to commence arbitration has been given in accordance with this Clause shall be finally settled by arbitration. Arbitration may be commenced prior to or after delivery of the Goods under the Contract. Arbitration proceedings shall be conducted in accordance with the rules of procedure specified in the **SCC**.

10.3 Notwithstanding any reference to arbitration herein,

- (a) the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and
- (b) the Purchaser shall pay the Supplier any monies due the Supplier.

**11. Inspections  
and Audit by  
the Bank**

11.1 The Supplier shall keep, and shall make all reasonable efforts to cause its Subcontractors to keep, accurate and systematic accounts and records in respect of the Goods in such form and details as will clearly identify relevant time changes and costs.

11.2 Pursuant to paragraph 2.2 e. of Appendix 1 to the General Conditions the Supplier shall permit and shall cause its agents (where declared or not), subcontractors, subconsultants, service providers, suppliers, and personnel, to permit, the Bank and/or persons appointed by the Bank to inspect the site and/or the accounts, records and other documents relating to the procurement process, selection and/or contract execution, and to have such accounts, records and other documents audited by auditors appointed by the Bank. The Supplier's and its Subcontractors' and subconsultants' attention is drawn to Sub-Clause 3.1 (Fraud and Corruption) which provides, inter alia, that acts intended to materially impede the exercise of the Bank's inspection and audit rights constitute a prohibited practice subject to contract termination (as well as to a determination of ineligibility pursuant to the Bank's prevailing sanctions procedures).

**12. Scope of  
Supply**

12.1 The Goods and Related Services to be supplied shall be as specified in the Schedule of Requirements.

**13. Delivery and  
Documents**

13.1 Subject to GCC Sub-Clause 33.1, the Delivery of the Goods and Completion of the Related Services shall be in accordance with the Delivery and Completion Schedule specified in the Schedule of Requirements. The details of shipping and other documents to be furnished by the Supplier are specified in the **SCC**.

**14. Supplier's Responsibilities**

- 14.1 The Supplier shall supply all the Goods and Related Services included in the Scope of Supply in accordance with GCC Clause 12, and the Delivery and Completion Schedule, as per GCC Clause 13.
- 14.2 The Supplier, including its Subcontractors, shall not employ or engage forced labor or persons subject to trafficking, as described in GCC Sub-Clauses 14.3 and 14.4.
- 14.3 Forced labor consists of any work or service, not voluntarily performed, that is exacted from an individual under threat of force or penalty, and includes any kind of involuntary or compulsory labor, such as indentured labor, bonded labor or similar labor-contracting arrangements.
- 14.4 Trafficking in persons is defined as the recruitment, transportation, transfer, harbouring or receipt of persons by means of the threat or use of force or other forms of coercion, abduction, fraud, deception, abuse of power, or of a position of vulnerability, or of the giving or receiving of payments or benefits to achieve the consent of a person having control over another person, for the purposes of exploitation.
- 14.5 The Supplier, including its Subcontractors, shall not employ or engage a child under the age of 14 unless the national law specifies a higher age (the minimum age).
- 14.6 The Supplier, including its Subcontractors, shall not employ or engage a child between the minimum age and the age of 18 in a manner that is likely to be hazardous, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development.
- 14.7 Work considered hazardous for children is work that, by its nature or the circumstances in which it is carried out, is likely to jeopardize the health, safety, or morals of children. Such work activities prohibited for children include work:
- (a) with exposure to physical, psychological or sexual abuse;
  - (b) underground, underwater, working at heights or in confined spaces;
  - (c) with dangerous machinery, equipment or tools, or involving handling or transport of heavy loads;
  - (d) in unhealthy environments exposing children to hazardous substances, agents, or processes, or to temperatures, noise or vibration damaging to health; or
  - (e) under difficult conditions such as work for long hours, during the night or in confinement on the premises of the employer.

14.8 The Supplier shall comply, and shall require its Subcontractors if any to comply, with all applicable health and safety regulations, laws, guidelines, and any other requirement stated in the Technical Specifications.

14.9 The Supplier shall comply with additional obligations as **specified in the SCC.**

**15. Contract Price**

15.1 Prices charged by the Supplier for the Goods supplied and the Related Services performed under the Contract shall not vary from the prices quoted by the Supplier in its Bid, with the exception of any price adjustments authorized in the **SCC.**

**16. Terms of Payment**

16.1 The Contract Price, including any Advance Payments, if applicable, shall be paid as specified in the **SCC.**

16.2 The Supplier's request for payment shall be made to the Purchaser in writing, accompanied by invoices describing, as appropriate, the Goods delivered and Related Services performed, and by the documents submitted pursuant to GCC Clause 13 and upon fulfillment of all other obligations stipulated in the Contract.

16.3 Payments shall be made promptly by the Purchaser, but in no case later than sixty (60) days after submission of an invoice or request for payment by the Supplier, and after the Purchaser has accepted it.

16.4 The currencies in which payments shall be made to the Supplier under this Contract shall be those in which the Bid price is expressed.

16.5 In the event that the Purchaser fails to pay the Supplier any payment by its due date or within the period set forth in the **SCC**, the Purchaser shall pay to the Supplier interest on the amount of such delayed payment at the rate shown in the **SCC**, for the period of delay until payment has been made in full, whether before or after judgment or arbitration award.

**17. Taxes and Duties**

17.1 For goods manufactured outside the Purchaser's Country, the Supplier shall be entirely responsible for all taxes, stamp duties, license fees, and other such levies imposed outside the Purchaser's Country.

17.2 For goods Manufactured within the Purchaser's Country, the Supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted Goods to the Purchaser.

17.3 If any tax exemptions, reductions, allowances or privileges may be available to the Supplier in the Purchaser's Country, the

Purchaser shall use its best efforts to enable the Supplier to benefit from any such tax savings to the maximum allowable extent.

**18. Performance Security**

- 18.1 If required as specified in the SCC, the Supplier shall, within twenty-eight (28) days of the notification of contract award, provide a performance security for the performance of the Contract in the amount specified in the **SCC**.
- 18.2 The proceeds of the Performance Security shall be payable to the Purchaser as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract.
- 18.3 As specified in the SCC, the Performance Security, if required, shall be denominated in the currency(ies) of the Contract, or in a freely convertible currency acceptable to the Purchaser; and shall be in one of the format stipulated by the Purchaser in the SCC, or in another format acceptable to the Purchaser.
- 18.4 The Performance Security shall be discharged by the Purchaser and returned to the Supplier not later than twenty-eight (28) days following the date of Completion of the Supplier's performance obligations under the Contract, including any warranty obligations, unless specified otherwise in the **SCC**.

**19. Copyright**

- 19.1 The copyright in all drawings, documents, and other materials containing data and information furnished to the Purchaser by the Supplier herein shall remain vested in the Supplier, or, if they are furnished to the Purchaser directly or through the Supplier by any third party, including suppliers of materials, the copyright in such materials shall remain vested in such third party.

