



**PROPOSED CONSTRUCTION OF TUITION AND SCIENCE
LABORATORY BLOCK.**

FOR

RONGO UNIVERSITY

BILLS OF QUANTITIES

**TENDER NAME: PROPOSED CONSTRUCTION OF TUITION AND
SCIENCE LABORATORY BLOCK**

TENDER NUMBER: RU/TSLB/009/2024-2025

ISSUED BY:

**RONGO UNIVERSITY
P.O. BOX 103 – 40404,
RONGO - KENYA**

TENDER SUBMISSION DATE

TUESDAY, 20TH MAY, 2025, 11:00AM

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK

TENDER NUMBER: RU/TSLB/009/2024-2025

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PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK

TENDER DOCUMENTS

Supplied as part of the Invitation to Tender (ITT) No. **RU/TSLB/009/2024-2025**

Prepared by;

Skylon Designs Limited

P.O. Box 26011 – 00100

Nairobi.

The contract for the above-mentioned works entered into this day of.....2025 by the undersigned refers to these tender documents and the Ministry of Lands, Public Works, Housing and Urban Development General Specification dated march, 1976 (Together with any amendments issued thereto) shall be read and construed as part of the said contract

.....

THE CONTRACTOR

Date:

.....

.....

THE VICE CHANCELLOR

RONGO UNIVERSITY

Date:

.....

SPECIAL NOTES

The contractor is required to check the numbers of the pages of these Bills of Quantities and should he find any missing or in duplicate or figures indistinct he must inform **the Project Manager, Skylon Designs limited, P.O. Box 26011 – 00100 Nairobi-Kenya**, at once and have the same rectified.

Should the contractor be in doubt about the precise meaning of any item or figure for any reason whatsoever, he must inform **the Project Manager, Skylon Designs limited, P.O. Box 26011 – 00100 Nairobi-Kenya**, in order that the correct meaning may be decided before the date for submission of tenders.

No liability will be admitted nor claim allowed in respect of errors in the Contractor's tender due to mistakes in the specifications, which should have been rectified in the manner, described above.

SIGNATURE PAGE AND NOTES

INVITATION TO TENDER

PROCURING ENTITY: RONGO UNIVERSITY

DATE: 6th May 2025

CONTRACT NAME AND DESCRIPTION: PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK (TENDER NUMBER: RU/TSLB/009/2024-2025)

1. Rongo University invites sealed tenders for the construction of a Tuition and Science Laboratory for a construction period of **156 (One Hundred Fifty Six) Calendar weeks** at The Rongo University.
2. Tendering will be conducted under open competitive method nationally using a standardized tender document. Tendering is open to all qualified and interested Tenderers.
3. Qualified and interested tenderers may obtain further information and inspect the Tender Documents during office hours 0800 to 1500 hours at the address given below.
4. A complete set of tender documents may be purchased or obtained by interested tenders upon payment of a non-refundable fees of Kshs 1,000.00 in cash or Banker's Cheque and payable to the address given below. Tender documents may be obtained electronically from the Website(s) <https://www.rongovarsity.ac.ke> and www.tenders.go.ke. Tender documents obtained electronically will be free of charge.
5. Tender documents may be viewed and downloaded for free from the website <https://www.rongovarsity.ac.ke> and www.tenders.go.ke. Tenderers who download the tender document must forward their particulars immediately to procurement@rongovarsity.ac.ke to facilitate any further clarification or addendum.
6. Tenders shall be quoted be in Kenya Shillings and shall include all taxes. Tenders shall remain valid for 180 (One Hundred Eighty) days from the date of opening of tenders.
7. All Tenders must be accompanied by a Tender Security in form of a bank guarantee form of a bank guarantee or bankers cheque of Kshs 6,000,000.00 (from a reputable financial institution and shall be valid for 180 days from date of tender opening).
8. The Tenderer shall chronologically serialize all pages of the tender documents submitted.
9. Tenderes to note that there will be a Mandatory site visit on Friday, 9th, May 2025 at 11:00AM on the proposed Site within the Institution.
10. Completed tenders must be delivered to the address below on or before **11:00AM Tuesday, 20th May, 2025**. Electronic Tenders will not be permitted.
11. Tenders will be opened immediately after the deadline date and time specified above or any dead line date and time specified later. Tenders will be publicly opened in the presence of the Tenderers' designated representatives who choose to attend at the address below.
12. Late tenders will be rejected.
13. The addresses referred to above are:

A. Address for obtaining further information and for purchasing tender documents

Office of the Vice Chancellor,
Rongo University Campus, Kitere Hills, Rongo,

P.O. BOX 103 – 40404,
Rongo
Email; procurement@rongovarsity.ac.ke

B. Address for Submission of Tenders.

Office of the Vice Chancellor,
Rongo University Campus, Kitere Hills, Rongo,
P.O. BOX 103 – 40404,
Rongo
Email; procurement@rongovarsity.ac.ke

A. Address for Opening of Tenders.

Office of the Vice Chancellor,
Rongo University Campus, Kitere Hills, Rongo,
P.O. BOX 103 – 40404,
Rongo
Email; procurement@rongovarsity.ac.ke

Yours Sincerely,
Prof. Samuel Gudu - The Vice Chancellor,
Rongo University

Rongo University adheres to high standards of integrity in its business operations.

Report any unethical behavior immediately to any of the provided anonymous hotline service.

Name: Prof. Samuel Gudu – The Vice Chancellor

Tel: procurement@rongovarsity.ac.ke / vc@rongovarsity.ac.ke

PART1: TENDERING PROCEDURES

SECTION I - INSTRUCTIONS TO TENDERERS

A. GENERAL PROVISIONS

10 Scope of tender

11 The Procuring Entity as defined in the Appendix to Conditions of Contract invites tenders for Works Contract as described in the tender documents. The name, identification, and number of lots (contracts) of this Tender Document are specified in the TDS.

12 Throughout this tendering document:

- a) The term “in writing” means communicated in written form (e.g. by mail, e-mail, fax, including if specified in the TDS, distributed or received through the electronic-procurement system used by the Procuring Entity) with proof of receipt;
- b) if the context so requires, “singular” means “plural” and vice versa;
- c) “Day” means calendar day, unless otherwise specified as “Business Day”. A Business Day is any day that is an official working day of the Procuring Entity. It excludes official public holidays.

20 Fraud and corruption

21 The Procuring Entity requires compliance with the provisions of the Public Procurement and Asset Disposal Act, 2015, Section 62 “Declaration not to engage in corruption”. The tender submitted by a person shall include a declaration that the person shall not engage in any corrupt or fraudulent practice and a declaration that the person or his or her sub-contractors are not debarred from participating in public procurement proceedings.

22 The Procuring Entity requires compliance with the provisions of the Competition Act 2010, regarding collusive practices in contracting. Any tenderer found to have engaged in collusive conduct shall be disqualified and criminal and/or civil sanctions may be imposed. To this effect, Tenders shall be required to complete and sign the “Certificate of Independent Tender Determination” annexed to the Form of Tender.

23 Tenderers shall permit and shall cause their agents (whether declared or not), subcontractors, sub-consultants, service providers, suppliers, and their personnel, to permit the Procuring Entity to inspect all accounts, records and other documents relating to any initial selection process, pre-qualification process, tender submission, proposal submission, and contract performance (in the case of award), and to have them audited by auditors appointed by the Procuring Entity.

24 Unfair Competitive Advantage - Fairness and transparency in the tender process require that the firms or their Affiliates competing for a specific assignment do not derive a competitive advantage from having provided consulting services related to this tender. To that end, the Procuring Entity shall indicate in the **Data Sheet** and make available to all the firms together with this tender document all information that would in that respect give such firm any unfair competitive advantage over competing firms.

30 Eligible tenderers

31 A Tenderer may be a firm that is a private entity, a state-owned enterprise or institution subject to ITT 3.8, or an individual or any combination of such entities in the form of a joint venture (JV) under an existing agree mentor with the intent to enter in to such an agreement supported by a letter of intent. In the case of a joint venture, all members shall be jointly and severally liable for the execution of the entire Contract in accordance with the Contract terms. The JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the members of the JV during the tendering process and, in the event the JV is awarded the Contract, during contract execution. Members of a joint venture may not also make an individual tender, be a subcontractor in a separate tender or be part of another joint venture for the purposes of the same Tender. The maximum number of JV members shall be specified in the **TDS**.

32 Public Officers of the Procuring Entity, their Spouses, Child, Parent, Brothers or Sister. Child, Parent, Brother or Sister of a Spouse, their business associates or agents and firms/organizations in which they have a substantial or controlling interest shall not be eligible to tender or be awarded a contract. Public Officers are also not allowed to participate in any procurement proceedings.

- 33** A Tenderer shall not have a conflict of interest. Any tenderer found to have a conflict of interest shall be disqualified. A tenderer may be considered to have a conflict of interest for the purpose of this tendering process, if the tenderer:
- a) Directly or indirectly controls, is controlled by or is under common control with another tenderer;
 - b) Receives or has received any direct or indirect subsidy from another tenderer;
 - c) Has the same legal representative as another tenderer;
 - d) Has a relationship with another tenderer, directly or through common third parties, that puts it in a position to influence the tender of another tenderer, or influence the decisions of the Procuring Entity regarding this tendering process;
 - e) Any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the goods or works that are the subject of the tender;
 - f) Any of its affiliates has been hired (or is proposed to be hired) by the Procuring Entity as a consultant for Contract implementation;
 - g) Would be providing goods, works, or non-consulting services resulting from or directly related to consulting services for the preparation or implementation of the contract specified in this Tender Document;
 - h) Has a close business or personal relationship with senior management or professional staff of the Procuring Entity who has the ability to influence the bidding process and:
 - i) Are directly or indirectly involved in the preparation of the Tender document or specifications of the Contract, and/or the Tender evaluation process of such contract; or
 - ii) May be involved in the implementation or supervision of such Contract unless the conflict stemming from such relationship has been resolved in a manner acceptable to the Procuring Entity throughout the tendering process and execution of the Contract.
- 34** A tenderer shall not be involved in corrupt, coercive, obstructive or fraudulent practice. A tenderer that is proven to have been involved in any of these practices shall be automatically disqualified
- 35** A Tenderer (either individually or as a JV member) shall not participate in more than one Tender, except for permitted alternative tenders. This includes participation as a subcontractor in other Tenders. Such participation shall result in the disqualification of all Tenders in which the firm is involved. Members of a joint venture may not also make an individual tender, be a sub-contractor in a separate tender or be part of another joint venture for the purposes of the same Tender. A firm that is not a tenderer or a JV member may participate as a subcontractor in more than one tender.
- 36** A Tenderer may have the nationality of any country, subject to the restrictions pursuant to ITT3.9. A Tenderer shall be deemed to have the nationality of a country if the Tenderer is constituted, incorporated or registered in and operates in conformity with the provisions of the laws of that country, as evidenced by its articles of incorporation (or equivalent documents of constitution or association) and its registration documents, as the case may be. This criterion also shall apply to the determination of the nationality of proposed sub-contractors or sub-consultants for any part of the Contract including related Services.
- 37** A Tenderer that has been debarred from participating in public procurement shall be ineligible to tender or be awarded a contract. The list of debarred firms and individuals is available from the website of PPRA www.ppra.go.ke.
- 38** A Tenderer that is a state-owned enterprise or a public institution in Kenya may be eligible to tender and be awarded Contract(s) only if it is determined by the Procuring Entity to meet the following conditions, i.e. if it is:
- i) A legal public entity of Government and/or public administration,
 - ii) financially autonomous and not receiving any significant subsidies or budget support from any public entity or Government, and;
 - (iii) Operating under commercial law and vested with legal rights and liabilities similar to any commercial enterprise to enable it to compete with firms in the private sector on an equal basis.

- 39** Firms and individuals shall be ineligible if their countries of origin are:
- (a) As a matter of law or official regulations, Kenya prohibits commercial relations with that country;
 - (b) By an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, Kenya prohibits any import of goods or contracting of works or services from that country, or any payments to any country, person, or entity in that country.

A tenderer shall provide such documentary evidence of eligibility satisfactory to the Procuring Entity, as the Procuring Entity shall reasonably request.

310 Foreign tenderers are required to source at least forty (40%) percent of their contract inputs (in supplies, local sub-contracts and labor) from citizen suppliers and contractors. To this end, a foreign tenderer shall provide in its tender documentary evidence that this requirement is met. Foreign tenderers not meeting this criterion will be automatically disqualified. Information required to enable the Procuring Entity determine if this condition is met shall be provided for this purpose in *“SECTION II - EVALUATION AND QUALIFICATION CRITERIA, Item 9”*.

311 Pursuant to the eligibility requirements of ITT 3.10, a tender is considered a foreign tenderer, If it is registered in Kenya and has less than 51 percent ownership by nationals of Kenya and if it does not subcontract to foreign firms or individuals more than 10 percent of the contract price, excluding provisional sums. JVs are considered as foreign tenderers if the individual member firms registered in Kenya have less 51 percent ownership by nationals of Kenya. The JV shall not subcontract to foreign firms more than 10 percent of the contract price, excluding provisional sums.

312 The National Construction Authority Act of Kenya requires that all local and foreign contractors be registered with the National Construction Authority and be issued with a Registration Certificate before they can undertake any construction works in Kenya. Registration shall not be a condition for tender, but it shall be a condition of contract award and signature. A selected tenderer shall be given opportunity to register before such award and signature of contract. Application for registration with National Construction Authority may be accessed from the website www.nca.go.ke.

313 The Competition Act of Kenya requires that firms wishing to tender as Joint Venture undertakings which may prevent, distort or lessen competition in provision of services are prohibited unless they are exempt in accordance with the provisions of Section 25 of the Competition Act, 2010. JVs will be required to seek for exemption from the Competition Authority. Exemption shall not be a condition for tender, but it shall be a condition of contract award and signature. A JV tenderer shall be given opportunity to seek such exemption as a condition of award and signature of contract. Application for exemption from the Competition Authority of Kenya may be accessed from the website www.cak.go.ke.

314 A Kenyan tenderer shall be eligible to tender if it provides evidence of having fulfilled his/her tax obligations by producing valid tax compliance certificate or tax exemption certificate issued by the Kenya Revenue Authority.

40 Eligible goods, equipment, and services

41 Goods, equipment and services to be supplied under the Contract may have their origin in any country that is not ineligible under ITT 3.9. At the Procuring Entity's request, Tenderers may be required to provide evidence of the origin of Goods, equipment and services.

42 Any goods, works and production processes with characteristics that have been declared by the relevant national environmental protection agency or by other competent authority as harmful to human beings and to the environment shall not be eligible for procurement.

50 Tenderer's responsibilities

51 The tenderer shall bear all costs associated with the preparation and submission of his/her tender, and the Procuring Entity will in no case be responsible or liable for those costs.

52 The tenderer, at the tenderer's own responsibility and risk, is encouraged to visit and examine and inspect the Site of the Works and its surroundings and obtain all information that may be necessary for preparing the tender and entering into a contract for construction of the Works. The costs of visiting the Site shall beat the tenderer's own expense.

53 The Tenderer and any of its personnel or agents will be granted permission by the Procuring Entity to enter upon its premises and lands for the purpose of such visit. The Tenderer shall indemnify the Procuring Entity against liability arising from death or personal injury, loss of or damage to property,

and any other losses and expenses incurred as a result of the examination and inspection.

- 54** The tenderer shall provide in the Form of Tender and Qualification Information, a preliminary description of the proposed work method and schedule, including charts, as necessary or required.

B. CONTENTS OF TENDER DOCUMENTS

60 Sections of Tender Document

- 61** The tender document consists of Parts 1, 2, and 3, which includes all the sections specified below, and which should be read in conjunction with any Addenda issued in accordance with ITT 10.

PART 1: Tendering Procedures

Section I – Instructions to Tenderers
Section II – Tender Data Sheet (TDS)
Section III- Evaluation and
Qualification Criteria Section
IV – Tendering Forms

PART 2: Works' Requirements

Section V - Bills of Quantities
Section VI - Specifications Section VII – Drawings

PART 3: Conditions of Contract and Contract Forms

Section VIII - General Conditions (GCC)
Section IX - Special Conditions of Contract
Section X- Contract
Forms

- 62** The Invitation to Tender Notice issued by the Procuring Entity is not part of the Contract documents. Unless obtained directly from the Procuring Entity, the Procuring Entity is not responsible for the completeness of the Tender document, responses to requests for clarification, the minutes of a pre-arranged site visit and those of the pre-Tender meeting (if any), or Addenda to the Tender document in accordance with ITT 10. In case of any contradiction, documents obtained directly from the Procuring Entity shall prevail.

- 63** The Tenderer is expected to examine all instructions, forms, terms, and specifications in the Tender Document and to furnish with its Tender all information and documentation as is required by the Tender document.

70 Clarification of Tender Document, Site Visit, Pre-tender Meeting

- 71** A Tenderer requiring any clarification of the Tender Document shall contact the Procuring Entity in writing at the Procuring Entity's address specified in the **TDS** or raise its enquiries during the pre-Tender meeting if provided for in accordance with ITT 7.2. The Procuring Entity will respond in writing to any request for clarification, provided that such request is received no later than the period specified in the **TDS** prior to the deadline for submission of tenders. The Procuring Entity shall forward copies of its response to all tenderers who have acquired the Tender documents in accordance with ITT 7.4, including a description of the inquiry but without identifying its source. If so specified in the **TDS**, the Procuring Entity shall also promptly publish its response at the web page identified in the **TDS**. Should the clarification result in changes to the essential elements of the Tender Documents, the Procuring Entity shall amend the Tender Documents following the procedure under ITT 8 and ITT 22.2.

- 72** The Tenderer, at the Tenderer's own responsibility and risk, is encouraged to visit and examine and inspect the site(s) of the required contracts and obtain all information that may be necessary for preparing a tender. The costs of visiting the Site shall be at the Tenderer's own expense. The Procuring Entity shall specify in the **TDS** if a pre-arranged Site visit and or a pre-tender meeting will be held, when and where. The Tenderer's designated representative is invited to attend a pre-arranged site visit and a pre-tender meeting, as the case may be. The purpose of the site visit and the pre-tender meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

- 73** The Tenderer is requested to submit any questions in writing, to reach the Procuring Entity not later than the period specified in the **TDS** before the meeting.

74 Minutes of a pre-arranged site visit and those of the pre-tender meeting, if applicable, including the text of the questions asked by Tenderers and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Tenderers who have acquired the Tender Documents. Minutes shall not identify the source of the questions asked.

75 The Procuring Entity shall also promptly publish anonymized (*no names*) Minutes of the pre-arranged site visit and those of the pre-tender meeting at the web page identified in the **TDS**. Any modification to the Tender Documents that may become necessary as a result of the pre-arranged site visit and those of the pre-tender meeting shall be made by the Procuring Entity exclusively through the issue of an Addendum pursuant to ITT 8 and not through the minutes of the pre-Tender meeting. Non-attendance at the pre-arranged site visit and the pre-tender meeting will not be a cause for disqualification of a Tenderer.

80 **Amendment of Tender Documents**

81 At any time prior to the deadline for submission of Tenders, the Procuring Entity may amend the Tender Documents by issuing addenda.

82 Any addendum issued shall be part of the Tender Documents and shall be communicated in writing to all who have obtained the Tender Documents from the Procuring Entity. The Procuring Entity shall also promptly publish the addendum on the Procuring Entity's website in accordance with ITT 7.5.

83 To give Tenderers reasonable time in which to take an addendum into account in preparing their Tenders, the Procuring Entity should extend the dead line for the submission of Tenders, pursuant to ITT 22.2.

C. PREPARATION OF TENDERS

9. Cost of Tendering

The Tenderer shall bear all costs associated with the preparation and submission of its Tender, and the Procuring Entity shall not be responsible or liable for those costs, regardless of the conduct or outcome of the tendering process.

10.0 Language of Tender

The Tender, as well as all correspondence and documents relating to the tender exchanged by the tenderer and the Procuring Entity, shall be written in the English Language. Supporting documents and printed literature that are part of the Tender may be in another language provided they are accompanied by an accurate and notarized translation of the relevant passages into the English Language, in which case, for purposes of interpretation of the Tender, such translation shall govern.

11.0 Documents Comprising the Tender

11.1 The Tender shall comprise the following:

- a) Form of Tender prepared in accordance with ITT 12;
- b) Schedules including priced Bill of Quantities, completed in accordance with ITT 12 and ITT 14;
- c) Tender Security or Tender-Securing Declaration, in accordance with ITT 19.1;
- d) Alternative Tender, if permissible, in accordance with ITT 13;
- e) **Authorization:** written confirmation authorizing the signatory of the Tender to commit the Tenderer, in accordance with ITT 20.3;
- f) **Qualifications:** documentary evidence in accordance with ITT 17 establishing the Tenderer's qualifications to perform the Contract if its Tender is accepted;
- g) **Conformity:** a technical proposal in accordance with ITT 16;
- h) Any other document required in the **TDS**.

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

copy of the proposed JV Agreement. Change of membership and conditions of the JV prior to contract signature will render the tender liable for disqualification.

12.0 Form of Tender and Schedules

- 12.1** The Form of Tender and Schedules, including the Bill of Quantities, shall be prepared using the relevant forms furnished in Section IV, Tendering Forms. The forms must be completed without any alterations to the text, and no substitutes shall be accepted except as provided under ITT 20.3. All blank spaces shall be filled in with the information requested. The Tenderer shall chronologically serialize all pages of the tender documents submitted.
- 12.2** The Tenderer shall furnish in the Form of Tender information on commissions and gratuities, if any, paid or to be paid to agents or any other party relating to this Tender.

14. Alternative Tenders

- 141** Unless otherwise specified in the TDS, alternative Tenders shall not be considered.
- 142** When alternative times for completion are explicitly invited, a statement to that effect will be included in the **TDS**, and the method of evaluating different alternative times for completion will be described in Section III, Evaluation and Qualification Criteria.
- 143** Except as provided under ITT 13.4 below, Tenderers wishing to offer technical alternatives to the requirements of the Tender Documents must first price the Procuring Entity's design as described in the Tender Documents and shall further provide all information necessary for a complete evaluation of the alternative by the Procuring Entity, including drawings, design calculations, technical specifications, breakdown of prices, and proposed construction methodology and other relevant details. Only the technical alternatives, if any, of the Tenderer with the Winning Tender conforming to the basic technical requirements shall be considered by the Procuring Entity.
- 144** When specified in the **TDS**, Tenderers are permitted to submit alternative technical solutions for specified parts of the Works, and such parts will be identified in the **TDS**, as will the method for their evaluating, and described in Section VII, Works' Requirements.

140 Tender Prices and Discounts

- 141** The prices and discounts (including any price reduction) quoted by the Tenderer in the Form of Tender and in the Bill of Quantities shall conform to the requirements specified below.
- 142** The Tenderer shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by the Tenderer shall be deemed covered by the rates for other items in the Bill of Quantities and will not be paid for separately by the Procuring Entity. An item not listed in the priced Bill of Quantities shall be assumed to be not included in the Tender, and provided that the Tender is determined substantially responsive notwithstanding this omission, the average price of the item quoted by substantially responsive Tenderers will be added to the Tender price and the equivalent total cost of the Tender so determined will be used for price comparison.
- 143** The price to be quoted in the Form of Tender, in accordance with ITT 12.1, shall be the total price of the Tender, including any discounts offered.
- 144** The Tenderer shall quote any discounts and the methodology for their application in the Form of Tender, in accordance with ITT 12.1.
- 145** It will be specified in the **TDS** if the rates and prices quoted by the Tenderer are or are not subject to adjustment during the performance of the Contract in accordance with the provisions of the Conditions of Contract, except in cases where the contract is subject to fluctuations and adjustments, not fixed price. In such a case, the Tenderer shall furnish the indices and weightings for the price adjustment formulae in the Schedule of Adjustment Data and the Procuring Entity may require the Tenderer to justify its proposed indices and weightings.
- 146** Where tenders are being invited for individual lots (contracts) or for any combination of lots (packages), tenderers wishing to offer discounts for the award of more than one Contract shall specify in their Tender the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Discounts shall be submitted in accordance with ITT 14.4, provided the Tenders for all lots (contracts) are opened at the same time.

147 All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 30 days prior to the deadline for submission of Tenders, shall be included in the rates and prices and the total Tender Price submitted by the Tenderer.

