

**COUNTY GOVERNMENT OF BUSIA**



**COUNTY ASSEMBLY OF BUSIA  
OFFICE OF THE CLERK OF THE COUNTY ASSEMBLY  
P.O BOX 1018-50400, BUSIA-KENYA,  
EMAIL: [clerkbusiacountyassembly@yahoo.com](mailto:clerkbusiacountyassembly@yahoo.com)**

**TENDER**

**DOCUMENT**

**FOR**

**PROPOSED CONSTRUCTION OF 6<sup>TH</sup> AND 7<sup>TH</sup> FLOORS OF THE COUNTY ASSEMBLY  
OFFICE BLOCK-PHASE IV**

**NEGOTIATION NO. 778831  
TENDER NO. BSA/CA/01/2019/2020**

**FINANCIAL YEAR 2019/2020**

**TENDER SUBMISSION DEADLINE: TUESDAY, 3<sup>RD</sup> MARCH 2020. AT 10:00AM**

**FEB 2020**



**REPUBLIC OF KENYA**

**COUNTY GOVERNMENT OF BUSIA  
MINISTRY OF PUBLIC WORKS, TRANSPORT AND DISASTER MANAGEMENT**

**PROPOSED CONSTRUCTION OF 6<sup>TH</sup> AND 7<sup>TH</sup> FLOORS OF THE COUNTY ASSEMBLY  
OFFICE BLOCK-PHASE IV-BUSIA COUNTY**

**FOR  
THE COUNTY GOVERNMENT OF BUSIA**

**BILLS OF QUANTITIES**

**Prepared by: -**

**Issued by:-**

**PREPARED BY**

**COUNTY QUANTITY SURVEYOR  
DIRECTORATE OF PUBLIC WORKS  
470-50400  
BUSIA (K)**

**COUNTY ARCHITECT  
DIRECTORATE OF PUBLIC WORKS P.O BOX  
P.O BOX 470-50400  
BUSIA (K)**

**COUNTY STRUCTURAL ENGINEER  
DIRECTORATE OF PUBLIC WORKS  
P.O BOX 470-50400  
BUSIA (K)**

**COUNTY ELEC/MECHANICAL ENGINEER  
DIRECTORATE OF PUBLIC WORKS  
P.O BOX 470-50400  
BUSIA (K)**

**ISSUED BY:**

**COUNTY WORKS OFFICER  
DIRECTORATE OF PUBLIC WORKS  
BUSIA COUNTY  
P O BOX 470-50400**

**FEB 2020**

# STRUCTURED CABLING

**AGREEMENT AND CONDITIONS  
OF SUB-CONTRACT FOR  
BUILDING WORKS**



**Published by:**  
**The Kenya Association of Building and  
Civil Engineering Contractors**  
with the sanction of:- •  
The Joint Building Council, Kenya  
and  
The Architectural Association of Kenya

**June 2002 Edition**

The copyright in this document is vested in  
the Kenya Association of Building and Civil Engineering  
Contractors.

## **CONTENTS**

<b>Clause</b>		<b>Page</b>
1.0	- Agreement	1
2.0	- General obligations of the Contractor	4
3.0	- General obligations of the Sub-Contractor	4
4.0	- Sub-contract documents	4
5.0	- General liability of the Sub-Contractor	5
6.0	- Insurance against injury to persons and property	5
7.0	- Performance bond	6
8.0	- Possession of site and commencement of works	6
9.0	- Architect's instructions	6
10.0	- Variations	6
11.0	- Liability for own equipment	7
12.0	- Provision of facilities by the Contractor	7
13.0	- Liability for own work	7
14.0	- Co-operation in use of facilities	8
15.0	- Assignment and subletting	8

16.0	-	Work prior to appointment of Contractor	8
17.0	-	Sub-Contractor design	9
18.0	-	Specification of goods, materials and workmanship	9
19.0	-	Compliance with statutory and other regulations	9
20.0	-	Royalties and patent rights	9
21.0	-	Antiquities and other objects of value	9
22.0	-	Suspension of works	9
23.0	-	Payments	10
24.0	-	Practical completion and defects liability	11
25.0	-	Extension of time	12
26.0	-	Loss and expense caused by disturbance of regular progress of the works	12
27.0	-	Damages for delay in completion	12
28.0	-	Fluctuations	13
29.0	-	Termination of the main contract	13
30.0	-	Termination of the Sub-contract	13
31.0	-	Settlement of disputes	14
	-	Sub-Contractor's performance bond	16
	-	Appendix	17

**ORIGINAL**  
embossed stamp

**COUNTERPART**  
embossed stamp

**AGREEMENT**

This agreement is made on .....  
between .....  
of (or whose registered office is situated at) .....  
.....  
(hereinafter called “the Contractor”) of the one part .....  
and .....  
of (or whole registered office is situated at) .....  
.....  
(hereinafter called “the Sub-Contractor”) of the other part:

SUPPLEMENTAL to an agreement (hereinafter referred to as the “the main contract”)

made on .....

Between .....

.....  
(hereinafter called “the Employer”) of the one part and the Contractor of the other part based on the Agreement and Conditions of Contract for Building Works, published by the Joint Building Council, Kenya .....  
..... edition.

WHEREAS the contractor is desirous of sub-letting to the Sub-Contractor

.....  
.....  
.....

hereinafter called “the sub-contractor works” at.....

on Land Reference No... .. being part of the main contract works.

And whereas the Su-Contractor has supplied the Contractor with a priced copy of the bills of quantities (hereinafter referred to as “the sub-contractor bills”), where applicable, which together with the drawings numbered.....

..... (hereinafter referred to as “the sub-contract drawings), the specifications and the conditions of sub-contract have been signed by or on behalf of the parties thereto.

And whereas the Sub-Contractor has had reasonable opportunity of inspecting the main contract or a copy thereof except the detailed prices of the Contractor included in the bills of quantities or schedule of rates.

And whereas the Architect, with the approval of the Employer, has nominated the Sub-Contractor to carry out the works described at clause 1.3 herein:

**NOW IT IS HEREBY AGREED AS FOLLOWS:**

For the consideration herein stated, the Sub-Contractor shall upon and subject to the conditions annexed hereto carry out and complete the sub-contract works shown upon the sub-contract drawings and described by or referred to in the sub-contract bills, specifications and in the said conditions.

The Contractor shall pay the Sub-Contractor the sum of the Kshs (in words).....

..... Kshs... ..) (hereinafter referred to as “the sub-contractor price”) or such sum as shall become payable hereinafter at the times and in manner specified in the said conditions.

The term ‘Architect’, ‘Quantity Surveyor’ and ‘Engineer’, where applicable, shall refer to the persons appointed by the Employer to administer the sub-contract in accordance with the main contract agreement. Where applicable reference to the Architect shall be deemed to include reference to the Engineer.

In the even of the need to appoint a replacement Architect, Quantity Surveyor, Engineer or other specialist (whether named in this agreement or not) the Employer shall make such appointment as soon as practicable after the need for such appointment arises and shall communicate the appointment to the Sub-Contract through the Contractor.



Where the sub-contract does not incorporate bills of quantities, the term “sub-contract bills” and “bills of quantities” wherever appearing shall be deemed deleted and replaced with the term “schedule of rates” as applicable.

The terms defined in clause 1.0 of the main contract shall have the same meaning in this sub-contract as that assigned to them therein.

AS WITNESS the hands of the said parties;

Signed by the said

.....(Contractor)

In the presence of

Name .....

Address .....

Signed by the said

.....(Sub-Contractor)

In the presence of

Name .....

Address .....

**CONDITIONS OF SUB-CONTRACT**  
**GENERAL OBLIGATIONS OF THE**  
**CONTRACTOR The Contractor shall:**

Timeously obtain from the Architect on behalf of the Sub-Contractor all drawings, necessary details, instructions and other information required by the Sub-Contractor for the proper carrying out of the sub-contract works.

Provide all such facilities and attend upon the Sub-Contractor as required and as provided in the specifications, bills of quantities and these conditions to the extent compatible with the provisions of the main contract

Observe, perform and comply with all the provisions of the main contract and of this sub-contract on the part of the Contractor to be observed, performed and complied with to ensure satisfactory completion of the sub-contract works.

**GENERAL OBLIGATIONS OF THE SUB-CONTRACTOR**

The Sub-Contractor shall be deemed to have notice of all the provisions of the main contract except the detailed prices of the Contractor included in the bills of quantities or in the schedule of rates.

The Sub-Contractor shall carry out and complete the sub-contract works in accordance with this sub-contract and in all respects to the reasonable satisfaction of the Contractor and of the Architect and in conformity with all reasonable directions and requirements of the Contractor regulating the due carrying out of the contract works.

The Sub-Contractor shall observe, perform and comply with all the provisions of the main contract on the part of the Sub-Contractor to be observed, performed and complied with so far as they relate and apply to the sub-contract works or any portion thereof and are not inconsistent with the expressions of this sub-contract as if all the same were set out herein.

Without prejudice to the generality of the foregoing requirements, the Sub-Contractor shall especially observe perform and comply with the provisions of clauses 9.0, 18.0, 19.0 22.0, 30.0, 31.0, 34.0 and 36.0 of the main contract as they apply to the sub-contract works

**SUB-CONTRACT DOCUMENTS**

The sub-contract documents for use in the carrying out of the sub-contract works shall be:-

The agreement and these conditions

The sub-contract drawings as listed in the agreement

The sub-contract bill of quantities or schedule of rates as applicable

The specifications as separately supplied or as contained in the sub-contract bills.

Upon the execution of the sub-contract, the Contractor shall register the agreement with the relevant statutory authority and pay all fees, charges, taxes, duties and all costs arising therefrom.

The manner of supplying contract documents, their custody, display on site and their interpretation in the event of discrepancies shall be as provided in the main contract in respect of the main contract documents with the necessary amendments made to refer to the sub-contract.

#### **GENERAL LIABILITY OF THE SUB-CONTRACTOR**

The Sub-Contractor shall be liable for and shall indemnify the Contractor against and from:

Any breach, non-observance or non-performance by the Sub-Contractor, his servants or agents of any of the said provisions of the main contract and of this sub-contract.

Any act or omission of the Sub-Contractor, his servants or agents which involve the Contractor in any liability to the Employer under the main contract

Any claim, damage, loss or expense due to or resulting from any negligence or breach of duty on the part of the Sub-Contractor, his servants or agents.

Any loss or damage resulting from any claim under any statute or common law by an employee of the Sub-Contractor in respect of personal injury or death arising out of or in the course of his employment.

Provided that nothing contained in this sub-contract shall impose any liability on the Sub-Contractor in respect of any negligence or breach of duty on the part of the Employer, the Contractor, other sub-contractors or their respective servants or agents nor create any privity of contract between the Sub-Contractor and the Employer or any other sub-contractor.

#### **INSURANCE AGAINST INJURY TO PERSONS AND PROPERTY**

Without prejudice to his liability to indemnify the Contractor under clause 5.0 above, the Sub-Contractor shall maintain:-

Such insurances as are necessary to cover the liability of the Sub-Contractor in respect of injury or damage to property including damage to the works arising out of or in the course of or by reason of the carrying out of the sub-contract works except for liability against the contingencies specified at clause 6.3 herein.

The insurances required under sub clause 6.1.1 and 6.1.2 above shall be placed with insurers approved by the Contractor and the Architect.

Notwithstanding the provisions of clause 23.0 of these conditions, the Contractor shall not be obliged to make payments to the Sub-Contractor before the said policies have been provided.

Where clause 13.0 of the main contract applies, the sub-contract works, including materials and goods of the sub-Contractor delivered to the works, shall as regards loss or damage by the contingencies stated at clause 13.0 therein, namely, fire, earthquake, fire following earthquake, lightning, explosion, storm, tempest, flood, bursting or overflowing of water tanks, apparatus or pipes, aircraft and other aerial devices or articles dropped therefrom, riot and civil commotion, be at the sole risk of the contractor. The Contractor shall cover his liability for the works by procuring insurances as required in the said clause.

Where clause 14.0 or 15.0 of the main contract applies, the sub-contract works, including materials and goods of the Sub-Contractor delivered to the works shall, as regards loss or damage by the contingencies stated therein be at the sole risk of the Employer. The Employer shall cover his liability for the works by procuring insurances as required in the said clause.

The Sub-Contractor shall observe and comply with the conditions contained in the policy or policies of insurance of the Contractor or of the Employer, as the case may be, as regards loss or damage which may be caused by the stated contingencies. For this purpose, the Contractor or the Employer as the case may be, shall avail the said policies to the Sub- Contractor for his perusal.

If any loss or damage affecting the sub-contract works or any part thereof or any unfixed goods or materials is occasioned by any one or more of the said contingencies, then,

The occurrence of such loss or damage shall be disregarded in computing any amounts payable to the Sub-Contractor under the sub-contract, and

The Sub-Contractor shall, with due diligence, restore the work damaged, replace or repair any unfixed materials or goods which have been destroyed or damaged, remove and dispose of any debris and proceed with the carrying out and completion of the sub-contract works.

The restoration of work damaged the replacement and repair of unfixed materials and goods and the removal of debris shall be deemed to be a variation required by the Architect. Such work shall be paid for in accordance with clause 30.0 of the main contract.

## **7.0 PERFORMANCE BOND**

Before commencing the works, the Sub-Contractor shall provide one surety who must be an established bank or insurance company to the approval of the Contractor and who will be bound to the Contractor in the sum equivalent to seven and a half per cent (7.5%) of the sub-contract price for the due performance of the sub-contract until the certified date of practical completion. Notwithstanding the provisions of clause 23.0 of these conditions, no payments shall be made to the Sub-Contractor before the said bond is provided.

## **POSSESSION OF SITE AND COMMENCEMENT OF WORKS**

Within the period stated in the appendix to these conditions, the Contractor shall give possession of the site works to the Sub-Contractor and such access as may be necessary to enable the Sub-Contractor to commence and proceed with the sub-contract works in accordance with the sub-contract.

On or before the date for commencement of works stated in the appendix to these conditions, the Sub-Contractor shall commence the carrying out of the sub-contract works and shall proceed regularly and diligently with the same in accordance with the sub-contract programme, the main contract programme and or with the progress of the main contract works and complete on or before the date stated in the appendix to these conditions as the date for practical completion or within any extended time granted under clause 25.0 of these conditions.

## **ARCHITECT'S INSTRUCTIONS**

The Sub-Contractor shall forthwith comply with all the instructions issued to him by the Architect, either directly or through the Contractor, in regard to any matter in respect of which the Architect is expressly empowered by the main contract conditions to issue instructions.

The manner of complying with or querying the validity of an Architect's instruction shall be as provided in clause 22.0 of the main contract. The Sub-Contractor shall not be obliged to carry out instructions not issued in the manner provided therein.

## **VARIATIONS**

The term "variation" shall have the meaning assigned to it at clause 30.0 of the main contract. The valuation of variations shall be made by the Quantity Surveyor in accordance with sub-clause 30.6 of the main contract.

Effect shall be given to the measurement and valuation of variations in interim certificates and by the adjustment of the sub-contract price.

#### **11.0 LIABILITY FOR OWN EQUIPMENT**

The construction equipment and other property belonging to or provided by the Sub-Contractor and brought onto the site for carrying out the works shall be at the sole risk of the Sub-Contractor. Any loss or damage to the same or caused by the same shall, except for any loss or damage due to any negligence, omission or default of the Contractor, be at the sole risk of the Sub-Contractor who shall indemnify the Contractor against loss, damage or claims in respect thereof. Insurance against any such loss, damage or claims shall be the sole responsibility of the Sub-Contractor.

#### **PROVISION OF FACILITIES BY THE CONTRACTOR**

Where provided in the main contract, the Contractor shall supply at his own cost all necessary water, lighting, electric power, telephones and security required for the sub-contract works. Where not so provided, the Sub-Contractor shall provide the said services at his own cost. Except as otherwise provided in the main contract, the Sub-Contractor shall construct at his own expense all necessary workshops, stores, offices, workers' accommodation and other temporary buildings required for the carrying out of the works at such places on site as the Contractor shall identify. The Contractor undertakes to give the sub-Contractor the required space and all reasonable facilities for such construction. Upon practical completion of the works, the Sub-contractor shall remove the said facilities and reinstate disturbed surface to the satisfaction of the Contractor.

The Contractor shall provide, without charge, general attendance to the Sub-Contractor to facilitate the carrying out of the works which attendance shall include facilities for access to and movement within the site and sections or parts of the building or buildings where the sub-contract works are being carried out, the use of temporary roads, paths and access ways, sanitary and welfare facilities.

The Contractor shall permit the Sub-Contractor to use, without charge, at all reasonable times, any scaffolding and hoisting equipment belonging to or provided by the Contractor while it remains so erected upon the site. The use by the Sub-Contractor of any other equipment, facilities or services provided by the Contractor for the works shall be subject to private arrangements between the parties hereto and shall not be regulated by these conditions.

Provided that such use of the scaffolding and hoisting equipment shall be on the express condition that no warranty or other liability on the part of the Contractor shall be created or implied in regard to fitness, condition or suitability for the intended purpose except that the Sub-Contractor shall be liable for any damage caused thereto or thereby.

Where required, the Contractor shall provide the facilities, equipment and the like and carry out any necessary builder' works within a reasonable time of the request by the Sub- Contractor to enable timely performance of the sub-contract.

#### **LIABILITY FOR OWN WORK**

The Contractor and the Sub-Contractor shall be liable for the due carrying out of their respective works in accordance with their respective contracts without causing damage or injury to the works of the other sub-contractors, and in particular:

Should the carrying out of the sub-contract works cause injury or damage to the main contract works, or to the work of the other sub-contractors, the Sub-contractor shall rectify the damage so caused at his own cost.

Should the carrying out of the main contract works cause damage or injury to the sub-contract works, the Contractor shall rectify the damage at his own cost.

If in the course of carrying out the sub-contract works, the Sub-Contractor is required to carry out work not included in his sub-contract by reason of any materials or workmanship not being in accordance with the main contract or with other sub-contracts, the Contractor shall reimburse the Sub-Contractor the expenses incurred therein.

#### **CO-OPERATION IN USE OF FACILITIES**

The Contractor and the Sub-Contractor undertake to co-operate with each other and co-ordinate work arrangements and procedures required in carrying preventing interference, disruption or disturbance to the progress of the works or to the activities of other sub-contractors.

The Contractor and the Sub-Contractor undertake not to wrongfully use or interfere with equipment, scaffolding, appliances, ways, temporary works, temporary buildings and other property belonging to or provided by the other part or by other sub-contractors.

Provided that nothing contained in this clause shall prejudice or limit the rights of the Contractor or of the sub-Contractor in carrying out their respective statutory and or contractual duties under this sub-contract or under the main contract.

#### **ASSIGNMENT AND SUBLETTING**

Neither the Contractor nor the Sub-Contractor shall, without the written consent of the other and the Employer, assign this sub-contract.

The Sub-Contractor shall not sub-let the whole of the works without the written consent of the Contractor and the Architect.

Provided that any assignment and any sub-contracts as well as this sub-contract shall terminate immediately upon (for whatever reason) of the main contract.

#### **WORK PRIOR TO APPOINTMENT OF CONTRACTOR**

Where the Sub-Contractor is appointed before the Contractor is appointed, any work done by the Sub-Contractor prior to the said appointment shall be treated as a separate contract between the Employer and the Sub-Contractor and shall be valued by the Quantity Surveyor and paid for directly by the Employer without the involvement of the Contractor.

Where the Sub-Contractor is appointed before the Contractor is appointed, the Sub-Contractor shall be permitted, when the identity of the Contractor is known and within 30 days thereof, to raise objections (on reasonable grounds) against entering into a sub-contract with the Contractor. Where work which is outside the sub-contract is ordered directly by Employer or the Architect, that work shall be treated as a separate contract between the Sub-Contractor and the Employer and shall be valued and paid for directly to the Sub-Contractor in accordance with sub-clause 16.1 herein without the involvement of the Contractor. The cost of equipment, facilities and the like provided by the Contractor to the Sub-contractor and any builder's work carried out by the Contractor with regard to such work shall be paid directly by the Sub- Contractor to the Contractor.

## **17.0 SUB-CONTRACTOR DESIGN**

Where the sub-contract includes a design component by the Sub-Contractor, the design shall be to the approval of the Architect and the Employer. Notwithstanding and approvals, the Sub-Contractor shall be liable directly to the Employer for any consequences of failure of the design to comply with the requirements of the Employer or to be fit or suitable for the purposes for which the sub-contract works or the relevant part thereof were intended.

## **SPECIFICATION OF GOODS, MATERIALS AND WORKMANSHIP**

All materials, goods and workmanship shall, so far as procurable, be of the respective kinds and standards described in the sub-contract bills, specifications and drawings.