**20. Confidential Information**

- 20.1 The Purchaser and the Supplier shall keep confidential and shall not, without the written consent of the other party hereto, divulge to any third party any documents, data, or other information furnished directly or indirectly by the other party hereto in connection with the Contract, whether such information has been furnished prior to, during or following completion or termination of the Contract. Notwithstanding the above, the Supplier may furnish to its Subcontractor such documents, data, and other information it receives from the Purchaser to the extent required for the Subcontractor to perform its work under the Contract, in which event the Supplier shall obtain from such Subcontractor an undertaking of confidentiality similar to that imposed on the Supplier under GCC Clause 20.
- 20.2 The Purchaser shall not use such documents, data, and other information received from the Supplier for any purposes unrelated to the contract. Similarly, the Supplier shall not use such documents, data, and other information received from the

Purchaser for any purpose other than the performance of the Contract.

20.3 The obligation of a party under GCC Sub-Clauses 20.1 and 20.2 above, however, shall not apply to information that:

- (a) the Purchaser or Supplier need to share with the Bank or other institutions participating in the financing of the Contract;
- (b) now or hereafter enters the public domain through no fault of that party;
- (c) can be proven to have been possessed by that party at the time of disclosure and which was not previously obtained, directly or indirectly, from the other party; or
- (d) otherwise lawfully becomes available to that party from a third party that has no obligation of confidentiality.

20.4 The above provisions of GCC Clause 20 shall not in any way modify any undertaking of confidentiality given by either of the parties hereto prior to the date of the Contract in respect of the Supply or any part thereof.

20.5 The provisions of GCC Clause 20 shall survive completion or termination, for whatever reason, of the Contract.

## **21. Subcontracting**

21.1 The Supplier shall notify the Purchaser in writing of all subcontracts awarded under the Contract if not already specified in the Bid. Notification by the Supplier, for addition of any Subcontractor not named in the Contract, shall also include the Subcontractor's declaration in accordance with Appendix 2 to the GCC- Sexual exploitation and Abuse (SEA) and/or Sexual Harassment (SH) Performance Declaration. Such notification, in the original Bid or later shall not relieve the Supplier from any of its obligations, duties, responsibilities, or liability under the Contract.

21.2 Subcontracts shall comply with the provisions of GCC Clauses 3 and 7.

## **22. Specifications and Standards**

22.1 Technical Specifications and Drawings

- (a) The Goods and Related Services supplied under this Contract shall conform to the technical specifications and standards mentioned in Section VI, Schedule of Requirements and, when no applicable standard is mentioned, the standard shall be equivalent or superior to the official standards whose application is appropriate to the Goods' country of origin.

- (b) The Supplier shall be entitled to disclaim responsibility for any design, data, drawing, specification or other document, or any modification thereof provided or designed by or on behalf of the Purchaser, by giving a notice of such disclaimer to the Purchaser.
- (c) Wherever references are made in the Contract to codes and standards in accordance with which it shall be executed, the edition or the revised version of such codes and standards shall be those specified in the Schedule of Requirements. During Contract execution, any changes in any such codes and standards shall be applied only after approval by the Purchaser and shall be treated in accordance with GCC Clause 33.

**23. Packing and Documents**

- 23.1 The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the Contract. During transit, the packing shall be sufficient to withstand, without limitation, rough handling and exposure to extreme temperatures, salt and precipitation, and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the goods' final destination and the absence of heavy handling facilities at all points in transit.
- 23.2 The packing, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract, including additional requirements, if any, specified in the SCC, and in any other instructions ordered by the Purchaser.

**24. Insurance**

- 24.1 Unless otherwise specified in the **SCC**, the Goods supplied under the Contract shall be fully insured—in a freely convertible currency from an eligible country—against loss or damage incidental to manufacture or acquisition, transportation, storage, and delivery, in accordance with the applicable Incoterms or in the manner specified in the **SCC**.

**25. Transportation and Incidental Services**

- 25.1 Unless otherwise specified in the **SCC**, responsibility for arranging transportation of the Goods shall be in accordance with the specified Incoterms.
- 25.2 The Supplier may be required to provide any or all of the following services, including additional services, if any, specified in SCC:
- (a) performance or supervision of on-site assembly and/or start-up of the supplied Goods;

- (b) furnishing of tools required for assembly and/or maintenance of the supplied Goods;
- (c) furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods;
- (d) performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Supplier of any warranty obligations under this Contract; and
- (e) training of the Purchaser's personnel, at the Supplier's plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied Goods.

25.3 Prices charged by the Supplier for incidental services, if not included in the Contract Price for the Goods, shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the Supplier for similar services

## **26. Inspections and Tests**

26.1 The Supplier shall at its own expense and at no cost to the Purchaser carry out all such tests and/or inspections of the Goods and Related Services as are specified in the **SCC**.

26.2 The inspections and tests may be conducted on the premises of the Supplier or its Subcontractor, at point of delivery, and/or at the Goods' final destination, or in another place in the Purchaser's Country as specified in the **SCC**. Subject to GCC Sub-Clause 26.3, if conducted on the premises of the Supplier or its Subcontractor, all reasonable facilities and assistance, including access to drawings and production data, shall be furnished to the inspectors at no charge to the Purchaser.

26.3 The Purchaser or its designated representative shall be entitled to attend the tests and/or inspections referred to in GCC Sub-Clause 26.2, provided that the Purchaser bear all of its own costs and expenses incurred in connection with such attendance including, but not limited to, all traveling and board and lodging expenses.

26.4 Whenever the Supplier is ready to carry out any such test and inspection, it shall give a reasonable advance notice, including the place and time, to the Purchaser. The Supplier shall obtain from any relevant third party or manufacturer any necessary permission or consent to enable the Purchaser or its designated representative to attend the test and/or inspection.

26.5 The Purchaser may require the Supplier to carry out any test and/or inspection not required by the Contract but deemed necessary to verify that the characteristics and performance of the Goods comply with the technical specifications codes and



standards under the Contract, provided that the Supplier's reasonable costs and expenses incurred in the carrying out of such test and/or inspection shall be added to the Contract Price. Further, if such test and/or inspection impedes the progress of manufacturing and/or the Supplier's performance of its other obligations under the Contract, due allowance will be made in respect of the Delivery Dates and Completion Dates and the other obligations so affected.

26.6 The Supplier shall provide the Purchaser with a report of the results of any such test and/or inspection.

26.7 The Purchaser may reject any Goods or any part thereof that fail to pass any test and/or inspection or do not conform to the specifications. The Supplier shall either rectify or replace such rejected Goods or parts thereof or make alterations necessary to meet the specifications at no cost to the Purchaser, and shall repeat the test and/or inspection, at no cost to the Purchaser, upon giving a notice pursuant to GCC Sub-Clause 26.4.

26.8 The Supplier agrees that neither the execution of a test and/or inspection of the Goods or any part thereof, nor the attendance by the Purchaser or its representative, nor the issue of any report pursuant to GCC Sub-Clause 26.6, shall release the Supplier from any warranties or other obligations under the Contract.

## **27. Liquidated Damages**

27.1 Except as provided under GCC Clause 32, if the Supplier fails to deliver any or all of the Goods by the Date(s) of delivery or perform the Related Services within the period specified in the Contract, the Purchaser may without prejudice to all its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to the percentage specified in the **SCC** of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of the percentage specified in those **SCC**. Once the maximum is reached, the Purchaser may terminate the Contract pursuant to GCC Clause 35.