150 Currencies of Tender and Payment

151 The currency(ies) of the Tender and the currency(ies) of payments shall be the same.

152 Tenderers shall quote entirely in Kenya Shillings. The unit rates and the prices shall be quoted by the Tenderer in the Bill of Quantities, entirely in Kenya shillings.

a) A Tenderer expecting to incur expenditures in other currencies for inputs to the Works supplied from outside Kenya (referred to as “the foreign currency requirements”) shall (if so allowed in the **TDS**) indicate in the Appendix to Tender the percentage(s) of the Tender Price (excluding Provisional Sums), needed by the Tenderer for the payment of such foreign currency requirements, limited to no more than two foreign currencies.

b) The rates of exchange to be used by the Tenderer in arriving at the local currency equivalent and the percentage(s) mentioned in (a) above shall be specified by the Tenderer in the Appendix to Tender and shall be based on the exchange rate provided by the Central Bank of Kenya on the date 30 days prior to the actual date of tender opening. Such exchange rate shall apply for all foreign payments under the Contract.

153 Tenderers may be required by the Procuring Entity to justify, to the Procuring Entity's satisfaction, their local and foreign currency requirements, and to substantiate that the amounts included in the unit rates and prices and shown in the Schedule of Adjustment Data in the Appendix to Tender are reasonable, in which case a detailed breakdown of the foreign currency requirements shall be provided by Tenderers.

16.0 Documents Comprising the Technical Proposal

The Tenderer shall furnish a technical proposal including a statement of work methods, equipment, personnel, schedule and any other information as stipulated in Section IV, Tender Forms, insufficient detail to demonstrate the adequacy of the Tenderer's proposal to meet the work's requirements and the completion time.

17.0 Documents Establishing the Eligibility and Qualifications of the Tenderer

171 Tenderers shall complete the Form of Tender, included in Section IV, Tender Forms, to establish Tenderer's eligibility in accordance with ITT 4.

172 In accordance with Section III, Evaluation and Qualification Criteria, to establish its qualifications to perform the Contract the Tenderer shall provide the information requested in the corresponding information sheets included in Section IV, Tender Forms.

173 If a margin of preference applies as specified in accordance with ITT 33.1, national tenderers, individually or in joint ventures, applying for eligibility for national preference shall supply all information required to satisfy the criteria for eligibility specified in accordance with ITT 33.1.

174 Tenderers shall be asked to provide, as part of the data for qualification, such information, including details of ownership, as shall be required to determine whether, according to the classification established by the Procuring Entity, a particular contractor or group of contractors qualifies for a margin of preference. Further the information will enable the Procuring Entity identify any actual or potential conflict of interest in relation to the procurement and/or contract management processes, or a possibility of collusion between tenderers, and thereby help to prevent any corrupt influence in relation to the procurement process or contract management.

175 The purpose of the information described in **ITT 17.4** above overrides any claims to confidentiality which a tenderer may have. There can be no circumstances in which it would be justified for a tenderer to keep information relating to its ownership and control confidential where it is tendering to undertake public sector work and receive public sector funds. Thus, confidentiality will not be accepted by the Procuring Entity as a justification for a Tenderer's failure to disclose, or failure to provide required information on its ownership and control.

176 The Tenderer shall provide further documentary proof, information or authorizations that the Procuring Entity may request in relation to ownership and control which information on any changes to the information which was provided by the tenderer under ITT 6.4. The obligations to require this information shall continue for the duration of the procurement process and contract performance and after completion of the contract, if any change to the information previously provided may reveal a conflict of interest in relation to the award or management of the contract.

177 All information provided by the tenderer pursuant to these requirements must be complete, current and accurate as at the date of provision to the Procuring Entity. In submitting the information required pursuant to these

requirements, the Tenderer shall warrant that the information submitted is complete, current and accurate as at the date of submission to the Procuring Entity.

- 17.8** If a tenderer fails to submit the information required by these requirements, its tender will be rejected. Similarly, if the Procuring Entity is unable, after taking reasonable steps, to verify to a reasonable degree the information submitted by a tenderer pursuant to these requirements, then the tender will be rejected.
- 17.9** If information submitted by a tenderer pursuant to these requirements, or obtained by the Procuring Entity (whether through its own enquiries, through notification by the public or otherwise), shows any conflict of interest which could materially and improperly benefit the tenderer in relation to the procurement or contract management process, then:
- i) If the procurement process is still ongoing, the tenderer will be disqualified from the procurement process,
 - ii) if the contract has been awarded to that tenderer, the contract award will be set aside pending the outcome of (iii),
 - iii) the tenderer will be referred to the relevant law enforcement authorities for investigation of whether the tenderer or any other person have committed any criminal offence.
- 17.10** If a tenderer submits information pursuant to these requirements that is incomplete, inaccurate or out-of-date, or attempts to obstruct the verification process, then the consequences of ITT 17.8 will ensue unless the tenderer can show to the reasonable satisfaction of the Procuring Entity that any such act was not material, or was due to genuine error which was not attributable to the intentional act, negligence or recklessness of the tenderer.

18.0 Period of Validity of Tenders

- 18.1.** Tenders shall remain valid for the Tender Validity period specified in the **TDS**. The Tender Validity period starts from the date fixed for the Tender submission deadline (as prescribed by the Procuring Entity in accordance with ITT 22). A tender valid for a shorter period shall be rejected by the Procuring Entity as non-responsive.
- 18.2** In exceptional circumstances, prior to the expiration of the Tender validity period, the Procuring Entity may request Tenderers to extend the period of validity of their Tenders. The request and the response shall be made in writing. If a Tender Security is requested in accordance with ITT 19, it shall also be extended for thirty (30) days beyond the deadline of the extended validity period. A Tenderer may refuse the request without forfeiting its Tender security. A Tenderer granting the request shall not be required or permitted to modify its Tender.

19.0 Tender Security

- 19.1** The Tenderer shall furnish as part of its Tender, either a Tender-Securing Declaration or a Tender Security as specified in the **TDS**, in original form and, in the case of a Tender Security, in the amount and currency **specified** in the **TDS**. A Tender-Securing Declaration shall use the form included in Section IV, Tender Forms.
- 19.2** If a Tender Security is specified pursuant to ITT 19.1, the Tender Security shall be a demand guarantee in any of the following forms at the Tenderer's option:
- i) cash;
 - ii) a bank guarantee;
 - iii) a guarantee by an insurance company registered and licensed by the Insurance Regulatory Authority listed by the Authority;
 - (iv) a guarantee issued by a financial institution approved and licensed by the Central Bank of Kenya, from a reputable source, and an eligible country.
- 19.3** If an unconditional bank guarantee is issued by a bank located outside Kenya, the issuing bank shall have a correspondent bank located in Kenya to make it enforceable. The Tender Security shall be valid for thirty (30) days beyond the original validity period of the Tender, or beyond any period of extension if requested under ITT 18.2.
- 19.4** If a Tender Security or Tender-Securing Declaration is specified pursuant to ITT 19.1, any Tender not accompanied by a substantially responsive Tender Security or Tender-Securing Declaration shall be rejected by the Procuring Entity as non-responsive.
- 19.5** If a Tender Security is specified pursuant to ITT 19.1, the Tender Security of unsuccessful Tenderers shall be

returned as promptly as possible upon the successful Tenderer's signing the Contract and furnishing the Performance Security and any other documents required in the TDS. The Procuring Entity shall also promptly return the tender security to the tenderers where the procurement proceedings are terminated, all tenders were determined non-responsive or a bidder declines to extend tender validity period.

196 The Tender Security of the successful Tenderer shall be returned as promptly as possible once the successful Tenderer has signed the Contract and furnished the required Performance Security, and any other documents required in the TDS.

197 The Tender Security may be forfeited or the Tender-Securing Declaration executed:

- a) if a Tenderer withdraws its Tender during the period of Tender validity specified by the Tenderer on the Form of Tender, or any extension there to provided by the Tenderer; or
- b) if the successful Tenderer fails to: -
 - i) sign the Contract in accordance with ITT47; or
 - ii) furnish a Performance Security and if required in the TDS, and any other documents required in the TDS.

198 Where tender securing declaration is executed, the Procuring Entity shall recommend to the PPRA to debar the Tenderer from participating in public procurement as provided in the law.

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

1910 A tenderer shall not issue a tender security to guarantee itself.

200 Format and Signing of Tender

201 The Tenderer shall prepare one original of the documents comprising the Tender as described in ITT 11 and clearly mark it "ORIGINAL." Alternative Tenders, if permitted in accordance with ITT 13, shall be clearly marked "ALTERNATIVE." In addition, the Tenderer shall submit copies of the Tender, in the number specified in the **TDS** and clearly mark them "COPY." In the event of any discrepancy between the original and the copies, the original shall prevail.

202 Tenderers shall mark as "CONFIDENTIAL" all information in their Tenders which is confidential to their business. This may include proprietary information, trade secrets, or commercial or financially sensitive information.

203 The original and all copies of the Tender shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Tenderer. This authorization shall consist of a written confirmation as specified in the **TDS** and shall be attached to the Tender. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the Tender where entries or amendments have been made shall be signed or initialed by the person signing the Tender.

204 Incase the Tenderer is a JV, the Tender shall be signed by an authorized representative of the JV on behalf of the JV, and so as to be legally binding on all the members as evidenced by a power of attorney signed by their legally authorized representatives.

205 Any inter-lineation, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the Tender.

D. SUBMISSION AND OPENING OF TENDERS

210 Sealing and Marking of Tenders

211 The Tenderer shall deliver the Tender in a single sealed envelope, or in a single sealed package, or in a single sealed container bearing the name and Reference number of the Tender, addressed to the Procuring Entity and a warning not to open before the time and date for Tender opening date. Within the single envelope, package or container, the Tenderer shall place the following separate, sealed envelopes:

- a) in an envelope or package or container marked "ORIGINAL", all documents comprising the

Tender, as described in ITT 11; and

- b) in an envelope or package or container marked “COPIES”, all required copies of the Tender; and
- c) if alternative Tenders are permitted in accordance with ITT 13, and if relevant:
 - i) in an envelope or package or container marked “ORIGINAL –ALTERNATIVE TENDER”, the alternative Tender; and
 - ii) in the envelope or package or container marked “COPIES- ALTERNATIVE TENDER”, all required copies of the alternative Tender.

The inner envelopes or packages or containers shall:

- a) bear the name and address of the Procuring Entity,
- b) bear the name and address of the Tenderer; and
- c) bear the name and Reference number of the Tender.

212 If an envelope or package or container is not sealed and marked as required, the *Procuring Entity* will assume no responsibility for the misplacement or premature opening of the Tender. Tenders misplaced or opened prematurely will not be accepted.

220 Deadline for Submission of Tenders

221 Tenders must be received by the Procuring Entity at the address specified in the **TDS** and no later than the date and time also specified in the **TDS**. When so specified in the **TDS**, tenderers shall have the option of submitting their Tenders electronically. Tenderers submitting Tenders electronically shall follow the electronic Tender submission procedures specified in the **TDS**.

222 The Procuring Entity may, at its discretion, extend the deadline for the submission of Tenders by amending the Tender Documents in accordance with ITT 8, in which case all rights and obligations of the Procuring Entity and Tenderers previously subject to the deadline shall thereafter be subject to the deadline as extended.

23.0 Late Tenders

The Procuring Entity shall not consider any Tender that arrives after the deadline for submission of tenders, in accordance with ITT 22. Any Tender received by the Procuring Entity after the deadline for submission of Tenders shall be declared late, rejected, and returned unopened to the Tenderer.

24.0 Withdrawal, Substitution, and Modification of Tenders

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

- a) prepared and submitted in accordance with ITT 20 and ITT 21 (except that withdrawals notices do not require copies), and in addition, the respective envelopes shall be clearly marked “WITHDRAWAL,” “SUBSTITUTION,” “MODIFICATION;” and
- b) received by the Procuring Entity prior to the deadline prescribed for submission of Tenders, in accordance with ITT 22.

242 Tenders requested to be withdrawn in accordance with ITT 24.1 shall be returned unopened to the Tenderers.

243 No Tender may be withdrawn, substituted, or modified in the interval between the deadline for submission of Tenders and the expiration of the period of Tender validity specified by the Tenderer on the Form of Tender or any extension thereof.

25. Tender Opening

251 Except in the cases specified in ITT 23 and ITT 24.2, the Procuring Entity shall publicly open and read out all Tenders received by the deadline, at the date, time and place specified **in the TDS**, in the presence of Tenderers' designated representatives who chooses to attend. Any specific electronic Tender opening procedures required if electronic Tendering is permitted in accordance with ITT 22.1, shall be as specified in the **TDS**.

- 252 First, envelopes marked “WITHDRAWAL” shall be opened and read out and the envelopes with the corresponding Tender shall not be opened but returned to the Tenderer. No Tender withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at Tender opening.
- 253 Next, envelopes marked “SUBSTITUTION” shall be opened and read out and exchanged with the corresponding Tender being substituted, and the substituted Tender shall not be opened, but returned to the Tenderer. No Tender substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at Tender opening.
- 254 Next, envelopes marked “MODIFICATION” shall be opened and read out with the corresponding Tender. No Tender modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at Tender opening.
- 255 Next, all remaining envelopes shall be opened one at a time, reading out: the name of the Tenderer and whether there is a modification; the total Tender Price, per lot (contract) if applicable, including any discounts and alternative Tenders; the presence or absence of a Tender Security or Tender-Securing Declaration, if required; and any other details as the Procuring Entity may consider appropriate.
- 256 Only Tenders, alternative Tenders and discounts that are opened and read out at Tender opening shall be considered further for evaluation. The Form of Tender and pages of the Bill of Quantities (to be decided on by the tender opening committee) are to be initialed by the members of the tender opening committee attending the opening.
- 257 At the Tender Opening, the Procuring Entity shall neither discuss the merits of any Tender nor reject any Tender (except for late Tenders, in accordance with ITT 23.1).
- 258 The Procuring Entity shall prepare minutes of the Tender Opening that shall include, as a minimum: -
- a) the name of the Tenderer and whether there is a withdrawal, substitution, or modification;
 - b) the Tender Price, per lot (contract) if applicable, including any discounts;
 - c) any alternative Tenders;
 - d) the presence or absence of a Tender Security, if new as required;
 - e) number of pages of each tender document submitted.
- 259 The Tenderers' representatives who are present shall be requested to sign the minutes. The omission of a Tenderer's signature on the minutes shall not invalidate the contents and effect of the minutes. A copy of the tender opening register shall be distributed to all Tenderers.

E. EVALUATION AND COMPARISON OF TENDERS

26. Confidentiality

- 261 Information relating to the evaluation of Tenders and recommendation of contract award shall not be disclosed to Tenderers or any other persons not officially concerned with the Tender process until information on Intention to Award the Contract is transmitted to all Tenderers in accordance with ITT 43.
- 262 Any effort by a Tenderer to influence the Procuring Entity in the evaluation of the Tenders or Contract award decisions may result in the rejection of its tender.
- 263 Notwithstanding ITT 26.2, from the time of tender opening to the time of contract award, if a tenderer wishes to contact the Procuring Entity on any matter related to the tendering process, it shall do so in writing.

27.0 Clarification of Tenders

- 271 To assist in the examination, evaluation, and comparison of the tenders, and qualification of the tenderers, the Procuring Entity may, at its discretion, ask any tenderer for a clarification of its tender, given a reasonable time for a response. Any clarification submitted by a tenderer that is not in response to a request by the Procuring Entity shall not be considered. The Procuring Entity's request for clarification and the response shall be in writing. No change, including any voluntary increase or decrease, in the prices or substance of the tender shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Procuring Entity in the evaluation of the tenders, in accordance with ITT 31.

272 If a tenderer does not provide clarifications of its tender by the date and time set in the Procuring Entity's request for clarification, its Tender may be rejected.

280 Deviations, Reservations, and Omissions

281 During the evaluation of tenders, the following definitions apply: -

- a) "*Deviation*" is a departure from the requirements specified in the tender document;
- b) "*Reservation*" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the tender document; and
- c) "*Omission*" is the failure to submit part or all of the information or documentation required in the Tender document.

290 Determination of Responsiveness

291 The Procuring Entity's determination of a Tender's responsiveness is to be based on the contents of the tender itself, as defined in ITT 11.

292 A substantially responsive Tender is one that meets the requirements of the Tender document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that, if accepted, would:

- a) Affect in any substantial way the scope, quality, or performance of the Works specified in the Contract;
- b) limit in any substantial way, inconsistent with the tender document, the Procuring Entity's rights or the tenderer's obligations under the proposed contract;
- c) if rectified, would unfairly affect the competitive position of other tenderers presenting substantially responsive tenders.

293 The Procuring Entity shall examine the technical aspects of the tender submitted in accordance with ITT 16, to confirm that all requirements of Section VII, Works' Requirements have been met without any material deviation, reservation or omission.

294 If a tender is not substantially responsive to the requirements of the tender document, it shall be rejected by the Procuring Entity and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.

300 Non-material Non-conformities

301 Provided that a tender is substantially responsive, the Procuring Entity may waive any non-conformities in the tender.

302 Provided that a Tender is substantially responsive, the Procuring Entity may request that the tenderer submit the necessary information or documentation, within a reasonable period of time, to rectify non-material non-conformities in the tender related to documentation requirements. Requesting information or documentation on such non-conformities shall not be related to any aspect of the price of the tender. Failure of the tenderer to comply with the request may result in the rejection of its tender.

303 Provided that a tender is substantially responsive, the Procuring Entity shall rectify quantifiable non-material non-conformities related to the Tender Price. To this effect, the Tender Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component in the manner specified **in the TDS**.

310 Arithmetical Errors

311 The tender sum as submitted and read out during the tender opening shall be absolute and final and shall not be the subject of correction, adjustment or amendment in any way by any person or entity.

312 Provided that the Tender is substantially responsive, the Procuring Entity shall handle errors on the following basis: -

- a) Any error detected if considered a major deviation that affects the substance of the tender, shall lead to disqualification of the tender as non-responsive.
- b) Any errors in the submitted tender arising from a miscalculation of unit price, quantity, subtotal and total bid price shall be considered as a major deviation that affects the

substance of the tender and shall lead to disqualification of the tender as non-responsive.
and

- c) if there is a discrepancy between words and figures, the amount in words shall prevail

313 Tenderers shall be notified of any error detected in their bid during the notification of award.

32.0 Conversion to Single Currency

For evaluation and comparison purposes, the currency (ies) of the Tender shall be converted in to a single currency as specified in the **TDS**.

33.0 Margin of Preference and Reservations

331 A margin of preference may be allowed only when the contract is open to international competitive tendering where foreign contractors are expected to participate in the tendering process and where the contract exceeds the value/threshold specified in the Regulations.

332 A margin of preference shall not be allowed unless it is specified so in the **TDS**.

333 Contracts procured on basis of international competitive tendering shall not be subject to reservations exclusive to specific groups as provided in ITT 33.4.

334 Where it is intended to reserve a contract to a specific group of businesses (these groups are Small and Medium Enterprises, Women Enterprises, Youth Enterprises and Enterprises of persons living with disability, as the case may be), and who are appropriately registered as such by the authority to be specified in the **TDS**, a procuring entity shall ensure that the invitation to tender specifically indicates that only businesses or firms belonging to the specified group are eligible to tender. No tender shall be reserved to more than one group. If not so stated in the Invitation to Tender and in the Tender documents, the invitation to tender will be open to all interested tenderers.

34.0 Nominated Subcontractors

341 Unless otherwise stated in the **TDS**, the Procuring Entity does not intend to execute any specific elements of the Works by subcontractors selected/nominated by the Procuring Entity. In case the Procuring Entity nominates a subcontractor, the subcontract agreement shall be signed by the Subcontractor and the Procuring Entity. The main contract shall specify the working arrangements between the main contractor and the nominated subcontractor.

342 Tenderers may propose sub-contracting up to the percentage of total value of contracts or the volume of works as specified in the **TDS**. Subcontractors proposed by the Tenderer shall be fully qualified for their parts of the Works.

343 Domestic subcontractor's qualifications shall not be used by the Tenderer to qualify for the Works unless their specialized parts of the Works were previously designated so by the Procuring Entity in the **TDS** a scan be met by subcontractors referred to hereafter as 'Specialized Subcontractors', in which case, the qualifications of the Specialized Subcontractors proposed by the Tenderer may be added to the qualifications of the Tenderer.

35. Evaluation of Tenders

351 The Procuring Entity shall use the criteria and methodologies listed in this ITT and Section III, Evaluation and Qualification Criteria No other evaluation criteria or methodologies shall be permitted. By applying the criteria and methodologies the Procuring Entity shall determine the Lowest Evaluated Tender in accordance with ITT 40.

352 To evaluate a Tender, the Procuring Entity shall consider the following:

- a) Price adjustment in accordance with ITT 31.1 (iii); excluding provisional sums and contingencies, if any, but including Daywork items, where priced competitively;
- b) price adjustment due to discounts offered in accordance with ITT 14.4;
- c) converting the amount resulting from applying (a) and (b) above, if relevant, to a single currency in accordance with ITT 32;
- d) price adjustment due to quantifiable non material non-conformities in accordance with ITT 30.3; and
- e) any additional evaluation factors specified in the **TDS** and Section III, Evaluation and Qualification Criteria.

353 The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be considered in Tender evaluation.

354 Where the tender involves multiple lots or contracts, the tenderer will be allowed to tender for one or more lots

(contracts). Each lot or contract will be evaluated in accordance with ITT 35.2. The methodology to determine the lowest evaluated tenderer or tenderers base done lot (contract) or based on a combination of lots (contracts), will be specified in Section III, Evaluation and Qualification Criteria. In the case of multiple lots or contracts, tenderer will be will be required to prepare the Eligibility and Qualification Criteria Form for each Lot.

36.0 Comparison of tenders

The Procuring Entity shall compare the evaluated costs of all substantially responsive Tenders established in accordance with ITT 35.2 to determine the Tender that has the lowest evaluated cost.

37.0 Abnormally low tenders and abnormally high tenders

Abnormally Low Tenders

- 371** An Abnormally Low Tender is one where the Tender price, in combination with other elements of the Tender, appears so low that it raises material concerns as to the capability of the Tenderer in regards to the Tenderer's ability to perform the Contract for the offered Tender Price or that genuine competition between Tenderers is compromised.
- 372** In the event of identification of a potentially Abnormally Low Tender, the Procuring Entity shall seek written clarifications from the Tenderer, including detailed price analyses of its Tender price in relation to the subject matter of the contract, scope, proposed methodology, schedule, allocation of risks and responsibilities and any other requirements of the Tender document.
- 373** After evaluation of the price analyses, in the event that the Procuring Entity determines that the Tenderer has failed to demonstrate its capability to perform the Contract for the offered Tender Price, the Procuring Entity shall reject the Tender.

Abnormally high tenders

- 374** An abnormally high tender price is one where the tender price, in combination with other constituent elements of the Tender, appears unreasonably too high to the extent that the Procuring Entity is concerned that it (the Procuring Entity) may not be getting value for money or it may be paying too high a price for the contract compared with market prices or that genuine competition between Tenderers is compromised.
- 375** Incase of a nab normally high price, the Procuring Entity shall make a survey of the market prices, check if the estimated cost of the contract is correct and review the Tender Documents to check if the specifications, scope of work and conditions of contract are contributory to the abnormally high tenders. The Procuring Entity may also seek written clarification from the tenderer on the reason for the high tender price. The Procuring Entity shall proceed as follows:
- i) If the tender price is abnormally high based on wrong estimated cost of the contract, the Procuring Entity may accept or not accept the tender depending on the Procuring Entity's budget considerations.
 - ii) If specifications, scope of work and/or conditions of contract are contributory to the abnormally high tender prices, the Procuring Entity shall reject all tenders and may retender for the contract based on revised estimates, specifications, scope of work and conditions of contract, as the case may be.
- 376** If the Procuring Entity determines that the Tender Price is abnormally too high because genuine competition between tenderers is compromised (*often due to collusion, corruption or other manipulations*), the Procuring Entity shall reject all Tenders and shall institute or cause competent Government Agencies to institute an investigation on the cause of the compromise, before retendering.

38.0 Unbalanced and/ or front-loaded tenders

- 381** If in the Procuring Entity's opinion, the Tender that is evaluated as the lowest evaluated price is seriously unbalanced and/or frontloaded, the Procuring Entity may require the Tenderer to provide written clarifications. Clarifications may include detailed price analyses to demonstrate the consistency of the tender prices with the scope of works, proposed methodology, schedule and any other requirements of the Tender document.
- 382** After the evaluation of the information and detailed price analyses presented by the Tenderer, the Procuring Entity may as appropriate:

- a) accept the Tender;
- b) require that the total amount of the Performance Security be increased at the expense of the Tenderer to a level not exceeding a 30% of the Contract Price;
- c) agree on a payment mode that eliminates the inherent risk of the Procuring Entity paying too much for undelivered works;
- d) reject the Tender,

39.0 Qualifications of the tenderer

39.1 The Procuring Entity shall determine to its satisfaction whether the eligible Tenderer that is selected as having submitted the lowest evaluated cost and substantially responsive Tender, meets the qualifying criteria specified in Section III, Evaluation and Qualification Criteria.