The provisions of clause 23.0 of the main contract regulating the procurement, specification and quality assurance of materials, processes and workmanship and the requirements of clause 24.0 therein dealing with the provision of samples and the carrying out of specified tests shall apply to the sub-contract in the same manner as they apply to the main contract.

## **19.0 COMPLIANCE WITH STATUTORY AND OTHER REGULATIONS**

The Sub-Contract shall comply with all statutory and other regulations of competent authorities regulating the carrying out of the works in accordance with the provisions of clause 17.0 of the main contract, as applicable.

## **ROYALTIES AND PATENT RIGHTS**

All royalties or other sums payable in respect of the supply and use of any patented articles, processes or inventions in carrying out the works as described by or referred to in the sub-contract bills, specifications or drawings shall be deemed to have been included in the sub-contract price.

The provision of clause 25.0 of the main contract dealing with the same shall apply to the sub-contract in the same manner as they apply to the main contract.

## **21.0 ANTIQUITIES AND OTHER OBJECTS OF VALUE**

All fossils, antiquities and other objects of interest or value which may be found on the site or in excavating the same during the progress of the sub-contract shall be dealt with in accordance with the provisions of clause 44.0 of the main contract.

## **SUSPENSION OF WORKS**

An instruction by the Architect to postpone or suspend the works under clause 28.0 of the main contract shall have the same effect on the sub-contract works as it has on the main contract works.

If the suspension arises due to default by the contractor and the sub-contract works are adversely affected by the suspension, the sub-contractor shall be entitled to reimbursement by the contractor of all expenses arising therefrom.

If the suspension arises due to default by the sub-contractor, the sub-contractor shall be liable to the contractor for all expenses arising therefrom.

A notice by the contractor to suspend the works under clause 29.0 of the main contract shall have the same effect on the sub-contract works as it has on the main contract works.

Should the sub-contract works be adversely affected by suspension under clause 29.0 of the main contract, the sub-contractor shall be entitled to the remedies provided for at clauses 25.0 and 26.0 of this sub-contract.

### **PAYMENTS**

Procedures for originating and processing applications for payments and payment certificates as regards the sub-contract works shall be the same as those prescribed for the Contractor in the main contract at clause 34.0. All references therein to the contractor shall be deemed to include references to the Sub-contractor.

Before submitting an application for payment to the Quantity Surveyor in accordance with clause 34.1 of the main contract, the Contractor shall give the Sub-Contractor a notice of not less than 7 days to submit the details of the amounts which the Sub-Contractor considers himself entitled to for the relevant period. Such details, when received, shall be annexed to the said Contractor's application.

Where it is necessary to measure the sub-contract works for purpose of interim valuation or for the preparation of the final account, the Quantity Surveyor shall give the Sub-Contractor a reasonable opportunity to be present at the time of the measurements and to take notes and measurements as he may require.

Neither the Quantity Surveyor nor the Architect shall be bound to issue a valuation or a payment certificate in respect of the sub-contract works, as the case may be, whose value is less than the amount stated in the appendix to these conditions as the minimum amount of a payment certificate before the issue of the certificate of practical completion of the main contract or of the sub-contract, as applicable.

Provided that where the minimum amount of a certificate inserted in the appendix to these conditions has been achieved but the corresponding minimum inserted in the appendix to the main contract in respect of the Contractor's work has not been achieved, or the Contractor has not applied for payment within the stated period, the Architect may with the consent of the Contractor, issue a payment certificate directly to the Sub-Contractor for payment by the Employer.

Within 7 days of receipt by the Contractor of payment by the Employer, the Contractor shall notify and pay to the Sub-Contractor the total value certified therein in respect of the sub-contract works less the portion of the retention money attributable to the sub-contract works and less amounts previously paid to the Sub-Contractor.

Where certificates are not paid by the Employer within the prescribed period, the Sub-Contractor shall be entitled to be paid by the Contractor, upon receipt of payment from the Employer, the interest certified for the delay in accordance with sub-clause 34.6 of the main contract in respect of the portion of the sub-contract works included in the certificate.

Where the Contractor has received payment from the Employer but has not released the appropriate amount to the Sub-Contractor within the stated period, the Contractor shall pay to the Sub-Contractor in addition to the amount not paid, simple interest on the unpaid amount for the period it remains unpaid at the commercial bank lending rate in force during the period of default.



If, upon application by the Sub-Contractor and Architect agree, or if the Contractor fails to make payment to the Sub-Contractor in accordance with sub-clause 23.6 herein and continues such default for 14 days thereafter, the Architect may issue a payment certificate directly to the Sub-Contractor for payment by the Employer, where applicable, and deduct the amount from subsequent payment to the Contractor.

Upon the issue of the certificate of practical completion and the release of one half of the total amount of the retention of money to the Contractor, the Contractor shall pay the portion attributable to the sub-contract to the Sub-Contractor within 7 days of receipt of the payment.

Upon the issue of the certificate of rectification of defects and receipt of the balance of the retention money by the Contractor, the Contractor shall pay the balance of the portion of the retention money attributable to the sub-contract to the Sub-Contractor within 7 days of receipt of the payment.

The sub-contract final account shall be agreed between the Sub-Contractor, the Contractor, the Quantity Surveyor and the Architect and shall be annexed to the Contractor's final accounts which shall be agreed as provided for in the main contract. For purpose of finalizing the accounts, the Quantity Surveyor may request the Sub-Contractor to submit further documents as he may deem necessary.

The final certificate issued under sub-clause 34.21 of the main contract shall be final and binding on the Sub-Contractor in the same manner it is binding on the Contractor.

If the Architect desires to secure final payment to the Sub-Contractor before final payment is due to the Contractor, the provisions of sub-clause 31.10 of the main contract shall apply.

The Contractor shall be entitled to deduct from or set off against any money due from him to the Sub-Contractor in interim certificates any sum or sums which the Sub-Contractor is liable to pay to the Contractor arising under or in connection with the sub-contract.

#### **PRACTICAL COMPLETION AND DEFECTS LIABILITY**

The Sub-Contractor shall proceed with the works regularly and diligently and complete the same within the period stated in the appendix to this sub-contract or within such extended period as may be granted under clause 25.0 of this sub-contract.

Where the sub-contract works are to be completed in sections or where the sub-contract works are to be completed in advance of the main contract works, the provisions of clause 42.0 of the main contract shall apply, as appropriate, to the sub-contractor in the same manner as they apply to the main contract.

The procedures for certifying practical completion and for dealing with defects in the sub-contract works as well as the main contract works are as prescribed at clause 41.0 of the main contract. Upon the issue of the certificate of practical completion of the whole of the works or of the sub-contract works, as applicable, the Sub-contractor shall be entitled to release of one half of the retention money attributable to the sub-contract works within 7 days after the Contractor has received payment.

The balance of the retention money shall be released to the Sub-Contractor after the defects appearing in the works have been rectified in accordance with sub-clause 41.6 and 41.7 of the main contract and after the Contractor has received the said payment as provided for in sub-clause 34.16.3 of the main contract.

## **EXTENSION OF TIME**

Upon it becoming reasonably apparent that the progress of the sub-contract works is or will be delayed, the Sub-Contractor shall forthwith give written notice of the cause of the delay to the Contractor and to the Architect with supporting details showing the extent of delay caused or likely to be caused. Thereafter, the Architect shall evaluate the information supplied by the Sub-Contractor and if in his opinion the completion of the works is likely to be or has been delayed beyond the date for practical

completion stated in the appendix to these conditions or beyond any extended time previously fixed under this clause, by any of the reasons entitling the Contractor to extension of time under sub-clause 36.1 of the main contract, then the Architect shall, so soon as he is able estimate the length of the delay beyond the date or time aforesaid, recommend to the Contractor a fair and reasonable extension of time to be granted for the completion of the sub- contract works.

Thereupon, the Contractor shall grant in writing to the Sub-Contractor the recommended time. Provided that the Contractor shall not grant any extension of time to the Sub-Contractor without the written recommendation of the Architect. And provided that the Sub-Contractor shall constantly use his best endeavors to prevent delay and shall do all that may be reasonably required to proceed with the works.

The procedures for dealing with requests for extension of time and the observance of time limits prescribed at clause 36.0 of the main contract shall apply to the sub-contract in the same manner as they apply to the main contract.

## **LOSS AND EXPENSE CAUSED BY DISTURBANCE OF REGULAR PROGRESS**

If upon written application being made by the Sub-Contractor to the Contractor and to the Architect, the Architect is of the opinion that the Sub-Contractor has been involved in direct loss and or expense, for which he would not be reimbursed by a payment made under any other provision in this sub-contract, by reasons of the regular progress of the sub-contract works or any part thereof having been materially affected by any of the reasons which would entitle the Contractor to reimbursement under clause 37.0 of the main contract, the Quantity Surveyor shall assess the amount of such loss and or expense.

Any amount so assessed shall be added to the sub-contract price and if an interim certificate is issued after the date of assessment, any such amount shall be added to the amount which would otherwise be stated as due in such certificate as regards the Sub-Contractor's entitlement.

The procedures for dealing with loss and or expense claims prescribed at clause 37.0 of the main contract shall apply to the sub-contract in the same manner as they apply to the main contract, as appropriate.

## **DAMAGES FOR DELAY IN COMPLETION**

If the Sub-Contractor fails to complete the sub-contract works by the date for practical completion stated in the appendix to these conditions or within any extended time fixed under clause 25.0 herein, and the Architect certifies in writing that in his opinion the same ought reasonably so to have been completed, then the Sub-Contractor shall pay or allow to the Contractor a sum calculated at the rate stated in the said appendix as liquidated damages for the period during which the works shall so remain or have remained incomplete.

The Contractor may deduct such sum from any money due or to become due to the Sub-Contractor under the sub-contract or recover the same from the Sub-Contractor as a debt. Provided that the Contractor shall not be entitled to recover any liquidated damages from the Sub-Contractor without first obtaining the Architect's certificate of delay prescribed herein.

## **FLUCTUATIONS**

Unless otherwise stated in the sub-contract bills or specifications, the sub-contract price shall be deemed to have been calculated to include all duties and taxes imposed by statutory and other competent authorities in the country where the works are being carried out, and

The sub-contract price shall be deemed to be based on currency exchange rates current at the date of tender as regards materials or goods to be specifically imported for permanent incorporation in the works.

Should duties, taxes and exchange rates vary during the period of the contract, compensation thereof shall be calculated in accordance with sub-clause 35.1 and 35.2 of the main contract.

Compensation for change in prices of goods and materials incorporated in the works and in the rates of wages provided for at sub-clause 35.3, 35.4 and 35.5 of the main contract shall not apply to the sub-contract unless specifically provided for in the bill of quantities or specifications.

## **TERMINATION OF MAIN CONTRACT**

If, for any reason, the contractor's employment is terminated either under clause 38.0, 39.0 or 40.0 of the main contract, this sub-contract shall thereupon also terminate.

Upon termination, the sub-contractor shall cease all work and vacate the site. He shall not remove any equipment or any materials brought onto the site for the carrying out of the works without the written approval of the contractor and the Architect

Where the termination of the main contract occurs without the default of the sub-contractor, the sub-contractor shall be paid by the contractor for work done in the like manner as the Contractor is paid at clause 39.5 of the main contract.

Where the termination of main contract arises from the default by the sub-contractor, the adjustment of the sub-contract accounts shall be performed in the like manner as is provided at sub-clause 38.8 of the main contract regarding the main contract accounts.

## **TERMINATION OF SUB-CONTRACT.**

Without prejudice to any other rights and remedies which the contractor may possess, if the sub-contractor shall make default in any one or more of the respects which would entitle the employer to terminate the main contract under clause 38.0 therein, the contractor shall give the sub-contractor a notice, with a copy to the Architect and to the employer by registered post of recorded delivery specifying the default. Should the sub-contractor continue the default for 14 days after receipt of such notice or at any time thereafter repeat such default and should the Architect certify that the sub-contractor is in default, the contractor may terminate the Sub- contract forthwith after the expiry of the notice provided that the notice is not given unreasonably or vexatiously. The termination letter shall be copied to the Architect and to the Employer.

Where the sub-contract is terminated due to the default of the sub-contractor as in sub-clause 30.1 herein, the adjustment of sub-contract accounts shall be performed in the like manner as is provided at sub-clause 38.8 of the main contract regarding the main contract accounts.

Without prejudice to any other rights and remedies which the Sub-Contractor may possess, if the Contractor shall make default in one or more of the respects which, if committed by the Employer, would entitle the contractor to terminate the main contract under clause 39.0 therein, the Sub-Contractor shall give the Contractor a notice, with a copy to the Architect and to the Employer, by registered post or recorded delivery specifying the default. Should the contractor continue the default for 14 days after receipt of such notice or at any time thereafter repeat such default, and should the Architect certify that the contractor is in default, the Sub-Contractor may terminate the sub-contract forthwith after expiry of the notice, provided that the notice is not given unreasonably or vexatiously. The termination letter shall be copied to the Architect and to the Employer.

If the Sub-Contract is terminated due to the default of the Contractor as in sub-clause 30.3 herein, the Contractor shall pay the sub-contractor for work done in the like manner as the Contractor would be paid at sub-clause 39.5 of the main contract where the termination is done by the Contractor.

Where the sub-contract is terminated due to the default of the Contractor, all expenses arising from the termination shall be done wholly by the Contractor and the termination shall not create any liability on the Employer.

Where the sub-contract is terminated due to the default of the Sub-Contractor, the sub-contractor shall be liable to the contractor for all expenses arising therefrom.

#### **SETTLEMENT OF DISPUTES**

In case any dispute or difference shall arise between the Contractor and Sub-Contractor, either during the progress or after the completion or abandonment of the sub-contract works, such dispute shall be notified in writing by either party to the other with a request to submit it to arbitration and to concur in the appointment of an Arbitrator within 30 days of the notice.

The dispute shall be referred to the arbitration and final decision of a person to be agreed by the parties. Failing agreement to concur in the appointment of an Arbitrator, the Arbitrator shall be appointed by the Chairman or Vice Chairman of the Architectural Association of Kenya or the Chairman or Vice Chairman of The Chartered Institute of Arbitrators, Kenya Branch, at the request of the applying party.

The arbitration may be on the construction of this sub-contract or on any matter or thing of whatsoever nature arising thereunder or in connection therewith including the rights and liabilities of the parties during the currency of the sub-contract and subsequent to the termination of the sub-contract.

Where the sub-contractor is aggrieved by the manner in which the Architect has exercised or failed to exercise his powers stipulated in the main contract, or in the sub-contract or by any action or inaction of the Employer, and in particular, if he is aggrieved by:

The failure or refusal of the Architect to recommend to the contractor an extension of sub-contract time, or

The extend of the recommended time, or

31.4.3. The amount certified to the sub-contractor either in an interim in a final certificate, or

31.4.4 The issue of an instruction which the sub-contractor contends is not authorised by the main contract or the sub-contract, or

31.4.5. Any other matter left to the discretion of the Architect in the main contract or in the sub-contract, then.

Subject to the Sub-Contractor giving the Contractor such indemnity and security as the Contractor may reasonably require, the Contractor shall allow the Sub-Contractor to use the contractor's name and, if necessary, shall join the Sub-Contractor in arbitration proceeding against the employer to decide the matters in dispute or in difference.

Provided that no arbitration proceedings shall be commenced on any dispute or difference where notice of a dispute or difference where notice of a dispute or difference has not been given by the applying party within 90 days of the occurrence or discovery of the matter or issue giving rise to the dispute or difference.

Notwithstanding the issue of a notice as stated above, the arbitration of such a dispute or difference shall not commence unless an attempt has in the first instance been made by the parties to settle such dispute or difference amicably with or without the assistance of third parties.

In any event, no arbitration shall commence earlier than 90 days after the service of the notice of a dispute or difference, except as provided for at sub-clause 31.9 herein.

Notwithstanding anything stated herein, the following matters may be referred to arbitration before the practical completion of the works or abandonment of the works or termination of the sub-contract without having to comply with sub clause 31.8 herein.

Whether or not the issue of an instruction by the Architect is authorized by the main contract or these conditions, and

Whether or not a payment certificate has been improperly withheld or is not in accordance with the main contract or these conditions or though issued, it has not been honoured.

All other matters in dispute shall only be referred to arbitration after the practical completion or alleged practical completion of the works or abandonment of the works or termination or alleged termination of the sub-contract, unless the Architect the contractor and the sub-contractor agree otherwise in writing.

The Arbitrator shall, without prejudice to the generality of his powers, have power to direct such measurements, computations, tests, or valuations as may in his opinion be desirable in order to determine the rights of the parties and assess and award any sums which ought to have been the subject or included in any payment certificate.

The Arbitrator shall, without prejudice to the generality of his powers, have power to open up, review and revise any certificate, opinion, decision, requirement or notice and to determine all matters in dispute which shall be submitted to him in the same manner as if no such certificate, opinion decision, requirement or notice had been given.

Provided that any decision of the Architect which is final and binding on the contractor under the main contract shall be final and binding between the contractor and the sub-contractor.

The award of such Arbitrator shall be final and binding upon the parties.

**SUB CONTRACTOR'S PERFORMANCE BOND**

BY THIS AGREEMENT we ..... (SURETY)  
of .....  
are bound to .....(CONTRACTOR)  
in the sum of Kenya shillings .....  
.....(Kshs. ....)  
to be paid by us to the said..... (CONTRACTOR)  
WHEREAS by an agreement in writing dated .....  
.....(SUB-CONTRACTOR)  
entered into a sub-contract with..... (CONTRACTOR)

to carry out and complete the works therein stated in the manner and by the time therein specified all in accordance with the provisions of the said sub-contract, namely: (description of works)  
.....

NOW the condition of the above written bond is such that if the said sub-contractor, his executors, administrator, successors or assigns shall duly perform his obligations under the sub-contract, or if on default by the sub-contractor the surety shall satisfy and discharge the damages sustained by the contractor thereby up to the amount of the above written bond, then this obligation shall be void, otherwise it shall remain in full force and effect. Upon default, and without prejudice to his other rights under the sub-contract, the contractor shall be entitled to demand forfeiture of the bond and we undertake to honour the demand in the amount stated above.

PROVIDED always and it is hereby agreed and declared that no alteration in the terms of the said sub-contract or in the extend or nature of the works to be carried out and no extension of time by the contractor under the sub-contract shall in any way release the surety from any liability under the above written bond.

IN WITNESS whereof we have set out hand this..... day of .....

.....

Surety

Witness

Authorised by Power of Attorney No .....

**APPENDIX**

**Clause**

Name of sub-contractor’s insurers	6.0 .....
Name of sub-contractor’s surety	7.0 .....
Amount of surety	7.0 .....
Period of possession of site	8.1
Date of commencement of works	8.2
Date for practical completion	8.2
Interval for application of payment certificates	23.1
Minimum amount of payment certificate	23.4
Percentage of certified value retained	23.6
Limit of retention fund, if any	23.6
Name of the sub-contractor’s bank for purposes of interest calculation.	23.7,23.8 .....
Defects liability period	23.11
Period of final measurement and valuation	23.12
Damages of delay in completion	27.1 at the rate of Kshs .....

Signed by the said:

.....

**CONTRACTOR**

.....

**SUB-CONTRACTOR**

**APPENDIX TO AGREEMENT AND CONDITIONS OF SUB-CONTRACT FOR BUILDING WORKS**

**Modify Clause 7.0**

Performance Bond shall be 5% of sub-contractor's tender sum

**Modify Clause 28.4**

Compensation for change in prices of goods and materials incorporated in the works shall be as provided for in the main contract.