## **28. Warranty**

28.1 The Supplier warrants that all the Goods are new, unused, and of the most recent or current models, and that they incorporate all recent improvements in design and materials, unless provided otherwise in the Contract.

28.2 Subject to GCC Sub-Clause 22.1(b), the Supplier further warrants that the Goods shall be free from defects arising from any act or omission of the Supplier or arising from design, materials, and workmanship, under normal use in the conditions prevailing in the country of final destination.

- 28.3 Unless otherwise specified in the **SCC**, the warranty shall remain valid for twelve (12) months after the Goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the **SCC**, or for eighteen (18) months after the date of shipment from the port or place of loading in the country of origin, whichever period concludes earlier.
- 28.4 The Purchaser shall give notice to the Supplier stating the nature of any such defects together with all available evidence thereof, promptly following the discovery thereof. The Purchaser shall afford all reasonable opportunity for the Supplier to inspect such defects.
- 28.5 Upon receipt of such notice, the Supplier shall, within the period specified in the **SCC**, expeditiously repair or replace the defective Goods or parts thereof, at no cost to the Purchaser.
- 28.6 If having been notified, the Supplier fails to remedy the defect within the period specified in the **SCC**, the Purchaser may proceed to take within a reasonable period such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.

## **29. Patent Indemnity**

- 29.1 The Supplier shall, subject to the Purchaser's compliance with GCC Sub-Clause 29.2, indemnify and hold harmless the Purchaser and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of any nature, including attorney's fees and expenses, which the Purchaser may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright, or other intellectual property right registered or otherwise existing at the date of the Contract by reason of:
- (a) the installation of the Goods by the Supplier or the use of the Goods in the country where the Site is located; and
  - (b) the sale in any country of the products produced by the Goods.

Such indemnity shall not cover any use of the Goods or any part thereof other than for the purpose indicated by or to be reasonably inferred from the Contract, neither any infringement resulting from the use of the Goods or any part thereof, or any products produced thereby in association or combination with any other equipment, plant, or materials not supplied by the Supplier, pursuant to the Contract.

- 29.2 If any proceedings are brought or any claim is made against the Purchaser arising out of the matters referred to in GCC Sub-Clause 29.1, the Purchaser shall promptly give the Supplier a notice thereof, and the Supplier may at its own expense and in the Purchaser's name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim.
- 29.3 If the Supplier fails to notify the Purchaser within twenty-eight (28) days after receipt of such notice that it intends to conduct any such proceedings or claim, then the Purchaser shall be free to conduct the same on its own behalf.
- 29.4 The Purchaser shall, at the Supplier's request, afford all available assistance to the Supplier in conducting such proceedings or claim, and shall be reimbursed by the Supplier for all reasonable expenses incurred in so doing.
- 29.5 The Purchaser shall indemnify and hold harmless the Supplier and its employees, officers, and Subcontractors from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of any nature, including attorney's fees and expenses, which the Supplier may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright, or other intellectual property right registered or otherwise existing at the date of the Contract arising out of or in connection with any design, data, drawing, specification, or other documents or materials provided or designed by or on behalf of the Purchaser.

**30. Limitation of Liability**

- 30.1 Except in cases of criminal negligence or willful misconduct,
- (a) the Supplier shall not be liable to the Purchaser, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the Supplier to pay liquidated damages to the Purchaser and
  - (b) the aggregate liability of the Supplier to the Purchaser, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment, or to any obligation of the supplier to indemnify the Purchaser with respect to patent infringement

- 31. Change in Laws and Regulations**
- 31.1 Unless otherwise specified in the Contract, if after the date of 28 days prior to date of Bid submission, any law, regulation, ordinance, order or bylaw having the force of law is enacted, promulgated, abrogated, or changed in the place of the Purchaser's Country where the Site is located (which shall be deemed to include any change in interpretation or application by the competent authorities) that subsequently affects the Delivery Date and/or the Contract Price, then such Delivery Date and/or Contract Price shall be correspondingly increased or decreased, to the extent that the Supplier has thereby been affected in the performance of any of its obligations under the Contract. Notwithstanding the foregoing, such additional or reduced cost shall not be separately paid or credited if the same has already been accounted for in the price adjustment provisions where applicable, in accordance with GCC Clause 15.
- 32. Force Majeure**
- 32.1 The Supplier shall not be liable for forfeiture of its Performance Security, liquidated damages, or termination for default if and to the extent that its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.
- 32.2 For purposes of this Clause, "Force Majeure" means an event or situation beyond the control of the Supplier that is not foreseeable, is unavoidable, and its origin is not due to negligence or lack of care on the part of the Supplier. Such events may include, but not be limited to, acts of the Purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes.
- 32.3 If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.
- 33. Change Orders and Contract Amendments**
- 33.1 The Purchaser may at any time order the Supplier through notice in accordance GCC Clause 8, to make changes within the general scope of the Contract in any one or more of the following:
- (a) drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Purchaser;
  - (b) the method of shipment or packing;
  - (c) the place of delivery; and

(d) the Related Services to be provided by the Supplier.

33.2 If any such change causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or in the Delivery/Completion Schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this Clause must be asserted within twenty-eight (28) days from the date of the Supplier's receipt of the Purchaser's change order.

33.3 Prices to be charged by the Supplier for any Related Services that might be needed but which were not included in the Contract shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the Supplier for similar services.

33.4 **Value Engineering:** The Supplier may prepare, at its own cost, a value engineering proposal at any time during the performance of the contract. The value engineering proposal shall, at a minimum, include the following;

- (a) the proposed change(s), and a description of the difference to the existing contract requirements;
- (b) a full cost/benefit analysis of the proposed change(s) including a description and estimate of costs (including life cycle costs) the Purchaser may incur in implementing the value engineering proposal; and
- (c) a description of any effect(s) of the change on performance/functionality.

The Purchaser may accept the value engineering proposal if the proposal demonstrates benefits that:

- (a) accelerates the delivery period; or
- (b) reduces the Contract Price or the life cycle costs to the Purchaser; or
- (c) improves the quality, efficiency or sustainability of the Goods; or
- (d) yields any other benefits to the Purchaser,

without compromising the necessary functions of the Facilities.

If the value engineering proposal is approved by the Purchaser and results in:

- (a) a reduction of the Contract Price; the amount to be paid to the Supplier shall be the percentage specified **in the PCC** of the reduction in the Contract Price; or

- (b) an increase in the Contract Price; but results in a reduction in life cycle costs due to any benefit described in (a) to (d) above, the amount to be paid to the Supplier shall be the full increase in the Contract Price.

33.5 Subject to the above, no variation in or modification of the terms of the Contract shall be made except by written amendment signed by the parties.

#### **34. Extensions of Time**

34.1 If at any time during performance of the Contract, the Supplier or its subcontractors should encounter conditions impeding timely delivery of the Goods or completion of Related Services pursuant to GCC Clause 13, the Supplier shall promptly notify the Purchaser in writing of the delay, its likely duration, and its cause. As soon as practicable after receipt of the Supplier's notice, the Purchaser shall evaluate the situation and may at its discretion extend the Supplier's time for performance, in which case the extension shall be ratified by the parties by amendment of the Contract.