39.2 The determination shall be based upon an examination of the documentary evidence of the Tenderer's qualifications submitted by the Tenderer, pursuant to ITT 17. The determination shall not take into consideration the qualifications of other firms such as the Tenderer's subsidiaries, parent entities, affiliates, subcontractors (other than Specialized Sub-contractors if permitted in the Tender document), or any other firm(s) different from the Tenderer.

39.3 An affirmative determination shall be a prerequisite for award of the Contract to the Tenderer. A negative determination shall result in disqualification of the Tender, in which event the Procuring Entity shall proceed to the Tenderer who offers a substantially responsive Tender with the next lowest evaluated price to make a similar determination of that Tenderer's qualifications to perform satisfactorily.

40.0 Lowest evaluated tender

Having compared the evaluated prices of Tenders, the Procuring Entity shall determine the Lowest Evaluated Tender. The Lowest Evaluated Tender is the Tender of the Tenderer that meets the Qualification Criteria and whose Tender has been determined to be:

- a) Most responsive to the Tender document; and
- b) the lowest evaluated price.

41.0 Procuring entity's right to accept any tender, and to reject any or all tenders.

The Procuring Entity reserves the right to accept or reject any Tender and to annul the Tender process and reject all Tenders at any time prior to Contract Award, without there by incurring any liability to Tenderers. In case of annulment, all Tenders submitted and specifically, Tender securities, shall be promptly returned to the Tenderers.

F. AWARD OF CONTRACT

42.0 Award criteria

The Procuring Entity shall award the Contract to the successful tenderer whose tender has been determined to be the Lowest Evaluated Tender.

43.0 Notice of Intention to Enter into a Contract/Notification of Award

Upon award of the contract and Prior to the expiry of the Tender Validity Period the Procuring Entity shall issue a Notification of Intention to Enter into a Contract/Notification of award to all tenderers which shall contain, at a minimum, the following information:

- a) the name and address of the Tenderer submitting the successful tender;
- b) the Contract price of the successful tender;
- c) a statement of the reason(s) the tender of the unsuccessful tenderer to whom the letter is addressed was unsuccessful, unless the price information in (c) above already reveals the reason;
- d) the expiry date of the Standstill Period; and
- e) instruction on how to request a debriefing and/ or submit a complaint during the stand still period;

44.0 Stand still Period

- 441** The Contract shall not be signed earlier than the expiry of a Standstill Period of 14 days to allow any dissatisfied tender to launch a complaint. Where only one Tender is submitted, the Standstill Period shall not apply.
- 442** Where a Standstill Period applies, it shall commence when the Procuring Entity has transmitted to each Tenderer the Notification of Intention to Enter into a Contract with the successful Tenderer.

45.0 Debriefing by The Procuring Entity

- 451** On receipt of the Procuring Entity's Notification of Intention to Enter into a Contract referred to in ITT 43, an unsuccessful tenderer may make a written request to the Procuring Entity for a debriefing on specific issues or concerns regarding their tender. The Procuring Entity shall provide the debriefing within five days of receipt of the request.
- 452** Debriefings of unsuccessful Tenderers may be done in writing or verbally. The Tenderer shall bear its own costs of attending such a debriefing meeting.

46.0 Letter of Award

Prior to the expiry of the Tender Validity Period and upon expiry of the Standstill Period specified in ITT 42.1, upon addressing a complaint that has been filed with in the Standstill Period, the Procuring Entity shall transmit the Letter of Award to the successful Tenderer. The letter of award shall request the successful tenderer to furnish the Performance Security within 21 days of the date of the letter.

47.0 Signing of Contract

- 471** Upon the expiry of the fourteen days of the Notification of Intention to enter in to contract and upon the parties meeting their respective statutory requirements, the Procuring Entity shall send the successful Tenderer the Contract Agreement.
- 472** Within fourteen (14) days of receipt of the Contract Agreement, the successful Tenderer shall sign, date, and return it to the Procuring Entity.
- 473** The written contract shall be entered into within the period specified in the notification of award and before expiry of the tender validity period.

48.0 Performance Security

- 481** Within twenty-one (21) days of the receipt of the Letter of Award from the Procuring Entity, the successful Tenderer shall furnish the Performance Security and, any other documents required in the **TDS**, in accordance with the General Conditions of Contract, subject to ITT 38.2 (b), using the Performance Security and other Forms included in Section X, Contract Forms, or another form acceptable to the Procuring Entity. A foreign institution providing a bank guarantee shall have a correspondent financial institution located in Kenya, unless the Procuring Entity has agreed in writing that a correspondent bank is not required.
- 482** Failure of the successful Tenderer to submit the above-mentioned Performance Security and other documents required in the **TDS** or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Tender Security. In that event the Procuring Entity may award the Contract to the Tenderer offering the next Best Evaluated Tender.
- 483** Performance security shall not be required for contracts estimated to cost less than the amount specified in the Regulations.

49.0 Publication of Procurement Contract

Within fourteen days after signing the contract, the Procuring Entity shall publish the awarded contract at its notice boards and websites; and on the Website of the Authority. At the minimum, the notice shall contain the following information:

- a) name and address of the Procuring Entity;
- b) name and reference number of the contract being awarded, a summary of its scope and the selection method used;

- c) the name of the successful Tenderer, the final total contract price, the contract duration;
- d) dates of signature, commencement and completion of contract;
- e) names of all Tenderers that submitted Tenders, and their Tender prices as readout at Tender opening.

50.0 Procurement related Complaints and Administrative Review

50.1 The procedures for making Procurement-related Complaints are as specified in the **TDS**.

50.2 A request for administrative review shall be made in the form provided under contract forms.

Section II - Tender Data Sheet (TDS)

The following specific data shall complement, supplement, or amend the provisions in the Instructions to Tenderers (ITT). Whenever there is a conflict, the provisions herein shall prevail over those in ITT.

Reference to ITC Clause	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
A. General	
ITT 1.1	The name of the contract is: PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK FOR RONGO UNIVERSITY The reference number of the Contract is RU/TSLB/009/2024-2025 The number and identification of lots (contracts) comprising this Tender is 1 Lot 1- Name: PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK FOR RONGO UNIVERSITY
ITT 2.4	The Information made available on competing firms is as follows:
ITT 2.4	The firms that provided consulting services for the contract being tendered for are: The firms that provided consulting services for the contract being tendered for are: 1) The term Architect shall be deemed to mean Messrs. Skylon Designs Limited, P.O. Box 26011-00100, NAIROBI, Email: skylondesigns.sd@gmail.com 2) The term "Quantity Surveyor" shall be deemed to mean the firm of Messrs Messrs. Skylon Designs Limited, P.O. Box 26011-00100, NAIROBI, Email: skylondesigns.sd@gmail.com 3) The term "Mechanical Engineer/Electrical Engineer" shall be deemed to mean Messrs. Skylon Designs Limited, P.O. Box 26011-00100, NAIROBI, Email: skylondesigns.sd@gmail.com 4) The term "Structural & Civil Engineer" shall be deemed to mean Messrs. Skylon Designs Limited, P.O. Box 26011-00100, NAIROBI, Email: skylondesigns.sd@gmail.com
ITT 3.1	Maximum number of members in the Joint Venture (JV) shall be: 2
B. Contents of Tender Document	
ITT 7.1	The Tenderer will submit any request for clarifications in writing at the Address: procurement@rongovarsity.ac.ke to reach the Procuring Entity not later than One Week to the submission of the tender or Tuesday, 13th May 2025. (ii) The Procuring Entity shall publish its response at the website: https://www.rongovarsity.ac.ke and https://www.tenders.go.ke
ITT 7.2	(A) Pre-Tender meeting shall take place at the following date, time and place: Date: 9th May 2025 Time: 11:00AM Place: Site Grounds - Rongo University Campus

Reference to ITC Clause	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
ITT 7.3	The Tenderer will submit any questions in writing, to reach the Procuring Entity not later than One Day before the meeting.
ITT 7.5	The Procuring Entity's website where Minutes of the pre-Tender meeting and the pre-arranged pretender will be published is: https://www.rongovarsity.ac.ke and www.tenders.go.ke
ITT 9.1	For Clarification of Tender purposes, for obtaining further information and for purchasing tender documents, the Procuring Entity's address is: The Vice Chancellor, Rongo University, P.O. BOX 103 – 40404, Rongo Email; procurement@rongovarsity.ac.ke
C. Preparation of Tenders	
ITT 11.1 (h)	The Tenderer shall submit the following additional documents in its Tender:. The list of additional documents should include the following: 1. Certified Copy of Company Registration Certificates. (Be a registered company incorporated in Kenya under the Companies Act CAP 486). 2. Certified copy of Current Valid Tax Compliance Certificate, including a certified copy of the company's Pin No. 3. Certified copy of Registration certificate from National Construction Authority, Category 1 in Building works (General Building Contractor). 4. Certified copy of Current Valid Practicing License from National Construction Authority Category 1 in Building works (General Building Contractor). 5. Current Business License. 6. Provide Letter of Authority to seek references from tenderer's bank (letter addressed to specific Banks giving authority to Client (Specifying the client's name) to verify the bank statements). 7. Evidence of physical location of office by providing certified copies of premises ownership/lease, and utility bills. 8. A copy of the company list of directors, beneficial owners, name of proprietor or names of partners (Copy of CR12) issued within the last one year and showing the list of directors. 9. A Verified Site Visit Certificate/Site Attendance Register The Bidder must have the following Domestic Sub-Contractors and provide the relevant applicable documents showing their qualification: 1. Plumbing Drainage Installations Subcontractor: • National Construction Authority, Category 4 and Above 2. Electrical Installations Subcontractor: • National Construction Authority, Category 4 and Above • Energy & Petroleum Regulatory Authority (EPRA) Class A 3. Structured Cabling Installations Subcontractor: • National Construction Authority, Category 4 and Above • Communication Authority of Kenya (CAK) registration 4. Security Installations Subcontractor: • National Construction Authority, Category 4 and Above

Reference to ITC Clause	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
	- Communication Authority of Kenya (CAK) registration NB FOR FOREIGN FIRMS PROVIDE EQUIVALENT OF ALL THE ABOVE WHERE APPLICABLE. FOR A SUCCESSFUL FOREIGN FIRM, IT WILL BE A REQUIREMENT TO REGISTER WITH KENYA NATIONAL CONSTRUCTION AUTHORITY BEFORE SIGNING OF THE CONTRACT. NCA Website: http://nca.go.ke/. Submitted tender documents must be properly TAPE BOUND and PAGINATED in the correct sequence and all pages must be initiated/signed/stamped. Spiral binding and use of spring or box file will NOT BE ALLOWED and will result in automatic disqualification
ITT 13.1	Alternative Tenders shall not be considered.
ITT 13.2	Alternative times for completion shall not be permitted.
ITT 13.4	Not Applicable
ITT 14.5	The prices quoted by the Tenderer shall be: fixed. Price Adjustment formula shall be those published by the JBCC price indices
ITT 15.2 (a)	Foreign currency requirements are not allowed .
ITT 18.1	The Tender validity period shall be 180 (One Hundred Eighty) Days
ITT 18.3	Not Applicable
ITT 19.1	Tenderer shall provide a Tender Security in form of a bank guarantee or bankers cheque in the amount of Kenya shillings Kshs 6,000,000.00 (from a reputable financial institution and shall be valid for 210 days from date of tender opening).
ITT 20.1	In addition to the original of the Tender, the number of copies is: two hardcopies and one softcopy in a flash disk.
ITT 20.3	The written confirmation of authorization to sign on behalf of the Tenderer shall consist of: Power of Attorney which demonstrates that the signatory is duly authorized to sign the bid on behalf of the bidder partners. Power of the Attorney shall be signed and stamped by a commissioner of oath.
D. Submission and Opening of Tenders	
ITT 22.1	(A) For <u>Tender submission purposes only</u>, the Procuring Entity's address is: The Vice Chancellor, Rongo University, P.O. BOX 103 – 40404, Rongo Email; procurement@rongovarsity.ac.ke Date and time for submission of Tenders shall be no later than 20th May 2025 at 11:00AM. Tenderers shall not submit tenders electronically.
ITT 25.1	The Tender opening shall take place at the time and the address for Opening of Tenders provided below: The Vice Chancellor, Rongo University, P.O. BOX 103 – 40404, Rongo Email; procurement@rongovarsity.ac.ke

Reference to ITC Clause	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
ITT 25.1	If tenderers are allowed to submit tenders electronically, they shall follow the electronic tender submission procedures specified below: Not Applicable
E. Evaluation, and Comparison of Tenders	
ITT 30.3	The adjustment shall be based on the average price of the item or component as quoted in other substantially responsive Tenders. If the price of the item or component cannot be derived from the price of other substantially responsive Tenders, the Procuring Entity shall use its best estimate.
TT 32.1	The currency that shall be used for Tender evaluation and comparison purposes only to convert at the selling exchange rate all Tender prices expressed in various currencies into a single currency is: Kenya Shillings The source of exchange rate shall be: The Central bank of Kenya (mean rate) The date for the exchange rate shall be: the deadline date for Submission of the Tenders. <i>For comparison of Tenders, The Tender Price, Corrected pursuant to ITT 31, shall first be broken down into the respective amounts payable in various currencies by using the selling exchange rates specified by the Tenderer in accordance with ITT 15.1.</i> <i>In the second step, the procuring entity will convert the amounts in various currencies in which the Tender Price is payable (excluding Provisional Sums but including Daywork where priced competitively) to the single currency identified above at the selling rates established for similar transactions by the authority specified and, on the date, stipulated above.</i>
ITT 33.2	A margin of preference “shall not” apply.
ITT 33.4	The Invitation to Tender is Extended to the following group that qualify for Reservations: Not Applicable
ITT 34.1	At this time, the Procuring Entity does not intend to execute certain specific parts of the Works by subcontractors selected in advance.
ITT 34.2	Contractor’s may propose subcontracting: Maximum percentage of subcontracting permitted is: 40% of the total contract amount. Tenderers planning to subcontract more than 10% of total volume of work shall specify, in the Form of Tender, the activity (ies) or parts of the Works to be subcontracted along with complete details of the subcontractors and their qualification and experience.
ITT 34.3	The parts of the Works for which the Procuring Entity permits Tenderers to propose Specialized Subcontractors are designated as follows: 1. Plumbing Drainage Installations Subcontractor 2. Electrical Installations Subcontractor For the above-designated parts of the Works that may require Specialized Subcontractors, the relevant qualifications of the proposed Specialized Subcontractors will be added to the qualifications of the Tenderer for the purpose of evaluation.
ITT 35.2 (e)	Additional requirements apply. These are detailed in the evaluation criteria in Section III, Evaluation and Qualification Criteria.
ITT 48.1	Other documents required in addition to the Performance Security are Insurances (WIBA, Contractor’s all risk policy)
ITT 50.1	The procedures for making a Procurement-related Complaint are detailed in the “Notice of Intention to Award the Contract” herein and are also available from the PPRA Website www.ppra.go.ke or email complaints@ppra.go.ke .

Reference to ITC Clause	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
	If a Tenderer wishes to make a Procurement-related Complaint, the Tenderer should submit its complaint following these procedures, in writing (by the quickest means available, that is either by hand delivery or email to: For the attention: Prof. Samuel Gudu Title/position: The Vice Chancellor Procuring Entity: Rongo University. Email address: procurement@rongovarsity.ac.ke In summary, a Procurement-related Complaint may challenge any of the following (among others): (i) the terms of the Tender Documents; and (ii) the Procuring Entity's decision to award the contract.

SECTION III - EVALUATION AND QUALIFICATION CRITERIA

10 GENERAL PROVISIONS

- 11** This section contains the criteria that the Employer shall use to evaluate tender and qualify tenderers. No other factors, methods or criteria shall be used other than specified in this tender document. The Tenderer shall provide all the information requested in the forms included in Section IV, Tendering Forms. The Procuring Entity shall use **the Standard Tender Evaluation Document for Goods and Works** for evaluating Tenders.
- 12** Wherever a Tenderer is required to state a monetary amount, Tenderers should indicate the Kenya Shilling equivalent using the rate of exchange determined as follows:
- a) For construction turnover or financial data required for each year - Exchange rate prevailing on the last day of the respective calendar year (in which the amounts for that year is to be converted) was originally established.
 - b) Value of single contract - Exchange rate prevailing on the date of the contract signature.
 - (a) Exchange rates shall be taken from the publicly available source identified in the ITT 14.3. Any error in determining the exchange rates in the Tender may be corrected by the Procuring Entity.

13 EVALUATION AND CONTRACT AWARD CRITERIA

The Procuring Entity shall use the criteria and methodologies listed in this Section to evaluate tenders and arrive at the Lowest Evaluated Tender. The tender that (i) meets the qualification criteria, (ii) has been determined to be substantially responsive to the Tender Documents, and (iii) is determined to have the Lowest Evaluated Tender price shall be selected for award of contract.

2.0 PRELIMINARY EXAMINATION FOR DETERMINATION OF RESPONSIVENESS

Preliminary examination for Determination of Responsiveness

The Procuring Entity will start by examining all tenders to ensure they meet in all respects the eligibility criteria and other mandatory requirements in the ITT, and that the tender is complete in all aspects in meeting the requirements provided for in the preliminary evaluation criteria outlined below. The Standard Tender Evaluation Report Document for Goods and Works for evaluating Tenders provides very clear guide on how to deal with review of these requirements. Tenders that do not pass the Preliminary Examination will be considered non-responsive and will not be considered further.

The following mandatory requirements shall be used for determination of Responsiveness at the preliminary evaluation.

A. Preliminary and Mandatory Requirements Checklist

S/No	PRELIMINARY EVALUATION CRITERIA / MANDATORY REQUIREMENTS FOR MAIN CONTRACTOR
MR1	Presentation of Bid Document – Provide One Original and One Copy of tender documents including specialist works. Paginated/Serialized/Numbered in a sequential manner on all pages and all attachments. The document should be bound properly i.e. BE TAPE BOUND.
MR2	Form of Tender in the company Letter head duly Completed, Signed and Stamped by the Tenderer in the format provided, and prepared in accordance with ITT 12 and ITT 14
MR3	A Tender Security shall be required. The said Tender Security shall be Kenya Shillings Six Million (Ksh. 6,000,000) only issued by a Reputable Financial Institution Valid for a period of 210 days from the tender opening date. The format to match the provided Form; “FORM OF TENDER SECURITY- [Option 1–Demand Bank Guarantee]”
MR4	Certified copy of Registration certificate from National Construction Authority, Category NCA 1 in Building works (General Building Contractor), and the current Practicing License. (For Kenyan Contractors, the required level of registration is NCA, Category 1, Building Works with Kenyan National Construction Authority. All other (main/ prime contractors) outside Kenya must have a registration or certification, in their respective country that is demonstrably equivalent to Kenya's NCA, Category 1 Contractors must visit the NCA website to self-assess their registration level and provide sufficient detail to demonstrate the equivalence of their registration/certification to NCA, Category 1) The documents should be submitted in/ translated to the English language and notarized by a notaries public.
MR5	Provide Written Form of Power Attorney for authorizing signatory of the bidder, signed by Commissioner for Oaths.
MR6	Certified Copy of Company Registration / Incorporation Certificates certified by Commissioner of oaths.
MR7	Certified copy of Valid Tax Compliance Certificate. Tax Compliance Certificates with “Invalid” or “Withdrawn” status shall result to automatic disqualification .
MR9	Duly filled, signed and stamped Confidential Business Questionnaire as per enclosed format. In case of a joint venture all parties must submit a valid confidential business questionnaire as per attached format; (Main Contractor Only)
MR10	Conflict of Interest Form– To state explicitly as per format provided, stamped and signed.
MR11	Debarment Form – Attached signed and stamped. Declaration stating that the firm has not been debarred by Public Procurement Regulatory Authority (PPRA) in the format provided.
MR12	Anticorruption Declaration Commitment – Properly filled, signed and Stamped. Declaration that the firm will not be involved in corrupt or fraudulent practices in the format provided.
MR13	Dully filled, signed and stamped mandatory forms as per provided format ; SD1, SD2
MR14	A copy of company’s list of directors, beneficial owners, National Identity Card(s) for Sole Proprietorship/Partnership; (Copy of CR12 / CR13) issued within the last 6 months and showing the list of directors certified by commissioner for oaths.

MR15	Current Business License.
MR16	Evidence of physical location of office by providing certified copies of premises ownership/lease, and utility bills.
MR17	A Verified Site Visit Certificate/Site Attendance Register
MR18	Domestic Sub-contractors agreement – a duly signed agreement not earlier than 6 months between the main contractor and the Electrical & Mechanical Subcontractors. Stating that if the main contractor is awarded the works, they shall work with the firms as their domestic subcontractors. <i>NOTE: The Sub- Contractor Requirements Not necessary if the main contractor is also registered for specialist works as specified below or more qualified.</i>
	All Documents must be in English. Documents in Foreign Language must be translated and notarized
	NB: Bidders who do not meet all of the above requirements shall be considered nonresponsive and their tenders will not be evaluated further. In case of Joint Ventures (JVs), Parties must provide the documents. Joint Ventures to provide Power of Attorney and intent letter to enter Joint Venture. For copies of Original Documents to be accepted as valid, they must be certified by a commissioner of oath. The Bidder must attach a valid annual practicing license and active email address for commissioner of oaths.

Preliminary Requirements (For Domestic Sub-Contractor); Bidder must meet the following Requirements;

SUB-CONTRACTOR	REQUIREMENT
Plumbing Drainage Installations Subcontractor	1. Certified Copy of Company Registration Certificates. (Be a registered company incorporated in Kenya under the Companies Act CAP 486). 2. Certified copy of year Current Valid Tax Compliance Certificate, including a certified copy of the company's Pin No. 3. Certified copy of Registration certificate from National Construction Authority, Category 4 and Above in Mechanical Engineering Services. 4. Certified copy of current Valid Practicing License from National Construction Authority (Mechanical Engineering Services) 5. Current Business License.
Electrical Installations Subcontractor:	1. Certified Copy of Company Registration Certificates. (Be a registered company

	incorporated in Kenya under the Companies Act CAP 486). 2. Certified copy of Current Valid Tax Compliance Certificate, including a certified copy of the company's Pin No. 3. Certified copy of Registration certificate from National Construction Authority, Category 4 and Above in Electrical Engineering Services. 4. Certified copy of Current Valid Practicing License from National Construction Authority (Electrical Engineering Services) 5. Current Business License. 6. Energy & Petroleum Regulatory Authority (EPRA) Class A 7. Communication Authority of Kenya Registration certificate

STAGE 2: TECHNICAL EVALUATION CRITERIA FOR THE BIDDERS

B. Detailed Technical Examination

After the Preliminary Examination, the Procuring Entity shall conduct a Detailed Technical Evaluation on the responsive tenders to ensure they meet the technical requirements provided for in the Detailed Technical Evaluation criteria outlined below. Points shall be awarded as follows: -

No	Parameter	Maximum Points
1	Key Personnel	15
2	General Experience	5
3	Specific Construction Experience	15
4	Schedules of Contractor's equipment	10
5	Audited Financial Report for the last 3 years	15
6	Evidence of Financial Resources	20
7	Provision of calculations for Debt Profile: EBITDA / Interest (x times) from the audited financial states for the last three (3) years	5
8	Detailed Works Program and Methodology	5
9	Subcontractor's documentation and experience	10
Total		100

Tenders that do not meet the minimum required points of **70 points** in the Detailed Technical Evaluation will be considered non- responsive and will not be considered further.