**SECTION C**

**SUB-CONTRACT PRELIMINARIES**

**AND**

**GENERAL CONDITIONS**

## CONTRACT PRELIMINARIES AND GENERAL CONDITIONS

<u>CLAUSE</u>	<u>DESCRIPTION</u>	<u>PAGE</u>
1.01	Examination of Tender Documents	C-1
1.02	Discrepancies	C-1
1.03	Conditions of Contract Agreement	C-1
1.04	Payments	C-1
1.05	Definition of Terms	C-1
1.06	Site Location	C-3
1.07	Duration of contract	C-3
1.08	Scope of contract Works	C-3
1.09	Extent of the Contractor's Duties	C-3
1.10	Execution of the Works	C-3
1.11	Validity of Tender	C-4
1.12	Firm – Price Contract	C-4
1.13	Variation	C-4
1.14	Prime Cost and Provisional Sums	C-4
1.15	Bond	C-4
1.16	Government Legislation and Regulations	C-4
1.17	Import Duty and Value Added Tax	C-5
1.18	Insurance Company Fees	C-5
1.19	Provision of Services by the Main Contractor	C-5
1.20	Suppliers	C-5
1.21	Samples and Materials Generally	C-5
1.22	Administrative Procedure and Contractual Responsibility	C-6
1.23	Bills of Quantities	C-6
1.24	Contractor's Office in Kenya	C-6

Builders Work	C-6
Structural Provision for the Works	C-6
Position of Services, Plant, Equipment, Fittings and Apparatus	C-7
1.28            Checking of Work	C-7
1.29            Setting to Work and Regulating System	C-7
1.30            Identification of Plant and Components	C-8
1.31            Contract Drawings	C-8
1.32            Working Drawings	C-8
1.33            Record Drawings (As Installed) and Instructions	C-9
1.34            Maintenance Manual	C-10
1.35            Hand – Over	C-11
1.36            Painting	C-11
1.37            Spares	C-11
1.38            Testing and Inspection – Manufactured Plant	C-11
1.39            Testing and Inspection – Installation	C-12
1.40            Labour Camps	C-12
1.41            Storage of Materials	C-12
1.42            Initial Maintenance	C-12
1.43            Maintenance and Servicing after Completion of the Initial Maintenance	C-12
1.44            Trade Names	C-12
1.45            Water and Electricity for the Works	C-13
1.46            Protection	C-13
1.47            Defects After Completion	C-13
1.48            Damages for Delay	C-13
1.49            Clear Away on Completion	C-13
1.50            Final Account	C-13
1.51            Fair Wages	C-13
1.52            Supervision	C-14

1.53	Test Certificates	C-14
1.54	Labour	C-14
155	Discount to the Employer	C-14
1.56	Guarantee	C-14
1.57	Direct Contracts	C-14
1.58	Attendance Upon the Tradesmen	C-14
1.59	Trade Union	C-14
1.60	Local and other Authorities notices and fees	C-14
1.61	Assignment or Subletting	C-15
1.62	Partial Completion	C-15
1.63	Temporary Works	C-15
1.64	Patent Rights	C-15
1.65	Mobilization And Demobilization	C-15
1.66	Extended Preliminaries	C-16
1.67	Supervision by Engineer and Site Meetings	C-16
1.68	Amendment to Scope of Contract Works	C-16
1.69	Contractors Obligation and Employers Obligation	C-16
1.70	Appendix to Sub-Contract preliminaries and General conditions	C-17

## **SECTION C**

### **SUB-CONTRACT PRELIMINARIES AND GENERAL CONDITIONS**

#### **Examination of Tender Documents**

The tenderer is required to check the number of pages of this document and should he find any missing or indistinct, he must inform the Engineer at once and have the same rectified.

All tenderers shall be deemed to have carefully examined the following:

- a) Work detailed in the Specification and in the Contract Drawings.
- b) The Republic of Kenya Document "General Conditions of Contract for Electrical and Mechanical Works".
- c) Other documents to which reference is made.

He shall also be deemed to have included for any expenditure which may be incurred in conforming with the above items (a), (b), (c) and observe this expense as being attached to the contract placed for the whole or any part of the work.

The tenderer shall ensure that all ambiguities, doubts or obscure points of detail, are clarified with the Engineer before submission of his tender, as no claims for alleged deficiencies in the information given shall be considered after this date.

#### **Discrepancies**

The Sub-contractor shall include all work either shown on the Contract Drawings or detailed in the specification. No claim or extra cost shall be considered for works which has been shown on the drawings or in the specification alone.

Should the drawing and the specification appear to conflict, the Sub-contractor shall query the points at the time of tendering and satisfy himself that he has included for the work intended, as no claim for extra payment on this account shall be considered after the contract is awarded.

#### **Conditions of Sub-Contract Agreement**

The Sub-contractor shall be required to enter into a Sub-contract with the Main Contractor.

The Conditions of the Contract between the Main Contractor and the Sub-contractor as hereinafter defined shall be the latest edition of the Agreement and Schedule of Conditions of Kenya Association of Building and Civil Engineering Contractors as particularly modified and amended hereinafter.

For the purpose of this contract the Agreement and Schedule of Conditions and any such modifications and amendments shall read and construed together. In any event of discrepancy the modifications and amendments shall prevail.

#### **Payment**

Payment will be made through certificates to the Main Contractor, unless he specifically agrees to forego this right, in which case direct payment can be made to the Sub-contractor. All payments will be less retention as specified in the Main Contract. No payment will become due until materials are delivered to site.

### **Definition of Terms**

Throughout these contract documents units of measurements, terms and expressions are abbreviated and wherever used hereinafter and in all other documents they shall be interpreted as follows:

- i) **Employer:** The term “**Employer**” shall mean **Busia County Assembly Service Board**
- ii) **Architect:** The Term “**Architect**” Shall Mean **The Project Manager** County Department of Transport, Infrastructure, Housing and Urban Development -
- iii) **Quantity Surveyor:** The term “**Quantity Surveyor**” shall mean **The Quantity Surveyor, County Department of Public Works**
- iv) **Civil/Structural Engineers:** The term “**Civil/Structural Engineers**” shall mean **The Chief Engineer(Structural), County Department of Public Works**
- v) **Engineer:** The term “**Engineer**” shall mean **Chief Electrical Engineer (BS), County Department of Transport, Infrastructure, Housing and Urban Development - County Department of Public Works**
- vi) **Main Contractor:** The term “**Main Contractor**” shall mean the firm or company appointed to carry out the Building Works and shall include his or their heir, executors, assigns, administrators, successors, and duly appointed representatives.
- vii) **Sub-contractor:** The term “**Sub-contractor**” shall mean the persons or person, firm or Company whose tender for this work has been accepted, and who has entered into a contract agreement with the Contractor for the execution of the Sub-contract Works, and shall include his or their heirs, executors, administrators, assigns, successors and duly appointed representatives.
- viii) **Sub-contract Works:** The term “**Sub-contract Works**” shall mean all or any portion of the work, materials and articles, whether the same are being manufactured or prepared, which are to be used in the execution of this Sub-contract and whether the same may be on site or not.
- ix) **Contract Drawings:** The term “**Contract Drawings**” shall mean those drawings required or referred to herein and forming part of the Bills of Quantities.
- x) **Working Drawings:** The term “**Working Drawings**” shall mean those drawings required to be prepared by the Sub-contractor as hereinafter described.
- xi) **Record Drawings:** The term “**Record Drawings**” shall mean those drawings required to be prepared by the Sub-contractor showing “as installed” and other records for the Sub-contract Works.
- xii) **Abbreviations:**
  - CM** shall mean **Cubic Metre**
  - SM** shall mean **Square Metre**
  - LM** shall mean **Linear Metre**
  - M** shall mean **Metre**
  - LS** shall mean **Lump Sum**
  - mm** shall mean **Millimetres**
  - No.** shall mean **Number**
  - Kg.** shall mean **Kilogramme**
  - KEBS** shall mean **Kenya Bureau of Standards**
  - BS** shall mean. **Current standard British Standard Specification published by the British Standard Institution, 2 Park Street, London W1, England**

“Ditto” shall mean the whole of the preceding description in which it occurs. Where it occurs in description of succeeding item it shall mean the same as in the first description of the series in which it occurs except as qualified in the description concerned. Where it occurs in brackets it shall mean the whole of the preceding description which is contained within the appropriate brackets.

### **Site Location**

The site of the Sub-contract Works is situated at **Busia County Assembly Busia**

The tenderer is recommended to visit the site and shall be deemed to have satisfied himself with regard to access, possible conditions, the risk of injury or damage to property on/or adjacent to the site, and the conditions under which the sub-contract Works shall have to be carried out and no claims for extras will be considered on account of lack of knowledge in this respect.

### **Duration of Sub-Contract**

The Sub-Contractor shall be required to phase his work in accordance with the Main contractor’s programme (or its revision). The programme is to be agreed with the Main contractor.

### **Scope of Sub-Contract Works**

The sub-contractor shall supply, deliver, unload, hoist, fix, test, commission and hand-over in satisfactory working order the complete installations specified hereinafter and/or as shown on the Contract Drawings attached hereto, including the provision of labour, transport and plant for unloading material and storage, and handling into position and fixing, also the supply of ladders, scaffolding the other mechanical devices to plant, installation, painting, testing, setting to work, the removal from site from time to time of all superfluous material and rubbish caused by the works.

The sub-contractor shall supply all accessories, whether of items or equipment supplied by the Main Contractor but to be fixed and commissioned under this Sub-contract.

### **Extent of the Sub-contractor’s Duties**

At the commencement of the works, the Sub-contractor shall investigate and report to the Engineer if all materials and equipment to be used in the work and not specified as supplied by the others are available locally. If these materials and equipment are not available locally, the Sub-contractor shall at this stage place orders for the materials in question and copy the orders to the Engineer. Failure to do so shall in no way relieve the Sub-contractor from supplying the specified materials and equipment in time.

Materials supplied by others for installation and/or connection by the Subcontractor shall be carefully examined in the presence of the supplier before installation and connection. Any defects noted shall immediately be reported to the Engineer.

The Sub-contractor shall be responsible for verifying all dimensions relative to his work by actual measurements taken on site. The Sub-contractor shall mark accurately on one set of drawings and indicate all alterations and/or modifications carried out to the designed system during the construction period. This information must be made available on site for inspection by the Engineer.

### **Execution of the Works**

The works shall be carried out strictly in accordance with:

- a) All relevant Kenya Bureau of Standards Specifications.
- b) All relevant British Standard Specifications and Codes of Practice (hereinafter referred to as B.S. and C.P. respectively).
- c) This Specification.
- d) The Contract Drawings.
- e) The Bye-laws of the Local Authority.
- f) The Architect’s and/or Engineer’s Instructions.

The Contract Drawings and Specifications to be read and construed together.

### **Validity of Tender**

The tender shall remain valid for acceptance within 120 days from the final date of submission of the tender, and this has to be confirmed by signing the Tender Bond. The tenderer shall be exempted from this Bond if the tender was previously withdrawn in writing to the Employer before the official opening.

### **Firm – Price Sub-contract**

Unless specifically stated in the documents or the invitation to tender, this is a firm-price Contract and the Sub-contractor must allow in his tender for the increase in the cost of labour and/or materials during the duration of the contract. No claims will be allowed for increased costs arising from the fluctuations in duties and/or day to day currency fluctuations. The Sub-contractor will be deemed to have allowed in his tender for any increase in the cost of materials which may arise as a result of currency fluctuation during the contract period.

### **Variation**

No alteration to the Sub-contract Works shall be carried out until receipt by the Sub-contractor of written instructions from the Project Manager.

Any variation from the contract price in respect of any extra work, alteration or omission requested or sanctioned by the Architect or Engineer shall be agreed and confirmed in writing at the same time such variations are decided and shall not affect the validity of the Contract. Schedule of Unit Rates shall be used to assess the value of such variations. No allowance shall be made for loss of profit on omitted works.

Where the Architect requires additional work to be performed, the Sub-contractor, if he considers it necessary, will give notice within seven ( 7 ) days to the Main Contractor of the length of time he (the Sub-contractor) requires over and above that allotted for completion of the Sub-contract.

If the Sub-contractor fails to give such notice he will be deemed responsible for the claims arising from the delay occasioned by reason of such extension of time.

### **Prime Cost and Provisional Sums**

A specialist Sub-contractor may be nominated by the Architect to supply and/or install any equipment covered by the Prime Cost or Provisional Sums contained within the Sub-contract documents.

The work covered by Prime Cost and Provisional Sums may or may not be carried out at the discretion of the Architect.

The whole or any part of these sums utilised by the Sub-contractor shall be deducted from the value of the Sub-contract price when calculating the final account.

### **Bond**

The tenderer must submit with his tender the name of one Surety who must be an established Bank only who will be willing to be bound to the Main Contractor for an amount equal to 7½ % of the Sub-contract amount as Clause 31 of the Main Contract.

### **Government Legislation and Regulations**

The Sub-contractor's attention is called to the provision of the Factory Act 1972 and subsequent amendments and revisions, and allowance must be made in his tender for compliance therewith, in so far as they are applicable.

The Sub-contractor must also make himself acquainted with current legislation and any Government regulations regarding the movement, housing, security and control of labour, labour camps, passes for transport, etc.



The Sub-contractor shall allow for providing holidays and transport for work people, and for complying with Legislation, Regulations and Union Agreements.

#### **Import Duty and Value Added Tax**

The Sub-contractor will be required to pay full Import Duty and Value Added Tax on all items of equipment, fittings and plant, whether imported or locally manufactured. The tenderer shall make full allowance in his tender for all such taxes

#### **Insurance Company Fees**

Attention is drawn to the tenderers to allow for all necessary fees, where known, that may be payable in respect of any fees imposed by Insurance Companies or statutory authorities for testing or inspection.

No allowance shall be made to the Sub-contractor with respect to fees should these have been omitted by the tenderer due to his negligence in this respect.

#### **Provision of Services by the Main Contractor**

In accordance with Clause 1.08 of this Specification the Main Contractor shall make the following facilities available to the Sub-contractor:

- a) Attendance on the Sub-contractor and the carrying out of all work affecting the structure of the building which may be necessary, including all chasing, cutting away and making good brickwork, etc., except that all plugging for fixing, fittings, machinery, fan ducting, etc., and all drilling and tapping of steel work shall be the responsibility of the Sub-contractor. Any purpose made fixing brackets shall not constitute Builder's Work and shall be provided and installed by the Sub-contractor unless stated hereinafter otherwise.
- b) The provision of temporary water, lighting and power: All these services utilised shall be paid for by the Main Contractor. The Sub-contractor shall, however, allow for additional connections/extensions required for his purposes.
- c) Fixing of anchorage and pipe supports in the shuttering, except that all anchorage shall be supplied by the Sub-contractor who shall also supply the Main Contractor with fully dimensioned drawings detailing the exact locations.
- d)
  - i) Provision of scaffolding, cranes, etc. but only in so far as it is required for the Main Contract Works. It shall be the Sub-contractor's responsibility to liaise with the Main Contractor to ensure that there is maximum co-operation with other Sub-contractors in the use of scaffolding, cranes, etc.
  - ii) Any specialist scaffolding, cranes, etc. by the Sub-contractor for his own exclusive use shall be paid for by the Sub-contractor.

#### **Suppliers**

The Sub-contractor shall submit names of any supplier for the materials to be incorporated, to the Engineer for approval. The information regarding the names of the suppliers may be submitted at different times, as may be convenient, but no sources of supply will be changed without prior approval.

Each supplier must be willing to admit the Engineer or his representative to his premises during working hours for the purpose of examining or obtaining samples of the materials in question.

#### **Samples and Materials Generally**

The Sub-contractor shall, when required, provide for approval at no extra cost, samples of all materials to be incorporated in the works. Such samples, when approved, shall be retained by the Engineer and shall form the standard for all such materials incorporated.

### **Administrative Procedure and Contractual Responsibility**

Wherever within the Specification it is mentioned or implied that the Sub-contractor shall deal direct with the Employer or Engineer, it shall mean “through the Contractor” who is responsible to the Employer for the whole of the works including the Sub-contract Works.

### **Bills of Quantities**

The Bills of Quantities have been prepared in accordance with the standard method of measurement of Building Works for East Africa, first Edition, Metric, 1970. All the Quantities are based on the Contract Drawings and are provisional and they shall not be held to gauge or to limit the amount or description of the work to be executed by the Sub-contractor but the value thereof shall be deducted from the Sub- contract Sum and the value of the work ordered by the Engineer and executed there under shall be measured and valued by the Engineer in accordance with the conditions of the Sub-contract.

All work liable to adjustment under this Sub-contract shall be left uncovered for a reasonable time to allow measurements needed for such adjustment to be taken by the Quantity Surveyor or Engineer. Immediately the work is ready for measuring the Sub-contractor shall give notice to the Quantity Surveyor or Engineer to carry out measurements before covering up. If the Sub-contractor shall make default in these respects he shall, if the Architect so directs, uncover the work to enable the necessary measurements to be taken and afterwards reinstate at his own expense.

### **Sub-contractor's Office in Kenya**

The Sub-contractor shall maintain (after first establishing if necessary) in Kenya an office staffed with competent Engineer Manager and such supporting technical and clerical staff as necessary to control and coordinate the execution and completion of the Sub-contract Works.

The Engineer Manager and his staff shall be empowered by the Sub-contractor to represent him at meetings and in discussions with the Main Contractor, the Engineer and other parties who may be concerned and any liaison with the Sub-contractor's Head Office on matters relating to the design, execution and completion of the Sub-contract Works shall be effected through his office in Kenya.

It shall be the Sub-contractor's responsibility to procure work permits, entry permits, licences, registration, etc., in respect of all expatriate staff.

The Sub-contractor shall prepare a substantial proportion of his Working Drawings at his office in Kenya. No reasons for delays in the preparation or submission for approval or otherwise of such drawings or proposals will be accepted on the grounds that the Sub-contractor's Head Office is remote from his office in Nairobi or the site of the Sub-contract Works or otherwise.

### **Builder's Work**

All chasing, cutting away and making good will be done by the Main Contractor but the Sub-contractor shall mark out in advance and shall be responsible for accuracy of the size and position of all holes and chases required.

The Sub-contractor shall drill and plug holes in floors, walls, ceiling and roof for securing services and equipment requiring screw or bolt fixings.

Any purpose made fixing brackets shall not constitute builder's work and shall be provided and installed by the Sub-contractor unless stated hereinafter to the contrary.

### **Structural Provision for the Works**

Preliminary major structural provision has been made for the Sub-contract Works based on outline information ascertained during the preparation of the Specification.

The preliminary major structural provision made will be deemed as adequate unless the Sub-contractor stated otherwise when submitting his tender.

Any major structural provision or alteration to major structural provisions required by the Sub-contractor shall be shown on Working Drawings to be submitted to the Engineer within 30 days of being appointed.

No requests for alterations to preliminary major structural provisions will be approved except where they are considered unavoidable by the Engineer. In no case will they be approved if building work is so far advanced as to cause additional costs or delays in the work of the Main Contractor.

### **Position of Services, Plant, Equipment, Fittings and Apparatus**

The Contract Drawings give a general indication of the intended layout. The position of the equipment and apparatus, and also the exact routes of the ducts, main and distribution pipework shall be confirmed before installation is commenced. The exact siting of appliances, pipework, etc., may vary from that indicated.

The routes of services and positions of apparatus shall be determined by the approved dimensions detailed in the Working Drawings or on site by the Engineer in consultation with the Sub-contractor or the Main Contractor.

Services throughout the ducts shall be arranged to allow maximum access along the ducts and the services shall be readily accessible for maintenance. Any work which has to be re-done due to negligence in this respect shall be the Sub-contractor's responsibility.

The Sub-contractor shall be deemed to have allowed in his Sub-contract Sum for locating terminal points of services (e.g. lighting, switches, socket outlets, lighting points, control switches, thermostats and other initiating devices, taps, stop cocks) in positions plus or minus 1.2m horizontally and vertically from the locations shown on Contract Drawings. Within these limits no variations in the Sub-contract Sum will be made unless the work has already been executed in accordance with previously approved Working Drawings and with the approval of the Engineer.

### **Checking of Work**

The Sub-contractor shall satisfy himself to the correctness of the connections he makes to all items of equipment supplied under the Sub-contract agreement and equipment supplied under other contracts before it is put into operation. Details of operation, working pressures, temperatures, voltages, phases, power rating, etc., shall be confirmed to others and confirmation received before the system is first operated.

### **Setting to Work and Regulating System**

The Sub-contractor shall carry out such tests of the Sub-contract Works as required by British Standard Specifications or equal and approved codes as specified hereinafter and as customary.

No testing or commissioning shall be undertaken except in the presence of and to the satisfaction of the Engineer unless otherwise stated by him (Sub-contractor's own preliminary and proving tests excepted).

It will be deemed that the Sub-contractor has included in the Sub-contract Sum for the costs of all fuel, power, water and the like, for testing and commissioning as required as part of the Sub-contract Works. He shall submit for approval to the Engineer a suitable programme for testing and commissioning. The Engineer and Employer shall be given ample warning in writing, as to the date on which testing and commissioning will take place.

The Sub-contractor shall commission the Sub-contract Works and provide attendance during the commissioning of all services, plant and apparatus connected under the Sub-contract Agreement or other Sub-contract Agreements, related to the project.

Each system shall be properly balanced, graded and regulated to ensure that correct distribution is achieved and where existing installations are affected, the Sub-contractor shall also regulate these systems to ensure that their performance is maintained.

The proving of any system of plant or equipment as to compliance with the Specification shall not be approved by the Engineer, except at his discretion, until tests have been carried out under operating conditions pertaining to the most onerous conditions specified except where the time taken to obtain such conditions is unreasonable or exceeds 12 months after practical completion of the Sub-contract Works.