34.2 Except in case of Force Majeure, as provided under GCC Clause 32, a delay by the Supplier in the performance of its Delivery and Completion obligations shall render the Supplier liable to the imposition of liquidated damages pursuant to GCC Clause 26, unless an extension of time is agreed upon, pursuant to GCC Sub-Clause 34.1.

#### **35. Termination**

##### **35.1 Termination for Default**

- (a) The Purchaser, without prejudice to any other remedy for breach of Contract, by written notice of default sent to the Supplier, may terminate the Contract in whole or in part:
  - (i) if the Supplier fails to deliver any or all of the Goods within the period specified in the Contract, or within any extension thereof granted by the Purchaser pursuant to GCC Clause 34;
  - (ii) if the Supplier fails to perform any other obligation under the Contract; or
  - (iii) if the Supplier, in the judgment of the Purchaser has engaged in Fraud and Corruption, as defined in paragraph 2.2 a of the Appendix 1 to the GCC, in competing for or in executing the Contract.
- (b) In the event the Purchaser terminates the Contract in whole or in part, pursuant to GCC Clause 35.1(a), the Purchaser may procure, upon such terms and in such manner as it deems appropriate, Goods or Related Services similar to

those undelivered or not performed, and the Supplier shall be liable to the Purchaser for any additional costs for such similar Goods or Related Services. However, the Supplier shall continue performance of the Contract to the extent not terminated.

#### 35.2 Termination for Insolvency.

- (a) The Purchaser may at any time terminate the Contract by giving notice to the Supplier if the Supplier becomes bankrupt or otherwise insolvent. In such event, termination will be without compensation to the Supplier, provided that such termination will not prejudice or affect any right of action or remedy that has accrued or will accrue thereafter to the Purchaser

#### 35.3 Termination for Convenience.

- (a) The Purchaser, by notice sent to the Supplier, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Purchaser's convenience, the extent to which performance of the Supplier under the Contract is terminated, and the date upon which such termination becomes effective.
- (b) The Goods that are complete and ready for shipment within twenty-eight (28) days after the Supplier's receipt of notice of termination shall be accepted by the Purchaser at the Contract terms and prices. For the remaining Goods, the Purchaser may elect:
  - (i) to have any portion completed and delivered at the Contract terms and prices; and/or
  - (ii) to cancel the remainder and pay to the Supplier an agreed amount for partially completed Goods and Related Services and for materials and parts previously procured by the Supplier.

### **36. Assignment**

- 36.1 Neither the Purchaser nor the Supplier shall assign, in whole or in part, their obligations under this Contract, except with prior written consent of the other party.

### **37. Export Restriction**

- 37.1 Notwithstanding any obligation under the Contract to complete all export formalities, any export restrictions attributable to the Purchaser, to the country of the Purchaser, or to the use of the products/goods, systems or services to be supplied, which arise from trade regulations from a country supplying those products/goods, systems or services, and which substantially impede the Supplier from meeting its obligations under the

Contract, shall release the Supplier from the obligation to provide deliveries or services, always provided, however, that the Supplier can demonstrate to the satisfaction of the Purchaser and of the Bank that it has completed all formalities in a timely manner, including applying for permits, authorizations and licenses necessary for the export of the products/goods, systems or services under the terms of the Contract. Termination of the Contract on this basis shall be for the Purchaser's convenience pursuant to Sub-Clause 35.3.



## APPENDIX 1

### Fraud and Corruption

*(Text in this Appendix shall not be modified)*

#### 1. Purpose

1.1 The Bank's Anti-Corruption Guidelines and this annex apply with respect to procurement under Bank Investment Project Financing operations.

#### 2. Requirements

2.1 The Bank requires that Borrowers (including beneficiaries of Bank financing); bidders (applicants/proposers), consultants, contractors and suppliers; any sub-contractors, sub-consultants, service providers or suppliers; any agents (whether declared or not); and any of their personnel, observe the highest standard of ethics during the procurement process, selection and contract execution of Bank-financed contracts, and refrain from Fraud and Corruption.

2.2 To this end, the Bank:

a. Defines, for the purposes of this provision, the terms set forth below as follows:

- i. "corrupt practice" is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;
- ii. "fraudulent practice" is any act or omission, including misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain financial or other benefit or to avoid an obligation;
- iii. "collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;
- iv. "coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
- v. "obstructive practice" is:
  - (a) deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a Bank investigation into allegations of a corrupt, fraudulent, coercive, or collusive practice; and/or threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or
  - (b) acts intended to materially impede the exercise of the Bank's inspection and audit rights provided for under paragraph 2.2 e. below.

- b. Rejects a proposal for award if the Bank determines that the firm or individual recommended for award, any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/ or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;
- c. In addition to the legal remedies set out in the relevant Legal Agreement, may take other appropriate actions, including declaring misprocurement, if the Bank determines at any time that representatives of the Borrower or of a recipient of any part of the proceeds of the loan engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices during the procurement process, selection and/or execution of the contract in question, without the Borrower having taken timely and appropriate action satisfactory to the Bank to address such practices when they occur, including by failing to inform the Bank in a timely manner at the time they knew of the practices;
- d. Pursuant to the Bank's Anti- Corruption Guidelines and in accordance with the Bank's prevailing sanctions policies and procedures, may sanction a firm or individual, either indefinitely or for a stated period of time, including by publicly declaring such firm or individual ineligible (i) to be awarded or otherwise benefit from a Bank-financed contract, financially or in any other manner;<sup>1</sup> (ii) to be a nominated<sup>2</sup> sub-contractor, consultant, manufacturer or supplier, or service provider of an otherwise eligible firm being awarded a Bank-financed contract; and (iii) to receive the proceeds of any loan made by the Bank or otherwise to participate further in the preparation or implementation of any Bank-financed project;
- e. Requires that a clause be included in bidding/request for proposals documents and in contracts financed by a Bank loan, requiring (i) bidders (applicants/proposers), consultants, contractors, and suppliers, and their sub-contractors, sub-consultants, service providers, suppliers, agents, personnel, permit the Bank to inspect<sup>3</sup> all accounts, records and other documents relating to the procurement process, selection and/or contract execution, and to have them audited by auditors appointed by the Bank.

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<sup>1</sup> For the avoidance of doubt, a sanctioned party's ineligibility to be awarded a contract shall include, without limitation, (i) applying for pre-qualification, expressing interest in a consultancy, and bidding, either directly or as a nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider, in respect of such contract, and (ii) entering into an addendum or amendment introducing a material modification to any existing contract.

<sup>2</sup> A nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider (different names are used depending on the particular bidding document) is one which has been: (i) included by the bidder in its pre-qualification application or bid because it brings specific and critical experience and know-how that allow the bidder to meet the qualification requirements for the particular bid; or (ii) appointed by the Borrower.