Item	Description	Points Scored	Max. Points
1	Key Personnel as detailed here under NB: Attach Curriculum Vitae and certificates		15
	Project Manager for the firm • With relevant qualifications: qualification (0.5 mk) and registration (0.5 mk) - Total (1 mks) • With over 5 years' experience in similar works (0.5 mks) • With over 10 years' experience in similar works (1 mk) • With experience below the requirements (0 mks)		2

Item	Description	Points Scored	Max. Points
	Site Agent with the relevant Qualifications - With relevant qualifications; - Total (1 mk) - With over 5 years' experience in similar works (0.5 mk) - With over 10 years' experience in similar works (1 mk) - With experience below the requirements (0 mks)		2
	Mechanical Works Site Agent with the relevant Qualifications - With relevant qualifications; - Total (1 mk) - With over 5 years' experience in similar works (0.5 mk) - With over 10 years' experience in similar works (1 mk) - With experience below the requirements (0 mks)		2
	Electrical Works Site Agent with the relevant Qualifications - With relevant qualifications; - Total (1 mk) - With over 5 years' experience in similar works (0.5 mk) - With over 10 years' experience in similar works (1 mk) - With experience below the requirements (0 mks)		2
	7 No Supervisors: specialized in Masonry, Carpentry, Steel Works, Tiling, Painting, Electrical Installation Works, Mechanical Installation Works with the relevant Qualifications - With relevant qualifications; - Total (0.5 mk) for Each - With over 5 years' experience in similar works (0.5 mk) for each - With experience below the requirements (0 mks)		7
2.	General Experience Has been practicing as a Contractor for the last 5 years. (1 mk per year)		5
3.	The specific experience comprises 3 No projects undertaken/completed within the last 5 Years with a cumulative value equal to (Kshs 1,000,000,000) Attach Letter of Award/Contract and Certificates of Completion for EACH project. A bidder who fails to provide this requirement shall NOT be scored. Cumulative value equal or above estimate (Kshs 1,000,000,000) - 15 marks Cumulative Project value of (Between Kshs 500,000,000 And Kshs 1,000,000,000) - (7 Marks) Has not demonstrated/given evidence of specific experience or has cumulative project value of below Kshs. 500,000,000.00 – (0 points)		15
4.	Schedules of Contractor's equipment For each specific equipment required in the construction work being tendered for. The awarding of marks for the categories will be as follows: 3 No. 20t Tipper Truck 1. No. Backhoe 1 No. 10t Roller 2 No. 0.5m3 Concrete mixer(s) - Scaffolding		10

Item	Description	Points Scored	Max. Points
5.	Financial report: Audited financial report for the last Three [3] years (2021, 2022 and 2023) • Annual Turnover greater or equal to Ksh. 300 million (Max Points) • Annual Turnover below Ksh. 300 million (Points prorated) • Has not demonstrated/given evidence for turnover - (zero points)		15
6.	Evidence of financial resources: Cash in hand, Lines of Credit, overdraft facility, e.t.c (Attach evidence) • Has financial resources equal or above Ksh 100 million) (Max Points) • Has financial resources below Ksh. 100 million) (Points prorated) • Has not demonstrated/given evidence for the financial resources (zero points)		20
7.	Provision of calculations for Debt Profile: EBITDA / Interest (x times) from the audited financial states for the last three (3) years • Debt profile greater than or equal to 2x (5 mks) • Debt profile between 1.5x and 2x (3 mks) • Debt profile between 1x and 1.5x (1 mk) • Debt profile below 1x (Zero mks)		5
8.	Detailed works program outlining the methodology of implementing the project to completion including the defects liability period.		5
	Adequacy of the proposed Works program: • Has attached a clear and legible Works Program (1mk) • Program captures all elements specific to the proposed works (1mk) • Program covers the required timeline and all elements are reasonably scheduled. (0.5 mk)		2.5
	Adequacy of the proposed methodology: • Captures the Contractor's Organization structure. (1mk) • Captures all elements specific to the proposed works. (1mk) • Captures the inclusion of all statutory requirements specific to the works (OSHA, NCA, NEMA, Stakeholder engagement, e.t.c.) (0.5 mk)		2.5

Item	Description	Points Scored	Max. Points
9	Sub-contractors: a) Electrical Subcontractor NCA category 4 and above valid practicing license for Electrical Works – 1 Marks Specific Experience in Similar Works (2 No. Projects) undertaken/completed within the last 5 Years. Attach Letter of Award/Contract and Certificates of Completion for EACH project. A bidder who fails to provide this requirement shall NOT be scored. • Project value of Kshs ...30 million and above) – 2 marks per project • Project value of below Kshs. 30 million - (Points prorated) • Has not demonstrated/given evidence of specific experience (zero points) b) Mechanical Subcontractor NCA category 4 and above. Valid practicing license for Electrical Works – 1 Marks Specific Experience in Similar Works (2 No. Projects) undertaken/completed within the last 5 Years. Attach Letter of Award/Contract and Certificates of Completion for EACH project. A bidder who fails to provide this requirement shall NOT be scored. • Project value of Kshs 30 million and above – 2 marks per project • Project value of below Kshs. 30 million - (Points prorated) • Has not demonstrated/given evidence of specific experience (zero points)		10
	TOTAL POINTS		100
	MINIMUM POINTS		70

NB: Tenders attaining the minimum score of 70 points in the detailed technical evaluation shall be subjected to financial evaluation and comparison to determine the lowest evaluated price of the tender.

C. Financial Evaluation:

Financial Evaluation shall comprise of the following:

- Completeness of the Bills of Quantities: The Bills of Quantities section of the

submitted Tender Document must be complete as issued, with no alteration, addition or qualification of any kind whatsoever made by the Tenderer to the text of the document. Any alterations, additions or qualifications shall be considered as material deviations as per ITT 31 and shall lead to Disqualification.

- b) Examination of unit rates: Each bid shall be subjected to an evaluation of unit rates. Bids shall be assessed to confirm uniformity and consistency in rates of similar individual line items. Bids not meeting this criterion shall be disqualified and error checks shall not be undertaken.
- c) Error checks: Successful bids from the examination of unit rates shall be evaluated for arithmetic errors. All arbitrary additions to the tender document shall be considered as arithmetic errors. An assessment of the bids taking into consideration the Tender Sum, corrections relating to arithmetic errors and any discounts offered shall be done to determine the bids' Evaluated Tender Sum.
- d) Ranking of the bids: Ranking of the bids using their Evaluated Tender Sums shall be undertaken. The ranking shall be used to determine the bid with the Lowest Evaluated Tender sum, which shall be considered for award

40 MULTIPLE CONTRACTS – NOT APPLICABLE

- 41** Multiple contracts will be permitted in accordance with ITT 35.4. Tenderers are evaluated on basis of Lots and a lowest evaluated tenderer identified for each Lot. The Procuring Entity will select one Option of the two Options listed below for award of Contracts.

OPTION 1

- (i) If a tenderer wins only one Lot, the tenderer will be awarded a contract for that Lot, provided the tenderer meets the Eligibility and Qualification Criteria for that Lot.
- (ii) If a tenderer wins more than one Lot, the tender will be awarded a contract for all won Lots, provided the tenderer meets the aggregate Eligibility and Qualification Criteria for all the won Lots. The tenderer will be awarded only the combinations for which the tenderer qualifies and the others will be considered for award to second lowest the tenderers.

OPTION 2

The Procuring Entity will consider all possible combinations of won Lots [contract(s)] and determine the combination with the lowest evaluated price. Tenders will then be awarded to the Tenderer or Tenderers in the combination provided the tenderer meets the aggregate Eligibility and Qualification Criteria for all the won Lots

5.0 ALTERNATIVE TENDERS (ITT 13.1) N/A

Alternative Tenders (ITT 13.1)

An alternative if permitted under ITT 3.1, will be evaluated as follows:

The Procuring Entity shall consider Tenders offered for alternatives as specified in Part 2 - Works requirements. Only the technical alternatives, if any, of the Tenderer with the Best Evaluated Tender conforming to the basic technical requirements shall be considered by the Procuring Entity.

60 MARGIN OF PREFERENCE – NOT APPLICABLE

- 61 If the TDS so specifies, the Procuring Entity will grant a margin of preference of fifteen percent (15%) to be loaded on evaluated prices of the foreign tenderers, where the percentage of shareholding of Kenyan citizens is less than fifty- one percent (51%).
- 62 Contractors shall be asked to provide, as part of the data for qualification, such information, including details of ownership, as shall be required to determine whether, according to the classification established by the Procuring Entity, a particular contractor or group of contractors qualifies for a margin of preference.
- 63 After Tenders have been received and reviewed by the Procuring Entity, responsive Tenders shall be assessed to ascertain their percentage of shareholding of Kenyan citizens. Responsive tenders shall be classified into the following groups:
- i) *Group A:* tenders offered by Kenyan Contractors and other Tenderers where Kenyan citizens hold shares of over fifty one percent (51%).
 - ii) *Group B:* tenders offered by foreign Contractors and other Tenderers where Kenyan citizens hold shares of less than fifty one percent (51%).
- 64 All evaluated tenders in each group shall, as a first evaluation step, be compared to determine the lowest tender, and the lowest evaluated tender in each group shall be further compared with each other. If, as a result of this comparison, a tender from Group A is the lowest, it shall be selected for the award of contract. If a tender from Group B is the lowest, an amount equal to the percentage indicated in Item 6.1 of the respective tender price, including unconditional discounts and excluding provisional sums and the cost of day works, if any, shall be added to the evaluated price offered in each tender from Group B. All tenders shall then be compared using new prices with added prices to Group B and the lowest evaluated tender from Group A. If the tender from Group A is still the lowest tender, it shall be selected for award. If not, the lowest evaluated tender from Group B based on the first evaluation price shall be selected.
7. **Post qualification and Contract ward (ITT 39), more specifically,**
- a) In case the tender was subject to post-qualification, the contract shall be awarded to the lowest evaluated tenderer, subject to confirmation of pre-qualification data, if so required.
 - b) In case the tender was not subject to post-qualification, the tender that has been determined to be the lowest evaluated tenderer shall be considered for contract award, subject to meeting each of the following conditions.
 - i) The Tenderer shall demonstrate that it has access to, or has available, liquid assets, unencumbered real assets, lines of credit, and other financial means (independent of any contractual advance payment) sufficient to meet the construction cash flow of Kshs. 100,000,000.00 (Kenya Shillings One Hundred Million)
 - Provide audited accounts for the last three (3) years (2022-2024) by a certified audit firm
 - Provide Bank account statements of 1 year from the date of closing of bids indicating adequate working capital.
 - ii) Minimum average annual construction turnover of Kshs. 300,000,000.00 (Kenya Shillings Three Hundred Million), equivalent calculated as total certified payments received for contracts in progress and/or completed within the last 5 (five) years.
 - iii) At least 3 (three) contract(s) of a similar nature executed within Kenya in the last 5 years (2020-2024), or the East African Community or a broad, that have been satisfactorily and substantially completed as a prime contractor, or joint venture member or sub-contractor with a cumulative value Kenya shillings One Billion equivalent. Provide the following:
 - Completion certificates for 3 projects
 - Duly completed and signed handing over certificates for 3

similar projects signed by relevant parties e.g. consultants, client and contractor

- Recommendation letters for similar works from 3 different clients with their contacts

iv) Contractor's Representative and Key Personnel, which are specified as

No.	Position	Total Work Experience (years)	Experience in Similar Works (years)
1	Site Manager with at least 10 years' experience (Minimum qualification is a Degree in Building & Construction / Civil Engineering/Architectural, Quantity surveying or related discipline)	10	5
2	1 No. Builder's Works Site Agent with at least 10 years' experience (Minimum qualification is diploma in Building & Construction/ Civil Engineering or related discipline)	10	5
3	1no. Mechanical Works Site Agent with at least 5 years' experience (Minimum Higher Diploma in Mechanical Engineering)	10	5
4.	1no. Electrical Works Site Agent with at least 5 years' experience (Minimum Higher Diploma in Electrical/Electronic Engineering)	10	5
5.	7 No Supervisors; specialized in Masonry, Carpentry, Steel Works, Tiling, Painting, Electrical Installation Works, Mechanical Installation Works. With at least 5 years' experience (Minimum qualification is to possess Grade I Test Certificates) Registered by NCA	5	5

v) Contractors key equipment listed on the table "Contractor's Equipment" below and more specifically listed as

Item No.	Equipment Type and Characteristics	No. required
1	20t Tipper Truck	3
2	Backhoe	1
3	10t Roller	1
4	0.5m3 Concrete mixer(s)	2
5	Scaffolding	Set

vi) Other Conditions depending on their seriousness

e) **History of non-performing contracts:**

Tenderer and each member of JV in case the Tenderer is a JV, shall demonstrate that non-performance of a contract did not occur because of the default of the Tenderer, or the member of a JV. The required information shall be furnished in the appropriate form.

f) **Pending Litigation**

Financial position and prospective long-term profit ability of the Single Tenderer, and in the case the Tenderer is a JV, of each member of the JV, shall remain sound according to criteria established with respect to Financial Capability under

Paragraph (i) above if all pending litigation will be resolved against the Tenderer. Tenderer shall provide information on pending litigations in the appropriate form.

g) Litigation History

There shall be no consistent history of court/arbitral award decisions against the Tenderer, in the last **Three Years**. All parties to the contract shall furnish the information in the appropriate form about any litigation or arbitration resulting from contracts completed or on going under its execution over the years specified. A consistent history of awards against the Tenderer or any member of a JV may result in rejection of the tender.

h) Letter of Authority

The bidder shall provide letter of Authority to seek references from bidder's bank (letter addressed to the specific bank(s) and account(s) giving authority to Client to verify the bank statements for the Main Contractor).

i) Current Engagement/Commitments

The procuring entity shall make enquiries or shall require the bidders to provide contact persons to their current commitments/projects for verification of the project details as well as their performance.

8 DUE DILIGENCE AND RECOMMENDATION FOR AWARD

Particulars of Post – Qualification if applicable. The employer, Rongo University, may inspect the premises and under due diligence seek further clarification/ confirmation of necessary, to confirm authenticity/ compliance of any condition of the tender / qualifications of the tenderer in line with section 83 of the public Procurement and Asset Disposal Act 2015.

Award Criteria:

The firm achieving the lowest evaluated price will be awarded the contract in line with section 86 of the Public Procurement and Disposal act, 2015.

QUALIFICATION FORM*

1	2	3	4	5
Item No.	Qualification Subject	Qualification Requirement	Document To be Completed by Tenderer	For Procuring Entity's Use (Qualification met or Not Met)
1	Nationality	Nationality in accordance with ITT 3.6	Forms ELI – 1.1 and 1.2, with attachments	
2	Tax Obligations for Kenyan Tenderers	Has produced a current tax clearance certificate or tax exemption certificate issued by Kenya Revenue Authority in accordance with ITT 3.14.	Attachment Tax Compliance Certificate	
3	Conflict of Interest	No conflicts of interest in accordance with ITT 3.3	Form of Tender	
4	PPRA Eligibility	Not having been declared ineligible by the PPRA as described in ITT 3.7	Form of Tender	
5	State- owned Enterprise	Meets conditions of ITT 3.8	Forms ELI – 1.1 and 1.2, with attachments	
6	Goods, equipment and services to be supplied under the contract	To have their origin in any country that is not determined ineligible under ITT 4.1	Forms ELI – 1.1 and 1.2, with attachments	
7	History of Non-Performing Contracts	Non-performance of a contract did not occur as a result of contractor default since 1 st January 2020	Form CON-2	
8	Suspension Based on Execution of Tender/Proposal Securing Declaration by the Procuring Entity	Not under suspension based on-execution of a Tender/Proposal Securing Declaration pursuant to ITT 19.9	Form of Tender	
9	Pending Litigation	Tender's financial position and prospective long-term profitability still sound according to criteria established in 3.1 and assuming that all pending litigation will NOT be resolved against the Tenderer.	Form CON – 2	
10	Litigation History	No consistent history of court/arbitral award decisions against the Tenderer since 1 st January 2020	Form CON – 2	
11	Financial Capabilities	(i) (i) The Tenderer shall demonstrate that it has access to, or has available, liquid assets, unencumbered real assets, lines of credit, and other financial means (independent of any contractual advance payment) sufficient to meet the construction cash flow requirements estimated as Kenya Shillings One Hundred Million equivalent for the subject contract(s) net of the Tenderer's other commitments. (ii) The Tenderers shall also demonstrate, to the satisfaction	Form FIN – 3.1, with attachments: Bank Statements of the last 12 months from the date of closing of bids Audited Accounts for the last 3 years 2022,2023,2024	

1	2	3	4	5
Item No.	Qualification Subject	Qualification Requirement	Document To be Completed by Tenderer	For Procuring Entity's Use (Qualification met or Not Met)
		of the Procuring Entity, that it has adequate sources of finance to meet the cash flow requirements on works currently in progress and for future contract commitments. (iii) The audited balance sheets or, if not required by the laws of the Tenderer's country, other financial statements acceptable to the Procuring Entity, for the last three years (2022,2023,2024) shall be submitted and must demonstrate the current soundness of the Tenderer's financial position and indicate its prospective long-term profitability.		
12	Average Annual Construction Turnover	Minimum average annual construction turnover of Kenya Shillings Three Hundred Million, equivalent calculated as total certified payments received for contracts in progress and/or completed within the last Three years, divided by Three Years 2021-2023	Form FIN – 3.2 Audited Accounts for the last 3 years 2021,2022,2023	
13	General Construction Experience	Experience under construction contracts in the role of prime contractor, JV member, sub-contractor, or management contractor for at least the last Five years, starting 1st January 2020.	Form EXP – 4.1	
14	Specific Construction & Contract Management Experience	A minimum number of 3 similar contracts specified below that have been satisfactorily and substantially completed as a prime contractor, joint venture member, management contractor or sub-contractor between 1st January 2020 and tender submission deadline i.e. 3 (number) contracts of a cumulative value of Kenya shillings 1,000,000,000.00 equivalent. The similarity of the contracts shall be based on the following: Construction of an Institutional/Commercial block/residential block/mixed use/office block with middle -high quality finishes.	Form EXP 4.2(a) Attach; - Completion certificates for 3 projects - Duly completed and signed handing over certificates for 3similar projects signed by relevant parties e.g. consultants, client and contractor - Recommendation letters for similar works from 3 different clients with their contacts	

SECTION IV - TENDERING FORMS

QUALIFICATION FORMS

1. FOREIGN TENDERERS 40% RULE

Pursuant to ITT 3.9, a foreign tenderer must complete this form to demonstrate that the tender fulfils this condition.

ITEM	Description of Work Item	Describe location of Source	COST in K. shillings	Comments, if any
A	Local Labor			
1				
2				
3				
4				
5				
B	Sub contracts from Local sources			
1				
2				
3				
4				
5				
C	Local materials			
1				
2				
3				
4				
5				
D	Use of Local Plant and Equipment			
1				
2				
3				
4				
5				
E	Add any other items			
1				
2				
3				
4				
5				
6				
	TOTAL COST LOCAL CONTENT		XXXXX	
	PERCENTAGE OF CONTRACT PRICE			

2. FORMEQU: EQUIPMENT

The Tenderer shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for the key equipment listed in Section III, Evaluation and Qualification Criteria. A separate Form shall be prepared for each item of equipment listed, or for alternative equipment proposed by the Tenderer.

Item of equipment		
Equipment information	Name of manufacturer	Model and power rating
	Capacity	Year of manufacture
Current status	Current location	
	Details of current commitments	
Source	Indicate source of the equipment ☐ Owned ☐ Rented ☐ Leased ☐ Specially manufactured	

Omit the following information for equipment owned by the Tenderer.

Owner	Name of owner	
	Address of owner	
	Telephone	Contact name and title
	Fax	Telex
Agreements	Details of rental / lease / manufacture agreements specific to the project	

3. FORM PER -1

Contractor's Representative and Key Personnel Schedule

Tenderers should provide the names and details of the suitably qualified Contractor's Representative and Key Personnel to perform the Contract. The data on their experience should be supplied using the Form PER-2 below for each candidate.

Contractor' Representative and Key Personnel

1.	Title of position: Contractor's Representative	
	Name of candidate:	
	Duration of appointment:	<i>[insert the whole period (start and end dates) for which this position will be engaged]</i>
	Time commitment: for this position:	<i>[insert the number of days/week/months/ that has been scheduled for this position]</i>
	Expected time schedule for this position:	<i>[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]</i>
2.	Title of position: [_____]	
	Name of candidate:	
	Duration of appointment:	<i>[insert the whole period (start and end dates) for which this position will be engaged]</i>
	Time commitment: for this position:	<i>[insert the number of days/week/months/ that has been scheduled for this position]</i>
	Expected time schedule for this position:	<i>[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]</i>
3.	Title of position: [_____]	
	Name of candidate:	
	Duration of appointment:	<i>[insert the whole period (start and end dates) for which this position will be engaged]</i>
	Time commitment: for this position:	<i>[insert the number of days/week/months/ that has been scheduled for this position]</i>
	Expected time schedule for this position:	<i>[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]</i>
4.	Title of position: [_____]	
	Name of candidate:	
	Duration of appointment:	<i>[insert the whole period (start and end dates) for which this position will be engaged]</i>
	Time commitment: for this position:	<i>[insert the number of days/week/months/ that has been scheduled for this position]</i>
	Expected time schedule for this position:	<i>[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]</i>
5.	Title of position: <i>[insert title]</i>	
	Name of candidate	
	Duration of appointment:	<i>[insert the whole period (start and end dates) for which this position will be engaged]</i>
	Time commitment: for this position:	<i>[insert the number of days/week/months/ that has been scheduled for this position]</i>
	Expected time schedule for this position:	<i>[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]</i>

4. **FORM PER - 2:**

Resume and Declaration - Contractor's Representative and Key Personnel.

Name of Tenderer		
Position [#1]: <i>[title of position from Form PER-1]</i>		
Personnel information	Name:	Date of birth:
	Address:	E-mail:
	Professional qualifications:	
	Academic qualifications:	
	Language proficiency: <i>[language and levels of speaking, reading and writing skills]</i>	
Details	Address of Procuring Entity:	
	Telephone:	Contact (manager / personnel officer):
	Fax:	
	Job title:	Years with present Procuring Entity:

Summarize professional experience in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

Project	Role	Duration of involvement	Relevant experience
<i>[main project details]</i>	<i>[role and responsibilities on the project]</i>	<i>[time in role]</i>	<i>[describe the experience relevant to this position]</i>

Declaration

I, the undersigned *[insert either “Contractor’s Representative” or “Key Personnel” as applicable]*, certify that to the best of my knowledge and belief, the information contained in this Form PER-2 correctly describes myself, my qualifications and my experience.

I confirm that I am available as certified in the following table and throughout the expected time schedule for this position as provided in the Tender:

Commitment	Details
Commitment to duration of contract:	<i>[insert period (start and end dates) for which this Contractor’s Representative or Key Personnel is available to work on this contract]</i>
Time commitment:	<i>[insert period (start and end dates) for which this Contractor’s Representative or Key Personnel is available to work on this contract]</i>

I understand that any misrepresentation or omission in this Form may:

- (a) be taken into consideration during Tender evaluation;
- (b) result in my disqualification from participating in the Tender;
- (c) result in my dismissal from the contract.

Name of Contractor’s Representative or Key Personnel: *[insert name]*

Signature: _____

Date: (day month year): _____

Countersignature of authorized representative of the Tenderer:

Signature: _____

Date: (day month year): _____

1. TENDERERS QUALIFICATION WITHOUT PREQUALIFICATION

To establish its qualifications to perform the contract in accordance with Section III, Evaluation and Qualification Criteria the Tenderer shall provide the information requested in the corresponding Information Sheets included hereunder.

11 FORM ELI -1.1

Tenderer Information Form

Date: _____ ITT No. and title: _____

Tenderer's name
In case of Joint Venture (JV), name of each member:
Tenderer's actual or intended country of registration: <i>[indicate country of Constitution]</i>
Tenderer's actual or intended year of incorporation:
Tenderer's legal address [in country of registration]:
Tenderer's authorized representative information Name: _____ Address: _____ Telephone/Fax numbers: _____ E-mail address: _____
1. Attached are copies of original documents of ☐ Articles of Incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above, in accordance with ITT 3.6 ☐ In case of JV, letter of intent to form JV or JV agreement, in accordance with ITT 3.5 ☐ In case of state-owned enterprise or institution, in accordance with ITT 3.8, documents establishing: • Legal and financial autonomy • Operation under commercial law 1. Establishing that the Tenderer is not under the supervision of the Procuring Entity 2. Included are the organizational chart and a list of Board of Directors

12 FORM ELI -1.2

Tenderer's JV Information Form **(to be completed for each member of Tenderer's JV)**

Date:_____ITT No. and title:_____

Tenderer's JV name:
JV member's name:
JV member's country of registration:
JV member's year of constitution:
JV member's legal address in country of constitution:
JV member's authorized representative information Name: _____ Address: _____ Telephone/Fax numbers: _____ E-mail address: _____
1. Attached are copies of original documents of ☐ Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above, in accordance with ITT 3.6. ☐ In case of a state-owned enterprise or institution, documents establishing legal and financial autonomy, operation in accordance with commercial law, and that they are not under the supervision of the Procuring Entity, in accordance with ITT 3.5. 2. Included are the organizational chart and a list of Board of Directors.

Historical Contract Non-Performance, Pending Litigation and Litigation History

Tenderer's Name: _____

Date: _____

JV Member's Name _____

ITT No. and title: _____

Non-Performed Contracts in accordance with Section III, Evaluation and Qualification Criteria

☐ Contract non-performance did not occur since 1st January [insert year] specified in Section III, Evaluation and Qualification Criteria, Sub-Factor 2.1.

☐ Contract(s) not performed since 1st January [insert year] specified in Section III, Evaluation and Qualification Criteria, requirement 2.1

☐ Contract(s) withdrawn since 1st January [insert year] specified in Section III, Evaluation and Qualification Criteria, requirement 2.1

Year	Non- performed portion of contract	Contract Identification	Total Contract Amount (current value, currency, exchange rate and Kenya Shilling equivalent)
[insert year]	[insert amount and percentage]	Contract Identification: [indicate complete contract name/ number, and any other identification] Name of Procuring Entity: [insert full name] Address of Procuring Entity: [insert street/city/country] Reason(s) for nonperformance: [indicate main reason(s)]	[insert amount]

Pending Litigation, in accordance with Section III, Evaluation and Qualification Criteria

☐ No pending litigation in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.3.