#### **Identification of Plant Components**

The Sub-contractor shall supply and fix identification labels to all plant, starters, switches and items of control equipment including valves, with white traffolyte or equal labels engraved in red lettering denoting its name, function and section controlled. The labels shall be mounted on equipment and in the most convenient positions. Care shall be taken to ensure the labels can be read without difficulty. This requirement shall apply also to major components of items of control equipment.

Details of the lettering of the labels and the method of mounting or supporting shall be forwarded to the Engineer for approval prior to manufacture.

#### **Contract Drawings**

The Contract Drawings when read in conjunction with the text of the Specification, have been completed in such detail as was considered necessary to enable competitive tenders to be obtained for the execution and completion of the Sub-contract works.

The Contract Drawings are not intended to be Working Drawings and shall not be used unless exceptionally they are released for this purpose.

#### **Working Drawings**

The Sub-contractor shall prepare such Working Drawings as may be necessary. The Working Drawings shall be complete in such detail not only that the Sub-contract Works can be executed on site but also that the Engineer can approve the Sub-contractor's proposals, detailed designs and intentions in the execution of the Sub-contract Works.

If the Sub-contractor requires any further instructions, details, Contract Drawings or information drawings to enable him to prepare his Working Drawings or proposals, the Sub-contractor shall accept at his own cost, the risk that any work, commenced or which he intends to commence at site may be rejected.

The Engineer, in giving his approval to the Working Drawings, will presume that any necessary action has been, or shall be taken by the Sub-contractor to ensure that the installations shown on the Working Drawings have been cleared with the Main Contractor and any other Sub-contractors whose installations and works might be affected.

If the Sub-contractor submits his Working Drawings to the Engineer without first liaising and obtaining clearance for his installations from the Main Contractor and other Sub-contractors whose installations and works might be affected, then he shall be liable to pay for any alterations or modification to his own, the Main Contractor's or other Sub-contractor's installations and works, which are incurred, notwithstanding any technical or other approval received from the Engineer.

Working Drawings to be prepared by the Sub-contractor shall include but not be restricted to the following:

- a) Any drawings required by the Main Contractor, or Engineer to enable structural provisions to be made including Builder's Working Drawings or Schedules and those for the detailing of holes, fixings, foundations, cables and paperwork ducting below or above ground or in or outside or below buildings.
- b) General Arrangement Drawings of all plant, control boards, fittings and apparatus or any part thereof and of installation layout arrangement of such plant and apparatus.

- c) Schematic Layout Drawings of services and of control equipment.
- d) Layout Drawings of all embedded and non-embedded paperwork, ducts and electrical conduits.
- e) Complete circuit drawings of the equipment, together with associated circuit description.
- f) Such other drawings as are called for in the text of the Specification or Schedules or as the Engineer may reasonably require.

**Three copies of all Working Drawings shall be submitted to the Engineer for approval.** One copy of the Working Drawings submitted to the Engineer for approval shall be returned to the Sub-contractor indicating approval or amendment therein.

Six copies of the approved Working Drawings shall be given to the Main Contractor by the Sub-contractor for information and distribution to other Sub-contractors carrying out work associated with or in close proximity to or which might be affected by the Sub-contract Works.

Approved Working Drawings shall not be departed from except as may be approved or directed by the Engineer.

Approval by the Engineer of Working Drawings shall neither relieve the Sub-contractor of any of his obligations under the Sub-contract nor relieve him from correcting any errors found subsequently in the Approved Working Drawings or other Working Drawings and in the Sub-contract Works on site or elsewhere associated therewith.

The Sub-contractor shall ensure that the **Working Drawings are submitted** to the Architect for approval at a time not unreasonably close to the date when such approval is required. Late submission of his Working Drawings will not relieve the Sub-contractor of his obligation to complete the Sub-contract Works within the agreed Contract Period and in a manner that would receive the approval of the Architect.

#### **Record Drawings (As Installed) and Instructions**

During the execution of the Sub-contract Works the Sub-contractor shall, in a manner approved by the Engineer record on Working or other Drawings at site all information necessary for preparing Record Drawings of the installed Sub-contract Works. Marked-up Working or other Drawings and other documents shall be made available to the Engineer as he may require for inspection and checking.

Record Drawings, may, subject to the approval of the Engineer, include approved Working Drawings adjusted as necessary and certified by the Sub-contractor as a correct record of the installation of the Sub-contract Works.

They shall include but not restricted to the following drawings or information:

- a) Working Drawings amended as necessary but titled "Record Drawings" and certified as a true record of the "As Installed" Sub-contract Works. Subject to the approval of the Engineer such Working Drawings as may be inappropriate may be omitted.
- b) Fully dimensioned drawings of all plant and apparatus.
- c) General arrangement drawings of equipment, other areas containing plant forming part of the Sub-contract Works and the like, indicating the accurate size and location of the plant and apparatus suitability cross-referenced to the drawings mentioned in (b) above and hereinafter.
- d) Routes, types, sizes and arrangement of all pipework and ductwork including dates of installation of underground pipework.
- e) Relay adjustment charts and manuals.
- f) Routes, types, sizes and arrangement of all electric cables, conduits, ducts and wiring including the dates of installation of buried works.
- g) System schematic and trunking diagrams showing all salient information relating to control and instrumentation.
- h) Grading Charts.
- i) Valve schedules and locations suitability cross-referenced.

- j) Wiring and piping diagrams of plant and apparatus.
- k) Schematic diagrams of individual plant, apparatus and switch and control boards. These diagrams to include those peculiar to individual plant or apparatus and also those applicable to system operation as a whole.
- l) Operating Instruction

Schematic and wiring diagrams shall not be manufacturer's multipurpose general issue drawings. They shall be prepared specially for the Sub-contract Works and shall contain no spurious or irrelevant information.

Marked-up drawings of the installation of the Sub-contract Works shall be kept to date and completed by the date of practical or section completion. Two copies of the Record Drawings of Sub-contract Works and two sets of the relay adjustment and grading charts and schematic diagrams on stiff backing shall be provided not later than one month later.

The Sub-contractor shall supply for fixing in sub-stations, switch-rooms, boiler houses, plant rooms, pump houses, the office of the Maintenance Engineer and other places, suitable valve and instructions charts, schematic diagrams of instrumentation and of the electrical reticulation as may be requested by the Engineer providing that the charts, diagrams, etc., relate to installations forming part of the Sub-contract Works. All such charts and diagrams shall be of suitable plastic material on a stiff backing and must be approved by the Engineer before final printing.

Notwithstanding the Sub-contractor's obligations referred to above, if the Sub-contractor fails to produce to the Engineer's approval, either:-

- a) The Marked-up Drawings during the execution of the Sub-contract Works or
- b) The Record Drawings, etc., within one month of the Section or Practical Completion

The Engineer shall have these drawings produced by others. The cost of obtaining the necessary information and preparing such drawings, etc., will be recovered from the Sub-contractor.

### **Maintenance Manual**

Upon Practical Completion of the Sub-contract Works, the Sub-contractor shall furnish the Engineer four copies of a Maintenance Manual relating to the installation forming part of all of the Sub-contract Works.

The manual shall be loose-leaf type, International A4 size with stiff covers and cloth bound. It may be in several volumes and shall be sub-divided into sections, each section covering one Engineering service system. It shall have a ready means of reference and a detailed index.

There shall be a separate volume dealing with Air Conditioning and Mechanical Ventilation installation where such installations are included in the Sub-contract Works.

The manual shall contain full operating and maintenance instructions for each item of equipment, plant and apparatus set out in a form dealing systematically with each system. It shall include as may be applicable to the Sub-contract Works the following and any other items listed in the text of the Specifications:

- a) System Description.
- b) Plant
- c) Valve Operation
- d) Switch Operation
- e) Procedure of Fault Finding
- f) Emergency Procedures
- g) Lubrication Requirements
- h) Maintenance and Servicing Periods and Procedures
- i) Colour Coding Legend for all Services

- j) Schematic and Writing Diagrams of Plant and Apparatus
- k) Record Drawings, true to scale, folded to International A4 size
- l) Lists of Primary and Secondary Spares.

The manual is to be specially prepared for the Sub-contract Works and manufacturer's standard descriptive literature and plant operating instruction cards will not be accepted for inclusion unless exceptionally approved by the Engineer. The Sub-contractor shall, however, affix such cards, if suitable, adjacent to plant and apparatus. One spare set of all such cards shall be furnished to the Engineer.

### **Hand-over**

The Sub-contract Works shall be considered complete and the Maintenance and Defects Liability Period shall commence only when the Sub-contract Works and supporting services have been tested, commissioned and operated to the satisfaction of the Engineer and officially approved and accepted by the Employer, provided always that the handing over of the Sub-contract Works shall be coincident with the handing over of the Main Contract Works.

The procedure to be followed will be as follows:

- a) On the completion of the Sub-contract Works to the satisfaction of the Engineer and the Employer, the Sub-contractor shall request the Engineer, at site to arrange for handing over.
- b) The Engineer shall arrange a Hand-over Meeting or a series thereof, at site.
- c) The Sub-contractor shall arrange with the Engineer and Employer for a complete demonstration of each and every service to be carried out and for instruction to be given to the relevant operation staff and other representatives of the Employer.
- d) In the presence of the Employer and the Engineer, Hand-over will take place, subject to Agreement of the Hand-over Certificates and associated check lists.

### **Painting**

It will be deemed that the Sub-contractor allowed for all protective and finish painting in the Sub-contract Sum for the Sub-contract Works, including colour coding of service pipework to the approval of the Engineer. Any special requirements are described in the text of the Specifications.

### **Spares**

The Sub-contractor shall supply and deliver such spares suitably protected and boxed to the Engineer's approval as are called for in the Specifications or in the Price Schedules.

### **Testing and Inspection – Manufactured Plant**

The Engineer reserves the right to inspect and test or witness of all manufactured plant equipment and materials.

The right of the Engineer relating to the inspection, examination and testing of plant during manufacture shall be applicable to Insurance companies and inspection authorities so nominated by the Engineer.

The Sub-contractor shall give two week's notice to the Engineer of his intention to carry out any inspection or tests and the Engineer or his representative shall be entitled to witness such tests and inspections

Six copies of all test certificates and performance curves shall be submitted as soon as possible after the completion of such tests, to the Engineer for his approval.

Plant or equipment which is shipped before the relevant test certificate has been approved by the Engineer shall be shipped at the Sub-contractor's own risk and should the test certificate not be approved new tests may be ordered by the Engineer at the Sub-contractor's expense.

The foregoing provisions relate to tests at manufacturer's works and as appropriate to those carried out at site.

### **Testing and Inspection -Installation**

Allow for testing each section of the Sub-contract Works installation as described hereinafter to the satisfaction of the Engineer.

### **Labour Camps**

The Sub-contractor shall provide the necessary temporary workshop and mess-room in position to be approved by the Architect.

The work people employed by the Sub-contractor shall occupy or be about only that part of the site necessary for the performance of the work and the Sub-contractor shall instruct his employees accordingly.

If practicable, W.C. accommodation shall be allocated for the sole use of the Sub-contractor's workmen and the Sub-contractor will be required to keep the same clean and disinfected, to make good any damage thereto and leave in good condition.

### **Storage of Materials**

Space for storage will be provided by the Main contractor but the sub-contractor will be responsible for provision of any lock-up sheds or stores required.

Nominated Sub-contractors are to be made liable for the cost of any storage accommodation provided specially for their use. No materials shall be stored or stacked on suspended slabs without the prior approval of the Project manager.

### **Initial Maintenance**

The sub-contractor shall make routine maintenance once a month during the liability for the Defects Period and shall carry out all necessary adjustments and repairs, cleaning and oiling of moving parts. A monthly report of the inspection and any works done upon the installation shall be supplied to the Engineer.

The sub-contractor shall also provide a 24 -hour break-down service to attend to faults on or malfunctioning of the installation between the routine visits of inspection.

The sub-contractor shall allow in the sub-contract Sum of the initial maintenance, inspection and break-down service and shall provide for all tools, instruments, plant and scaffolding and the transportation thereof, as required for the correct and full execution of these obligations and the provision, use or installation of all materials as oils, greases, sandpaper, etc., or parts which are periodically renewed such as brake linings etc., or parts which are faulty for any reason whatsoever excepting always Acts of God such as storm, tempest, flood, earthquake and civil revolt, acts of war and vandalism.

### **Maintenance and Servicing After Completion of the Initial Maintenance**

The sub-contractor shall, if required, enter into a maintenance and service agreement with the employer for the installation for a period of up to five years from the day following the last day of the liability for Defects Period which offers the same facilities as specified in Clause 1.42 (Initial Maintenance).

The terms of any such agreement shall not be less beneficial to the employer than the terms of Agreements for either similar installation.

The sub-contractor shall submit with his tender for the works, where called upon a firm quotation for the maintenance and service of the installation as specified herein, which shall be based upon the present day costs and may be varied only to take into account increases in material and labour unit rate costs between the time of tendering and the signing of the formal maintenance and service agreement and which shall remain valid and open for acceptance by the Employer to and including the last day of the fifth complete calendar month following the end of the liability for Defects Period.



### **Trade Names**

Where trade names of manufacturer's catalogue numbers are mentioned in the Specification or the Bills of Quantities, the reference is intended as a guide to the type of article or quality of material required. Alternate brands of equal and approved quality will be acceptable.

### **Water and Electricity for the Works**

These will be made available by the Main Contractor. The Sub-contractor shall be liable for the cost of any water or electric current used and for any installation provided especially for their own use by the Main Contractor.

### **Protection**

The sub-contractor shall adequately cover up and protect his own work to prevent injury and also to cover up and protect from damage all parts of the building or premises where work is performed by him under the Contract.

### **Defects After Completion**

The defects liability period will be 6 months from the date of completion of the Main Contract as certified by the Engineer.

### **Damages for Delay**

Liquidated and Ascertained damages as stated in the Main Contract Agreement will be claimed against the Main Contract for any unauthorised delay in completion. The Sub-contractor shall be held liable for the whole or a portion of these damages should he cause delay in completion.

### **Clear Away on Completion**

The sub-contractor shall, upon completion of the works, at his own expense, remove and clear away all plant, equipment, rubbish and unused materials, and shall leave the whole of the works in a clean and tidy state, to the satisfaction of the Engineer. On completion, the whole of the works shall be delivered up clean, complete and perfect in every respect to the satisfaction of the Engineer.

### **Final Account**

On completion of the works the sub-contractor shall agree with the Engineer the value of any variations outstanding and as soon as possible thereafter submit to the Engineer his final statement of account showing the total sum claimed sub-divided as follows:

Statement A - detailing the tender amounts less the Prime Cost and Provisional Sums, included therein.

Statement B - detailing all the variation orders issued on the contract.

Statement C - Summarising statement A and B giving the net grand total due to the Contractor for the execution of the Contract.

### **Fair Wages**

The sub-contractor shall in respect of all persons employed anywhere by him in the execution of the sub-contract, in every factory, workshop or place occupied or used by him for execution of the Contract, observe and fulfill the following conditions:

- a) The sub-contractor shall pay rates of the wages and observe hours and conditions of labour not less favourable than those established for the trade or industry in the district where work is carried out.

- b) In the absence of any rates of wages, hours or conditions of labour so established the sub-contractor shall pay rates and observe hours and conditions of labour are not less favourable than the general level of wages, hours and conditions observed by other employers whose general circumstances in the trade or industry in which the Contractor is engaged are similar.

### **Supervision**

During the progress of the works, the Sub-contractor shall provide and keep constantly available for consultation on site an experienced English - speaking Supervisor and shall provide reasonable office facilities, attendance, etc., for the Supervisor.

In addition, during the whole of the time the works are under construction, the sub-contractor shall maintain on site one experienced foreman or charge-hand and an adequate number of fitters, etc., for the work covered by the Specification. The number of this staff shall not be reduced without the prior written approval of the Project manager or Engineer.

Any instructions given to the Supervisor on site shall be deemed to have been given to the sub-contractor.

One copy of this Specification and one copy of each of the Contract Drawings (latest issue) must be retained on site at all times, and available for reference by the Engineer or sub-contractor.

### **Test Certificates**

The Sub-contractor shall provide the Engineer with three copies of all test reports or certificates that are or may be required by this Specification.

### **Labour**

The Sub-contractor shall provide skilled and unskilled labour as may be necessary for completion of the contract.

### **Discount to the Main Contractor**

No discount to the Main Contractor will be included in the tender for this installation.

### **Guarantee**

The whole of the work will be guaranteed for a period of six months from the date of the Engineer's certification of completion and under such guarantee the Sub-contractor shall remedy at his expense all defects in materials and apparatus due to faulty design, construction or workmanship which may develop in that period.

### **Direct Contracts**

Notwithstanding the foregoing conditions, the Government reserves the right to place a "Direct Contract" for any goods or services required in the works which are covered by a P.C Sum in the Bills of Quantities and to pay for the same direct. In any such instance, profit relative to the P.C Sum in the priced Bills of Quantities will be adjusted as deserved for P.C Sum allowed.

### **Attendance Upon the Tradesmen etc**

The Contractor shall allow for the attendance of trade upon trade and shall afford any tradesmen or other persons employed for the execution of any work not included in this contract every facility for carrying out their work and also for the use of ordinary scaffolding. The contractor however, shall not be required to erect any special scaffolding for them.

### **Trade Unions**

The contractor shall recognize the freedom of his work people to be members of trade unions.

### **Local and other Authorities notices and fees**

The contractor shall comply with and give all notices required by any Regulations, Act or by Law of any Local Authority or of any Public Service, Company or Authority who have any jurisdiction with regard to the works or with those systems the same are or will be connected and he shall pay and indemnify the Government against any fees or charges legally demandable under any regulation or by-law in respect of the works; provided that the said fees and charges if not expressly included in the contract sum or stated by way of provisional sum shall be added to the contract sum.

The contractor before making any variation from the contract drawings or specification necessitated by such compliance shall give the Project Manager written notice specifying and giving the reason for such variation and applying for instructions in reference thereto.

If the contractor within seven days of having applied for the same does not receive such instructions, he shall proceed with the works in conforming to the provision regulation or by-law in question and any variation thereby necessitated shall be deemed to be a variation in accordance to the conditions of contract.

### **Assignment or subletting**

The contractor shall not without the written consent of the Project Manager assign this contract or sublet any portion of the works, provided that such consent shall not be unreasonably withheld to the prejudice of the contractor.

### **Partial Completion**

If the Government shall take over any part or parts works, apparatus, equipment etc. then within seven days from the date on which the Government shall have taken possession of the relevant part, the Project Manager shall issue a Certificate stating his estimate of the approximate total value of the works which shall be the total value of that part and practical completion of the relevant part shall be deemed to have occurred, and the Defects Liability Period in respect of the relevant part be deemed to have commenced on the date Government shall have taken possession thereof.

The contractor shall make good any defects or other faults in the relevant part that had been deemed complete.

The contractor shall reduce the value of insurance by the full value of the relevant part

The contractor shall be paid for the part of works taken possession by the Government

### **Temporary Works**

Where temporary works shall be deemed necessary, such as Temporary lighting, the contractor shall take precaution to prevent damage to such works.

The contractor shall include for the cost of and make necessary arrangements with the Project Manager for such temporary works. For temporary lighting, electricity shall be metered and paid for by the contract

### **Patent Rights**

The contractor shall fully indemnify the Government of Kenya; against any action, claim or proceeding relating to infringement of any patent or design rights, and pay any royalties which may be payable in respect of any article or any part thereof, which shall have been supplied by the contractor to the Project Manager. In like manner the Government of Kenya shall fully indemnify the contractor against any such action, claim or proceedings for infringement under the works, the design thereof of which shall have been supplied by the Project Manager to the contractor, but this indemnify shall apply to the works only, and any permission or request to manufacture to the order of the Project Manager shall not relieve the contractor from liability should he manufacture for supply to other buyers.

### **Mobilization and Demobilization**

The contractor shall mobilize labour plant and equipment to site according to his programme and schedule of work. He shall ensure optimum presence and utilization of labour, plant and equipment. He should not pay and maintain unnecessary labour force or maintain and service idle plant and equipment. Where necessary he shall demobilize and mobilize the labour, plant and equipment, as he deems fit to ensure

optimum progress of the works and this shall be considered to be a continuous process as works progress. He shall make provision for this item in his tender. No claim will be entertained where the contractor has not made any provision for mobilization and demobilization of labour, plant and equipment in the preliminary bills of quantities or elsewhere in this tender.