<sup>3</sup> Inspections in this context usually are investigative (i.e., forensic) in nature. They involve fact-finding activities undertaken by the Bank or persons appointed by the Bank to address specific matters related to investigations/audits, such as evaluating the veracity of an allegation of possible Fraud and Corruption, through the appropriate mechanisms. Such activity includes but is not limited to: accessing and examining a firm's or individual's financial records and information, and making copies thereof as relevant; accessing and examining any other documents, data and information (whether in hard copy or electronic format) deemed relevant for the investigation/audit, and making copies thereof as relevant; interviewing staff and other relevant individuals; performing physical inspections and site visits; and obtaining third party verification of information.

## APPENDIX 2

### Sexual Exploitation and Abuse (SEA) and/or Sexual Harassment (SH) Performance Declaration for Subcontractors\*

*[The following table shall be filled in by each subcontractor proposed by the Supplier, that was not named in the Contract]*

Subcontractor's Name: *[insert full name]*

Date: *[insert day, month, year]*

Contract reference *[insert contract reference]*

Page *[insert page number]* of *[insert total number]* pages

<b>SEA and/or SH Declaration</b>
<p>We:</p> <p><input type="checkbox"/> (a) have not been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations.</p> <p><input type="checkbox"/> (b) are subject to disqualification by the Bank for non-compliance with SEA/ SH obligations.</p> <p><input type="checkbox"/> (c) had been subject to disqualification by the Bank for non-compliance with SEA/ SH obligations, and were removed from the disqualification list. An arbitral award on the disqualification case has been made in our favor.</p>
<p><b><i>[If (c) above is applicable, attach evidence of an arbitral award reversing the findings on the issues underlying the disqualification.]</i></b></p>
<p>Period of disqualification: From: _____ To: _____</p>

Name of the Subcontractor \_\_\_\_\_

Name of the person duly authorized to sign on behalf of the Subcontractor \_\_\_\_\_

Title of the person signing on behalf of the Subcontractor \_\_\_\_\_

Signature of the person named above \_\_\_\_\_

Date signed \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_

Countersignature of authorized representative of the Supplier:

Signature: \_\_\_\_\_

Date signed \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_



## Section IX - Special Conditions of Contract

The following Special Conditions of Contract (SCC) shall supplement and / or amend the General Conditions of Contract (GCC). Whenever there is a conflict, the provisions herein shall prevail over those in the GCC.

<b>GCC 1.1(i)</b>	The Purchaser's Country is: <b>Kenya</b>
<b>GCC 1.1(j)</b>	The Purchaser is: <b>The Information and Communications Technology Authority</b>
<b>GCC 1.1(o)</b>	The Project Site(s)/Final Destination(s) is/are:  <b>The Schools Indicated on Annex I</b>
<b>GCC 1.1 (p)</b>	<p>The term <b>SEA/SH</b> where used in the Contract has the following meaning:</p> <ul style="list-style-type: none"> <li>• <b>“Sexual Exploitation and Abuse” “(SEA)”</b> means the following:   <b>Sexual Exploitation</b> is defined as any actual or attempted abuse of position of vulnerability, differential power or trust, for sexual purposes, including, but not limited to, profiting monetarily, socially or politically from the sexual exploitation of another.   <b>Sexual Abuse</b> is defined as the actual or threatened physical intrusion of a sexual nature, whether by force or under unequal or coercive conditions.</li> <li>• <b>“Sexual Harassment” “(SH)”</b> is defined as unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature by contractor's personnel with other contractor's, subcontractors' or employer's personnel.</li> </ul>
<b>GCC 4.2 (a)</b>	The meaning of the trade terms shall be as prescribed by Incoterms. If the meaning of any trade term and the rights and obligations of the parties thereunder shall not be as prescribed by Incoterms, they shall be as prescribed by: <b>Not Applicable</b>
<b>GCC 4.2 (b)</b>	The version edition of Incoterms shall be <b>Incoterms 2020</b>
<b>GCC 5.1</b>	The language shall be: <b>English</b>

<b>GCC 8.1</b>	<p>For <b><u>notices</u></b>, the Purchaser's address shall be:</p> <p>Attention: <b>Chief Executive Officer</b></p> <p>Street Address: <b>Kenyatta Avenue</b></p> <p>Floor/ Room number: <b>12<sup>th</sup> Floor</b></p> <p>City: <b>Nairobi</b></p> <p>ZIP Code: <b>N/A</b></p> <p>Country: <b>Kenya</b></p> <p>Telephone: <b>+254 20 667 6999</b></p> <p>Electronic mail address: <a href="mailto:procurement@ict.go.ke">procurement@ict.go.ke</a> / <a href="mailto:info@ict.go.ke">info@ict.go.ke</a></p>
<b>GCC 9.1</b>	The governing law shall be the law of: <b>Kenya</b>
<b>GCC 10.2</b>	<p>The rules of procedure for arbitration proceedings pursuant to GCC Clause 10.2 shall be as follows:</p> <p><b>(a) Contract with foreign Supplier:</b></p> <p>GCC 10.2 (a)—Any dispute, controversy or claim arising out of or relating to this Contract, or breach, termination or invalidity thereof, shall be settled by arbitration in accordance with the UNCITRAL Arbitration Rules as at present in force.</p> <p><b>(b) Contracts with Supplier national of the Purchaser's Country:</b></p> <p>In the case of a dispute between the Purchaser and a Supplier who is a national of the Purchaser's Country, the dispute shall be referred to adjudication or arbitration in accordance with the laws of the Purchaser's Country.</p>
<b>GCC 13.1</b>	<p>Details of Shipping and other Documents to be furnished by the Supplier are a negotiable bill of lading, a non-negotiable sea way bill, an airway bill, a railway consignment note, a road consignment note, insurance certificate, Manufacturer's or Supplier's warranty certificate, inspection certificate issued by nominated inspection agency, Supplier's factory shipping details etc].</p> <p>The above documents shall be received by the Purchaser before arrival of the Goods and, if not received, the Supplier will be responsible for any consequent expenses.</p>
<b>GCC 14.9</b>	Not Applicable

<b>GCC 15.1</b>	The prices charged for the Goods supplied and the related Services performed <b>shall not</b> be adjustable.
<b>GCC 16.1</b>	<p>GCC 16.1—The method and conditions of payment to be made to the Supplier under this Contract shall be as follows:</p> <p><b>Payment for Goods supplied from abroad:</b></p> <p>Payment of foreign currency portion shall be made in <i>[insert currency of the Contract Price]</i> in the following manner:</p> <ul style="list-style-type: none"> <li>(i) <b>Advance Payment:</b> Ten (10) percent of the Contract Price shall be paid within thirty (30) days of signing of the Contract, and upon submission of claim and a bank guarantee for equivalent amount valid until the Goods are delivered and in the form provided in the bidding document or another form acceptable to the Purchaser.</li> <li>(ii) <b>On Shipment:</b> Twenty (20) percent of the Contract Price of the Goods shipped shall be paid through irrevocable confirmed letter of credit opened in favor of the Supplier in a bank in its country, upon submission of documents specified in GCC Clause 13.</li> <li>(iii) <b>On Acceptance:</b> Seventy (70) percent of the Contract Price of Goods received shall be paid within thirty (30) days of receipt of the Goods upon submission of claim supported by the acceptance certificate issued by the Purchaser.</li> </ul> <p>Payment of local currency portion shall be made in <b>Kenya Shillings</b> within thirty (30) days of presentation of claim supported by a certificate from the Purchaser declaring that the Goods have been delivered and that all other contracted Services have been performed.</p> <p><b>Payment for Goods and Services supplied from within the Purchaser's Country:</b></p> <p>Payment for Goods and Services supplied from within the Purchaser's Country shall be made in <b>Kenya Shillings</b>, as follows:</p> <ul style="list-style-type: none"> <li>(i) <b>Advance Payment:</b> Ten (10) percent of the Contract Price shall be paid within thirty (30) days of signing of the Contract against a simple receipt and a bank guarantee for the equivalent amount and in the form provided in the bidding document or another form acceptable to the Purchaser.</li> <li>(ii) <b>On Delivery:</b> Twenty (20) percent of the Contract Price shall be paid on receipt of the Goods and upon submission of the documents specified in GCC Clause 13.</li> </ul>