☐ Pending litigation in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.3 as indicated below.

Year of dispute	Amount in dispute (currency)	Contract Identification	Total Contract Amount (currency), Kenya Shilling Equivalent (exchange rate)
		Contract Identification: _____ Name of Procuring Entity: _____ Address of Procuring Entity: _____ Matter in dispute: _____ Party who initiated the dispute: _____ Status of dispute: _____	
		Contract Identification: _____ Name of Procuring Entity: _____ Address of Procuring Entity: _____ Matter in dispute: _____ Party who initiated the dispute: _____ Status of dispute: _____	

Litigation History in accordance with Section III, Evaluation and Qualification Criteria

☐ No Litigation History in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.4.

☐ Litigation History in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.4 as indicated below.

Year of dispute	Amount in dispute (currency)	Contract Identification	Total Contract Amount (currency), Kenya Shilling Equivalent (exchange rate)
<i>[insert year]</i>	<i>[insert percentage]</i>	Contract Identification: <i>[indicate complete contract name, number, and any other identification]</i> Name of Procuring Entity: <i>[insert full name]</i> Address of Procuring Entity: <i>[insert street/city/country]</i> Matter in dispute: <i>[indicate main issues in dispute]</i> Party who initiated the dispute: <i>[indicate "Procuring Entity" or "Contractor"]</i> Reason(s) for Litigation and award decision <i>[indicate main reason(s)]</i>	<i>[insert amount]</i>

Include details relating to potential bid-rigging practices such as previous occasions where tenders were withdrawn, joint bids with competitors, subcontracting work to unsuccessful tenderers, etc.

14 **FORM FIN – 3.1:**

Financial Situation and Performance

Tenderer's Name: _____

Date: _____

JV Member's Name _____

ITT No. and title: _____

1.4.1. Financial Data

Type of Financial information in _____ (currency)	Historic information for previous _____ years, (amount in currency, currency, exchange rate*, USD equivalent)				
	Year 1	Year 2	Year 3	Year 4	Year 5
Statement of Financial Position (Information from Balance Sheet)					
Total Assets (TA)					
Total Liabilities (TL)					
Total Equity/Net Worth (NW)					
Current Assets (CA)					
Current Liabilities (CL)					
Working Capital (WC)					
Information from Income Statement					
Total Revenue (TR)					
Profits Before Taxes (PBT)					
Cash Flow Information					
Cash Flow from Operating Activities					

*Refer to ITT 15 for the exchange rate

5.4.2 Sources of Finance

Specify sources of finance to meet the cash flow requirements on works currently in progress and for future contract commitments.

No.	Source of finance	Amount (Kenya Shilling equivalent)
1		
2		
3		

5.4.3 Financial documents

The Tenderer and its parties shall provide copies of financial statements for _____ years pursuant Section III, Evaluation and Qualifications Criteria, Sub-factor 3.1. The financial statements shall:

- (a) reflect the financial situation of the Tenderer or in case of JV member, and not an affiliated entity (such as parent company or group member).
 - (b) be independently audited or certified in accordance with local legislation.
 - (c) be complete, including all notes to the financial statements.
 - (d) correspond to accounting periods already completed and audited.
- ☐ Attached are copies of financial statements¹ for the _____ years required above; and complying with the requirements

¹ If the most recent set of financial statements is for a period earlier than 12 months from the date of Tender, the reason for this should be justified.

15 FORM FIN – 3.2:

Average Annual Construction Turnover

Tenderer's Name: _____

Date: _____

JV Member's Name _____

ITT No. and title: _____

		Annual turnover data (construction only)	
Year	Amount Currency	Exchange rate	Kenya Shilling equivalent
<i>[indicate year]</i>	<i>[insert amount and indicate currency]</i>		
Average Annual Construction Turnover *			

* See Section III, Evaluation and Qualification Criteria, Sub-Factor 3.2.

16 **FORM FIN – 3.3:**

Financial Resources

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contract or contracts as specified in Section III, Evaluation and Qualification Criteria

Financial Resources		
No.	Source of financing	Amount (Kenya Shilling equivalent)
1		
2		
3		

17 **FORM FIN – 3.4:**

Current Contract Commitments / Works in Progress

Tenderers and each member to a JV should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

Current Contract Commitments					
No.	Name of Contract	Procuring Entity's Contact Address, Tel,	Value of Outstanding Work [Current Kenya Shilling /month Equivalent]	Estimated Completion Date	Average Monthly Invoicing Over Last Six Months [Kenya Shilling /month]
1					
2					
3					
4					
5					

18 **FORM EXP - 4.1**

General Construction Experience

Tenderer's Name: _____

Date: _____

JV Member's Name _____

ITT No. and title: _____

Page _____ of _____ pages

Starting Year	Ending Year	Contract Identification	Role of Tenderer
		Contract name: _____ Brief Description of the Works performed by the Tenderer: _____ Amount of contract: _____ Name of Procuring Entity: _____ Address: _____	
		Contract name: _____ Brief Description of the Works performed by the Tenderer: _____ Amount of contract: _____ Name of Procuring Entity: _____ Address: _____	
		Contract name: _____ Brief Description of the Works performed by the Tenderer: _____ Amount of contract: _____ Name of Procuring Entity: _____ Address: _____	

19 **FORM EXP - 4.2(a)**

Specific Construction and Contract Management Experience

Tenderer's Name: _____

Date: _____

JV Member's Name _____

ITT No. and title: _____

Similar Contract No.	Information			
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor ☐	Member in JV ☐	Management Contractor ☐	Sub-contractor ☐
Total Contract Amount	Kenya Shilling			
If member in a JV or sub-contractor, specify participation in total Contract amount				
Procuring Entity's Name:				
Address:				
Telephone/fax number				
E-mail:				

5.9 **FORM EXP - 4.2(a)**

Specific Construction and Contract Management Experience

Tenderer's Name: _____

Date: _____

JV Member's Name _____

ITT No. and title: _____

Similar Contract No.	Information			
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor ☐	Member in JV ☐	Management Contractor ☐	Sub-contractor ☐
Total Contract Amount	Kenya Shilling			
If member in a JV or sub-contractor, specify participation in total Contract amount				
Procuring Entity's Name:				
Address:				
Telephone/fax number				
E-mail:				

5.9 FORM EXP - 4.2 (a) (cont.)

Specific Construction and Contract Management Experience (cont.)

Similar Contract No.	Information
Description of the similarity in accordance with Sub-Factor 4.2(a) of Section III:	
1. Amount	
2. Physical size of required works items	
3. Complexity	
4. Methods/Technology	
5. Construction rate for key activities	
6. Other Characteristics	

5.10 **FORM EXP - 4.2(b)**

Construction Experience in Key Activities

Tenderer's Name: _____

Date: _____

Tenderer's JV Member Name: _____

Sub-contractor's Name² (as per ITT 34): _____

ITT No. and title: _____

All Sub-contractors for key activities must complete the information in this form as per ITT 34 and Section III, Evaluation and Qualification Criteria, Sub-Factor 4.2.

1. Key Activity No One: _

Information				
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor ☐	Member in JV ☐	Management Contractor ☐	Sub-contractor ☐
Total Contract Amount		Kenya Shilling		
Quantity (Volume, number or rate of production, as applicable) performed under the contract per year or part of the year	Total quantity in the contract (i)	Percentage participation (ii)	Actual Quantity Performed (i) x (ii)	
Year 1				
Year 2				
Year 3				
Year 4				
Procuring Entity's Name:				
Address: Telephone/fax number E-mail:				

² If applicable

	Information
Description of the key activities in accordance with Sub-Factor 4.2(b) of Section III:	

2. Activity No. Two

3.

OTHER FORMS

2. FORM OF TENDER

(Amended and issued pursuant to PPRA CIRCULAR No. 02/2022)

INSTRUCTIONS TO TENDERERS

- i) *All italicized text is to help the Tenderer in preparing this form.*
- ii) *The Tenderer must prepare this Form of Tender on stationery with its letterhead clearly showing the Tenderer's complete name and business address. Tenderers are reminded that this is a mandatory requirement.*
- iii) *Tenderer must complete and sign CERTIFICATE OF INDEPENDENT TENDER DETERMINATION and the SELF DECLARATION FORMS OF THE TENDERER as listed under (xxii) below.*

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

Name **and** **Identification:**.....[insert identification] **Alternative**

No.:.....[insert identification No if this is a Tender for an alternative]

To[Insert complete name of Procuring Entity]

Date of this Tender submission: [insert date (as day, month and year) of Tender submission] **Request for Tender No.:** [insert identification] **Name and description of Tender** [Insert as per ITT] **Alternative No.:** [insert identification No if this is a Tender for an alternative]

To: [insert complete name of Procuring Entity]

Dear Sirs,

1. In accordance with the Conditions of Contract, Specifications, Drawings and Bills of Quantities for the execution of the above named Works, we, the undersigned offer to construct and complete the Works and remedy any defects therein for the sum³ of Kenya Shillings *[[Amount in figures]*
_____ Kenya Shillings *[amount in words]* _____

The above amount includes foreign currency⁴ amount (s) of *[state figure or a percentage and currency]*
[figures] _____ *[words]* _____

2. We undertake, if our tender is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Architect notice to commence, and to complete the whole of the Works comprised in the Contract within the time stated in the Special Conditions of Contract.
3. We agree to adhere by this tender until _____ *[Insert date]*, and it shall remain binding upon us and may be accepted at any time before that date.
4. We understand that you are not bound to accept the lowest or any tender you may receive.
5. We, the under signed, further declare that:
 - i) No reservations: We have examined and have no reservations to the tender document, including Addenda issued in accordance with ITT 28;

³ This sum should be carried forward from the Summary of the Bills of Quantities.

⁴ The percentage quoted above should not include provisional sums, and not more than two foreign currencies are allowed.

- ii) Eligibility: We meet the eligibility requirements and have no conflict of interest in accordance with ITT 3 and 4;
- iii) Tender - Securing Declaration: We have not been suspended nor declared ineligible by the Procuring Entity based on execution of a Tender-Securing or Proposal-Securing Declaration in the Procuring Entity's Country in accordance with ITT 19.8;
- iv) Conformity: We offer to execute in conformity with the tendering documents and in accordance with the implementation and completion specified in the construction schedule, the following Works: *[insert a brief description of the Works]*;
- v) Tender Price: The total price of our Tender, excluding any discounts offered in item 1 above is: *[Insert one of the options below as appropriate]*
- vi) Option 1, in case of one lot: Total price is: *[insert the total price of the Tender in words and figures, indicating the various amounts and the respective currencies]*; or
- Option 2, in case of multiple lots:
- (a) Total price of each lot *[insert the total price of each lot in words and figures, indicating the various amounts and the respective currencies]*; and
- (b) Total price of all lots (sum of all lots) *[insert the total price of all lots in words and figures, indicating the various amounts and the respective currencies]*;
- vii) Discounts: The discounts offered and the methodology for their application are:
- viii) The discounts offered are: *[Specify in detail each discount offered.]*
- ix) The exact method of calculations to determine the net price after application of discounts is shown below: *[Specify in detail the method that shall be used to apply the discounts]*;
- x) Tender Validity Period: Our Tender shall be valid for the period specified in TDS 18.1 (as amended, if applicable) from the date fixed for the Tender submission deadline specified in TDS 22.1 (as amended, if applicable), and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- xi) Performance Security: If our Tender is accepted, we commit to obtain a Performance Security in accordance with the Tendering document;
- xii) One Tender Per Tender: We are not submitting any other Tender(s) as an individual Tender, and we are not participating in any other Tender(s) as a Joint Venture member or as a sub-contractor, and meet the requirements of ITT 3.4, other than alternative Tenders submitted in accordance with ITT 13.3;
- xiii) Suspension and Debarment: We, along with any of our subcontractors, suppliers, Engineer, manufacturers, or service providers for any part of the contract, are not subject to, and not controlled by any entity or individual that is subject to, a temporary suspension or a debarment imposed by the Public Procurement Regulatory Authority or any other entity of the Government of Kenya, or any international organization.
- xiv) State-owned enterprise or institution: *[select the appropriate option and delete the other]* *[We are not a state-owned enterprise or institution]/[We are a state-owned enterprise or institution but meet the requirements of ITT 3.8]*;
- xv) Commissions, gratuities, fees: We have paid, or will pay the following commissions, gratuities, or fees with respect to the tender process or execution of the Contract: *[insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity]*.

Name of Recipient	Address	Reason	Amount

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

- xvi) **Binding Contract:** We understand that this Tender, together with your written acceptance there of included in your Letter of Acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed;
- xvii) **Not Bound to Accept:** We understand that you are not bound to accept the lowest evaluated cost Tender, the Most Advantageous Tender or any other Tender that you may receive;
- xviii) **Fraud and Corruption:** We here by certify that we have taken steps to ensure that no person acting for us or on our behalf engages in any type of Fraud and Corruption; and
- xix) **Collusive practices:** We hereby certify and confirm that the tender is genuine, non-collusive and made with the intention of accepting the contract if awarded. To this effect we have signed the “Certificate of Independent Tender Determination” attached below.
- xx) We undertake to adhere by the Code of Ethics for Persons Participating in Public Procurement and Asset Disposal, copy available from _____ (specify website) during the procurement process and the execution of any resulting contract.
- xxi) **Beneficial Ownership Information:** We commit to provide to the procuring entity the Beneficial Ownership Information in conformity with the Beneficial Ownership Disclosure Form upon receipt of notification of intention to enter into a contract in the event we are the successful tenderer in this subject procurement proceeding.
- xxii) We, the Tenderer, have duly completed, signed and stamped the following Forms as part of our Tender:
 - a) Tenderer's Eligibility; Confidential Business Questionnaire - to establish we are not in any conflict to interest.
 - (b) Certificate of Independent Tender Determination - to declare that we completed the tender without colluding with other tenderers.
 - (c) Self-Declaration of the Tenderer - to declare that we will, if awarded a contract, not engage in any form of fraud and corruption.
 - (d) Declaration and commitment to the Code of Ethics for Persons Participating in Public Procurement and Asset Disposal.

Further, we confirm that we have read and understood the full content and scope of fraud and corruption as informed in “**Appendix 1 - Fraud and Corruption**” attached to the Form of Tender.

Name of the Tenderer: *[insert complete name of person signing the Tender]

Name of the person duly authorized to sign the Tender on behalf of the Tenderer: **[insert complete name of person duly authorized to sign the Tender]

Title of the person signing the Tender: [insert complete title of the person signing the Tender]

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

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

Date signed _____ day of _____, _____

Notes

* In the case of the Tender submitted by joint venture specify the name of the Joint Venture as Tenderer.

**Person signing the Tender shall have the power of attorney given by the Tenderer to be attached with the Tender.

(a) **TENDERER'S ELIGIBILITY-CONFIDENTIAL BUSINESS QUESTIONNAIRE**

Instruction to Tenderer

Tender is instructed to complete the particulars required in this Form, *one form for each entity if Tender is a JV*. Tenderer is further reminded that it is an offence to give false information on this Form.

(a) Tenderer's details

	ITEM	DESCRIPTION
1	Name of the Procuring Entity	
2	Reference Number of the Tender	
3	Date and Time of Tender Opening	
4	Name of the Tenderer	
5	Full Address and Contact Details of the Tenderer.	1. Country 2. City 3. Location 4. Building 5. Floor 6. Postal Address 7. Name and email of contact person.
6	Current Trade License Registration Number and Expiring date	
7	Name, country and full address (<i>postal and physical addresses, email, and telephone number</i>) of Registering Body/Agency	
8	Description of Nature of Business	
9	Maximum value of business which the Tenderer handles.	
10	State if Tenders Company is listed in stock exchange, give name and full address (<i>postal and physical addresses, email, and telephone number</i>) of state which stock exchange	

General and Specific Details

(b) Sole Proprietor, provide the following details.

Name in full _____ Age _____
Nationality _____ Country of Origin _____
Citizenship _____

(c) Partnership, provide the following details.

	Names of Partners	Nationality	Citizenship	% Shares owned
1				
2				
3				

(d) Registered Company, provide the following details.

- i) Private or public Company _____
ii) State the nominal and issued capital of the Company _____

Nominal Kenya Shillings (Equivalent).....
 Issued Kenya Shillings (Equivalent).....

iii) Give details of Directors as follows.

	Names of Director	Nationality	Citizenship	% Shares owned
1				
2				
3				

(e) DISCLOSURE OF INTEREST - Interest of the Firm in the Procuring Entity.

- i) Are there any person/persons in.....(*Name of Procuring Entity*) who has/have an interest or relationship in this firm? Yes/No.....

If yes, provide details as follows.

	Names of Person	Designation in the Procuring Entity	Interest or Relationship with Tenderer
1			
2			
3			

(iii) Conflict of interest disclosure

	Type of Conflict	Disclosure YES OR NO	If YES provide details of the relationship with Tenderer
1	Tenderer is directly or indirectly controls, is controlled by or is under common control with another tenderer.		
2	Tenderer receives or has received any direct or indirect subsidy from another tenderer.		
3	Tenderer has the same legal representative as another tenderer		
4	Tender has a relationship with another tenderer, directly or through common third parties, that puts it in a position to influence the tender of another tenderer, or influence the decisions of the Procuring Entity regarding this tendering process.		
5	Any of the Tenderer's affiliates participated as a consultant in the preparation of the design or technical specifications of the works that are the subject of the tender.		
6	Tenderer would be providing goods, works, non-consulting services or consulting services during implementation of the contract specified in this Tender Document.		
7	Tenderer has a close business or family relationship with a professional staff of the Procuring Entity who are directly or indirectly involved in the preparation of the		

	Type of Conflict	Disclosure YES OR NO	If YES provide details of the relationship with Tenderer
	Tender document or specifications of the Contract, and/or the Tender evaluation process of such contract.		
8	Tenderer has a close business or family relationship with a professional staff of the Procuring Entity who would be involved in the implementation or supervision of the such Contract.		
9	Has the conflict stemming from such relationship stated in item 7 and 8 above been resolved in a manner acceptable to the Procuring Entity throughout the tendering process and execution of the Contract.		

Certification

On behalf of the Tenderer, I certify that the information given above is complete, current and accurate as at the date of submission.

Full Name _____

Title or Designation _____

(Signature)

(Date)

b) CERTIFICATE OF INDEPENDENT TENDER DETERMINATION

I, the undersigned, in submitting the accompanying Letter of Tender to the _____

[Name of Procuring Entity]

for: _____ [Name and number of tender] in

response to the request for tenders made by: _____ [Name of Tenderer] do

hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of _____ [Name of Tenderer] that:

1. I have read and I understand the contents of this Certificate;
2. I understand that the Tender will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am the authorized representative of the Tenderer with authority to sign this Certificate, and to submit the Tender on behalf of the Tenderer;
4. For the purposes of this Certificate and the Tender, I understand that the word “competitor” shall include any individual or organization, other than the Tenderer, whether or not affiliated with the Tenderer, who:
 - a) Has been requested to submit a Tender in response to this request for tenders;
 - b) could potentially submit a tender in response to this request for tenders, based on their qualifications, abilities or experience;
5. The Tenderer discloses that [check one of the following, as applicable]:
 - a) The Tenderer has arrived at the Tender independently from, and without consultation, communication, agreement or arrangement with, any competitor;
 - b) The Tenderer has entered into consultations, communications, agreements or arrangements with one or more competitors regarding this request for tenders, and the Tenderer discloses, in the attached document(s), complete details thereof, including the names of the competitors and the nature of, and reasons for, such consultations, communications, agreements or arrangements;
6. In particular, without limiting the generality of paragraphs (5)(a) or(5)(b) above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
 - a) prices;
 - b) methods, factors or formulas used to calculate prices;
 - c) the intention or decision to submit, or not to submit, a tender; or
 - d) the submission of a tender which does not meet the specifications of the request for Tenders; except as specifically disclosed pursuant to paragraph (5)(b) above;
7. In addition, there has been no consultation, communication, agreement or arrangement with any competitor regarding the quality, quantity, specifications or delivery particulars of the works or services to which this request for tenders relates, except as specifically authorized by the procuring authority or as specifically disclosed pursuant to paragraph(5)(b) above;
8. The terms of the Tender have not been, and will not be, knowingly disclosed by the Tenderer, directly or indirectly, to any competitor, prior to the date and time of the official tender opening, or of the awarding of the Contract, whichever comes first, unless otherwise required by law or as specifically disclosed pursuant to paragraph (5)(b) above.

Name _____
Title _____
Date _____

[Name, title and signature of authorized agent of Tenderer and Date]

(c) **SELF- DECLARATION FORMS**

FORM SD1

**SELF DECLARATION THAT THE PERSON/TENDERER IS NOT DEBARRED IN THE
MATTER OF THE PUBLIC PROCUREMENT AND ASSET DISPOSAL ACT 2015.**

I, ..., of Post Office Box being a resident
of..... in the Republic of do hereby make a statement as
follows: -

1. THAT I am the Company Secretary/ Chief Executive/Managing Director/Principal Officer/Director of
..... (*Insert name of the Company*) who is a Bidder in respect of **Tender No.**
..... for (*Insert tender title/description*) for (*Insert
name of the Procuring entity*) and duly authorized and competent to make this statement.
2. THAT the aforesaid Bidder, its Directors and subcontractors have not been debarred from participating in
procurement proceeding under Part IV of the Act.
3. THAT what is deponed to here in above is true to the best of my knowledge, information and belief.

.....
(Title)

.....
(Signature)

.....
(Date)

Bidder Official Stamp

FORM SD2

SELF DECLARATION THAT THE PERSON/TENDERER WILL NOT ENGAGE IN ANY CORRUPT OR FRAUDULENT PRACTICE.

I, ...of P.O. Box being a resident of
..... in the Republic of do hereby make a statement as follows: -

1. THAT I am the Chief Executive/Managing Director/Principal Officer/Director of
(insert name of the Company) who is a Bidder in respect of **Tender No.....**for
..... (*insert tender title/description*) for..... (*insert name of the Procuring entity*) and
duly authorized and competent to make this statement.
2. THAT the afore said Bidder, its servants and/ or agents/subcontractors will not engage in any corrupt or
fraudulent practice and has not been requested to pay any inducement to any member of the Board,
Management, Staff and/or employees and/or agents of (*Insert name of the Procuring
entity*) which is the procuring entity.
3. THAT the aforesaid Bidder, its servants and/or agents /subcontractors have not offered any inducement to any
member of the Board, Management, Staff and/or employees and/or agents of.....(*Name of
the procuring entity*).
4. THAT the aforesaid Bidder will not engage /has not engaged in any corrosive practice with other bidders
participating in the subject tender
5. THAT what is deponed to here in above is true to the best of my knowledge information and belief.

.....
(Title) (Signature) (Date)

Bidder's Official Stamp

DECLARATION AND COMMITMENT TO THE CODE OF ETHICS

I (person) on behalf of (***Name of the Business/ Company/Firm***)
..... Declare that I have read and fully understood the contents of
the Public Procurement & Asset Disposal Act, 2015, Regulations and the Code of Ethics for persons participating
in Public Procurement and Asset Disposal and my responsibilities under the Code.

I do here by commit to abide by the provisions of the Code of Ethics for persons participating in Public Procurement
and Asset Disposal.

Name of Authorized signatory.....

Sign.....

Position.....

Office address.....

Telephone. E-

mail.....

Name of the Firm/Company.....

Date.....

(Company Seal/ Rubber Stamp where applicable)

Witness

Name.....

...

Sign.....

Date.....

(d) APPENDIX 1 - FRAUD AND CORRUPTION

(Appendix 1 shall not be modified)

1. Purpose

- 1.1 The Government of Kenya's Anti-Corruption and Economic Crime laws and their sanction's policies and procedures, Public Procurement and Asset Disposal Act (*no. 33 of 2015*) and its Regulation, and any other Kenya's Acts or Regulations related to Fraud and Corruption, and similar offences, shall apply with respect to Public Procurement Processes and Contracts that are governed by the laws of Kenya.

2. Requirements

- 2.1 The Government of Kenya requires that all parties including Procuring Entities, Tenderers, (applicants/proposers), Consultants, Contractors and Suppliers; any Sub-contractors, Sub-consultants, Service providers or Suppliers; any Agents (whether declared or not); and any of their Personnel, involved and engaged in procurement under Kenya's Laws and Regulation, observe the highest standard of ethics during the procurement process, selection and contract execution of all contracts, and refrain from Fraud and Corruption and fully comply with Kenya's laws and Regulations as per paragraphs 1.1 above.