### **Extended Preliminaries**

Where it shall be necessary to extend the contract period by the Project manager the contractor shall still ensure availability on site, optimum labour, materials, plant and equipment. The contractor shall make provision for extended preliminaries, should the contract period be extended and this shall be in a form of a percentage of the total Contractor works. Where called upon in the Appendix to these Preliminaries the Contractor shall insert his percentage per month for extended preliminaries that shall form basis for compensation.

Lack of inserting the percentage shall mean that the sub-contractor has provided for this requirement elsewhere in the Bills of Quantities.

### **Supervision by Engineer and Site Meetings**

A competent Project Engineer appointed by the Engineer as his representative shall supervise the Contract works. The Project Engineer shall be responsible for issuing all the site instructions in any variations to the works and these shall be delivered through the Contractor with the authority of the Project Manager. Any instructions given verbal shall be confirmed in writing.

The project engineer and (or) the Engineer shall attend management meetings arranged by the Project Manager and for which the Contractor or his representative shall also attend. For the purpose of supervising the project, provisional sums are provided to cover for transport and allowances. The Contractor shall in his tender allow for the provision of management meetings and site inspections, as instructed by the Engineer, and also profit and attendance on these funds. The funds shall be expended according to Project Manager's instructions to the contractor.

### **Amendment to Scope of Contract Works**

No amendment to scope of sub-contract works is expected and in case of amendment or modification to scope of work, these shall be communicated to all tenderers in sufficient time before the deadline of the tender submission. However during the contract period and as the works progress the Project Manager may vary the works as per conditions of contract by issuing site instructions.

No claims shall be entertained on account of variation to scope of works either to increase the works (pre-financing) or reduction of works (loss of profit-see clause 1.70)

### **Contractor Obligation and Employers Obligation**

The sub-contractor will finance all activities as part of his obligation to this contract. The employer shall pay interim payment for materials and work completed on site as his obligation in this contract, as the works progresses. No claims will be entertained for pre-financing of the project by the sub-contractor, or for loss of profit (expectation loss) in case of premature termination, reduction or increase of works as the sub-contractor shall be deemed to have taken adequate measures in programming his works and expenditure and taken necessary financial precaution while executing the works. No interest shall be payable to the Contractor, except as relates to late payment as in the conditions of contract clause 23.3. The contractor shall where called upon, insert his price to compensate for any of the occurrence stated here (premature termination, reduction or increase of works), as a percentage of the contract sum in the Appendix to this section.

## **APPENDIX TO SUB-CONTRACT PRELIMINARIES AND GENERAL CONDITIONS**

**1. OMIT CLAUSE 1.12**

**2. ADD TO CLAUSE 1.17**

Prices quoted shall include **16% VAT**

In accordance with Government policy, **3% Withholding Tax** shall be deducted from all payments made to the sub-contractor, and the same shall subsequently be forwarded to the Kenya Revenue Authority (KRA).

**3. ADD TO CLAUSE 1.40**

There is no labour camp

**4. CLAUSE 1.66**

Extended Preliminaries shall be equal to or less than liquidated and ascertained damages and are subject to mutual agreement.

**5. MODIFY CLAUSE 1.15**

Replace “7.5%” with “5%”

**SECTION D**

**PARTICULAR SPECIFICATION**

**OF**

**MATERIALS AND WORKS**

## **GENERAL SPECIFICATIONS OF MATERIALS AND WORKS**

General

Standard of Materials

Workmanship

Procurement of Materials

Shop Drawings

Record Drawings

Regulations and Standards

Setting out Works

Testing on Site

## **GENERAL**

This specification is to be read in conjunction with any other information herein issued with it. Bills of quantities and schedule of unit rates shall be the basis of all additions and omissions during the progress of the works.

## **STANDARD OF MATERIALS**

Where the material and equipment are specifically described and named in the Specification followed by approved equal, they are so named or described for the purpose of establishing a standard to which the contractor shall adhere.

Should the contractor install any material not specified herein before receiving approval from the proper authorities, the Engineer shall direct the contractor to remove the material in question immediately. The fact that this material has been installed shall have no bearing or influence on the decision by the Engineer.

All materials condemned by the Engineer as not approved for use, are to be removed from the premises and suitable materials delivered and installed in their place at the expense of the Contractor. All materials required for the works shall be from branded manufacturers, and shall be new and the best of the respective kind and shall be of a uniform pattern.

## **WORKMANSHIP**

The workmanship and method of installation shall conform to the best standard practice. All work shall be performed by a skilled tradesman and to the satisfaction of the Engineer. Helpers shall have qualified supervision.

Any work that does not in the opinion of the Engineer conform to the best standard practice will be removed and reinstated at the contractor's expense.

Permits, Certificates or Licences must be held by all tradesmen for the type of work; in which they are involved where such permits, certificates or licences exist under Government legislation.

## **PROCUREMENT OF MATERIALS**

The contractor is advised that no assistance can be given in the procurement or allotment of any materials or products to be used in and necessary for the construction and completion of the work.

Contractors are warned that they must make their own arrangements for the supply of materials and/or products specified or required.

## **RECORD DRAWINGS**

These diagrams and drawings shall show the completed installation including sizes, runs and arrangements of the installation. The drawings shall be to scale not less than 1:50 and shall include plan views and section.

The drawings shall include all the details which may be useful in the operation, maintenance or subsequent modifications or extensions to the installation.

Three sets of diagrams and drawings shall be provided, all to the approval of the Engineer. One colored set of line diagrams relating to operating and maintenance instructions shall be framed and, mounted in a suitable location.



## **REGULATIONS AND STANDARDS**

All work executed by the contractor shall comply with the current edition of the “Regulations” for the Electrical Equipment of Buildings, issued by the Institution of Electrical Engineers, Electric Power Act, Kenya Bureau of Standards (KBS), Institution of Electrical Engineers (I.E.E) Wiring Regulations, Current recommendation of CCITT and CCIR, and with the Regulations of the Local Electricity Authority and the Communications Commission of Kenya (CCK)

Where the sets of regulations appear to conflict, they shall be clarified with the Engineer.

## **SETTING OUT WORK**

The contractor, at his own expenses, is to set out works and take all measurements and dimensions required for the erection of his materials on site; making any modifications in details as may be found necessary during the progress of the works, submitting any such modifications or alterations in detail to the Engineer before proceeding and must allow in his tender for all such modifications and for the provision of any such sketches or drawings related thereto.

## **2.9 TESTING ON SITE**

The contractor shall conduct during and at the completion of the installation and, if required, again at the expiration of the maintenance period, tests in accordance with the relevant section of the current edition of the Regulations for the electrical equipment of buildings issued by the I.E.E of Great Britain, the Government Electrical Specifications No. 1 and No.2, Electric Supply Company’s By- Laws, Communications Commission of Kenya (CCK) requirements or any other supplementary Regulations as may be produced by the engineer.

Any faults, defects or omissions or faulty workmanship, incorrectly positioned or installed parts of the installation shall be rectified by the contractor at his own expense.

## **APPENDIX TO GENERAL SPECIFICATIONS OF MATERIALS AND WORKS**

The electrical sub-contractor shall comply with the following:-

1. Government Electrical Specifications No. 1 and No. 2.
2. All requirements of Kenya Power and Lighting Company Limited, and Communications Commission of Kenya (CCK).
3. Duly Registered with NCA in relevant class and category

**SECTION E**  
**SCHEDULE OF CONTRACT DRAWINGS**

## **SCHEDULE OF CONTRACT DRAWINGS**

1.0 Tenderers may inspect the electrical drawings at the office of the County Public works officer

The drawings shall however be availed, on award of the tender, to the nominated sub contractor.

**E/1**

**51**

**SECTION F**  
**PARTICULAR SPECIFICATIONS**  
**OF**  
**MATERIALS AND WORKS**

## **PARTICULAR SPECIFICATIONS**

### **TELECOMMUNICATIONS DISTRIBUTION SYSTEM – STRUCTURED CABLING**

#### **PART 1/1**

#### **A. GENERAL TECHNICAL SPECIFICATIONS.**

- a. Section Includes: Equipment, materials, labor, and services to provide telephone and data distribution system including but not limited to:

- 1) *Telephone and data cabling terminations*
- 2) *Optical fiber and terminations*
- 3) *Data/voice outlets*
- 4) *Terminal blocks/cross-connect systems*
- 5) *Equipment racks and cabinets*
- 6) *System testing*
- 7) *Documentation and submissions*
- 8) *Surface trunking, cable ladder,*
- 9) *Core switch, edge switches*

- b. Provide all equipment, materials, labor, and services, not specifically mentioned or shown, which may be necessary to complete or perfect all parts of the installation. Ensure that they are in compliance with requirements stated or reasonably inferred by the contract documents.

#### **1. REFERENCES**

- a. Design, manufacture, test, and install telecommunications cabling networks per manufacturer's requirements and in accordance with NFPA-70 (*National Electrical Code®*)/IEE Regulations, state codes, local codes, requirements of authorities having jurisdiction, and particularly the following standards: ANSI/NECA/BICSI-568 -- Standard for Installing Commercial Building Telecommunications Cabling ANSI/TIA/EIA Standards.

- 1) **ANSI/TIA/EIA-568-B.1 -- Commercial Building Telecommunications Cabling Standard, Part 1: General Requirements**
- 2) **ANSI/TIA/EIA-568-B.2 -- Commercial Building Telecommunications Cabling Standard, Part 2: Balanced Twisted Pair Cabling Components**
- 3) **ANSI/TIA/EIA-568-B.3 -- Optical Fiber Cabling Components Standard**
- 4) **ANSI/TIA/EIA-569-A -- Commercial Building Standard for Telecommunications Pathways and Spaces**
- 5) **ANSI/TIA/EIA-606(A) -- The Administration Standard for the Telecommunications Infrastructure of Commercial Buildings**
- 6) **ANSI/TIA/EIA-607(A) -- Commercial Building Grounding and Bonding Requirements for Telecommunications**
- 7) **ANSI/TIA/EIA-526-7 -- Measurement of Optical Power Loss of Installed Single-Mode Fiber Cable Plant**
- 8) **ANSI/TIA/EIA-526-14A -- Measurement of Optical Power Loss of Installed Multimode Fiber Cable Plant**
- (9) **ANSI/TIA/EIA-758(A) -- Customer-Owned Outside Plant Telecommunications Cabling Standard**
- (10) **ISO/IEC 1101 Amendment 2**

- b. Local codes, rules, regulations, and ordinances governing the work, are as fully part of the specifications as if herein repeated or hereto attached. If the contractor should note items in the drawings or the specifications, construction of which would be code violations, promptly call them to the attention of the Project Manager in writing. Where the requirements of other sections of the specifications are more stringent than applicable codes, rules, regulations, and ordinances, the specifications shall apply.

## **1. PERMITS, FEES, AND CERTIFICATES OF APPROVAL**

- a. The Contractor to include the cost of application and pay for building permit.
- b. As prerequisite to final acceptance, supply to the client certificates of inspection from an inspection agency acceptable to the owner and approved by local municipality and utility company serving the Project Manager.

## **2. SYSTEM DESCRIPTION**

- a. A telecommunications cabling system generally consists of one telecommunications outlet in each workstation, wall telephones in common and power socket outlet.
- b. The typical work area consists of a single-gang plate with two standards compliant work area outlets.
- c. *One work area outlet consists of one (1) four-pair data Category 6 cable or above, installed from work area outlet to the data cabinet. Terminate data cables on modular patch panels located in the appropriate data cabinet.*
- d. *One work area outlet consists of one (1) four-pair screened (ScTP) cable installed from work area outlet to the data termination rack in the cabinet. Terminate data cables on rack mounted modular patch panels.*

Vertical/horizontal copper backbone cabling consists of multiple pair unshielded twisted-pair installed from the main cross-connect (MC) to the horizontal cross-connect (HC) and/or from the MC to the intermediate cross-connect (IC) to the HC.

Vertical/horizontal backbone cabling consists of 62.5/125  $\mu\text{m}$  multimode optical fiber cable installed from the MC to the HC and/or from the MC to the IC to the HC. *Specification Note: State what this backbone will be utilized for. Examples are voice telecommunications service, premises switching equipment, data communications, etc.*

## **3. SUBMITTALS**

- a. Submit to the P.M shop drawings, product data (including cut sheets and catalog information), and samples required by the contract documents. Submit shop drawings, product data, and samples with such promptness and in such sequence as to cause no delay in the work or in the activities of separate contractors. The engineer will indicate approval of shop drawings, product data, and samples submitted to the engineer by stamping such submittals "APPROVED" with a stamp. Submitted shop drawings shall be initialed or signed by the contractor, showing the date and the contractor's legitimate firm name.
  - 1) By submitting shop drawings, product data, and samples, the contractor represents that he or she has carefully reviewed and verified materials, quantities, field measurements, and field construction criteria related thereto. It also represents that the contractor has checked, coordinated, and verified that information contained within shop drawings, product data, and samples conform to the requirements of the work and of the contract documents. The engineer/designer remains responsible for the design concept expressed in the contract documents as defined herein.

2) The P.M approval of shop drawings, product data, and samples submitted by the contractor shall not relieve the contractor of responsibility for deviations from requirements of the contract documents, unless the contractor has specifically informed the engineer/designer in writing of such deviation at time of submittal, and the engineer/designer has given written approval of the specific deviation. The contractor shall continue to be responsible for deviations from requirements of the contract documents not specifically noted by the contractor in writing, and specifically approved by the engineer in writing.

3) The P.M approval of shop drawings, product data, and samples shall not relieve the contractor of responsibility for errors or omissions in such shop drawings, product data, and samples.

4) The P.M review and approval, or other appropriate action upon shop drawings, product data, and samples, is for the limited purpose of checking for conformance with information given and design concept expressed in the contract documents. The engineer's review of such submittals is not conducted for the purpose of determining accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the contractor as required by the contract documents.

The review shall not constitute approval of safety precautions or of construction means, methods, techniques, sequences, or procedures. The P.M approval of a specific item shall not indicate approval of an assembly of which the item is a component.

b. Shop drawings: Submit the following:

**Coordinate with Part 2.**

- 1) Backbone (riser) diagrams
- 2) System block diagram, indicating interconnection between system components and subsystems
- 3) Interface requirements, including connector types and pin-outs, to external systems and systems or components not supplied by the contractor
- 4) Fabrication drawings for custom-built equipment

c. Product Data -- Provide catalog cut sheets and information for the following:

*Coordinate with Part 2..*

- 1) Wire, cable, and optical fiber
- 2) Outlets, jacks, faceplates, and connectors
- 3) All metallic and nonmetallic raceways, including surface raceways, outlet boxes, and fittings
- 4) Terminal blocks and patch panels
- 5) Enclosures, racks, and equipment housings
- 6) Over-voltage protectors
- 7) Splice housings

d. Samples-- Submit samples as required by the engineer .

e. Project record drawings:



- 1) Submit project record drawings at conclusion of the project and include:
  - (a) Approved shop drawings
  - (b) Plan drawings indicating locations and identification of work area outlets, nodes, data cabinet rooms, and backbone (riser) cable runs
  - (c) Cross-connect schedules including entrance point, main cross-connects, intermediate cross-connects, and horizontal cross-connects.
  - (d) Labeling and administration documentation.
  - (e) Warranty documents for equipment.
  - (f) Copper certification test result printouts and diskettes.
  - (g) Optical fiber power meter/light source test results.
  - (h) Operation and maintenance manuals:

#### **4. QUALITY ASSURANCE**

- a. The contractor shall have worked satisfactorily for a minimum of five (5) years on systems of this type and size.
- b. Upon request by the P.M, furnish a list of references with specific information regarding type of project and involvement in providing of equipment and systems.
- c. Equipment and materials of the type for which there are independent standard testing requirements, listings, and labels, shall be listed and labeled by the independent testing laboratory.
- d. Where equipment and materials have industry certification, labels, or standards (i.e., NEMA - National Electrical Manufacturers Association), this equipment shall be labeled as certified or complying with standards.
- e. Material and equipment shall be new, and conform to grade, quality, and standards specified. Equipment and materials of the same type shall be a product of the same manufacturer throughout.
- f. Subcontractors shall assume all rights and obligations toward the contractor that the contractor assumes toward the client and P.M.

#### **6. WARRANTY**

Unless otherwise specified, unconditionally guarantee in writing the materials, equipment, and workmanship for a period of not less than fifteen (15) years from date of commissioning of the project for active components. Transfer manufacturer's warranties to the owner in addition to the General System Guarantee. Submit these warranties on each item in list form with shop drawings. Detail specific parts within equipment that are subject to separate conditional warranty. Warranty proprietary equipment and systems involved in this contract during the guarantee period. Final payment shall not relieve you of these obligations.

#### **7. DELIVERY, STORAGE, AND HANDLING**

Protect equipment during transit, storage, and handling to prevent damage, theft, soiling, and misalignment. Coordinate with the client for secure storage of equipment and materials. Do not store equipment where conditions fall outside manufacturer's recommendations for environmental conditions. Do not install damaged equipment; remove from site and replace damaged equipment with new equipment.

#### **8. SEQUENCE AND SCHEDULING**

Submit schedule for installation of equipment and cabling. Indicate delivery, installation, and testing for conformance to specific job completion dates. As a minimum, dates are to be provided for bid award, installation start date, completion of station cabling, completion of riser cabling, completion of testing and labeling, cutover, completion of the final punch list, start of demolition, owner acceptance, and demolition completion.

## **9. USE OF THE SITE**

Access to building wherein the work is performed shall be as directed by the P.M.

The client will occupy the premises during the entire period of construction for conducting his or her normal business operations. Cooperate with the client to minimize conflict and to facilitate the owner's operations.

Schedule necessary shutdowns of plant services with the main contractor, and obtain written permission from the client.

Proceed with the work without interfering with ordinary use of streets, aisles, passages, exits, and operations of the client.

## **PART 2/1 - PRODUCTS**

### **1. MANUFACTURERS**

Provide products of manufacturers as named in individual articles. Where no manufacturer is specified, provide products of manufacturers in compliance with requirements.

### **2. FABRICATION**

Fabricate custom-made equipment with careful consideration given to aesthetic, technical, and functional aspects of equipment and its installation.

### **3. SUITABILITY**

Provide products that are suitable for intended use, including, but not limited to environmental, regulatory, and electrical.

### **4. VOICE/DATA TELECOMMUNICATIONS SERVICE BACKBONE CABLE**

a. Solid copper, 24 AWG, 100  $\Omega$  balanced twisted-pair (UTP) backbone cable, with mechanical and transmission performance specifications that meet or exceed ANSI/TIA/EIA-568-B.2

b. Multimode 62.5/125  $\mu\text{m}$  diameter tight-buffered optical fiber, with fiber counts as indicated on drawings, with mechanical and transmission performance specifications that meet or exceed ANSI/TIA/EIA-568-B.3

### **5. VOICE TELECOMMUNICATIONS STATION CABLE**

a. Solid copper, 24 AWG, 100  $\Omega$  balanced twisted-pair (UTP) Category 6e cables with four individually twisted-pairs, which meet or exceed the mechanical and transmission performance specifications in ANSI/TIA/EIA-568-B.2 up to 100 MHz.

### **6. DATA STATION CABLE (Copper)**

a. Solid copper, 24 AWG, 100  $\Omega$  balanced twisted-pair (UTP) Category 6e cables with four individually twisted-pairs, which meet or exceed the mechanical and transmission performance specifications in ANSI/TIA/EIA-568-B.2 up to 100 MHz.

b. Solid copper, 24 AWG, 100  $\Omega$  balanced twisted-pair, screened (ScTP) cables with four individually twisted-pairs, which meet or exceed the mechanical and transmission performance specifications in ANSI/TIA/EIA-568-B.2 (Annex K) up to 100 MHz.

### **7. DATA STATION CABLE (Optical Fiber)**

a. Multimode 62.5/125  $\mu\text{m}$  diameter tight-buffered optical fiber, with the required number of fiber counts, with mechanical and transmission performance specifications that meet or exceed ANSI/TIA/EIA-568-B.3

## **8. UNDERGROUND TELECOMMUNICATIONS CABLE (Copper)**

If you have copper cables installed outside between buildings, be certain to specify overvoltage protectors on both ends of the cable. See article, OVERVOLTAGE PROTECTORS.

Solid copper, 24 AWG 100  $\Omega$  balanced twisted-pair, gel-filled duct cable, in sizes as indicated on the drawings, which meet or exceed the mechanical and transmission performance specifications listed in ANSI/TIA/EIA-568-B.2 and ANSI/TIA/EIA-758(A).

## **9. UNDERGROUND TELECOMMUNICATIONS CABLE (Optical Fiber)**

Singlemode 8.7  $\mu\text{m}$  to 10  $\mu\text{m}$  diameter, armored, gel-filled optical fiber, with number of usable fibers as shown on drawings, which meet or exceed the mechanical and transmission performance specifications listed in ANSI/TIA/EIA-568-B.3 and ANSI/TIA/EIA-758(A).