	(iii) <b>On Acceptance:</b> The remaining seventy (70) percent of the Contract Price shall be paid to the Supplier within thirty (30) days after the date of the acceptance certificate for the respective delivery issued by the Purchaser.
<b>GCC 16.5</b>	The payment-delay period after which the Purchaser shall pay interest to the supplier shall be <b>60</b> days.  The interest rate that shall be applied is 5% for local currency and 8% for foreign currency
<b>GCC 18.1</b>	A Performance Security <i>shall be required</i>  The amount of the Performance Security shall be: <b>10%</b>
<b>GCC 18.3</b>	If required, the Performance Security shall be in the form of: <b>A Demand Guarantee</b>  If required, the Performance security shall be denominated in <b>the currencies of payment of the Contract, in accordance with their portions of the Contract Price</b>
<b>GCC 18.4</b>	Discharge of the Performance Security shall take place: <b>28 Days</b>



<b>GCC 23.2</b>	<p>The packing, marking and documentation within and outside the packages shall be:</p> <p><u>The Markings should be:</u></p> <ul style="list-style-type: none"> <li>• Consignee Name and Address: [Full name and address of the receiving party]</li> <li>• Shipper Name and Address: [Full name and address of the sending party]</li> <li>• Package Number: [e.g., 1 of 5, 2 of 5, etc.]</li> <li>• Country of Origin: [Country where the goods were manufactured]</li> <li>• Handling Instructions: [e.g., "Fragile," "Handle with Care," "Keep Dry," "This Side Up"] - Use internationally recognized symbols where applicable.</li> </ul> <p><u>The Documentation Include</u></p> <ul style="list-style-type: none"> <li>• Packing List: Itemizing all contents of each package, including quantities, descriptions, and any identifying marks or serial numbers.</li> <li>• Bill of Lading/Airway Bill: As appropriate for the mode of transport, providing details of the shipment, consignor, consignee, and carrier.</li> <li>• Certificate of Origin: Certifying the country of origin of the goods.</li> </ul> <p>Commercial Invoice: Including detailed description of goods, quantity, unit price, total value, currency, Incoterms (e.g., FOB, CIF), HS codes (Harmonized System codes), country of origin, and all other necessary information for customs clearance</p> <p>All labels and markings shall be clear, legible, and durable, ensuring they remain intact throughout the shipping process. They should be printed in English</p>
<b>GCC 24.1</b>	The insurance coverage shall be as specified in the Incoterms.
<b>GCC 25.1</b>	<p>Responsibility for transportation of the Goods shall be as specified in the Incoterms.</p> <p>If not in accordance with Incoterms, responsibility for transportations shall be as follows:</p> <p>The supplier will bear the cost of transportation of the goods to the final destination.</p>
<b>GCC 25.2</b>	<p>Incidental services to be provided are:</p> <p>Furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods;</p>

<b>GCC 26.1</b>	<p>The inspections and tests shall be:</p> <ul style="list-style-type: none"> <li>a) Physical inspection</li> <li>b) Power- on and Boot test</li> <li>c) Performance and hardware testing</li> <li>d) Stress test and Final Verification</li> </ul>
<b>GCC 26.2</b>	<p>The Inspections and tests shall be conducted at: <b>The inspection and testing of all devices shall be done at Sub-County Director of Education Offices as school head of institutions come to pick their digital learning devices.</b></p>
<b>GCC 27.1</b>	<p>The liquidated damage shall be: <b>0.09%</b> per week</p>
<b>GCC 27.1</b>	<p>The maximum amount of liquidated damages shall be: <b>10%</b></p>
<b>GCC 28.3</b>	<p>The period of validity of the Warranty shall be: <b>365</b> days</p> <p>For purposes of the Warranty, the place(s) of final destination(s) shall be:</p> <p><b>The Information and Communications Authority, Telposta Towers, Along Kenyatta Avenue, Nairobi, Kenya.</b></p> <p>GCC 28.3—In partial modification of the provisions, the warranty period shall be 120 hours of operation or 12 months from date of acceptance of the Goods or 14 months from the date of shipment, whichever occurs earlier. The Supplier shall, in addition, comply with the performance and/or consumption guarantees specified under the Contract. If, for reasons attributable to the Supplier, these guarantees are not attained in whole or in part, the Supplier shall, at its discretion, either:</p> <ul style="list-style-type: none"> <li>(b) pay liquidated damages to the Purchaser with respect to the failure to meet the contractual guarantees. The rate of these liquidated damages shall be 0.2%.</li> </ul>
<b>GCC 28.5, GCC 28.6</b>	<p>The period for repair or replacement shall be: <b>14 Business Days.</b></p>
<b>GCC 33.4</b>	<p>Not Applicable</p>





# Section X - Contract Forms

## Table of Forms

**Notification of Intention to Award ..... 326**

**Beneficial Ownership Disclosure Form ..... 330**

**Letter of Acceptance ..... 332**

**Contract Agreement ..... 333**

**Performance Security ..... 335**

**Advance Payment Security ..... 337**

## Notification of Intention to Award

***[This Notification of Intention to Award shall be sent to each Bidder that submitted a Bid.]***

***[Send this Notification to the Bidder's Authorized Representative named in the Bidder Information Form]***

For the attention of Bidder's Authorized Representative

Name: *[insert Authorized Representative's name]*

Address: *[insert Authorized Representative's Address]*

Telephone/Fax numbers: *[insert Authorized Representative's telephone/fax numbers]*

Email Address: *[insert Authorized Representative's email address]*

***[IMPORTANT: insert the date that this Notification is transmitted to Bidders. The Notification must be sent to all Bidders simultaneously. This means on the same date and as close to the same time as possible.]***

**DATE OF TRANSMISSION:** This Notification is sent by: *[email/fax]* on *[date]* (local time)

## Notification of Intention to Award

**Purchaser:** *[insert the name of the Purchaser]*

**Project:** *[insert name of project]*

**Contract title:** *[insert the name of the contract]*

**Country:** *[insert country where RFB is issued]*

**Loan No. /Credit No. / Grant No.:** *[insert reference number for loan/credit/grant]*

**RFB No:** *[insert RFB reference number from Procurement Plan]*

This Notification of Intention to Award (Notification) notifies you of our decision to award the above contract. The transmission of this Notification begins the Standstill Period. During the Standstill Period you may:

- a) request a debriefing in relation to the evaluation of your Bid, and/or
- b) submit a Procurement-related Complaint in relation to the decision to award the contract.