- 2.2 Kenya's public procurement and asset disposal act (*no. 33 of 2015*) under Section 66 describes rules to be followed and actions to be taken in dealing with Corrupt, Coercive, Obstructive, Collusive or Fraudulent practices, and Conflicts of Interest in procurement including consequences for offences committed. A few of the provisions noted below highlight Kenya's policy of no tolerance for such practices and behavior:

- 1) A person to whom this Act applies shall not be involved in any corrupt, coercive, obstructive, collusive or fraudulent practice; or conflicts of interest in any procurement or as set disposal proceeding;
- 2) A person referred to under subsection (1) who contravenes the provisions of that sub-section commits an offence;
- 3) Without limiting the generality of the subsection (1) and (2), the person shall be: -
 - a) disqualified from entering into a contract for a procurement or asset disposal proceeding; or
 - b) if a contract has already been entered into with the person, the contract shall be voidable;
- 4) The voiding of a contract by the procuring entity under subsection (7) does not limit any legal remedy the procuring entity may have;
- 5) An employee or agent of the procuring entity or a member of the Board or committee of the procuring entity who has a conflict of interest with respect to a procurement: -
 - a) Shall not take part in the procurement proceedings;
 - b) shall not, after a procurement contract has been entered in to, take part in any decision relating to the procurement or contract; and
 - c) shall not be a subcontract or for the tender to whom was awarded contract, or a member of the group of tenderers to whom the contract was awarded, but the subcontractor appointed shall meet all the requirements of this Act.
- 6) An employee, agent or member described in subsection (1) who refrains from doing anything prohibited under that subsection, but for that subsection, would have been within his or her duties shall disclose the conflict of interest to the procuring entity;
- 7) If a person contravenes subsection (1) with respect to a conflict of interest described in subsection (5)(a) and the contract is awarded to the person or his relative or to another person in whom one of them had a direct or indirect pecuniary interest, the contract shall be terminated and all costs incurred by the public entity shall be made good by the awarding officer. Etc.

3. In compliance with Kenya's laws, regulations and policies mentioned above, the Procuring Entity:

- a) Defines broadly, for the purposes of the above provisions, the terms set forth below as follows:
- i) “corrupt practice” is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;
 - ii) “fraudulent practice” is any act or omission, including misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain financial or other benefit or to avoid an obligation;
 - iii) “collusive practice” is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party; “coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
 - iv) “obstructive practice” is:
 - Deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede investigation by Public Procurement Regulatory Authority (PPRA) or any other appropriate authority appointed by Government of Kenya into allegations of a corrupt, fraudulent, coercive, or collusive practice; and/or threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or
 - acts intended to materially impede the exercise of the PPRA's or the appointed authority's inspection and audit rights provided for under paragraph 2.3 e. below.
- b) Defines more specifically, in accordance with the above procurement Act provisions set forth for fraudulent and collusive practices as follows:
- “fraudulent practice” includes a misrepresentation of fact in order to influence a procurement or disposal process or the exercise of a contract to the detriment of the procuring entity or the tenderer or the contractor, and includes collusive practices amongst tenderers prior to or after tender submission designed to establish tender prices at artificial non-competitive levels and to deprive the procuring entity of the benefits of free and open competition.
- c) Rejects a proposal for award¹ of a contract if PPRA determines that the firm or individual recommended for award, any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/ or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;
- d) Pursuant to the Kenya's above stated Acts and Regulations, may recommend to appropriate authority(ies) for sanctioning and debarment of a firm or individual, as applicable under the Acts and Regulations;
- e) Requires that a clause be included in Tender documents and Request for Proposal documents requiring (i) Tenderers (applicants/proposers), Consultants, Contractors, and Suppliers, and their Sub-contractors, Sub-consultants, Service providers, Suppliers, Agents personnel, permit the PPRA or any other appropriate authority appointed by Government of Kenya to inspect² all accounts, records and other documents relating to the procurement process, selection and/or contract execution, and to have them audited by auditors appointed by the PPRA or any other appropriate authority appointed by Government of Kenya; and
- f) Pursuant to Section 62 of the above Act, requires Applicants/Tenderers to submit along with their Applications/Tenders/Proposals a “Self-Declaration Form” as included in the procurement document declaring that they and all parties involved in the procurement process and contract execution have not engaged/will not engage in any corrupt or fraudulent practices.

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

²Inspections in this context usually are investigative (i.e., forensic) in nature. They involve fact-finding activities undertaken by the Investigating Authority or persons appointed by the Procuring Entity to address specific matters related to investigations/audits, such as evaluating the veracity of an allegation of possible Fraud and Corruption, through the appropriate mechanisms. Such activity includes but is not limited to: accessing and examining a firm's or individual's financial records and information, and making copies thereof as relevant; accessing and examining any other documents, data and information (whether in hard copy or electronic format) deemed relevant for the investigation/audit, and making copies thereof as relevant; interviewing staff and other relevant individuals; performing physical inspections and site visits; and obtaining third party verification of information.

FORM OF TENDER SECURITY-[Option 1–Demand Bank Guarantee]

Beneficiary: _____ Request for Tenders
No: _____ Date: _____ TENDER
GUARANTEE No.: _____
Guarantor: _____

1. We have been informed that _____ (herein after called "the Applicant") has submitted or will submit to the Beneficiary its Tender (here in after called " the Tender") for the execution of _____ under Request for Tenders No. _____ ("the ITT").
2. Furthermore, we understand that, according to the Beneficiary's conditions, Tenders must be supported by a Tender guarantee.
3. At the request of the Applicant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (_____) upon receipt by us of the Beneficiary's complying demand, supported by the Beneficiary's statement, whether in the demand itself or a separate signed document accompanying or identifying the demand, stating that either the Applicant:
 - (a) has withdrawn its Tender during the period of Tender validity set forth in the Applicant's Letter of Tender ("the Tender Validity Period"), or any extension thereto provided by the Applicant; or
 - b) having been notified of the acceptance of its Tender by the Beneficiary during the Tender Validity Period or any extension there to provided by the Applicant, (i) has failed to execute the contract agreement, or (ii) has failed to furnish the Performance.
4. This guarantee will expire: (a) if the Applicant is the successful Tenderer, upon our receipt of copies of the contract agreement signed by the Applicant and the Performance Security and, or (b) if the Applicant is not the successful Tenderer, upon the earlier of (i) our receipt of a copy of the Beneficiary's notification to the Applicant of the results of the Tendering process; or (ii) thirty days after the end of the Tender Validity Period.
5. Consequently, any demand for payment under this guarantee must be received by us at the office indicated above on or before that date.

[signature(s)]

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

FORMAT OF TENDER SECURITY [Option 2–Insurance Guarantee]

TENDER GUARANTEE No.: _____

1. Whereas [Name of the tenderer] (hereinafter called “the tenderer”) has submitted its tender dated [Date of submission of tender] for the [Name and/or description of the tender] (hereinafter called “the Tender”) for the execution of ___under Request for Tenders No. _____ (“the ITT”).

2. KNOW ALL PEOPLE by these presents that WE of [Name of Insurance Company] having our registered office at.....(hereinafter called “the Guarantor”), are bound unto [Name of Procuring Entity] (hereinafter called “the Procuring Entity”) in the sum of (Currency and guarantee amount) for which payment well and truly to be made to the said Procuring Entity, the Guarantor binds itself, its successors and assigns, jointly and severally, hereby by these presents.

Sealed with the Common Seal of the said Guarantor this ____ day of _____ 20 ____.

3. NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Applicant:

- a) has withdrawn its Tender during the period of Tender validity set forth in the Principal's Letter of Tender (“the Tender Validity Period”), or any extension thereto provided by the Principal; or
- b) having been notified of the acceptance of its Tender by the Procuring Entity during the Tender Validity Period or any extension thereto provided by the Principal; (i) failed to execute the Contract agreement; or (ii) has failed to furnish Performance Security, in accordance with the Instructions to tenderers (“ITT”) of the Procuring Entity's Tendering document.

then the guarantee undertakes to immediately pay to the Procuring Entity up to the above amount upon receipt of the Procuring Entity's first written demand, without the Procuring Entity having to substantiate its demand, provided that in its demand the Procuring Entity shall state that the demand arises from the occurrence of any of the above events, specifying which event(s) has occurred.

4. This guarantee will expire: (a) if the Applicant is the successful Tenderer, upon our receipt of copies of the contract agreement signed by the Applicant and the Performance Security and, or (b) if the Applicant is not the successful Tenderer, upon the earlier of (i) our receipt of a copy of the Beneficiary's notification to the Applicant of the results of the Tendering process; or (ii) twenty-eight days after the end of the Tender Validity Period.

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

[Date]

[Witness]

[Signature of the Guarantor]

[Seal]

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

FORM OF TENDER - SECURING DECLARATION

[The Bidder shall complete this Form in accordance with the instructions indicated]

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

Tender No. *[insert number of tendering process]*

To..... *[insert complete name of Purchaser]* I/We, the undersigned, declare

that:

1. I/We understand that, according to your conditions, bids must be supported by a Tender-Securing Declaration.
2. I/We accept that I/we will automatically be suspended from being eligible for tendering in any contract with the Purchaser for the period of time of *[insert number of months or years]* starting on *[insert date]*, if we are in breach of our obligation(s) under the bid conditions, because we (a) have withdrawn our tender during the period of tender validity specified by us in the Tendering Data Sheet; or (b) having been notified of the acceptance of our Bid by the Purchaser during the period of bid validity, (i) fail or refuse to execute the Contract, if required, or (ii) fail or refuse to furnish the Performance Security, in accordance with the instructions to tenders.
3. I/We understand that this Tender Securing Declaration shall expire if we are not the successful Tenderer(s), upon the earlier of:
 - a) Our receipt of a copy of your notification of the name of the successful Tenderer; or
 - b) thirty days after the expiration of our Tender.
4. I/We understand that if I am /we are/ in a Joint Venture, the Tender Securing Declaration must be in the name of the Joint Venture that submits the bid and the Joint Venture has not been legally constituted at the time of bidding, the Tender Securing Declaration shall be in the names of all future partners as named in the letter of intent.

Signed: Capacity/title (director or partner or

sole proprietor, etc.)

Name: Duly authorized to sign

the bid for and on behalf of: *[insert complete name of Tenderer]*

Dated on day of, ... *[Insert date of signing]* Seal or stamp

Appendix to Tender

Schedule of Currency requirements

Summary of currencies of the Tender for _____ [insert name of Section of the Works]

<i>Name of currency</i>	<i>Amounts payable</i>
Local currency: _____	
Foreign currency #1: _____	
Foreign currency #2: _____	
Foreign currency #3: _____	
Provisional sums expressed in local currency	[To be entered by the Procuring Entity]

NOT APPLICABLE

PART II - WORKS REQUIREMENTS

SECTION V - BILLS OF QUANTITIES

A. Notes and Sample Items for Preparing a Bill of Quantities

1. These Notes for Preparing a Bill of Quantities are intended only as information for the Procuring Entity or the person drafting the Tender Documents. Priced Bills of Quantities shall be part and parcel of the Contract Documents.
2. The objectives and purpose of the Bills of Quantities are to provide sufficient information on the specifications, descriptions and quantities of Works to be performed to enable tenders to be prepared efficiently and accurately and when a contract has been entered into, to provide a priced Bill of Quantities for use in the periodic valuation of Works executed. In order to attain these objectives, Works should be itemized in the Bill of Quantities insufficient detail to distinguish between the different classes of Works, or between Works of the same nature carried out in different locations or in other circumstances which may give rise to different considerations of cost. Consistent with these requirements, the layout and content of the Bill of Quantities should be as simple and clear as possible.
3. The Bills of Quantities should be divided generally into the following sections:
 - a) Preambles
 - b) Preliminary items
 - c) Work Items
 - c) Daywork Schedule; and
 - d) Provisional items
 - e) Summary.

4. NOTES TO PREPARING PREAMBLES

41. The Preambles should include only those items that constitute the cost of the works but would not be priced separately as they are expected to be included in the unit prices. Care should be taken to ensure that these items are not a part of the conditions of contract. The Preambles should indicate the inclusiveness of the unit prices and should state the methods of measurement that have been adopted in the preparation of the Bill of Quantities, that are to be used for the measurement of any part of the Works. The units of measurement and abbreviations should be defined and any mandatory national units defined and described. The methods of and procedure for re-measurement should be described in the Preambles.
42. Units of Measurement - The following units of measurement and abbreviations shall be used, unless other national units are mandatory in Kenya.

Unit	Abbreviation	Unit	Abbreviation
cubic meter	m ³ or cu m	millimetre	mm
hectare	ha	month	mon
hour	h	number	nr
kilogram	kg	square meter	m ² or sq m
lump sum	ls	square millimeter	mm ² or sq mm
meter	m	week	wk
metric ton	t		

43. The Bills of Quantities shall be read in conjunction with the Instructions to Tenders, General and Special Conditions of Contract, Technical Specifications, and Drawings.
44. The quantities given in the Bills of Quantities are estimated and partly provisional and are given to provide a common basis for tendering. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Architect and valued at the rates and prices tendered in the priced Bills of Quantities, where applicable, and otherwise at such rates and prices as the Architect may fix within the terms of the Contract.

45. The rates and prices tender in the priced Bills of Quantities shall, except in so far as it is otherwise provided under the Contract, include all Constructional Plant, labour, supervision, materials, erection, maintenance, insurance, profit, taxes, and duties, together with all general risks, liabilities, and obligations set out or implied in the Contract.
46. A rate or price shall be entered against each item in the priced Bill of Quantities, whether quantities are stated or not. The cost of Items against which the Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities.
47. The whole cost of complying with the provisions of the Contract shall be included in the Items provided in the priced Bills of Quantities, and where no Items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Work.
48. General directions and descriptions of work and materials are not necessarily repeated nor summarized in the Bills of Quantities. References to the relevant sections of the Contract documents shall be made before entering prices against each item in the priced Bills of Quantities.
49. Provisional Sums and contingency sums included and so designated in the Bills of Quantities shall be expended in whole or in part at the direction and discretion of the Architect in accordance with Sub-Clause 13.5 and Clause 13.6 of the General Conditions of contract.
410. In preparing the Bills of Quantities, notes should be removed as they are intended to guide the person preparing the Tender Documents. The Contractor must allow in his rates for any costs associated with and complying with the requirements in the Preambles.
411. Should a tenderer/contractor not price any item in any section of the Bills of Quantities including Preliminary items, it will be assumed that he/she has spread its cost in other areas that he/she will have priced. Therefore, the item or items will be executed without any additional costs or without being treated like variations.

5. NOTES ON PREPARING BILLS OF QUANTITIES

51. The Preliminary Items should be limited to tangible items that should be priced by the tenderer, are identifiable and can be priced separately and included in the interim valuations precisely. Such items may include such items as site office, notice boards, and other temporary works, otherwise items such as security for the Works which are primarily part of the Contractor's obligations should be included in the Contractor's rates.
52. The work items in the Bills of Quantities should be grouped into sections to distinguish between those parts of the Works which by nature, location, access, timing, or any other special characteristics may give rise to different methods of construction, or phasing of the Works, or considerations of cost. Such groups could be ground excavations, structures, external works, services, etc. General items common to all parts of the Works may be grouped as a separate section in the Bill of Quantities.
53. Quantities should be computed net from the Drawings, unless directed otherwise in the Contract, and no allowance should be made for bulking, shrinkage or waste. Quantities should be rounded up where appropriate.
54. Where the measured items are deemed not to be exact because of the likelihood that the scope can change during the execution of the works, such items could be subject to re-measurement, the word “**provisional**” should be used to identify such cases. Where whole sections of the work items fall in this class, for example foundations, they should be labelled “Provisional Quantities” or “Provisional Items” so that the Tenderer/Contractor is advised up front that such items are subject to re-measurement to be done before such work is cover-up.
55. All items that have not been measured and therefore not subject to tenders pricing should be listed in the Bills of Quantities as **Provisional Sums** for particular item or class of Work, which may be subject to a nominated subcontract or separate measurements at a later date during the execution of the works. For example, if it is deemed not possible to measure electrical works before going to tender because detail designs are not ready, a provisional sum can be allowed in the Bills of Quantities for “Installation of Electrical Works” to be executed later when actual design details are completed. To the extent not covered above, there should be in the Bills of Quantities a general provision for physical and financial contingencies made as a “Provisional Sum for

Contingencies” and “Provisional Sum for Fluctuations”. The inclusion of such provisional sums often facilitates budgetary approval by avoiding the need to request periodic supplementary approvals as the future need arises.

- 56 Provisional sums to cover specialized works normally carried out by Nominated Sub Contractors should be avoided and instead Bills of Quantities of the specialized Works should be included as a section of the main Bills of Quantities to be priced by the Main Contractor. The Main Contractor should be required to indicate the name(s) of the specialized firms he proposes to engage to carry out the specialized Works as his approved domestic sub-contractors. Only provisional sums to cover specialized Works by statutory authorities should be included in the Bills of Quantities.
- 57 A Daywork Schedule should be included if the probability of unforeseen work, outside the items included in the Bill of Quantities, is relatively high. To facilitate checking by the Procuring Entity of the realism of rates quoted by the tenderers, the Daywork Schedule should normally comprise:
- i) A list of the various classes of labor, and materials for which basic.
 - ii) Daywork rates and prices for various categories of labor are to be inserted by the tenderer, together with a statement of the conditions under which the Contractor will be paid for Work executed on a Daywork basis.
 - iii) A percent to be entered by the tenderer against each basic Day work item.
 - iv) Subtotal amount for labor, materials and plant representing the Contractor's profit, overheads, supervision and other charges.
- 58 The Summary should contain a tabulation of the separate parts of the Bills of Quantities carried forward, with provisional sums for Daywork, Provisional sums and Contingencies, and provision for Total Costing. The last line should allow for tenderer to indicate any discounts before arriving at a total cost carried forward to the Form of Tender.

BILLS OF QUANTITIES

(a) Preambles

1. The method of measurement of completed work for payment shall be in accordance with *[insert the name of a standard reference guide, or full details of the methods to be used]*.
2. The Site is situated in *(provide full description where the site is situated, coordinates from the nearest known landmark like a town and its size)*_____ It is approximately _____ Kilometers from Nairobi. Access to the site shall be through _____,

Which is an existing public road. Any damage caused to the surfaces of this road shall be made good at the Contractor's expense. The Contractor shall visit the site and acquaint itself with its nature and position, the nature of the ground, substrata and other local conditions, positions of existing power, water and other services, access roads or any other limitations that might affect his cost or progress. No claim for extras shall be considered on account of lack of knowledge in this respect.

3. The Contractor shall obtain the Architect's approval on the siting of all temporary buildings, spoil heaps, temporary access path, and storage of materials. The Contractor shall also obtain the Architect approval and direction regarding the use of any materials found on the Site.
4. The drawings used in the preparation of these Bills of Quantities can be inspected at the offices of the Procuring Entity or Procuring Entity's Representative during normal working hours. Two sets of the Working Drawings shall be provided to the contractor but additional copies shall be provided at a cost to be determined by the Engineer.
5. The Contractor shall allow for the payment of all bank charges in connection with the procurement of Bank Guarantees and stamp charges in connection with this contract Agreement.
6. The Contractor shall carry out the various sections of the Works in such an order as the Architect May direct. The Procuring Entity reserves the right to occupy the Works by sections on completion provided that such occupation is considered to be both practical and reasonable and will not interfere with the Works. The Contractor shall allow any costs associated with such occupation.
7. The main Contractor will be fully responsible for paying his Sub-Contractor but the Procuring Entity reserves the right in very exceptional circumstances to make such payments direct in the interests of the project where the completion thereof might be jeopardized by any dispute or vicariousness between the Contractor and the Sub- Contractor involve.
8. The Contractor shall complete and deliver the Works in the period inserted in the Form of Tender as his time for completion of the Works from the date for Possession, to be agreed with the Engineer. The Contract Period is presumed to have been calculated making due allowance for seasonal inclement weather conditions. No claim for extension of time due to the normal inclement weather for this area shall be entertained.
9. The Contractor shall, upon receiving instructions to proceed with the Works, draw up a Programme and Progress Chart setting out the order in which the Works are to be carried out, with the appropriate dates thereof. This Chart shall be agreed with the Architect and no deviation from the order set out in it will be permitted without the written consent of the Engineer. The Contractor will be responsible for arranging the above programme with all his sub-Contractors and Specialties. The Contractor shall allow in his rates for carrying out this exercise, and for updating it as required.
10. The Contractor shall submit to the Architect on the first day of each week or such longer period as the Architect from time to time direct, a Progress Report and any information for the proceeding period, showing the progress during the period and the up-to-date cumulative progress on all important items of each section or portion of the Works.
11. The Contractor shall arrange for photographs of the Site to be taken by a professional photographer approved by the Engineer. The Photographs shall provide a record of the Site and adjacent are as prior to the commencement of the Works and shall cover such portion of the works in progress and completion as the Architect shall direct. All prints shall be full plate size, unmounted, and marked on the reverse side with the date of exposure, identification reference and brief description. The copyright of all photographs shall be vested in the Procuring Entity. The negatives and four prints from each negative shall be delivered to the Architect within two weeks of exposure.

12. Figured dimensions are to be followed in preference to dimensions scaled from the Drawings, but whenever possible dimensions are to be taken on the Site or from the buildings. Before any work is commenced by Sub-Contractors or Specialist Firms, dimensions must be checked on the site comparable dimensions shown on the drawings. The Contractor shall be responsible for the accuracy of such dimensions.
13. Prior to commencement of any work the Contractor is to ascertain from the relevant Authorities the exact position, depth and level of all existing electric cables, water pipes or other services in there and he shall make whatever provisions may be required by the Authorities concerned for the support and protection of such services. Any damage or disturbance caused to any services shall be reported immediately to the Architect and the relevant Authority and shall be made good to their satisfaction at the Contractor's expense. Where appropriate the Contractor shall open up the ground in advance of the main work by hand digging if necessary, to locate precisely the position and details of the services which are likely to affect his operations.
14. The Contractor shall include in his prices for the transport of materials, workmen, etc./, to and from the site of the proposed works, at such hours and by such route as are permitted by the Authorities.
15. The Contractor will be required to make good, at his own expense and damage he may cause to the present road surface and pavements within or beyond the boundary of the Site, during the period of the works. All existing paths, storm water channels, etc., that may be destroyed or damaged during the progress of the Works shall be reinstated by the Contractor to the satisfaction of the Engineer.
16. The Contractor is to allow for complying with all instructions and regulations of the Police Authorities.
17. All water shall be fresh, clean and pure, free from earthly, vegetable or organic matter, acid or alkaline substance in solution. The Contractor shall provide at his own risk and cost all water for use in connection with the Works, (including works of sub-contractors). If need be, he shall make arrangements with the Local Water Authority for the installation of a separate meter for all water used by him throughout the Contract and pay all cost and fees in connection therewith. He shall also provide temporary storage tanks and tubing, etc., as may be necessary, and clear away at completion.
18. The Contractor shall provide all artificial lighting and power for his own use on the Works, (including Sub – Contractor's) including all temporary connections, wiring, fittings, etc., and clearing away on completion. The Contractor shall pay all fees and obtain all permits in connection there with.
19. The Contractor shall constantly keep on the Works a Literate English-speaking Agent or Representative, competent and experienced in the kind of work involved, who shall give his whole time to the superintendence of the works. (Including works of sub – contractors). Such Agent or Representative shall receive on behalf of the Contractor directions and instruction from the Engineer, and such directions and instructions shall be deemed to be given to the contractor in accordance with the Conditions of Contract. The Agent shall not be replaced without the specific approval of the Engineer.
20. The Contractor shall ensure that the safety of his work people and all authorized visitors to the site are protected at all times. In particular, there shall be the proper provision of guard-rails to scaffolding, protection against falling materials, tools on site, dust, nail and other sharp objects. The site shall be kept tidy and clear of dangerous rubbish. The Architect shall be empowered to suspend work on site should it be considered this condition is not being observed and no claim arising from such suspension will be allowed.
21. The are as available to the Contractor for work yards, offices and other facilities shall be directed by the Architect and any existing features to remain shall be protected from damage throughout the Contract Period and handed back in good condition when they are vacated at the end of the Contract. If additional areas are required, the contractor shall source then at own cost.
22. The Contractor shall give the Architect reasonable notice of the intention to set out or take levels for any part of the Works so that arrangements may be made for checking the work. The accuracy of setting out and leveling shall be within the tolerances specified in the Specifications or on the Drawings. The checking of setting out or leveling by the Architect shall not relieve the Contractor of his duties or responsibilities under the Contract.
23. The Contractor must take steps necessary to safe guard and shall beheld fully responsible for any damage caused to existing and adjacent property, including buildings that are not a subject of demolition. He shall make good at his own cost damage to persons and property caused there on, and he shall indemnify the Procuring Entity against any loss or claim that may arise.