## **10. VOICE/DATA – COPPER & OPTICAL FIBER WORK AREA OUTLETS**

Edit for items that will actually be used on the project.

Pick a color for the faceplate and each type of jack, or make them all one color.

Determine which pinning standard is to be used, T568A, T568B, or USOC. If not otherwise specified, specify T568A. Use either 10c with SC connectors or 10d (1) for ST connectors. SC connectors are preferred. Use ST connectors to match existing cable plant if required.

Single-gang mounting plate with two (2) openings containing the following devices:

- a. Data Outlet - 8-pin modular, category 6e, unkeyed, black, pinned to either T568 (A or B) standards.
- b. Optical Fiber Connectors – simplex ST - ST adapter.

Provide two optical fiber adapters for each faceplate

## **11. VOICE/DATA WORK AREA OUTLETS (Copper only)**

Single-gang mounting plate with four (4) openings containing the following devices:

Data Outlet - 8-pin modular, Category 6e, unkeyed, black, pinned to either T568 (A or B) standards.

## **12. VOICE ONLY WORK AREA OUTLET**

Single-gang faceplate with 8-pin modular, category 6e, unkeyed, ivory telephone jack, pinned to either T568 (A or B) standards

## **13. TERMINATION BLOCKS**

For items that will actually be used on the project: Coordinate with MC, IC and HC layout drawing.

a. Product(s) as approved by the P.M: Wiring blocks are to be in following configurations:

- 1) List dimensional configurations
- 2) ER – List pairs categorized for PBX portion of ER and pairs field terminated for backbone and CO portion of ER

Provide wiring troughs between ER frame sections.

## **14. PATCH PANELS**

Specification Note: Alter quantities to match job requirements.

19 in. rack mountable, 24-port 8-pin modular to insulation displacement connector (IDC) meeting Category 6e performance standards, and pinned to either T568 (A or B) standards. Typical examples of IDC connections are the 110, BIX, and Krone.

**15. WALL MOUNTED OPTICAL FIBER PATCH PANELS**

Specification Note: Alter quantities to match job requirements

Wall-mounted optical fiber termination panel with 12-fiber capacity, hinged door, cable strain relief, slack storage, and two 6-port SC or approved alternative connector panels with adapters and provisions for two splice trays.

**16. RACK MOUNTED OPTICAL FIBER TERMINATION PANEL**

Specification Note: Alter size to match job requirements. Coordinate with connector type.

*19 in. rack mounted 72-port rack-mounted optical fiber termination panel with cable strain relief, grounding lugs, slack storage and three 12-port duplex SC or approved alternative connector panels with adapters and provisions for six (6) splice trays.*

**17. SPLICE TRAYS** *Sized for single mode and multimode fibers, nonmetallic with clear plastic cover, 12-fiber splice capacity, compatible with splice enclosure and splicing method.*

**18. OPTICAL FIBER CONNECTORS**

Ceramic tipped field installed 568SC connectors, which meet or exceed the performance specifications in ANSI/TIA/EIA-568-B.3. Various alternative field installed connector designs, which meet or exceed the performance specifications in ANSI/TIA/EIA-568-B.3 (Annex A).

**19. OPTICAL FIBER JUMPERS**

Dual 62.5/125- $\mu\text{m}$  (*and/or single mode*) optical fiber jumper cable, 1 m long with 3.0 mm Duplex 568SC optical fiber connectors on each end.

Dual 62.5/125- $\mu\text{m}$  (*and/or single mode*) optical fiber jumper cable, 1 m long with approved alternative duplex optical fiber connectors on each end.

**20. OPTICAL FIBER PIGTAILS**

62.5/125  $\mu\text{m}$  (*and/or single mode*) optical fiber pigtail 1 m long with 3.0 mm single 568 SC optical fiber connectors on one end

**21. OPEN FRAME EQUIPMENT RACK**

Open frame, 19 in. equipment rack, 7 foot 6 in. overall height with flange base, mounting rails drilled front and back and tapped to EIA standards, and a front-rack mountable 10 outlet multiple outlet electrical strip or 42u enclosed glazed.

**22. EQUIPMENT RACKS/CABINETS**

Specification Note: Use 19 in. or change to 23 in. as required. If using wall-mounted racks or cabinets, add required specifications here. Add and delete features as required.

a. The 19 in. equipment rack shall have the following minimum requirements:

- 77 in. (44 rack spaces) of panel space
- Welded frame construction
- Locking front and rear doors
- Adjustable front and back equipment mounting rails drilled and tapped to EIA standards
- 10 position electrical outlet strip
- Removable side panels
- Top mounted, thermostatically controlled exhaust fan
- Smoked acrylic front door.

### **23. LISTED BUILDING ENTRANCE PROTECTORS**

Use when copper cables are run outside of building.

Use appropriate protector modules.

Building entrance terminal utilizing a two (2) foot fuse link between the outside cable plant splice and the protector module with IDC type input and output terminals, 100-pair capacity and female mounting base, equipped with 230 volt solid state protector modules. Provide sufficient protector modules to completely populate all building entrance terminals.

### **24. SPLICE HOUSING**

Use this or something else. Delete splice modules if used for optical fiber cables.

a. Encapsulated, re-enterable splice housing, sized as required with bonding straps, accessories, end caps and encapsulant as required

b. Splice modules (such as 710 series or MS<sup>2</sup>) for use within splice housing

### **25. SPARES**

Change quantities to suit job size. Edit to match that which is actually specified.

a. Furnish the following spare equipment and parts:

Terminal block connectors, if required

Test set cords, if required

Install one test cord set in each telecommunications closet

Five (5) percent of base bid quantity of each type of jack shall be provided

Five (5) percent of base bid quantity of each type of outlet

Five thousand (5000) ft of each type of station cable

One thousand (1000) ft of one-pair cross-connect wire for each telecommunications closet

One thousand (1000) ft of two-pair cross-connect wire for each telecommunications closet

Five (5) percent of base bid quantity of protector modules

## **EXECUTION**

### **1. PRE-INSTALLATION SITE SURVEY**

a. Prior to start of systems installation, meet at the project site with the P.M and representatives of trades performing related work to coordinate efforts. Review areas of potential interference and resolve conflicts before proceeding with the work. Facilitation with the Client will be necessary to plan the crucial scheduled completions of the equipment room and telecommunications closets.

b. Examine areas and conditions under which the system is to be installed. Do not proceed with the work until satisfactory conditions have been achieved.

### **2. HANDLING AND PROTECTION OF EQUIPMENT AND MATERIALS**

a. Be responsible for safekeeping of your own, such as equipment and materials, on the job site. The client assumes no responsibility for protection of above named property against fire, theft, and environmental conditions.

## **5. GROUNDING**

Edit as required.

- a. Grounding shall conform to ANSI/TIA/EIA 607(A) - *Commercial Building Grounding and Bonding Requirements for Telecommunications, National Electrical Code®*, ANSI/NECA/BICSI-568 and manufacturer's grounding requirements as minimum.
- b. Bond and ground equipment racks, housings, messenger cables, and raceways.
- c. Connect cabinets, racks, and frames to single-point ground which is connected to building ground system via #6 AWG green insulated copper grounding conductor.

## **6. LABELING**

Use 6d if the type of termination block permits labels. Otherwise use 6e.

Use 6g if the owner does not have a standard for outlet numbering.

Use 6h if required. Alter time as requested.

Labeling shall conform to ANSI/TIA/EIA-606(A) standards. In addition, provide the following:

- a. Label each outlet with permanent self-adhesive label with minimum 3/16 in. high characters.
- b. Label each cable with permanent self-adhesive label with minimum, 1/8 in. high characters, in the following locations:
  - 1) Inside receptacle box at the work area.
  - 2) Behind the communication closet patch panel or punch block.
- c. Use labels on face of data patch panels. Provide facility assignment records in a protective cover at each telecommunications closet location that is specific to the facilities terminated therein.
- d. Use color-coded labels for each termination field that conforms to ANSI/TIA/EIA-606(A) standard color codes for termination blocks.
- e. Mount termination blocks on color-coded backboards.
- f. Labels shall be machine-printed. Hand-lettered labels shall not be acceptable.
- g. Label cables, outlets, patch panels, and punch blocks with room number in which outlet is located, followed by a single letter suffix to indicate particular outlet within room, i.e., S2107A, S2107B. Indicate riser cables by an R then pair or cable number.
- h. Mark up floor plans showing outlet locations, type, and cable marking of cables. Turn these drawings over to the owner two (2) weeks prior to move in to allow the owner's personnel to connect and test owner-provided equipment in a timely fashion.
- i. Three (3) sets of as-built drawing shall be delivered to the owner within four (4) weeks of acceptance of project by the owner. A set of as-built drawings shall be provided to the owner in magnetic media form (3.5" floppy disks) and utilizing CAD software that is acceptable to the owner. The magnetic media shall be delivered to the owner within six (6) weeks of acceptance of project by owner.

## **7. TESTING**

Testing shall conform to ANSI/TIA/EIA-568-B.1 standard. Testing shall be accomplished using level IIe or higher field testers.

Test each pair and shield of each cable for opens, shorts, grounds, and pair reversal. Correct grounded, and reversed pairs. Examine open and shorted pairs to determine if problem is caused by improper termination. If termination is proper, tag bad pairs at both ends and note on termination sheets.

- 1) Perform testing of copper cables with tester meeting ANSI/TIA/EIA-568-B.1 requirements.
- 2) If copper backbone cable contains more than one (1) percent bad pairs, remove and replace entire cable.

Use 2 or 3 as required.

3) If copper cables contain more than the following quantity of bad pairs, or if outer sheath damage is cause of bad pairs, remove and replace the entire cable:

CABLE SIZE	MAXIMUM BAD PAIRS
<100	1
101 to 300	1 – 3
301 to 600	3 – 6
>601	6

4) If horizontal cable contains bad conductors or shield, remove and replace cable.

Initially test optical cable with a light source and power meter utilizing procedures as stated in ANSI/TIA/EIA-526-14A: *OFSTP-14A Optical Power Loss Measurements of Installed Multimode Fiber Cable Plant* and ANSI/TIA/EIA-526-7 *Measurement of Optical Power Loss of Installed Single mode Fiber Cable Plant*. Measured results shall be plus/minus 1 dB of submitted loss budget calculations. If loss figures are outside this range, test cable with optical time domain reflectometer to determine cause of variation. Correct improper splices and replace damaged cables at no charge to the owner.

- 1) Cables shall be tested at 850 and 1300 nm for multimode optical fiber cables. Cables shall be tested at 1310 and 1550 nm for single mode optical fibers.
- 2) Testing procedures shall utilize “Method B” – One jumper reference.
- 3) Bi-directional testing of optical fibers is required.

d. Perform optical time domain reflectometer (OTDR) testing on each fiber optic conductor. Measured results shall be plus/minus 1 dB of submitted loss budget calculations.

- 1) Submit printout for each cable tested.
- 2) Submit 3.5 in. disks with test results and program to view results.

e. Where any portion of system does not meet the specifications, correct deviation and repeat applicable testing at no additional cost.

**FIELD QUALITY CONTROL**

a. Employ job superintendent during the course of the installation to provide coordination of work of this specification and of other trades, and provide technical information when requested by other trades. This person shall maintain current RCDD® (Registered Communications Distribution Designer) registration and shall be responsible for quality control during installation, equipment set-up, and testing.

b. At least 30 percent of installation personnel shall be *BICSI Registered Telecommunications Installers*. Of that number, at least 15 percent shall be registered at the *Technician Level*, at least 40 percent shall be registered at the *Installer Level 2*, and the balance shall be registered at the *Installer Level 1*.

Specification Note: Use this or insert manufacturer’s requirements for installer qualifications to meet extended warranty program requirements.

c. Installation personnel shall meet manufacturer’s training and education requirements for implementation of extended warranty program.

## **B. PARTICULAR SPECIFICATIONS FOR STRUCTURED CABLING**

### **1.0 SITE LOCATION**

The site of the proposed works is located at **BUSIA COUNTY ASSEMBLY**

### **2.0 DESCRIPTION OF THE PROJECT**

The works to be carried out comprise the following;

- i) Proposed supply, installation, testing and commissioning of a structured cabling system to cater for computer data points and telephone points.
- ii) Configure and set up the structured cabling system to be used on LAN,
- iii) Produce test result, warranty certification, reports and as installed drawings. The Network will be capable of supporting approximately 266 data/voice points.
- iii) Supply, install 100 pair and 50 pair telephone cables to interconnect the data cabinets to the PABX to be located in the Administration Block. The works shall include inter-wiring, programming and activating all voice points.

### **REGULATIONS**

The contractor shall, in execution and completion of the works in the detailed design for which he is responsible, comply with the provisions of the following as necessary and relevant;

- a) ISO/IEC, CCK, ATM CENELEC 11801
- b) ANSI/EIA/TIA 56
- c) Latest Edition of IEE Regulation
- d) Kenya Bureau of Standards
- e) Electric Power Act and Rules made there under.

### **4.0 WORKING DRAWINGS**

The Contractor shall submit to the Project Manager working drawings for the proposed system for approval. The drawings will show the locations of and identifiers for all cable routing and terminations, telecommunication outlets/connectors. Location of core switch and Edge switches.

#### **NETWORK CABINETS**

- a) To be located on each floor in designated rooms as indicated in the electrical drawings.
- b) Must be metallic (appropriately sized as specified in the BQ) with a front clear glass, free standing, complete with lock and key and the following accessories;
  - Cable Management channel rack
  - Cable support hooks
  - Cable support rings and straps
  - Cable duct cover
  - Feed through cable panels
  - Vented equipment shelving
  - Blank filler panels
  - Hinged wall mounted brackets
  - Glass viewing window
  - Colored Designation strips
  - Management lock and key
  - Cooling extractor fans
  - Caster wheels
  - Inbuilt 2-gang power socket outlet



## 9.0 NTU Specifications

Type:	HDSL
Max Data Transfer Rate:	2Mbps
Mode of Operation:	DCE
Connector:	DB37
Interface Cable:	DB37-DB15

### NETWORK MANAGEMENT SYSTEM

Bidders must propose the manufacturers Network Management system for centralized configuration, maintenance and trouble shooting of active equipments. Third party stand alone systems should not be offered as part of the solution. Features and functionalities of the system should include the following:

- a) Should be compatible with Microsoft windows/Linux operating systems
- b) Graphical User Interface for central Management and network viewing
- c) Network discovery and inventory management
- d) VLAN, multicast, security and load-balancing/fail over configuration
- e) Downloading and saving of log file from the device flash memory
- f) Centralized upgrade/backup and archiving of active devices
- g) Export of network topology to JPEG or other standard formats.

### CABLE

#### i) UTP CABLE

The UTP cable must be category 6 compliant UTP cable, with the following specifications;

- a) 4-pair cables with 100 ohm impedance.
- b) Compliant to standards such as TIA/EIA – 268-B, 2-1 and IEC 61156-5
- c) Made of polyethylene insulation
- d) Pulling force should support up to 50N/mm<sup>2</sup>
- e) Low Smoke Zero Halogen outer sheath

#### ii) OPTICAL FIBRE CABLE

The fibre cable must be 8 core multimode fibre with the following specifications:-

- a) Cable size: 8 core.
- b) Termination: SC Duplex connectors.
- c) Graded Index: Nominal 62.5/125 micro. m

## 12.0 CAT 6 PATCH PANELS

The Contractor shall provide factory made patch panels, cat 6 complete with cable management and front designation strips, 110 PCB mounted connectors and integral RJ mounted jack sockets.

## 13.0 FIBER PATCH PANELS

All Backbone Fiber links to individual floors should be terminated on Fiber Patch Panels. Connector interfaces should support ST, Sc simplex, Sc duplex, FC, LC or MT-RJ.

## 14.0 ..BACK BONE

Backbone cabling inclusive of switches and all necessary accessories shall be carried out in readiness for the termination of edge switches.

The Backbone cabling shall be flexible and allow for easy ‘add on’s’ for future expansions. Hence enough capacity shall be allowed for future expansion.

## 15.0 EDGE/FLOOR SWITCHES

These shall be per floor/wing and have enough capacity for expansion

## COMPLETION COMMISSIONING OF STRUCTURED CABLING WORKS

**Upon completion of the installation, all cabling links must be tested for the following parameters, using Level Three testers:-**

- a) Category 6 Cable Tests
  - 1. Wire Map
  - 2. Length
  - 3. Insertion Loss (Attenuation)
  - 4. NEXT Loss
  - 5. PSNEXT Loss
  - 6. ELFEXT Loss, pair-to-pair
  - 7. PSELFEXT Loss
  - 8. Return Loss
  - 9. ACR (Attenuation to crosstalk ratio)
  - 10. PSACR
  - 11. Propagation Delay
  - 12. Delay Skew

### **b) Fibre Optic Cable Tests**

- 1. Link attenuation (insertion loss)
- 2. Length

Any failing link must be diagnosed and corrected. The corrective action shall be followed with a new test to prove that the corrected link meets the performance requirements.

The results should be recorded in one or several measure books showing test results of the cable components. In addition, the measurements must be recorded on two soft copies (CD-ROM).

**All components must be tested and a Completion Certificate issued stating**  
the following:

- a. Number of outlets
- b. Type of cable
- c. Date completed
- d. Type of Warranty

In addition, an "as-built" package must be submitted with the following information

- a. Updated floor plans
- b. Wire/cable routing schematic
- c. Facility assignment records
- d. Horizontal cable test results
- e. Fibre Backbone test results

## **Documentation**

The contractor shall avail documentation (2 copies) detailing the layout and devices or components of the system and must include all information for maintenance technicians to run, service, extend or maintain the network. In particular, the documentation must be structured and contain the following:

- a. Synopsis of the cabling (primary and secondary)
- b. Charts of the distribution highlighting the details of the elements that have been installed
- c. Detailed map of socket layout (2 Soft copies on CD-ROM should be availed)
- d. Reports on measurements (2 Soft copies on CD-ROM should be availed)

The CD-ROMs provided shall include the software tools required to view, inspect and print any selection of test reports.

## **18.0 Warranty and Support**

The Contractor will be required to give a per link warranty of at least fifteen (15) years for the structured cabling infrastructure and must provide a site certification certificate from the manufacturer of the cabling infrastructure not more than 30 days after completion of tests.

In the event of failure of the core switch, the contractor will be required to deliver any necessary parts on the next business day after determining that parts replacement is required, during the standard work week (8 hours a day, 5 days a week). This support will be carried out by a field engineer and will run for a period of Twenty Four months from the date of commissioning of the LAN.

The contractor will be required to provide a sixty months warranty on the edge switches from the date of commissioning of the LAN.

### **ADDITIONAL NOTES**

Tenderers should take note of the following

- a) The network should be capable of carrying data, voice and video. QOS should be considered as part of installation and configuration of the network.
- b) All active LAN equipments should be from the same manufacturer for seamless integration, management and maintenance.
- c) Each floor should have a telecommunication Closet to house the necessary structured cabling components and active equipments.

## **REGULATIONS**

The contractor shall, in the execution and completion of the works in the detailed design for which he is responsible comply with the provisions of the following as necessary and relevant:

- Communication Commission of Kenya (CCK)
- The Kenya Communications Act
- The Electronic Power Act and the Rules made there under.
- The Kenya Power and Lighting Company Limited's Bye-Laws.
- The current edition of the "Regulations for the Electric Equipment of Buildings" issued by the Institution of Electrical Engineers.
- The requirements of the Chief Inspector of Factories for the Kenya Government.
- Kenya Bureau of Standards (KBS) Standard Specifications and Codes of Practice, or other equal and approved standard specifications and codes.
- The Bye-Laws of the Local Authority.
- Any other regulations applicable to Electric and Electronic Installations or Communications systems in Kenya.
- The Employer's Safety Regulations.

## **POSITION OF SERVICES AND EQUIPMENT**

The route services and approximate positions of apparatus are shown on the contract drawings but their exact positions shall be determined by approved dimensional details on working drawings or on site by the P.M.

The contractor shall ascertain on site that his work will not foil other services or furniture and all services through the ducts must be readily accessible for maintenance and arranged to allow maximum access along the ducts. Any work which has to be redone due to negligence in this respect will be the contractor's responsibility.

## **SETTING TO WORK AND REGULATING SYSTEMS**

The contractor shall carry out such tests of the contract works as are required by KBS Standard Specifications and Codes of Practice, I.E.E Regulations or equal and approved codes, or the competent Authority. No testing or commissioning shall be under taken except in the presence of and to the satisfaction of the P.M. unless approved otherwise by him (contractor's own preliminary and proving tests are exempted).