### 1. The successful Bidder

<b>Name:</b>	<i>[insert name of successful Bidder]</i>
<b>Address:</b>	<i>[insert address of the successful Bidder]</i>
<b>Contract price:</b>	<i>[insert contract price of the successful Bid]</i>

**2. Other Bidders** ***[INSTRUCTIONS: insert names of all Bidders that submitted a Bid. If the Bid's price was evaluated include the evaluated price as well as the Bid price as read out.]***

Name of Bidder	Bid price	Evaluated Bid price (if applicable)
[insert name]	[insert Bid price]	[insert evaluated price]
[insert name]	[insert Bid price]	[insert evaluated price]
[insert name]	[insert Bid price]	[insert evaluated price]
[insert name]	[insert Bid price]	[insert evaluated price]
[insert name]	[insert Bid price]	[insert evaluated price]

### 3. Reason/s why your Bid was unsuccessful

***[INSTRUCTIONS: State the reason/s why this Bidder's Bid was unsuccessful. Do NOT include: (a) a point by point comparison with another Bidder's Bid or (b) information that is marked confidential by the Bidder in its Bid.]***

### 4. How to request a debriefing

**DEADLINE:** The deadline to request a debriefing expires at midnight on [insert date] (local time).

You may request a debriefing in relation to the results of the evaluation of your Bid. If you decide to request a debriefing your written request must be made within three (3) Business Days of receipt of this Notification of Intention to Award.

Provide the contract name, reference number, name of the Bidder, contact details; and address the request for debriefing as follows:

**Attention:** [insert full name of person, if applicable]

**Title/position:** [insert title/position]

**Agency:** [insert name of Purchaser]

**Email address:** [insert email address]

**Fax number:** [insert fax number] *delete if not used*

If your request for a debriefing is received within the 3 Business Days deadline, we will provide the debriefing within five (5) Business Days of receipt of your request. If we are unable to provide the debriefing within this period, the Standstill Period shall be extended by five (5) Business Days after the date that the debriefing is provided. If this happens, we will notify you and confirm the date that the extended Standstill Period will end.

The debriefing may be in writing, by phone, video conference call or in person. We shall promptly advise you in writing how the debriefing will take place and confirm the date and time.

If the deadline to request a debriefing has expired, you may still request a debriefing. In this case, we will provide the debriefing as soon as practicable, and normally no later than fifteen (15) Business Days from the date of publication of the Contract Award Notice.

## 5. How to make a complaint

**Period: Procurement-related Complaint challenging the decision to award shall be submitted by midnight, *[insert date]* (local time).**

Provide the contract name, reference number, name of the Bidder, contact details; and address the Procurement-related Complaint as follows:

**Attention:** *[insert full name of person, if applicable]*

**Title/position:** *[insert title/position]*

**Agency:** *[insert name of Purchaser]*

**Email address:** *[insert email address]*

**Fax number:** *[insert fax number]* ***delete if not used***

At this point in the procurement process, you may submit a Procurement-related Complaint challenging the decision to award the contract. You do not need to have requested, or received, a debriefing before making this complaint. Your complaint must be submitted within the Standstill Period and received by us before the Standstill Period ends.

### Further information:

For more information see the [Procurement Regulations for IPF Borrowers \(Procurement Regulations\)](#) (Annex III). You should read these provisions before preparing and submitting your complaint. In addition, the World Bank's Guidance "[How to make a Procurement-related Complaint](#)" provides a useful explanation of the process, as well as a sample letter of complaint.

In summary, there are four essential requirements:

1. You must be an 'interested party'. In this case, that means a Bidder who submitted a Bid in this bidding process, and is the recipient of a Notification of Intention to Award.
2. The complaint can only challenge the decision to award the contract.
3. You must submit the complaint within the period stated above.
4. You must include, in your complaint, all of the information required by the Procurement Regulations (as described in Annex III).



**6. Standstill Period**

**DEADLINE:** The Standstill Period is due to end at midnight on [*insert date*] (local time).

The Standstill Period lasts ten (10) Business Days after the date of transmission of this Notification of Intention to Award.

The Standstill Period may be extended as stated in Section 4 above.

If you have any questions regarding this Notification please do not hesitate to contact us.

On behalf of the Purchaser:

**Signature:** \_\_\_\_\_

**Name:** \_\_\_\_\_

**Title/position:** \_\_\_\_\_

**Telephone:** \_\_\_\_\_

**Email:** \_\_\_\_\_

## Beneficial Ownership Disclosure Form

**INSTRUCTIONS TO BIDDERS: DELETE THIS BOX ONCE YOU HAVE COMPLETED THE FORM**

*This Beneficial Ownership Disclosure Form (“Form”) is to be completed by the successful Bidder. In case of joint venture, the Bidder must submit a separate Form for each member. The beneficial ownership information to be submitted in this Form shall be current as of the date of its submission.*

*For the purposes of this Form, a Beneficial Owner of a Bidder is any natural person who ultimately owns or controls the Bidder by meeting one or more of the following conditions:*

- *directly or indirectly holding 25% or more of the shares*
- *directly or indirectly holding 25% or more of the voting rights*
- *directly or indirectly having the right to appoint a majority of the board of directors or equivalent governing body of the Bidder*

**RFB No.:** *[insert number of RFB process]*

**Request for Bid No.:** *[insert identification]*

**To:** *[insert complete name of Purchaser]*

In response to your request in the Letter of Acceptance dated *[insert date of letter of Acceptance]* to furnish additional information on beneficial ownership: *[select one option as applicable and delete the options that are not applicable]*

(i) we hereby provide the following beneficial ownership information.

### Details of beneficial ownership

Identity of Beneficial Owner	Directly or indirectly holding 25% or more of the shares (Yes / No)	Directly or indirectly holding 25 % or more of the Voting Rights (Yes / No)	Directly or indirectly having the right to appoint a majority of the board of the directors or an equivalent governing body of the Bidder (Yes / No)
<i>[include full name (last, middle, first), nationality, country of residence]</i>			

**OR**

(ii) *We declare that there is no Beneficial Owner meeting one or more of the following conditions:*

- directly or indirectly holding 25% or more of the shares
- directly or indirectly holding 25% or more of the voting rights
- directly or indirectly having the right to appoint a majority of the board of directors or equivalent governing body of the Bidder

**OR**

(iii) *We declare that we are unable to identify any Beneficial Owner meeting one or more of the following conditions. [If this option is selected, the Bidder shall provide explanation on why it is unable to identify any Beneficial Owner]*

- directly or indirectly holding 25% or more of the shares
- directly or indirectly holding 25% or more of the voting rights
- directly or indirectly having the right to appoint a majority of the board of directors or equivalent governing body of the Bidder]

**Name of the Bidder:** \*[insert complete name of the Bidder]

**Name of the person duly authorized to sign the Bid on behalf of the Bidder:** \*\*[insert complete name of person duly authorized to sign the Bid]

**Title of the person signing the Bid:** [insert complete title of the person signing the Bid]

**Signature of the person named above:** [insert signature of person whose name and capacity are shown above]

**Date signed** [insert date of signing] **day of** [insert month], [insert year]

\* In the case of the Bid submitted by a Joint Venture specify the name of the Joint Venture as Bidder. In the event that the Bidder is a joint venture, each reference to "Bidder" in the Beneficial Ownership Disclosure Form (including this Introduction thereto) shall be read to refer to the joint venture member.