24. The Contractor shall take such steps and exercise such care and diligence as to minimize nuisance arising from dust, noise or any other cause to the occupiers of the existing and adjacent property. He must provide such temporary and special screens and tarpaulins or gummy bags, hoarding, barriers, warning signs etc. as he considers necessary and sufficient for the protection of the existing and adjacent property and or prevention of nuisance etc. as directed by Engineer.
25. The Contractors attention is drawn to the standards levy order which was amended on 15th October 1998. Legal notice No.154 of 1998. The Contractor is required to pay a monthly level of 0.2% of his factory price of construction works with effect from January 1999. Tenderer shall allow for this in the build-up of his rates.
26. The Contractor shall provide temporary sheds, offices messrooms, sanitary, accommodation and other temporary buildings for the use of the contractor and sub-contractors, including lighting furniture equipment and attendance.
27. Contractor shall provide/build labor camp sat areas to be agreed with the Engineer. Labor camps shall be complete with sanitary accommodation and fencing gates.
28. The Contractor must provide the necessary toilet facilities to the requirement and satisfaction of the Health Authorities and maintain the same in a thoroughly clean and sanitary condition and pay all conservancy fees during the period of the Works and remove when no longer required.
29. The Contractor shall provide at his own risk and cost all watching and lighting as necessary to safeguard the Works, Plant and materials against damage and theft.
30. The Contractor shall provide all necessary hoists, tackle, plant, equipment, vehicles, tools and appliances of every description for the due and satisfactory completion of the Works and shall remove the same on completion. All such plant, tools and equipment shall comply with all regulations in force throughout the period of the Contract and shall be altered or adopted during the Contract period as may be necessary to comply with any amendments in or additions to such regulations.
31. Provide, erect and maintain all necessary scaffolding, sufficiently strong and efficient for the due performance of the works, including Sub-Contract Works, provide special scaffolding as required by Sub-Contractors, alter and adopt all scaffolding as and when required during the Works, and remove on completion. No scaffolding is measured here in after and the Contractor must allow in his rates for this.
32. The Contractor shall take all necessary precautions such as temporary fencing, hoarding fans, planked footways, guard-rails gantries screen, etc., for the safe custody of the Works, materials and public protection and adjacent properties.
33. Cover up all and protect from damage, including damage from inclement weather, all finished work and unfixed materials, including that of Sub-Contractors, etc., to the satisfaction of the Architect until the completion of the Contract.
34. The Contractor shall, after completion of the works, at his own expense, remove and clear away all surplus excavated demolition materials, plant, rubbish and unused materials and shall leave the whole of the Site and Works in a clean and tidy state to the satisfaction of the Engineer, sheds, camps, etc. Particular care shall be taken to leave clean all floors and windows and to move all paint and cement all rubbish and dirt as it accumulates. The Contractor is to find his own dump and shall pay all charges in connection there with.
35. Concrete test cubes shall be prepared in a set of three, as described including testing fees, labor and materials, making molds, transport, handling, etc. Allow in your rates for making at least four cubes on each occasion, from different batches; the concrete being taken from the point of deposit.
36. The Contractors shall furnish at the earliest possible opportunity before work commences, and at his own cost, any samples of materials and workmanship that may be called for by the Architect for the approval or rejection, and any further samples in the case of rejection, until such samples are approved by the Engineer. Such samples, when approved, shall be the minimum standard for the work to which they apply. The procedure for submitting samples of materials for testing or approval and the method of marking for identification shall be as laid down by the Engineer. The Contractor shall allow in his Tender for such samples and tests, including those in connection with his Sub-Contractors work.

37. The Contractor's attention is drawn to the Finance Bill of the year 2000/2001 on withholding tax on contractual payment section 35(7)(i)(ii) which became effective on 1st July 2000. A 3% withholding tax will be applicable to all interim payments exceeding KShs for work done in respect of building or civil works. The contractor shall allow for any costs arising resulting there from in the build-up of rates.
38. Blasting will only be allowed with the express permission of the Architect in writing. All blasting operations shall be carried out at the Contractor's sole risk and cost, in accordance with any Government regulations in force for the time being, and any special regulations laid down by the Architect governing the use and storage of explosives.
39. The National Construction Authority is a state corporation established under the national construction authority Act No.14 of 2011. The broad Mandate of the Authority is to oversee the construction industry and coordinate its development. The National Construction Authority Regulations 2014 with an effective date of 6th June 2014, regulation 25, - Allow 0.5% of the tender sum/contract sum for construction levy.
40. The Contractor attention is drawn to Finance Bill of 1993 where VAT was introduced in all contracts for construction services. The tenderer is also drawn to VAT Act Cap 476 clause 19(9). The tenderer must allow for VAT 1.19 as instructed elsewhere.
41. The contractor shall allow and pay for all insurance to cover risks and indemnities required Items 17 and 18 of the Conditions of contract and also specified in the Special Conditions of Contract.

BILL NO. 1 - PRELIMINARY ITEMS

ITEM No.	DESCRIPTION	AMOUNT
1.	The Contractor shall provide, or erect and maintain an approved lock-up office for the sole use of the Architect and his own site staff. The office, which will have a total floor area of not less than ----- square metres, will be divided into two separate interconnected offices. Services to be provided shall include a telephone, water sanitary and electrical supply and drainage. The offices shall be supplied with furniture and equipment that shall include: 4 No. desks with chairs; 1 No. large table with sufficient number of chairs; drawing table along the full length of one side with plan drawers and drawing stools; 4 No. waste paper baskets; sufficient number of pin boards; and any additional furniture and fittings as may reasonably be required during the Contract period. The Contractor shall provide the Architect and site staff with computer sets or laptops, printers and telephones all that are necessary for project use. The office furniture and equipment shall all be to the approval of the Engineer. The Contractor shall also provide all labor, equipment and consumable stores equipment throughout the currency of the contract.	
2	[OPTIONAL] Contractor shall provide a house for Engineers site agent, which shall be one bedroomed temporary house with a sitting room, toilet, bathroom and a kitchen complete with electrical and sanitary installations and provide maintenance and paying of bills of water and electricity up to and including end of the contract period.	
3	Provide a signboard not less than _____square meters in size of a design type, and with lettering and coloring and in a position approved by the Engineer. The signboard shall be for the display of the Main Contractor's name and the names of all his Sub-Contractors, with the Procuring Entity's name painted thereon. All Consultants names be printed in letters not exceeding 50 mm high. No other signboard or advertising shall be allowed. The signboard shall be fully maintained during the Contract Period and shall be pulled down and removed at the end of the contract.	
4	Add others (if any)	
5		
6		
	TOTAL CARRIED TO GRAND SUMMARY	

BILL NO. 2: WORK ITEMS

(Organized appropriately into work sections, such as foundations, walls/structure, finishes, doors and windows, mechanical installations. etc.

Bill No 2 - (Name of Section e.g. Foundations).

<i>Item no.</i>	<i>Description</i>	<i>Unit</i>	<i>Quantity</i>	<i>Rate</i>	<i>Amount</i>
Total for Bill No. 2 (carried forward to Summary, p. ____)					_____

Bill No. 3: Schedule of Daywork Rates - Labor

Item no.	Description	Unit	Nominal quantity	Rate	Amount
	Subtotal				
	Allow ____percent ^a of Subtotal for Contractor's overhead, profit, etc., in accordance with paragraph 3 (b) above.				
	Total for Daywork (carried forward to Daywork Summary, p. ____)				

a. To be entered by the Tenderer.

Bill No. 4: Schedule of Daywork Rates - Materials

Item no.	Description	Unit	Nominal quantity	Rate	Extended amount
	Subtotal				
	Allow ____percent a. of Subtotal for Contractor's overhead, profit, etc., in accordance with paragraph 4 (b) above.				
	Total for Daywork: Materials (carried forward to Daywork Summary, p. _____)				

a. To be entered by theTenderer.

Bill No. 5: Schedule of Daywork Rates - Contractor's Equipment

<i>Item no.</i>	<i>Description</i>	<i>Nominal quantity (hours)</i>	<i>Basic hourly rental rate</i>	<i>Extended amount</i>
	Allow _ percent ^a of Subtotal for Contractor's overhead, profit, etc., in accordance with paragraph 5 above.			
Total for Daywork: Contractor's Equipment (carried forward to Daywork Summary, p. __)				

a. To be entered by the Tenderer.

Bill No. 6: Daywork Summary

	<i>Amount^a</i>	<i>% Foreign</i>	<i>Currency</i>
1. Total for Daywork: Labor			
2. Total for Daywork: Materials			
3. Total for Daywork: Contractor's Equipment			
Total for Daywork (Provisional Sum) (carried forward to Summary of Bills of Quantities, p. _____)			

Bill No. 7: Provisional Sums

<i>Bill no.</i>	<i>Item no.</i>	<i>Description</i>	<i>Amount</i>
1			
2			
3			
4			
etc.			
Total for Specified Provisional Sums (carried forward to Grand Summary			

GRAND SUMMARY

SUMMARY ITEMS	<i>Page</i>	<i>Amount</i>
Bill No. 1: Preliminary Items		
Bill No. 2: Work Items		
Bill No 3: Daywork Summary		
Bill No 4: Provisional Sums		
Subtotal of Bills No 1-4		
Allow for any Discounts ⁱ		
TOTAL TENDER PRICE Carried forward to Form of Tender		

(i) If a percentage used, it should be indicated on which Bill No. items but on Bill No.4 – Provisional Sums.

SECTION VI - SPECIFICATIONS

Specifications applicable are those by the Ministry of Public Works General Specifications dated March 1976 (together with any amendments issued thereof). The Contractor should obtain a copy from the Ministry of Public Works. No liability will be admitted nor claim allowed in respect of errors in Contractors tender arising from the lack of knowledge on the said specification.

SECTION VII - DRAWINGS

NO.	DESCRIPTION	DRAWING NO.
	<u>ARCHITECTURAL DRAWINGS</u>	
1.0	Site Plan	SDL-RU-01
2.0	Ground Floor Plan	SDL-RU-02
3.0	First Floor Plan	SDL-RU-03
4.0	Second Floor Plan	SDL-RU-04
5.0	Third Floor Plan	SDL-RU-05
6.0	Roof Plan	SDL-RU-06
7.0	Elevation 01 & 02	SDL-RU-07
8.0	Section S-01	SDL-RU-08
	<u>STRUCTURAL DRAWINGS</u>	
1.0	Foundation Details	2025/RU/140/01
2.0	First Floor Beam Layout	2025/RU/140/02
3.0	First Floor RC Slab Layout	2025/RU/140/03
4.0	Second Floor Beam Layout	2025/RU/140/04
5.0	Second Floor RC Slab Layout	2025/RU/140/05
6.0	Third Floor Beam Layout	2025/RU/140/06
7.0	Third Floor RC Slab Layout	2025/RU/140/07
8.0	Roof and Tank Layout	2025/RU/140/08
9.0	Roof and RC Tank Slab Detail	2025/RU/140/09
10.0	Roof Beam Layout and RC Slab Detail/Tank Beam Details	2025/RU/140/010
11.0	First Floor Beam Details – Sheet 1	2025/RU/140/011
12.0	First Floor Beam Details – Sheet 2	2025/RU/140/012

13.0	Second Floor Beam Details – Sheet 1	2025/RU/140/013
14.0	Second Floor Beam Details – Sheet 2	2025/RU/140/014
15.0	Column Details/Base Details	2025/RU/140/015
16.0	Base Details	2025/RU/140/016

PART III - THE CONDITIONS OF CONTRACT AND CONTRACT

SECTION VIII - GENERAL CONDITIONS OF CONTRACT (GCC)

Name of Procuring Entity: RONGO UNIVERSITY

Name of Contract: PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK

FOR RONGO UNIVERSITY TENDER NUMBER: RU/TSLB/009/2024-2025

Architect Name and Address: MESSRS. SKYLON DESIGNS LTD. OF P.O. BOX 26011-00100, NAIROBI

General Conditions of Contract

1 GENERAL PROVISIONS

1.1 Definitions

In this Contract, except where context otherwise requires, the following terms shall be interpreted as indicated below. Words indicating persons or parties include corporations and other legal entities, except where the context requires otherwise.

“Accepted Contract Amount” means the amount accepted in the Letter of Acceptance for the execution and completion of the Works and the remedying of any defects.

“Base Date” means a date 30 day prior to the submission of tenders.

“Bill of Quantities” means the priced and completed Bill of Quantities forming part of the tender.

“Completion Date” means the date of completion of the Works as certified by the Engineer.

“Contract Price” means the price defined in the contract and thereafter as adjusted in accordance with the provisions of the Contract.

“Contract” means the agreement entered into between the Procuring Entity and the Contractor as recorded in the Agreement Form and signed by the parties including all attachments and appendices thereto and all documents incorporated by reference therein to execute, complete, and maintain the Works.

“Contractor's Documents” means the calculations, computer programs and other software, progress reports, drawings, manuals, models and other documents of a technical nature (if any) supplied by the Contractor under the Contract.

“Contractor's Equipment” means all apparatus, machinery, vehicles and other things required for the execution and completion of the Works and the remedying of any defects. However, Contractor's Equipment excludes Temporary Works, Procuring Entity's Equipment (if any), Plant, Materials and any other things intended to form or forming part of the Permanent Works.

“Contractor's Personnel” means the Contractor's Representative and all personnel whom the Contractor utilizes on Site, who may include the staff, labor and other employees of the Contractor and of each Subcontractor; and any other personnel assisting the Contractor in the execution of the Works.

“Contractor's Representative” means the person named by the Contractor in the Contractor appointed from time to time by the Contractor who acts on behalf of the Contractor.

“Contractor” means the person(s) named as contractor in the Form of Tender accepted by the Procuring Entity.

“Cost” means expenditure reasonably incurred (or to be incurred) by the Contractor, whether on or off the Site, including overhead and similar charges, but does not include profit.

“Day” means a calendar day and **“year”** means 365 days.

“Dayworks” means Work inputs subject to payment on a time basis for labour and the associated materials and plant.

“Defect” means any part of the Works not completed in accordance with the Contract.

“Defects Liability Certificate” means the certificate issued by Architect upon correction of defects by the Contractor.

“Defects Liability Period” means the period named in the Special Conditions of Contract and calculated from the Completion Date, within which the contractor is liable for any defects that may develop in the handed over works.

“Defects Notification Period” means the period for notifying defects in the Works or a Section (as the case maybe) under Sub-Clause 11.1 [Completion of Outstanding Work and Remedying Defects], which extends over the days stated in the Special Conditions of Contract.

“Drawings” means the drawings of the Works, as included in the Contract, and any additional and modified drawings issued by (or on behalf of) the Procuring Entity in accordance with the Contract.

“Final Payment Certificate” means the payment certificate issued under Sub-Clause 14.13 [Issue of Final Payment Certificate].

“Final Statement” means the statement defined in Sub-Clause 14.11 [Application for Final Payment Certificate].

“Force Majeure” is defined in Clause 19 [Force Majeure].

“Foreign Currency” means a currency of another country (not Kenya) in which part (or all) of the Contract Price is payable, but not the Local Currency.

“Goods” means Contractor's Equipment, Materials, Plant and Temporary Works, or any of them as appropriate.

“Interim Payment Certificate” means a payment certificate issued under Clause 14 [Contract Price and Payment], other than the Final Payment Certificate.

“Laws” means all national legislation, statutes, ordinances, and regulations and by-laws of any legally constituted public authority.

“Letter of Acceptance” means the letter of formal acceptance of a tender, signed by Procuring Entity, including any annexed memoranda comprising agreements between and signed by both Parties.

“Local Currency” means the currency of Kenya.

“Materials” means things of all kinds (other than Plant) intended to form or forming part of the Permanent Works, including the supply-only materials (if any) to be supplied by the Contractor under the Contract.

“Notice of Dissatisfaction” means the notice given by either Party to the other under Sub-Clause 20.3 indicating its dissatisfaction and intention to commence arbitration.

“Special Conditions of Contract” means the pages completed by the Procuring Entity entitled Special Conditions of Contract which constitute Part A of the Special Conditions.

“Party” means the Procuring Entity or the Contractor, as the context requires.

“Payment Certificate” means a payment certificate issued under Clause 14 [Contract Price and Payment].

“Performance Certificate” means the certificate issued under Sub-Clause 11.9 [Performance Certificate].

“Performance Security” means the security (or securities, if any) under Sub-Clause 4.2 [Performance Security].

“Permanent Works” means the permanent works to be executed by the Contractor under the Contract.

“Plant” means the apparatus, machinery and other equipment intended to form or forming part of the Permanent Works, including vehicles purchased for the Procuring Entity and relating to the construction or operation of the Works.

“Procuring Entity's Equipment” means the apparatus, machinery and vehicles (if any) made available by the

Procuring Entity for the use of the Contract or in the execution of the Works, as stated in the Specification; but does not include Plant which has not been taken over by the Procuring Entity.

“Procuring Entity’s Personnel” means the Engineer, the Engineer, the assistants and all other staff, labor and other employees of the Architect and of the Procuring Entity; and any other personnel notified to the Contractor, by the Procuring Entity or the Engineer, as Procuring Entity’s Personnel.

“Procuring Entity” means the Entity named in the Special Conditions of Contract.

“Engineer” is the person named in the Appendix to Conditions of Contract (or any other competent person appointed by the Procuring Entity and notified to the Contractor, to act in replacement of the Engineer) who is responsible for supervising the execution of the Works and administering the Contract and shall be an “Architect” or a “Quantity Surveyor” registered under the Architects and Quantity Surveyors Act Cap 525 or an “Engineer” registered under Engineers Registration Act Cap 530.

“Engineer” means the person appointed by the Procuring Entity to act as the Architect for the purposes of the Contract and named in the Special Conditions of Contract, or other person appointed from time to time by the Procuring Entity and notified to the Contractor

“Provisional Sum” means a sum (if any) which is specified in the Contract as a provisional sum, for the execution of any part of the Works or for the supply of Plant, Materials or services under Sub-Clause 13.5 [Provisional Sums].

“Retention Money” means the accumulated retention moneys which the Procuring Entity retains under Sub-Clause 14.3 [Application for Interim Payment Certificates] and pays under Sub-Clause 14.9 [Payment of Retention Money].

“Schedules” means the document(s) entitled schedules, completed by the Contractor and submitted with the Form of Tender, as included in the Contract.

“Section” means a part of the Works specified in the Special Conditions of Contract as a Section (if any)

“Site Investigation Reports” are those reports that may be included in the tendering documents which a ref actual and interpretative about the surface and sub-surface condition sat the Site.

“Site” means the places where the Permanent Works are to be executed, including storage and working areas, and to which Plant and Materials are to be delivered, and any other places as may be specified in the Contract as forming part of the Site.

“Specification” means the document entitled specification, as included in the Contract, and any additions and modifications to the specification in accordance with the Contract. Such document specifies the Works.

“Start Date” or “Commencement Date” is the latest date when the Contractor shall commence execution of the Works. It does not necessarily coincide with the Site possession date(s).

“Statement” means a statement submitted by the Contractor as part of an application, under Clause 14 [Contract Price and Payment], for a payment certificate.

“Subcontractor” means any person named in the Contract as a subcontractor, or any person appointed as a subcontractor, for a part of the Works.

“Taking-Over Certificate” means a certificate issued under Clause 10 [Procuring Entity’s Taking Over].

“Temporary Works” means all temporary works of every kind (other than Contractor’s Equipment) required on Site for the execution and completion of the Permanent Works and the remedying of any defects.

“Temporary works” means works designed, constructed, installed, and removed by the Contractor which are needed for construction or installation of the Works.

“Tender” means the Form of Tender and all other documents which the Contractor submitted with the Form of Tender, as included in the Contract.

“Tests after Completion” means the tests (if any) which are specified in the Contract and which are carried out in

accordance with the Specification after the Works or a Section (as the case may be) are taken over by the Procuring Entity.

“Tests on Completion” means the tests which are specified in the Contractor agreed by both Parties or instructed as a Variation, and which are carried out under Clause 9 [Tests on Completion] before the Works or a Section (as the case may be) are taken over by the Procuring Entity.

“Time for Completion” means the time for completing the Works or a Section (as the case may be) as stated in the Special Conditions of Contract (with any extension calculated from the Commencement Date.

“Unforeseeable” means not reasonably foreseeable by an experienced contractor by the Base Date.

“Variation” means any change to the Works, which is instructed or approved as a variation under Clause 13 [Variations and Adjustments].

“Works” means the items the Procuring Entity requires the Contractor to undertake as defined in the Appendix to Conditions of Contract. **“Works”** may also mean the Permanent Works and the Temporary Works, or either of them as appropriate.

12 Interpretation

In the Contract, except where the context requires otherwise:

- a) Words indicating one gender include all genders;
- b) words indicating the singular also include the plural and words indicating the plural also include the singular;
- c) provisions including the word “agree”, “agreed” or “agreement” require the agreement to be recorded in writing;
- d) “written” or “in writing” means hand-written, type-written, printed or electronically made, and resulting in a permanent record; and

The marginal words and other headings shall not be taken into consideration in the interpretation of these Conditions.

13 Communications

131 Wherever these Conditions provide for the giving or issuing of approvals, certificates, consents, determinations, notices, requests and discharges, these communications shall be:

- a) In writing and delivered by hand (against receipt), sent by mail or courier, or transmitted using any of the agreed systems of electronic transmission as stated in the Special Conditions of Contract; and
- b) delivered, sent or transmitted to the address or the recipient's communications as stated in the Special Conditions of Contract. However:
 - i) if the recipient gives notice of another address, communications shall thereafter be delivered accordingly; and
 - ii) if the recipient has not stated otherwise when requesting an approval or consent, it may be sent to the address from which the request was issued.

132 Approvals, certificates, consents and determinations shall not be unreasonably withheld or delayed. When a certificate is issued to a Party, the certifier shall send a copy to the other Party. When a notice is issued to a Party, by the other Party or the Engineer, a copy shall be sent to the Architect or the other Party, as the case may be.

14 Law and Language

141 The Contract shall be governed by the laws of **Kenya**.

142 The ruling language of the Contract shall be **English**.

15 Priority of Documents

The documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents shall be in accordance with the following sequence:

- a) The Contract Agreement,
- b) The Letter of Acceptance,
- c) The Special Conditions – Part A,
- d) the Special Conditions – Part B
- e) the General Conditions of Contract
- f) the Form of Tender,
- g) the Specifications and Bills of Quantities
- h) the Drawings, and
- i) the Schedules and any other documents forming part of the Contract.

If an ambiguity or discrepancy is found in the documents, the Architect shall issue any necessary clarification or instruction.

16 Contract Agreement

The Parties shall enter into a Contract Agreement within 14 days after the Contractor receives the Contract Agreement, unless the Special Conditions establish otherwise. The Contract Agreement shall be based upon the form annexed to the Special Conditions. The costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the Contract Agreement shall be borne by the Procuring Entity.

17 Assignment

The Contractor shall not assign the whole or any part of the Contract or any benefit or interest in or under the Contract. However, the contractor:

- a) May as sign the whole or any part with the prior consent of the Procuring Entity, and
- b) may, as security in favor of a bank or financial institution, assign its right to moneys due, or to become due, under the Contract.

18 Care and Supply of Documents

- 181 The Specifications and Drawings shall be in the custody and care of the Procuring Entity. Unless otherwise stated in the Contract, two copies of the Contract and of each subsequent Drawings and Bills of Quantities shall be supplied to the Contractor, who may make or request further copies at the cost of the Contractor.
- 182 Each of the Contractor's Documents shall be in the custody and care of the Contractor, unless and until taken over by the Procuring Entity. Unless otherwise stated in the Contract, the Contractor shall supply to the Architect two copies of each of the Contractor's Documents.
- 183 The Contractor shall keep, on the Site, a copy of the Contract, publications named in the Specification, the Contractor's Documents (if any), the Drawings and Variations and other communications given under the Contract. The Procuring Entity's Personnel shall have the right of access to all these documents at all reasonable times.
- 184 If a Party becomes aware of an error or defect in a document which was prepared for use in executing the Works, the Party shall promptly give notice to the other Party of such error or defect.

19 Timely provision of Drawings or Instructions

- 191 The Contractor shall give notice to the Architect whenever the Works are likely to be delayed or disrupted if any necessary drawing or instruction is not issued to the Contractor within a particular time, which shall be reasonable. The notice shall include details of the necessary drawing or instruction, details of why and by when it should be issued, and the nature and amount of the delay or disruption likely to be suffered if it is late.
- 192 If the Contractor suffers delay and/or incurs Cost as a result of a failure of the Architect to issue the notified drawing or instruction within a time which is reasonable and is specified in the notice with supporting details, the Contractor shall give a further notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
 - a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

b) payment of any other associated costs accrued, which shall be included in the Contract Price.

193 After receiving this further notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

194 However, if and to the extent that the Architect failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time, or costs accrued.