The contractor shall include in his tender for the costs for testing and commissioning the contract works as herein described. He shall submit for approval to the P.M. a suitable programme for testing and commissioning. The P.M. and the Employer shall be given ample warning as to the dates on which testing and commissioning will take place

The proving of any system of plant or equipment as to compliance with the specification shall not be approved by the P.M. except at his discretion until tests have been carried out under operating conditions appertaining to the most onerous conditions specified except where the time taken to obtain such conditions is unreasonable or exceeds 12 months after practical completion of the contract works.

### **IDENTIFICATION OF PLANT AND COMPONENTS**

The contractor shall supply and install identification labels to all plant and to all switches and items of control equipment with, where no excessive heating is involved, white Traffolyte or equal labels engraved in block lettering denoting the name/function and/or section controlled. Where heating is likely to distort Traffolyte approved aluminum labels with stamped or engraved lettering shall be used.

The labels shall be mounted on equipment and in most suitable positions. They shall be in English or in internationally understood symbols capable of being read without difficulty. The labels shall conform to descriptions used on record drawing. Details of the lettering of the labels and the method of mounts or supporting shall be forwarded to the P.M. for approval prior to manufacture.

### **WORKING DRAWINGS**

The contractor shall prepare such working Drawings as may be necessary. The working Drawings shall be completed in such detail not only that the contract works can be executed on site but also that the P.M. can approve the contractor's designs and intentions in execution of the contract works.

Approved working drawings shall not be departed from except where provided for. Approval by the P.M. of working Drawings shall neither relieve the contractor of any of his obligations under the contract nor relieve him from correcting any errors found subsequently in the approved working Drawings or elsewhere associated therewith or with the works.

### **RECORD DRAWINGS**

During the execution of works on site the contractor shall, in a manner approved by the P.M. record on working or other Drawings at site all information necessary for preparing Record Drawings of the installed contract Works. Marked-up working or other Drawings and other documents shall be made available to the P.M. as he may require for inspection and checking

Record Drawing shall include but are not restricted to the following drawings or information:-

- Working Drawings amended as necessary but titled "Record Drawings" and certified as a true record of the as installed" contract works.
- Fully dimensioned drawings of all plant and apparatus.
- System Schematic and trunking diagrams showing all salient information relating to control and instrumentation.
- Wiring diagrams of individual plant, apparatus and switch and control boards. These diagrams to include these particular to individual plant or apparatus and else where applicable those applicable to system operation as a whole.

One reproducible copy of the Record Drawings of the contract works and Schematic Diagrams shall be provided not later than one month afterwards.

Notwithstanding the contractor's obligation referred to above, if the contractor fails to produce to the P.M.'s approval of the Record Drawings, within one month of partial or Practical Completion the Employer shall be at liberty to have these drawings produced by others. The cost of obtaining the necessary information shall be deducted from the out-standing payments due to the contractor.

## **TESTS**

Both on completion of his work and at the end of the guarantee period the contractor shall carry out such tests as may be required in the presence of the P.M. or his representative, or the competent Authority and shall provide all necessary Instruments, labour and materials to do so. The Contractor shall pay such charges related to such tests if any.

## **QUALITY OF MATERIALS**

Materials and apparatus required for the complete installation as called for in the specifications or Contract Drawings shall be supplied by the contractor unless specified otherwise.

Unless otherwise specified all materials (including equipment, fittings, cables) shall be new, of the best quality and approved origin.

### **1.13. TRAINING**

In the direction and to the satisfaction of the P.M. the contractor shall arrange for the training of the attendant console operators, users and the administrators at the site or the contractor's office on the workings of the EPABX. The cost of such training shall be included in the contractor's prices.

## **EQUIPMENT GUARANTEE**

The contractor shall undertake in writing to rectify free of charge, all faults arising from faulty components, materials, design or workmanship by the manufacturer or contractor whichever is applicable. This liability shall be for a minimum period of one calendar year from the date of acceptance of the equipment. Twelve months limitation notwithstanding, the period of liability shall not end until all defects which appear during the liability period have been rectified.

## **PATENT RIGHTS**

The contractor shall fully indemnify the Government of Kenya, against any action, claim or proceeding relating to infringement of any patent or design rights, and shall pay any royalties which may be payable in respect of any article or any part thereof which shall have been supplied by the contractor to the P.M. and in like manner the government of Kenya shall fully indemnify the contractor against any such action, claim or proceeding for infringement or alleged infringement under the works the design thereof which shall have been supplied by the P.M. to the contractor, but this indemnity shall apply to the works only, and any permission or request to manufacture to the order of the P.M. shall not relieve the contractor from liability should he manufacture for, or supply to other buyers.

## **TECHNICAL SPECIFICATIONS**

### **SCOPE OF THE WORK**

The contractor shall supply, deliver, unload, test, commission, guarantee and be liable for defects, and be responsible for the initial maintenance, all as specified herein, of EPABX. The EPABX will be entirely Electronic, fully IP, ISDN native and with time multiplexing architecture.

The contractor shall supply and install associated items of plant equipment other than those clearly stated to be supplied by others. He shall supply and install all accessories, whether described in the specification or not, essential to the completion of the works to the satisfaction of the P.M.

All equipment supplied shall be type approved by CCK and the installation shall be approved by the Communications Commission of Kenya (the competent Authority) The tenderer shall be responsible for all negotiations with and payments to the commission. He shall also pay all fees.

### **MINIMUM REQUIREMENTS**

This specification defines minimum requirements, but tenderers which offer superior facilities will be considered.

Any tender which does not comply with the minimum requirements will be rejected.

### **EQUIPMENT FINISH**

The equipment finish shall be the responsibility of the contractor, who shall be responsible for its protection during erection and in the course of making good to the building finishes after equipment erection.

### **INTERFERENCE SUPPRESSION**

The equipment and all its accessories shall be suppressed so as not to interfere with any communications, radio, T.V., Security or electro-medical equipment, recording or computer systems.

### **DOOR KEYS**

The contractor shall keep the EPABX suite locked at all times when his staff are not present and shall at the conclusion of the contract hand over all keys to the P.M.

### **EQUIPMENT HARDWARE**

The tenderer shall quote for a multimedia applications IP EPABX. The equipment must operate on dual processor.

### **EQUIPMENT SOFTWARE**

The equipment shall be preloaded with core software for driving it and giving it full operating flexibility. The list of features and services should be comprehensive and extensive and comprising of:-

- System features
- Operator features
- Standard telephone features
- Executive telephone features
- System administration features
- Digital Network features
- Data features
- Special applications features

## **SYSTEM FEATURES**

The system features shall include but not limited to the following facilities;-

- Direct inward dialing
- Direct outward dialing
- Dial pulse signaling
- DTMF to dial pulse conversion (Tone to pulse conversion)
- Direct Trunk access
- Class of Service
- Flexible assignment of printer ports
- Flexible numbering of extensions
- Flexile tone plan
- Group Hunting
- Multiple operator console
- Music on hold
- Tandem trunks
- Tie trunks
- Extension features e.g. call forwarding, busy override, conference(up to 8 conferences),camp on etc.

## **BARRING AND ROUTE RESTRICTION**

It shall be possible at will to bar any extension from access to the public exchange network. Selective route Restriction equipment is required on all both way and outgoing exchange lines to prevent any or all extensions from reaching certain areas of the public telephone network including all areas outside the borders of the Republic. The equipment shall prevent a user, after receiving main exchange dial tone, dialing any number of pre-selected 4 digit codes. It shall be possible to change such pre- selected codes easily and at will without the addition of further equipment, but a security system must prevent this being done by unauthorized persons. It shall not be possible to defeat this equipment from an extension by non- standard dialing, switch hook flashing, enquiry or transfer use, tie line transfer, switch follow on calls after an outside caller has disconnected, or in any other way except that which may be used especially for extensions entitled to full access.

It shall not be possible for an extension to receive public exchange dial tone without the route restriction being in circuit.

A follow-on call trap is required on the exchange lines, and this must not prevent the operator from flashing the main exchange.

It shall not be possible for an extension to originate a new outside call following the disconnection of an established call until the public exchange and local subscribers auto equipment has released, and the route restriction and barring equipment has been reset and re-connected to the circuit.

Camp-on-busy, Trunk offer, “call back” and automatic transfer facilities must not de-activate the barring and route restriction circuit.

The exchange should be suitable for the future addition of direct dialing-in facilities, ring back when free absent extension transfer.



### **CLASS OF SERVICE**

It is required to group subscribers at will into and/or more of the following categories;

- Full Access**  
Those permitted incoming calls, tie line calls, internal calls, and outside access to exchange lines and STD but not to the international codes.
- Trunk Route Restriction**  
Those permitted incoming call, tie line calls, internal calls, and outside access to local codes permitted by the trunk barring equipment.
- Trunk Barred**  
Those permitted incoming call, tie line calls, internal calls, and outside access via the operator.
- Restricted Access**  
Those permitted incoming calls and internal calls only.
- Barred Access**  
Those permitted tie line and internal calls only.

It should not be possible to transfer an exchange line from category (i) extension or from the switchboard to a category (ii) extension without activating the route restriction equipment to prevent the barred extension dialing, unauthorized codes. It shall not be possible to transfer an exchange line to a category (iv) or (v) extension.

There shall be a means of re-allocating subscriber access to the various EPABX facilities which shall be promoted by security systems that will prevent unauthorized alterations.

The contractor will be responsible for programming the EPABX to incorporate the clients initial wishes regarding extension access to facilities, and for reprogramming it to incorporate such changes as the client wishes to make up to the end of the guarantee period. He will also be responsible for training such staff as the employer shall nominate to undertake reprogramming.

### **ATTENDANT CONSOLE**

One or more operator attendant consoles as indicated in the list of main requirements shall be supplied, together with two operators' handsets and two operator's lightweight headsets per position. They shall be fitted with suitable lightweight plugs and jacks.

Each console shall be equipped with all necessary facilities for controlling, connecting and monitoring the progress of calls and shall display alarms as necessary.

Night service facilities will normally be provided such that the operator can route in-coming calls to pre-selected extensions when the console is not manned.

Attendant consoles will be multiplex so that the connecting cable will comprise a minimum number of pairs, with little restriction on the sitting of the consoles and positions shall be so common that any operator can attend to any call.

Call presentation, chaining process, call back will be entirely managed by the EPABX. However, it will be possible to put certain call on individual hold, on keys which have been reserved to that effect.

The information displayed on the terminal give maximum details about the communication (normal call, urgent call, queue status, internal called-party, status of the terminal etc).

## **IP TELEPHONE INSTRUMENTS**

The acquiring of telephone instruments has been liberalized. However, they must be type-approved by the CCK and the tenderer must obtain the necessary approval.

### **(a) Executive Telephone Instruments**

The **Executive Telephone** instruments shall have but not limited to the following operating characteristics:-

- Standard telephone facilities
- Abbreviated dialing
- Automatic ring back indication
- Calling number display
- Calls indication
- Call waiting display
- Do-not disturb indication
- Extension status indication
- Hands free
- Individual speed dialing
- LCD display (16 characters)
- Microphone unit.
- On hook dialing
- Password protection
- Repeat last number
- Ringing level and tune selection
- Store and redial
- Single key access to line features
- Intercom- It should be possible to use a pair as a secretarial set to facilitate intercom between the boss and the secretary without going through the EPABX.

### **(b) Standard Telephone Instruments**

The ordinary telephone instruments shall be of push button type. They shall at least have the following operating characteristics:-

- Standard telephone facilities
- Automatic ring back indication
- Extension status indication
- Individual speed dialing
- Ringing level and tune selection
- Recall button
- Repeat Last Number (Redial)

## **NUMBER SYSTEM**

The number scheme will be:-

Level O Access to PABX Telephone Operator

- “ 9 “ to the main exchange
- “ 8 Night service
- “ 7 spare for future tie line access
- “ 6 Tie line access
- “ 5 spare for extensions
- “ 4 Extensions
- “ 3 Extensions
- “ 2 Extensions
- “ 1 Spare for special facilities.

## **EXCHANGE LINES**

Exchange lines shall be arranged for first party release. The PABX must be capable of processing the number of digits required for international calls in accordance with CCITT and CCIL recommendations.

A device shall be fitted to sense main exchange dial tone as there may be considerable delay in receiving this after the seizure of a tree exchange line.

### **TIE LINES**

The lines will provide access to all extensions and the operator. They are to be for auto-auto working through signaling and first party release. Tones are to be returned over to tie lines.

Disconnect loop signaling is at present employed with a maximum loop resistance of 2000 ohms.

### **SYSTEM MAINTENANCE**

#### **Test Equipment and Tools**

A PABX routine test set and a set of maintenance tools are to be supplied. The tools are to be listed in schedule D.

#### **Maintenance Features**

The PABX shall have the following system maintenance features:-

- Line status monitoring device
- Station message data recording port
- System Working report
- On site system administration using a compatible terminal and attendant console.
- Remote system administration capability
- Automatic on-line diagnostic testing

Maintenance diagnostic software programmes shall be provided which can be run as required whilst the PABX is in normal service.

#### **Maintenance and Operating Manuals**

On practical completion of the works, the contractor shall furnish two sets of copies each of maintenance and operating manuals relating to the PABX installed. The manuals shall be legibly written in English and properly bound with hard cover.

They will include but not limited to:-

- System description
- Fault finding procedure
- Maintenance and servicing periods and procedures
- Schematic and wiring diagrams of the equipment
- Record drawings

### **POWER SUPPLY**

#### **Rectifier**

The PABX shall be fed through rectifier and a DC –DC converter fed from 240V A.C. 50Hz power supply. The rectifier will be equipped with the following devices:-

- Security device to monitor the minimum and maximum authorized values of the output voltage. When one of the thresholds is reached, the power supply to the PABX must cut itself automatically “Floating” and automatic “Equalization” device with manual command of the “Equalization” mode and automatic switch back to “floating” mode once the battery is loaded.

The rectifier will be sized to supply power to the PABX and simultaneously allow re-loading of the battery within 10Hours maximum.

□ **Battery**

A stationery battery is required to supply power during peak hours and mains supply failures and to provide smoothing for DC out put from the rectifier.

The battery shall be “Maintenance Free” and shall have sufficient capacity when fully charged to supply power to the PABX in the event of mains supply failure for minimum of 8 hours. The minimum DC out put shall be 48V DC = 10% and its life expectancy shall **NOT** be less than 10 years. Automotive or Traction battery will not be accepted.

□ **Voltage stabilizer**

A voltage stabilizer of suitable rating is required. It shall have a response time of NOT more than 0.1 second and a correction range from -12% to +12% with surge/spike protection

• **Earthing**

An independent telecommunication earth shall be provided for the E.P.A.B.X and the MDF. The earth lead cable shall not be less than 6mm sq. and shall terminate to copper earth electrode(s) in a concrete manhole (300mm x 300mm) with a suitable concrete cover.

**LIST OF MAIN REQUIREMENTS FOR PROPOSED IP P.A.B.X.**

<b>FACILITY</b>	<b>INITIALLY EQUIPPED</b>	<b>ULTIMATE SIZE</b>
<b>Digital Trunk Lines</b>	<b>16</b>	<b>24</b>
<b>Digital Extensions</b>	<b>132</b>	<b>150</b>
<b>GSM Units</b>	<b>4</b>	<b>4</b>
<b>Operator’s Consoles</b>	<b>2</b>	<b>2</b>
<b>Operator’s Head sets</b>	<b>4</b>	<b>4</b>
<b>No. of Operators’ hand sets</b>	<b>4</b>	<b>4</b>
<b>No. of tie lines</b>	<b>4</b>	<b>8</b>

## **OTHER REQUIREMENTS**

The E.P.A.B.X. shall:

1. Be fully IP
2. Have remote maintenance interface MDF and lightning protection.
3. Have a duplicated CPU and Voltage Stabilizer with each unit having its own power supply.
4. Be of compact modular design with sub-lines pre-wired and easily removable
5. Save at least 50% power failure trunk transfer facility
6. Be able to support both digital and analogue circuits
7. Have a battery backup of at least 8 hrs autonomy (B
8. Have direct inward system access facilities and data communication services.
9. be equipped with flexible music on hold
10. Be ISDN ready
11. The system must support dial by name
12. Be Equipped with station Hunt groups facility.
13. be complete with a maintenance terminal facility with VDU and Key board.
14. Have call forwarding automatic call transfer, three party conference among other standard features.
15. Be equipped with mains power supply Anti-surge, over-voltage and under-voltage protection devices and lightning protectors for all cards.
16. Have facility for selection for night service/special night answer point.
17. Have on screen fault indication facility.
18. Have computer-telephone inter-face for digital instruments capability.
19. Be ready to accommodate either or all E1 and ISDN cards.
20. Be **type approved by the CCK**. The tenderer must indicate the type approval references for the various parts that constitute the equipment. Photostat copies of type approvals must be attached.
21. Be **VOIP ( voice over IP)** ready.
22. Be **compatible** for connection to Telkom Kenya Telecommunication network.
23. Shall incorporate communications server security

## **TELEPHONE MANAGEMENT SYSTEM**

### **Scope of Works**

The works to be carried out comprise supply, installation, testing and commissioning of the following:

- a) Telephone call management software
- b) 1 No. Desktop computer
- c) 1 No. DOT MATRIX LX300 Printer
- d) 1No. Medium duty UPS

### **Technical Specifications**

#### **1. Call Management Software**

##### **System Capabilities**

The software system shall be able to perform the following:

1. Telephone calls tracking
2. Telephone calls costing/billing
3. Telephone calls budgeting
4. The software system shall be fully window based and run as a background task
5. All telephone call costs shall be computed basing on the prevailing service provider's rates, or shall be customized for employer's own use.
6. The software system shall have the capability of automatically barring and unbaring exchange lines and level 9 lines that shall go beyond their budget allocation and automatically reinstate them on budget re-allocation.

7. It shall also have the capability of automatically barring and unbarring roaming PINS that shall go beyond their budget allocation and automatically reinstate them on budget re-allocation.
8. The software system shall be able to allocate password to the users.

### **Reports Generated**

The call management software shall be able to generate the following:-

1. Dates of calls
2. Duration of calls
3. Extension numbers where calls originate
4. Approximate cost of trunk calls
5. Time of calls
6. Detailed report on call transfers
7. Details of exchange lines used
8. Details of extension lines used
9. Detailed report of most frequently called numbers
10. Detailed report of longest calls for selected duration
11. Detailed report of mobile calls by extensions
12. Detail of most expensive calls within selected time
13. Graphical presentation of reports

- (a) Brochures for all equipment to be supplied, including batteries, **MUST** be attached, failure of which will lead to disqualification.

**ITEMS TO BE STATED BY THE TENDERER**

Delivery period from date of award of contract..... weeks

Period required for installation from receipt of equipment .....weeks

What is the name and model number of the EPABX for which you have tendered?.....

In which countries is the EPABX and its PCB's manufactured.....

With what standard does the EPABX comply?.....

Is a full stock of spares available in Kenya?.....

For how many years is the continuity of spare parts guaranteed? (A minimum of 10 years is required) ..... years

What is the busy hour traffic capacity of the EPABX assuming no delay in main exchange dial tone?.....

What is the maximum ambient temperature in which the EPABX will function satisfactorily?.....

Is air conditioning required for the EPABX?.....

Is protection against high transient line voltage incorporated?.....

How many pairs are required per extension line?.....

Is the operator's console suitable for a blind operator? .....

What is the guarantee period offered? .....  
(Note: 12 months is the minimum)

Is an MDF incorporated in the EPABX? .....

Capacity of the standby battery in A.H.....

Output of charger in Amps .....

**SECTION G**  
**SCHEDULE OF UNIT RATES**



## SCHEDULE OF UNIT RATES

1. The tenderer shall insert unit rates against the items in the following schedules and may add such other items as he considers appropriate.
2. The unit rates shall include for supply, transport, insurance, delivery to site, storage as necessary, assembling, cleaning, installing, connecting, profit and maintenance in defects liability and any other obligation under this contract.
3. The unit rates will be used to assess the value of additions or omissions arising from authorized variations to the contract works.
4. Where trade names or manufacturer's catalogue numbers are mentioned in the specification, the reference is intended as a guide to the type of article or quality of material required. Alternative brands of **equal** and **approved** quality will be accepted.
5. The prices quoted shall be deemed to include for all obligations under the sub-contract including but not limited to supply of materials, labour, delivery to site, storage on site, installation, testing, commissioning and all taxes (including **16% V.A.T and 3 % Withholding tax**).

In accordance with Government policy 3% withholding Tax **shall be deducted** from all payments made to the tenderer, and the same shall be forwarded to the **Kenya Revenue Authority (KRA)**.