\*\* Person signing the Bid shall have the power of attorney given by the Bidder. The power of attorney shall be attached with the Bid Schedules.

## Letter of Acceptance

*[use letterhead paper of the Purchaser]*

*[date]*

To: *[name and address of the Supplier]*

Subject: ***Notification of Award Contract No. . . . .***

This is to notify you that your Bid dated *[insert date]* for execution of the ***[insert name of the contract and identification number, as given in the SCC]*** for the Accepted Contract Amount of ***[insert amount in numbers and words and name of currency]***, as corrected and modified in accordance with the Instructions to Bidders is hereby accepted by our Agency.

You are requested to furnish (i) the Performance Security within 28 days in accordance with the Conditions of Contract, using for that purpose one of the Performance Security Forms and (ii) the additional information on beneficial ownership in accordance with ITB 45.1 within eight (8) Business days using the Beneficial Ownership Disclosure Form, included in Section X, - Contract Forms, of the Bidding Document.

Authorized Signature: \_\_\_\_\_

Name and Title of Signatory: \_\_\_\_\_

Name of Agency: \_\_\_\_\_

**Attachment: Contract Agreement**

## Contract Agreement

*[The successful Bidder shall fill in this form in accordance with the instructions indicated]*

THIS AGREEMENT made

the *[insert: **number**]* day of *[insert: **month**]*, *[insert: **year**]*.

BETWEEN

- (1) *[insert complete name of Purchaser]*, a *[insert description of type of legal entity, for example, an agency of the Ministry of .... of the Government of {insert name of Country of Purchaser}, or corporation incorporated under the laws of {insert name of Country of Purchaser}]* and having its principal place of business at *[insert address of Purchaser]* (hereinafter called “the Purchaser”), of the one part, and
- (2) *[insert name of Supplier]*, a corporation incorporated under the laws of *[insert: country of Supplier]* and having its principal place of business at *[insert: address of Supplier]* (hereinafter called “the Supplier”), of the other part:

WHEREAS the Purchaser invited Bids for certain Goods and ancillary services, viz., *[insert brief description of Goods and Services]* and has accepted a Bid by the Supplier for the supply of those Goods and Services

The Purchaser and the Supplier agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other contract documents.
  - (a) the Letter of Acceptance
  - (b) the Letter of Bid
  - (c) the Addenda Nos. \_\_\_\_\_ (if any)
  - (d) Special Conditions of Contract
  - (e) General Conditions of Contract
  - (f) the Specification (including Schedule of Requirements and Technical Specifications)
  - (g) the completed Schedules (including Price Schedules)

- (h) any other document listed in GCC as forming part of the Contract
3. In consideration of the payments to be made by the Purchaser to the Supplier as specified in this Agreement, the Supplier hereby covenants with the Purchaser to provide the Goods and Services and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Purchaser hereby covenants to pay the Supplier in consideration of the provision of the Goods and Services and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of *[insert the name of the Contract governing law country]* on the day, month and year indicated above.

For and on behalf of the Purchaser

Signed: *[insert signature]*  
in the capacity of *[insert title or other appropriate designation]*  
In the presence of *[insert identification of official witness]*

For and on behalf of the Supplier

Signed: *[insert signature of authorized representative(s) of the Supplier]*  
in the capacity of *[insert title or other appropriate designation]*  
in the presence of *[insert identification of official witness]*

## Performance Security

### Option 1: (Bank Guarantee)

*[The bank, as requested by the successful Bidder, shall fill in this form in accordance with the instructions indicated]*

*[Guarantor letterhead or SWIFT identifier code]*

**Beneficiary:** *[insert name and Address of Purchaser]*

**Date:** *\_ [Insert date of issue]*

**PERFORMANCE GUARANTEE No.:** *[Insert guarantee reference number]*

**Guarantor:** *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that *\_ [insert name of Supplier, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called "the Applicant") has entered into Contract No. *[insert reference number of the contract]* dated *[insert date]* with the Beneficiary, for the supply of *\_ [insert name of contract and brief description of Goods and related Services]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]* (\_\_\_\_\_) *[insert amount in words]*,<sup>1</sup> such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the .... Day of ....., 2...<sup>2</sup>, and any demand for payment under it must be received by us at this office indicated above on or before that date.

---

<sup>1</sup> The Guarantor shall insert an amount representing the percentage of the Accepted Contract Amount specified in the Letter of Acceptance, and denominated either in the currency (ies) of the Contract or a freely convertible currency acceptable to the Beneficiary.

<sup>2</sup> Insert the date twenty-eight days after the expected completion date as described in GC Clause 18.4. The Purchaser should note that in the event of an extension of this date for completion of the Contract, the Purchaser would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Purchaser might consider adding the following text to the form, at the end of the penultimate

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No. 758, except that the supporting statement under Article 15(a) is hereby excluded.

---

*[signature(s)]*

***Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.***

---

*paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months] [one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."*



## Advance Payment Security

### Demand Guarantee

*[Guarantor letterhead or SWIFT identifier code]*

**Beneficiary:** *[Insert name and Address of Purchaser]*

**Date:** *[Insert date of issue]*

**ADVANCE PAYMENT GUARANTEE No.:** *[Insert guarantee reference number]*

**Guarantor:** *[Insert name and address of place of issue, unless indicated in the letterhead]*

We have been informed that *[insert name of Supplier, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called "the Applicant") has entered into Contract No. *[insert reference number of the contract]* dated *[insert date]* with the Beneficiary, for the execution of *[insert name of contract and brief description of Goods and related Services]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum *[insert amount in figures]* () *[insert amount in words]* is to be made against an advance payment guarantee.

At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]* (\_\_\_\_) *[insert amount in words]*<sup>1</sup> upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating either that the Applicant:

- (a) has used the advance payment for purposes other than toward delivery of Goods;  
or
- (b) has failed to repay the advance payment in accordance with the Contract conditions, specifying the amount which the Applicant has failed to repay.

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<sup>1</sup> *The Guarantor shall insert an amount representing the amount of the advance payment and denominated either in the currency(ies) of the advance payment as specified in the Contract, or in a freely convertible currency acceptable to the Purchaser.*

A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the advance payment referred to above has been credited to the Applicant on its account number *[insert number]* at *[insert name and address of Applicant's bank]*.

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Applicant as specified in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that ninety (90) percent of the Accepted Contract Amount, has been certified for payment, or on the *[insert day]* day of *[insert month]*, 2 *[insert year]*, whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees (URDG) 2010 Revision, ICC Publication No.758, except that the supporting statement under Article 15(a) is hereby excluded.

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*[signature(s)]*

***Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.***