**SCHEDULE OF UNIT RATES**

<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY/UNIT</b>	<b>RATE(KSHS)</b>
1.	IP Executive telephone instrument	No.	
2.	IP Standard telephone instrument	No.	
3.	16 port edge switch POE capabilities	No	
4.	650VA UPS	No.	
5.	18U Wall Mounted cabinet	No.	
6.	8 port edge switch with POE capabilities	No.	
7.	24 port patch panel	No.	
8.	8 port patch panel	No.	
9.	48 port cisco core as Cisco Catalyst 6500 series.	No.	

**G2**

**81**

**SECTION H**  
**BILLS OF QUANTITIES**

## BILLS OF QUANTITIES

### **A) PRICING OF PRELIMINARIES ITEMS.**

Prices will be inserted against item of preliminaries in the sub-contractor's Bills of Quantities and specification. These Bills are designated as Bill No.1 in this Section. Where the sub-contractor fails to insert his price in any item he shall be deemed to have made adequate provision for this on various items in the Bills of Quantities. The preliminaries form part of this contract and together with other Bills of Quantities covers for the costs involved in complying with all the requirements for the proper execution of the whole of the works in the contract.

The Bills of Quantities are divided generally into three sections:-

#### **a) Preliminaries – Bill 1**

Sub-contractors preliminaries are as per those described in section C – sub-contractor preliminaries and conditions of contract. The sub-contractor shall study the conditions and make provision to cover their cost in this Bill. The number of preliminary items to be priced by the Tenderer has been limited to tangible items such as site office, temporary works and others. However the Tenderer is free to include and price any other items he deems necessary taking into consideration conditions he is likely to encounter on site.

#### **b) Installation Items and Other Bills**

The brief description of the items in these Bills of Quantities should in no way modify or supersede the detailed descriptions in the contract Drawings, conditions of contract and specifications. The unit of measurements and observations are as per those described in clause 1.05 of the section C.

#### **c) Summary**

The summary contains tabulation of the separate parts of the Bills of Quantities carried forward with provisional sum, contingencies and any prime cost sums included. The sub-contractor shall insert his totals and enter his grand total tender sum in the space provided below the summary.

This grand total tender sum shall be entered in the Form of Tender provided elsewhere in this document

**H/1----- (i)**

## B) NOTES FOR BILLS OF QUANTITIES

1. The Bills of Quantities form part of the contract documents and are to be read in conjunction with the contract drawings and general specifications of materials and works.
2. The prices quoted shall be deemed to include for all obligations under the sub-contract including but not limited to supply of materials, labour, delivery to site, storage on site, installation, testing, commissioning and all taxes (including **16% V.A.T and 3 % Withholding tax**).

In accordance with Government policy 3% withholding Tax **shall be deducted** from all payments made to the tenderer, and the same shall be forwarded to the **Kenya Revenue Authority (KRA)**.

3. All prices omitted from any item, section or part of the Bills of Quantities shall be deemed to have been included to another item, section or part.
4. The brief description of the items given in the Bills of Quantities are for the purpose of establishing a standard to which the sub-contractor shall adhere to. Otherwise alternative brands of **equal and approved** quality will be accepted.

Should the sub-contractor install any material not specified here in before receiving **approval** from the Project Manager, the sub-contractor shall remove the material in question and, **at his own cost**, install the proper material.

5. The grand total of prices in the price summary page must be carried forward to the **Form of Tender**.
6. Tenderers must enclose, together with their submitted tenders, **detailed manufacturer's Brochures** detailing Technical Literature and specifications on the items they intend to offer.

**This shall be used in the tender evaluation to determine the first line aesthetics and quality of fittings offered.**

H/1----- (ii)

**Statement of Compliance**

- a) I confirm compliance of all clauses of the General Conditions, General Specifications and Particular Specifications in this tender.
  
- b) I confirm I have not made and will not make any payment to any person, who can be perceived as an inducement to win this tender.

Signed: .....*for and on behalf of the Tenderer*

Date: .....

Official Rubber Stamp: .....

**STRUCTURED CABLING , IP PABX ,INSTALLATION WORKS**

**BILL NO.1: SUB-CONTRACT PRELIMINARIES**

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT(Kshs)
1	Discrepancies clause 1.02				
2	Conditions of sub-contract Agreement clause 1.03				
3	Payments clause 1.04				
4	Site location clause 1.06				
5	Scope of contract works clause 1.08				
6	Extent of contractors duties clause 1.09				
7	Firm price contract clause 1.12				
8	Variation clause 1.13				
9	Prime cost and provisional sum clause 3.14 (insert profit and attendance				
10	Bond clause 1.15	1	item		
11	Government legislation and regulations clause 1.16				
12	Import duty and VAT clause 1.17 (Note this clause applies for materials				
13	Insurance company fees clause 1.18				
14	Provision of services by the Main contractor clause 1.19				
15	Samples and materials generally clause 1.21				
16	Supplies clause 1.20				
17	Bills of quantities clause 1.23				
18	Contractors office in Kenya clause 1.24				
19	Builders work clause 1.25				
20	Setting to work and regulating system clause 1.29				
21	Identification of plant components clause 1.30				
22	Working drawings clause 1.32				
23	Records Drawings (As Installed) and instructions clause 1.33				
24	Maintenance Manual clause 1.34				
<b>Sub Total carried to page H/4</b>					

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT(Ksh.)
25	Hand over clause 1.35				
26	Painting clause 1.36				
27	Testing and inspection - manufactured plant clause 1.38				
28	Testing and inspection - installation clause 1.39				
29	Storage of materials clause 1.41				
30	Initial Maintenance Clause 1.42				
31	Attendance Upon Tradesmen etc (Insert percentage only) clause 1.58				
32	Local and other authorities notice clause 1.60				
33	Temporary Works clause 1.63				
34	Patent Rights clause 1.64				
35	Mobilization and Demobilization clause 1.65				
36	Extended preliminaries clause 1.66 (see Appendix - clause 1.70)				
37	Supervision by Engineer and site meetings clause 1.67	1	item	300,000	300,000.00
38	Allow for profit and attendance for the above				
39	Amendment to Scope of subcontract works clause 1.68				
40	Contract obligation and employers obligation clause 1.69				
41	Any other preliminaries				
	<b>Sub-total above</b>				
	<b>Subtotal brought forward from page H/4</b>				
	<b>Total for Bill No 1-Preliminaries carried forward to price summary page</b>				



<b>BILL NO. 2 -SCHEDULE 1: 6<sup>TH</sup> FLOOR STRUCTURED CABLING</b>					
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>	<b>RATE</b>	<b>AMOUNT</b>
	<b>Supply, Install, test and Commission the following</b>				
	<b>HORIZONTAL CABLING</b>				
A	RJ45 cat 6 UTP (Dual) Data and voice outlets complete with faceplates and labelling system as Siemons or its equal and approved equivalent	44	No.		
B	3m RJ45- RJ45 Cat 6 UTP factory terminated patch cord as Siemons for use at workstation areas	88	No.		
C	1m, RJ45- RJ45 cat 6 UTP factory terminated patch cord as Siemons to be used in cabinet.	88	No.		
D	Cat 6 UTP 4-pair screened cable as Siemons pulled between cabinet and work stations.	4400	Lm.		
	<b>CABINETS</b>				
A	22U Wall/ground Mounted cabinet with low noise (low dB) fans and power outlet sockets, as described in particular specifications	1	No.		
B	42U Wall/ground Mounted cabinet with low noise (low dB) fans and power outlet sockets, as described in particular specifications	1	No.		
C	48 port RJ45 cat 6 Data patch panel for UTP termination as Siemon.	1	No.		
D	24 port RJ45 cat 6 Voice patch panel for UTP termination as Siemon.	1	No.		
E	24 port RJ45 cat 6 Data patch panel for UTP termination as Siemon.	1	No.		
F	Cable Manager	2	No.		

H/1

G	240V, 50Hz 3000VA, APC Smart-UPS RM SMT3000RM2U(240V) un-interrupted power supply unit (UPS) with USB and Serial Port or equal and approved equivalent	1	No.		
<b>ACTIVE COMPONENTS</b>					
A	24 Port Edge Switch as Cisco Catalyst 3850-12X48U Series Complete with 2No. Power Supply, 10G and 40G uplink ports, POE as described in particular specifications	0			
B	48 Port Edge Switch as Cisco Catalyst 3850-12X48U Series Complete with 2No. Power Supply, 10G and 40G uplink ports, POE as described in particular specifications	1	No.		
C	Wireless router for wifi hotspot as cisco Aeronet 2800 AP2802I series installed in each wing	2	No.		
<b>BACKBONE CABLING</b>					
A	8 core multimode fibre optic cable	60	Lm.		
B	SC-SC fibre patch cord Complete with connectors	1	No		
C	24 Port fibre optic patch panel	1	No		
D	SFP fibre modules as CISCO or approved equivalent	1	No		
<b>IP TELEPHONE INSTRUMENTS</b>					
IP Telephone instruments :					
A	Standard Secretarial IP Enhanced network connectivity with Power over Ethernet as Cisco SPA 508G 8-Line IP Phone or equal and approved equivalent	5	No		
B	Executive Se complete, Network connectivity via Power over Ethernet or 802.11g wireless client mode,High-resolution 3.2-inch QVGA 320 x 240 color screen, 5-line IP phone with access for up to 10 call line appearances as Cisco SPA525G or equal and approved equivalent.	2	No		
<b>Total for 6th Floor Structured Cabling Works C/f to Summary Page</b>					
<b>BILL NO. 2 -SCHEDULE 2: 7<sup>TH</sup> FLOOR STRUCTURED CABLING</b>					
<b>ITEM</b>	<b>DESCRIPTION</b>	<b>QTY</b>	<b>UNIT</b>	<b>RATE</b>	<b>AMOUNT</b>

	<b>Supply, Install, test and Commission the following</b>				
	<b>HORIZONTAL CABLING</b>				
A	RJ45 cat 6 UTP (Dual) Data and voice outlets complete with faceplates and labelling system as Siemons or its equal and approved equivalent	44	No.		
B	3m RJ45- RJ45 Cat 6 UTP factory terminated patch cord as Siemons for use at workstation areas	88	No.		
C	1m, RJ45- RJ45 cat 6 UTP factory terminated patch cord as Siemons to be used in cabinet.	88	No.		
D	Cat 6 UTP 4-pair screened cable as Siemons pulled between cabinet and work stations.	4400	Lm.		
	<b>CABINETS</b>				
A	22U Wall/ground Mounted cabinet with low noise (low dB) fans and power outlet sockets, as described in particular specifications	1	No.		
B	42U Wall/ground Mounted cabinet with low noise (low dB) fans and power outlet sockets, as described in particular specifications	1	No.		
C	48 port RJ45 cat 6 Data patch panel for UTP termination as Siemon.	1	No.		
D	24 port RJ45 cat 6 Voice patch panel for UTP termination as Siemon.	1	No.		
E	24 port RJ45 cat 6 Data patch panel for UTP termination as Siemon.	1	No.		
F	Cable Manager	2	No.		
G	240V, 50Hz 3000VA, APC Smart-UPS RM SMT3000RM2U(240V) un-interupted power supply unit (UPS) with USB and Serial Port or equal and approved equivalent	1	No.		
	<b>ACTIVE COMPONENTS</b>				
A	24 Port Edge Switch as Cisco Catalyst 3850-12X48U Series Complete with 2No. Power Supply, 10G and 40G uplink ports, POE as described in particular specifications	1	No.		
B	48 Port Edge Switch as Cisco Catalyst 3850-12X48U Series Complete with 2No. Power Supply, 10G and 40G uplink ports, POE as	1	No.		

	described in particular specifications				
C	Wireless router for wifi hotspot as cisco Aeronet 2800 AP2802I series installed in each wing	2	No.		
	<b>BACKBONE CABLING</b>				
A	8 core multimode fibre optic cable	60	Lm.		
B	SC-SC fibre patch cord Complete with connectors	1	No		
C	24 Port fibre optic patch panel	1	No		
D	SFP fibre modules as CISCO or approved equivalent	1	No		
	<b>IP TELEPHONE INSTRUMENTS</b>				
	IP Telephone instruments :				
A	Standard Secretarial IP Enhanced network connectivity with Power over Ethernet as Cisco SPA 508G 8-Line IP Phone or equal and approved equivalent	5	No		
B	Executive Se complete, Network connectivity via Power over Ethernet or 802.11g wireless client mode,High-resolution 3.2-inch QVGA 320 x 240 color screen, 5-line IP phone with access for up to 10 call line appearances as Cisco SPA525G or equal and approved equivalent.	2	No		
	<b>Total for 7th Floor Structured Cabling Works C/f to Summary Page</b>				
	<b>SCHEDULE NO. 6: PROJECT MANAGER'S STATIONERY</b>				
<b>Item</b>	<b>Description</b>	<b>Qty</b>	<b>Unit</b>	<b>Rate</b>	<b>Amount (KShs)</b>
A	Laptop Computer Intel corei7 processor /3.6GHz Quad-core/16GB System RAM/750GB HDD/SSD/DVD RW/ win10/17" Screen/carry case as Hp Zbook G4 WORKSTATION	1	No.		
B	Photocopying Papers size A4 80g/cm2 white	10	Ream		

C	Photocopying Papers size A3,80g/cm2 white	5	m		
D	HP Laserjet Printer cartridge CC364A	3	No.		
E	Tracing paper 110g 50m roll	4	Roll		
F	A4 size translucent PVC covers as KATKO or approved equivalent, 100 sheets blue in colour and 0.2mm thick	5	Pkts		
G	A4 size Embossed covers as KATKO or approved equivalent, 100 sheets blue in colour	4	Pkts		
H	22mm diameter spiral binders black in colour	4	Roll		
I	1 Terabyte portable external hard disc as Hp/Transcend/Toshiba	1	No.		
<b>Total for Schedule No. 6: Project Manager's Stationery C/F to Price Summary Page</b>					259,900
<b>SCHEDULE 7: PC AND PROVISIONAL SUMS</b>					
<b>Item</b>	<b>Description</b>	<b>Qty</b>	<b>Unit</b>	<b>Rate</b>	<b>Kshs.</b>
A	Allow for training levy for technical staff of MOPW		Kshs.		500,000.00
B	Allow for taxes, profit, and attendance on <b>item above</b>		Kshs.		
C	Allow for provisional sum of kenya shillings twenty thousands only for preparation and production of 4No. sets of "As installed Drawings" hard coopies negatives and soft copies in AutoCAD 2000	1	Kshs		20,000.00
D	Allow for airtime for four (4No.) Project officers at a rate of Kshs 3,000.00 per officer per month for the entire project duration.	1	Kshs		72,000.00
E	Allow for profit, taxes and attendance on the above item	1	%		
F	Allow for Contingency				
<b>Total for Schedule 7 carried forward to price summary page</b>					
<b>PRICE SUMMARY PAGE</b>					
<b>Item</b>	<b>Description</b>	<b>Kshs.</b>			

	<b><u>BILL NO. 1</u></b>				
A	Sub-total for Sub-Contract Preliminaries				
	<b><u>BILL NO. 2</u></b>				
E	Schedule 4- Structured cabling works – SIXTH Floor				
F	Schedule 5- Structured cabling works - SEVETH Floor				
G	Schedule 6 - Project managers Stationery				
H	Schedule 7- PC and Provisional sums				
	<b>GRAND TOTAL AMOUNT CARRIED TO GRAND SUMMARY</b>				

Amount of tender in words: KenyaShillings.....

Kenya Shillings.....

.....

Tenderers Signature and Stamp.....

Address.....

Date.....

Witness: Name and Signature.....

Address.....

Date .....

**SECTION I**  
**TECHNICAL SCHEDULE**  
**OF**  
**ITEMS TO BE SUPPLIED**

## **TECHNICAL SCHEDULE**

The technical schedule shall be submitted by tenderers to facilitate and enable the Project Manager to evaluate the tenders, especially where the tenderer intends to supply or has based his tender sum on equipment which differs in manufacture, type or performance from the specifications indicated by the Project Manager.

**Any tender without this shall be disqualified.**



**TECHNICAL SCHEDULE OF ITEMS TO BE SUPPLIED**  
(To be completed by Tenderer)

<b>ITEM</b>	<b>DESCRIPTION</b>	<b>TYPE/MAKE</b>	<b>COUNTRY OF ORIGIN</b>
<b>1</b>	<b>Free standing Data Cabinet</b>		
<b>2</b>	<b>RJ45 cat 6 UTP (Dual) Data and voice outlets</b>		
<b>3</b>	<b><u>Patch Panels</u></b> a) 24 port RJ45 cat 6 patch panel  b) 24 Port fibre optic patch panel		
<b>4</b>	<b><u>Switches</u></b> a) Core Switch as described in particular Specifications  b) Edge switch, 48 port, as described in particular specifications		
<b>5</b>	<b><u>Data cables</u></b> a) Cat. 6 UTP cables  b) Fibre optic cable  c) Voice cables		
<b>6</b>	<b>Rack mountable UPS</b>		
<b>7</b>	<b>Telephone instruments</b>  a) Digital Executive telephone instruments  b) Digital Standard telephone instruments		
<b>8</b>	<b>Computer Set</b>		
<b>9</b>	<b>IP PABX machine</b>		

## **SECTION J**

### **STANDARD FORMS**

## CONTENTS OF SECTION J

TITLE	PAGE
1. Performance Bank Guarantee .....	J/1
2. Tender Questionnaire.....	J/2
3. Confidential Business Questionnaire.....	J/3 -J/4
4. Key Personnel. ....	J/5
5. Schedule of Contracts completed in the last five (5) years.....	J/6
6. Schedule of on-going projects. ....	J/7
7. Schedule of Contractor’s Equipment.....	J/8
8. Financial Reports for the last five years .....	J/9
9. Evidence of Financial Resources to meet Qualification Requirements....	J/10
10. Bidder’s Bank information .....	J/11
11. Detail of Litigation or Arbitration.....	J/12

### **NOTE:**

- 1.0** Tenderers must duly fill these Standard Forms as a mandatory requirement.
- 2.0** Any tender returned with **Unfiled Standard Forms** shall be considered **Non-Responsive and shall automatically be Disqualified.**

**PERFORMANCE BANK GUARANTEE**

**To: The Clerk to the County  
Assembly  
P.O. Box 1018- BUSIA**

Dear Sir,

WHEREAS ..... (hereinafter called “the Contractor”) has undertaken, in pursuance of Contract No. .... dated..... to execute ..... (hereinafter called “the Works”);

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract;

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee:

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of:

Kshs. ....(*amount of Guarantee in figures*)

Kenya Shillings .....(*amount of Guarantee in words*),

and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of Kenya Shillings .....

..... (*amount of Guarantee in words*) as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

We further agree that no change, addition or other modification of the terms of the Contract or of the Works to be performed thereunder or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this Guarantee, and we hereby waive notice of any change, addition, or modification.

This guarantee shall be valid until the date of issue of the Certificate of Completion.

SIGNATURE AND SEAL OF THE GUARANTOR .....

Name of Bank .....

Address .....

Date .....

	<b><u>PROVISIONAL SUMS</u></b>				
A	<p><u>The following provisional sums are to be measured on completion and priced in accordance with the rates contained in these bill of quantities or prorate thereto or deducted in whole if not required</u></p> <p>Allow for a provisional sum of <b>Kshs 3,000,000.00</b> for contingencies to be expanded as whole or part with the authority of the client/financier.</p>		ITEM		3,000,000.00
	<p>Totals carried from Page PS/1</p> <p>Totals carried from above</p>				
	<b>TOTAL FOR P.C. AND PROVISIONAL SUMS CARRIED TO GRAND SUMMARY</b>				

PS/2

**PROPOSED CONSTRUCTION OF 6<sup>TH</sup> AND 7<sup>TH</sup> FLOORS OF THE COUNTY ASSEMBLY OFFICE BLOCK-PHASE IV-BUSIA COUNTY.**

**GRAND SUMMARY**

ITEM	DESCRIPTION NO	PAGE	SUMMARY	
A B C D E	PRELIMINARIES			
	PARTICULAR PRELIMINARIES			
	GENERAL PRELIMINARIES			
	<b>MEASURED WORKS</b>			
	SIXTH AND SEVENTH FLOORS STRUCTURED			
	CABLING			
	P.C& PROVISIONAL SUMS from page PS/2			
	<b>GRAND TOTAL</b>	<b>Kshs.</b>		

**Amount in words Kenya**  
 shillings.....  
 .....  
 .....cents.....

**Tenderer's signature and stamp**.....  
 Address.....  
 .....

Date.....

**Witness signature**.....