1.10 Procuring Entity's Use of Contractor's Documents

1.10.1 As agreed between the Parties, the Contractor shall retain the copyright and other intellectual property rights in the Contractor's Documents and other design documents made by (or on behalf of) the Contractor.

1.10.2 The Contractor shall be deemed (by signing the Contract) to give to the Procuring Entity a non-terminable transferable non-exclusive royalty-free license to copy, use and communicate the Contractor's Documents, including making and using modifications of them. This license shall:

- a) apply throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works,
- b) entitle any person in proper possession of the relevant part of the Works to copy, use and communicate the Contractor's Documents for the purposes of completing, operating, maintaining, altering, adjusting, repairing and demolishing the Works, and
- c) in the case of Contractor's Documents which are in the form of computer programs and other software, permit their use on any computer on the Site and other places as envisaged by the Contract, including replacements of any computers supplied by the Contractor.

1.10.3 The Contractor's Documents and other design documents made by (or on behalf of) the Contractor shall not, without the Contractor's consent, be used, copied or communicated to a third party by (or on behalf of) the Procuring Entity for purposes other than those permitted under Sub-Clause 1.10.2.

1.11 Contractor's Use of Procuring Entity's Documents

As agreed between the Parties, the Procuring Entity shall retain the copyright and other intellectual property rights in the Specification, the Drawings and other documents made by (or on behalf of) the Procuring Entity. The Contractor may, at his cost, copy, use, and obtain communication of these documents for the purposes of the Contract. They shall not, without the Procuring Entity's consent, be copied, used or communicated to a third party by the Contractor, except as necessary for the purposes of the Contract.

1.12 Confidential Details

1.12.1 The Contractor's and the Procuring Entity's Personnel shall ensure confidentiality at all times. The confidentiality shall survive termination or completion of the contract. They shall disclose all such confidential and other information as may be reasonably required in order to verify compliance with the Contract and allow its proper implementation.

1.12.2 The Contractor's and the Procuring Entity's Personnel shall also treat the details of the Contract as private and confidential, except to the extent necessary to carry out their respective obligations under the Contract or to comply with applicable Laws. Each of them shall not publish or disclose any particulars of the Works prepared by the other Party without the previous agreement of the other Party. However, the Contractor shall be permitted to disclose any publicly available information, or information otherwise required to establish his qualifications to compete for other projects.

1.13 Compliance with Laws

The Contractor shall, in performing the Contract, comply with applicable Laws. Unless otherwise stated in the Special Conditions of Contract:

- a) The Procuring Entity shall have obtained (or shall obtain) the planning, zoning, building permit or similar permission for the Permanent Works, and any other permissions described in the Specifications as having been (or to be) obtained by the Procuring Entity; and the Procuring Entity shall indemnify and hold the Contractor harmless against and from the consequences of any failure

to do so; and

- b) the Contractor shall give all notices, pay all taxes, duties and fees, and obtain all permits, licenses and approvals, as required by the Laws in relation to the execution and completion of the Works and the remedying of any defects; and the Contractor shall indemnify and hold the Procuring Entity harmless against and from the consequences of any failure to do so, unless the Contractor is impeded to accomplish these actions and shows evidence of its diligence.

1.14 Joint and Several Liability

If the Contractor constitutes (under applicable Laws) a joint venture, consortium or other unincorporated grouping of two or more persons:

- a) These persons shall be deemed to be jointly and severally liable to the Procuring Entity for the performance of the Contract;
- b) these persons shall notify the Procuring Entity of their leader who shall have authority to bind the Contractor and each of these persons; and
- c) the Contractor shall not alter its composition or legal status without the prior consent of the Procuring Entity.

1.15 Inspections and Audit by the Procuring Entity

Pursuant to paragraph 2.2(e). of Appendix B to the General Conditions, the Contractor shall permit and shall cause its subcontractors and sub-consultants to permit, the Public Procurement Regulatory Authority, Procuring Entity and/or persons appointed or designated by the Government of Kenya to inspect the Site and/or the accounts and records relating to the procurement process, selection and/or contract execution, and to have such accounts and records audited by auditors appointed by the Procuring Entity if requested by the Procuring Entity. The Contractor's and its Subcontractors' and sub-consultants' attention is drawn to Sub-Clause 15.6 (Fraud and Corruption) which provides, inter alia, that acts intended to materially impede the exercise of the Procuring Entity's inspection and audit rights constitute a prohibited practice subject to contract termination (as well as to a determination of ineligibility pursuant to the Procuring Entity's prevailing sanctions procedures).

2 THE PROCURING ENTITY

2.1 Right of Access to the Site

- 2.1.1 The Procuring Entity shall give the Contractor right of access to, and possession of, all parts of the Site within the time (or times) stated in the **Special Conditions of Contract**. The right and possession may not be exclusive to the Contractor. If, under the Contract, the Procuring Entity is required to give (to the Contractor) possession of any foundation, structure, plant or means of access, the Procuring Entity shall do so in the time and manner stated in the Specification. However, the Procuring Entity may withhold any such right or possession until the Performance Security has been received.
- 2.1.2 If no such time is stated in the Special Conditions of Contract, the Procuring Entity shall give the Contractor right of access to, and possession of, the Site within such times as required to enable the Contractor to proceed without disruption in accordance with the programme submitted under Sub-Clause 8.3 [Programme].
- 2.1.3 If the Contractor suffers delay and/or incurs Cost as a result of a failure by the Procuring Entity to give any such right or possession within such time, the Contractor shall give notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
 - a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
 - b) payment of any such Cost-plus profit, which shall be included in the Contract Price.
- 2.1.4 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.
- 2.1.5 However, if and to the extent that the Procuring Entity's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time, Cost or profit.

22 Permits, Licenses or Approvals

- 22.1 The Procuring Entity shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to obtain properly:
- a) Copies of the Laws of Kenya which are relevant to the Contract but are not readily available, and
 - b) any permits, licenses or approvals required by the Laws of Kenya:
 - i) which the Contractor is required to obtain under Sub-Clause 1.13 [Compliance with Laws],
 - ii) for the delivery of Goods, including clearance through customs, and
 - iii) for the export of Contractor's Equipment when it is removed from the Site.

23 Procuring Entity's Personnel

The Procuring Entity shall be responsible for ensuring that the Procuring Entity's Personnel and the Procuring Entity's other contractor son the Site:

- a) co-operate with the Contractor's efforts under Sub-Clause 4.6 [Co-operation], and
- b) take action similar to those which the Contractor is required to take under sub-paragraphs (a), (b) and (c) of Sub-Clause 4.8 [Safety Procedures] and under Sub-Clause 4.18 [Protection of the Environment].

24 Procuring Entity's Financial Arrangements

The Procuring Entity shall make and maintain all necessary financial arrangements which will enable the Procuring Entity to pay the Contract Price punctually (as estimated at that time) in accordance with Clause14 [Contract Price and Payment].

3 THE ENGINEER

3.1 Architect Duties and Authority

- 3.1.1 The Procuring Entity shall appoint the Architect who shall carry out the duties as signed to him in the Contract. The Architect staff shall include suitably qualified Assistants and other professionals who are competent to carry out these duties. The Architect Name and Address shall be provided in the **Special Conditions of Contract**.
- 3.1.2 The Architect shall have no authority to amend the Contract.
- 3.1.3 The Architect May exercise the authority attributable to the Architect as specified in or necessarily to be implied from the Contract. If the Architect is required to obtain the approval of the Procuring Entity before exercising a specified authority, the requirements shall be as stated in the **Special Conditions of Contract**. The Procuring Entity shall promptly inform the Contractor of any change to the authority attributed to the Engineer.
- 3.1.4 However, whenever the Architect exercises a specified authority for which the Procuring Entity's approval is required, then (for the purposes of the Contract) the contractor shall require the Architect to provide evidence of such approval before complying with the instruction.
- 3.1.5 Except as otherwise stated in these Conditions:
- a) Whenever carrying out duties or exercising authority, specified in or implied by the Contract, the Architect shall be deemed to act for the Procuring Entity;
 - b) the Architect has no authority to relieve either Party of any duties, obligations or responsibilities under the Contract;
 - c) any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by the Architect (including absence of disapproval) shall not relieve the Contractor from any responsibility he has under the Contract, including responsibility for errors, omissions, discrepancies and non-compliances; and
 - d) any act by the Architect in response to a Contractor's request shall be notified in writing to the Contractor within 14 days of receipt.

3.16 The following provisions shall apply:

The Architect shall obtain the specific approval of the Procuring Entity before taking action under the following Sub-Clauses of these Conditions:

- a) Sub-Clause 4.12: agreeing or determining an extension of time and/or additional cost.
- b) Sub-Clause 13.1: instructing a Variation, except;
 - i) In an emergency situation as determined by the Engineer, or
 - ii) If such a Variation would increase the Accepted Contract Amount by less than the percentage specified in the **Special Conditions of Contract**.
- c) Sub-Clause 13.3: Approving a proposal for Variation submitted by the Contractor in accordance with Sub Clause 13.1 or 13.2.
- d) Sub-Clause 13.4: Specifying the amount payable in each of the applicable three currencies.

3.17 Notwithstanding the obligation, as set out above, to obtain approval, if, in the opinion of the Engineer, an emergency occurs affecting the safety of life or of the Works or of adjoining property, he may, without relieving the Contractor of any of his duties and responsibility under the Contract, instruct the Contractor to execute all such work or to do all such things as may, in the opinion of the Engineer, be necessary to abate or reduce the risk. The Contractor shall forth with comply, despite the absence of approval of the Procuring Entity, with any such instruction of the Engineer. The Architect shall determine an addition to the Contract Price, in respect of such instruction, in accordance with Clause 13 and shall notify the Contractor accordingly, with a copy to the Procuring Entity.

32 Delegation by the Engineer

3.21 The Architect may from time to time assign duties and delegate authority to assistants and may also revoke such assignment or delegation. These assistants may include a resident Engineer, and/or independent inspectors appointed to inspect and/ or test items of Plant and/or Materials. The assignment, delegation or revocation shall be in writing and shall not take effect until copies have been received by both Parties. However, unless otherwise agreed by both Parties, the Architect shall not delegate the authority to determine any matter in accordance with Sub-Clause 3.5 [Determinations].

3.22 Each assistant, to whom duties have been assigned or authority has been delegated, shall only be authorized to issue instructions to the Contractor to the extent defined by the delegation. Any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by an assistant, in accordance with the delegation, shall have the same effect as though the act had been an act of the Engineer. However:

- a) Any failure to disapprove any work, Plant or Materials shall not constitute approval, and shall therefore not prejudice the right of the Architect to reject the work, Plant or Materials;
- b) If the Contractor questions any determination or instruction of an assistant, the Contractor may refer the matter to the Engineer, who shall promptly confirm, reverse or vary the determination or instruction.

33 Instructions of the Engineer

3.31 The Architect may issue to the Contractor (at any time) instructions and additional or modified Drawings which may be necessary for the execution of the Works and the remedying of any defects, all in accordance with the Contract. The Contractor shall only take instructions from the Engineer, or from an assistant to whom the appropriate authority has been delegated under Clause 3.2.1.

3.32 The Contractor shall comply with the instructions given by the Architect or delegated assistant, on any matter related to the Contract. Whenever practicable, their instructions shall be given in writing. If the Architect or a delegated assistant:

- a) Gives an oral instruction,
- b) receives a written confirmation of the instruction, from (or on behalf of) the Contractor, within two working days after giving the instruction, and

- c) does not reply by issuing a written rejection and/or instruction within two working days after receiving the confirmation,

Then the confirmation shall constitute the written instruction of the Architect or delegated assistant (as the case may be).

34 Replacement of the Engineer

If the Procuring Entity intends to replace the Engineer, the Procuring Entity shall, in not less than 21 days before the intended date of replacement, give notice to the Contractor of the name, address and relevant experience of the intended person to replace the Engineer.

35 Determinations

- 35.1 Whenever these Conditions provide that the Architect shall proceed in accordance with this Sub-Clause 3.5 to agree or determine any matter, the Architect shall consult with each Party in an endeavor to reach agreement. If agreement is not achieved, the Architect shall make a fair determination in accordance with the Contract, taking due regard of all relevant circumstances.
- 3.5.1 The Architect shall give notice to both Parties of each agreed determination, with supporting particulars, within 30 days from the receipt of the corresponding claim or request except when otherwise specified. Each Party shall give effect to each agreement or determination unless and until revised under Clause 20 [Claims, Disputes and Arbitration].

4 THE CONTRACTOR

4.1 Contractor's General Obligations

- 4.1.1 The Contractor shall design (to the extent specified in the Contract), execute and complete the Works in accordance with the Contract and with the Architect instructions, and shall remedy any defects in the Works.
- 4.1.2 The Contractor shall provide the Plant and Contractor's Documents specified in the Contract, and all Contractor's Personnel, Goods, consumables and other things and services, whether of a temporary or permanent nature, required in and for this design, execution, completion and remedying of defects.
- 4.1.3 All equipment, material, and services to be incorporated in or required for the Works shall have their origin in any eligible source country.
- 4.1.4 The Contractor shall be responsible for the adequacy, stability and safety of all Site operations and of all methods of construction. Except to the extent specified in the Contract, the Contractor (i) shall be responsible for all Contractor's Documents, Temporary Works, and such design of each item of Plant and Materials as is required for the item to be in accordance with the Contract, and (ii) shall not otherwise be responsible for the design or specification of the Permanent Works.
- 4.1.5 The Contractor shall, whenever required by the Engineer, submit details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works. No significant alteration to these arrangements and methods shall be made without this having previously been notified to the Engineer.
- 4.1.6 If the Contract specifies that the Contractor shall design any part of the Permanent Works, then unless otherwise stated in the Special Conditions:
 - a) The Contractor shall submit to the Architect the Contractor's Documents for this part in accordance with the procedures specified in the Contract;
 - b) these Contractor's Documents shall be in accordance with the Specification and Drawings, shall be written in the language for communications defined in Sub-Clause 1.4 [Law and Language], and shall include additional information required by the Architect to add to the Drawings for co-ordination of each Party's designs;
 - c) the Contractor shall be responsible for this part and it shall, when the Works are completed, befit for such purposes for which the part is intended as are specified in the Contract; and
 - d) prior to the commencement of the Tests on Completion, the Contractor shall submit to the Architect the "as-built" documents and, if applicable, operation and maintenance manuals in accordance with the Specification and in sufficient detail for the Procuring Entity to operate, maintain, dismantle, reassemble, adjust and repair this part of the Works. Such part shall not be considered to be completed

for the purposes of taking-over under Sub-Clause 10.1 [Taking Over of the Works and Sections] until these documents and manuals have been submitted to the Engineer.

42 Performance Security

- 421 The Contractor shall obtain (at his cost) a Performance Security for proper performance, in the amount stated in the **Special Conditions of Contract** and denominated in the currency (ies) of the Contract or in a freely convertible currency acceptable to the Procuring Entity. If an amount is not stated in the Special Conditions of Contract, this Sub-Clause shall not apply.
- 422 The Contractor shall deliver the Performance Security to the Procuring Entity within 30 days after receiving the Notification of Award and shall send a copy to the Engineer. The Performance Security shall be issued by a reputable bank selected by the Contractor and shall be in the form annexed to the Special Conditions, as stipulated by the Procuring Entity in the Special Conditions of Contract, or in another form approved by the Procuring Entity.
- 423 The Contractor shall ensure that the Performance Security is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects. If the terms of the Performance Security specify its expiry date, and the Contractor has not become entitled to receive the Performance Certificate by the date 30 days prior to the expiry date, the Contractor shall extend the validity of the Performance Security until the Works have been completed and any defects have been remedied.
- 424 The Procuring Entity shall not make a claim under the Performance Security, except for amounts to which the Procuring Entity is entitled under the Contract.
- 425 The Procuring Entity shall indemnify and hold the Contractor harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from a claim under the Performance Security to the extent to which the Procuring Entity was not entitled to make the claim.
- 426 The Procuring Entity shall return the Performance Security to the Contractor within 14 days after receiving a copy of the Taking-Over Certificate.
- 427 Without limitation to the provisions of the rest of this Sub-Clause, whenever the Architect determines an addition or a reduction to the Contract Price as a result of a change in cost and/ or legislation, or as a result of a Variation, amounting to more than 25 percent of the portion of the Contract Price payable in a specific currency, the Contractor shall at the Architect request promptly increase, or may decrease, as the case may be, the value of the Performance Security in that currency by an equal percentage.

43 Contractor's Representative

- 431 The Contractor shall appoint the Contractor's Representative and shall give him all authority necessary to act on the Contractor's behalf under the Contract. The Contractor's Representative's Name and Address shall be provided in the **Special Conditions of Contract**.
- 432 Unless the Contractor's Representative **is named in the Contract**, the Contractor shall, prior to the Commencement Date, submit to the Architect for consent the name and particulars of the person the Contractor proposes to appoint as Contractor's Representative. If consent is withheld or subsequently revoked in terms of Sub-Clause 6.9 [Contractor's Personnel], or if the appointed person fails to act as Contractor's Representative, the Contractor shall similarly submit the name and particulars of another suitable person for such appointment.
- 433 The Contractor shall not, without the prior consent of the Engineer, revoke the appointment of the Contractor's Representative or appoint a replacement.
- 434 The whole time of the Contractor's Representative shall be given to directing the Contractor's performance of the Contract. If the Contractor's Representative is to be temporarily absent from the Site during the execution of the Works, a suitable replacement person shall be appointed, subject to the Architect prior consent, and the Architect shall be notified accordingly.
- 435 The Contractor's Representative shall, on behalf of the Contractor, receive instructions under Sub-Clause 3.3 [Instructions of the Engineer].
- 436 The Contractor's Representative may delegate any powers, functions and authority to any competent person, and may at any time revoke the delegation. Any delegation or revocation shall not take effect until the

Architect has received prior notice signed by the Contractor's Representative, naming the person and specifying the powers, functions and authority being delegated or revoked.

- 437 The Contractor's Representative shall be fluent in the language for communications defined in Sub-Clause 1.4 [Law and Language]. If the Contractor's Representative's delegates are not fluent in the said language, the Contractor shall make competent interpreters available during all working hours in a number deemed sufficient by the Engineer.

44 Sub-contractors

- 441 The Contractor shall not subcontract the whole of the Works. The contractor may however subcontract the works as provided in Clause 34.2.
- 442 The Contractor shall be responsible for the acts or defaults of any Subcontractor, his agents or employees, as if they were the acts or defaults of the Contractor. Unless otherwise stated in the Special Conditions:
- a) The Contractor shall not be required to obtain consent to suppliers solely of Materials, or to a subcontract for which the Subcontractor is named in the Contract;
 - b) The prior consent of the Procuring Entity shall be obtained to other proposed Subcontractors;
 - c) the Contractor shall give the Procuring Entity not less than 14 days' notice of the intended date of the commencement of each Subcontractor's work, and of the commencement of such work on the Site; and
 - d) each subcontract shall include provisions which would entitle the Procuring Entity to require the subcontract to be assigned to the Procuring Entity under Sub-Clause 4.5 [Assignment of Benefit of Subcontract] (if or when applicable) or in the event of termination under Sub-Clause 15.2 [Termination by Procuring Entity].
- 443 The Contractor shall ensure that the requirements imposed on the Contractor by Sub-Clause 1.12 [Confidential Details] apply equally to each Subcontractor.
- 444 Where practicable, the Contractor shall give fair and reasonable opportunity for contractors from Kenya to be appointed as Subcontractors.

45 Assignment of Benefit of Subcontract

If a Subcontractor's obligations extend beyond the expiry date of the relevant Defects Notification Period and the Engineer, prior to this date, instructs the Contractor to assign the benefit of such obligations to the Procuring Entity, then the Contractor shall do so. Unless otherwise stated in the assignment, the Contractor shall have no liability to the Procuring Entity for the work carried out by the Subcontractor after the assignment takes effect.

46 Co-operation

- 461 The Contractor shall, as specified in the Contract or as instructed by the Engineer, allow appropriate opportunities for carrying out work to:
- a) The Procuring Entity's Personnel,
 - b) Any other contractors employed by the Procuring Entity, and
 - c) The personnel of any legally constituted public authorities, who may be employed in the execution on or near the Site of any work not included in the Contract.
- 462 Any such instruction shall constitute a Variation if and to the extent that it causes the Contractor to suffer delays and/or to incur Unforeseeable Cost. Services for these personnel and other contractors may include the use of Contractor's Equipment, Temporary Works or access arrangements which are the responsibility of the Contractor.
- 463 If, under the Contract, the Procuring Entity is required to give to the Contractor possession of any foundation, structure, plant or means of access in accordance with Contractor's Documents, the Contractor shall submit such documents to the Architect in the time and manner stated in the Specification.

47 Setting Out of the Works

- 47.1 The Contractor shall set out the Works in relation to original points, lines and levels of reference specified

in the Contractor notified by the Engineer. The Contractor shall be responsible for the correct positioning of all parts of the Works, and shall rectify any error in the positions, levels, dimensions or alignment of the Works.

- 4.7.2 The Procuring Entity shall be responsible for any errors in these specified or notified items of reference, but the Contractor shall use reasonable efforts to verify their accuracy before they are used.
- 4.7.3 If the Contractor suffers delay and/or incurs Cost from executing work which was necessitated by an error in these items of reference, and an experienced contractor could not reasonably have discovered such error and avoided this delay and/or Cost, the Contractor shall give notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
 - b) payment of any such costs accrued, which shall be included in the Contract Price.
- 4.7.4 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) whether and (if so) to what extent the error could not reasonably have been discovered, and (ii) the matters described in sub-paragraphs (a) and (b) above related to these.

48 Safety Procedures

The Contractor shall:

- a) Comply with all applicable safety regulations,
- b) Take care for the safety of all persons entitled to be on the Site,
- c) Use reasonable efforts to keep the Site and Works clear of unnecessary obstruction so as to avoid danger to these persons,
- d) provide fencing, lighting, guarding and watching of the Works until completion and taking over under Clause 10 [Procuring Entity's Taking Over], and
- e) provide any Temporary Works (including roadways, footways, guards and fences) which may be necessary, because of the execution of the Works, for the use and protection of the public and of owners and occupiers of adjacent land.

49 Quality Assurance

- 4.9.1 The Contractor shall institute a quality assurance system to demonstrate compliance with the requirements of the Contract. The system shall be in accordance with the details stated in the Contract. The Architect shall be entitled to audit any aspect of the system.
- 4.9.2 Details of all procedures and compliance documents shall be submitted to the Architect for information before each design and execution stage is commenced. When any document of a technical nature is issued to the Engineer, evidence of the prior approval by the Contractor itself shall be apparent on the document itself.

Compliance with the quality assurance system shall not relieve the Contractor of any of his duties, obligations or responsibilities under the Contract.

410 Site Data

- 4.10.1 The Procuring Entity shall have made available to the Contractor for his information, prior to the Base Date, all relevant data in the Procuring Entity's possession on sub-surface and hydrological conditions at the Site, including environmental aspects. The Procuring Entity shall similarly make available to the Contractor all such data which come into the Procuring Entity's possession after the Base Date. The Contractor shall be responsible for interpreting all such data.
- 4.10.2 To the extent which was practicable (taking account of cost and time), the Contractor shall be deemed to have obtained all necessary information as to risks, contingencies and other circumstances which may influence or affect the Tender or Works. To the same extent, the Contractor shall be deemed to have inspected and examined the Site, its surroundings, the above data and other available information, and to have been satisfied before submitting the Tender as to all relevant matters, including (without limitation):
- a) The form and nature of the Site, including sub-surface conditions,

- b) the hydrological and climatic conditions,
- c) the extent and nature of the work and Goods necessary for the execution and completion of the Works and the remedying of any defects,
- d) the Laws, procedures and labour practices of Kenya, and
- e) the Contractor's requirements for access, accommodation, facilities, personnel, power, transport, water and other services.

411 Sufficiency of the Accepted Contract Amount

411.1 The Contractor shall be deemed to:

- a) Have satisfied itself as to the correctness and sufficiency of the Accepted Contract Amount, and
- b) have based the Accepted Contract Amount on the data, interpretations, necessary information, inspections, examinations and satisfaction as to all relevant matters referred to in Sub-Clause 4.10 [Site Data].

411.2 Unless otherwise stated in the Contract, the Accepted Contract Amount covers all the Contractor's obligations under the Contract (including those under Provisional Sums, if any) and all things necessary for the proper execution and completion of the Works and the remedying of any defects.

412 Unforeseeable Physical Conditions

412.1 In this Sub-Clause, "physical conditions" means natural physical conditions and man-made and other physical obstructions and pollutants, which the Contractor encounters at the Site when executing the Works, including sub-surface and hydrological conditions but excluding climatic conditions.

412.2 If the Contractor encounters adverse physical conditions which he considers to have been Unforeseeable, the Contractor shall give notice to the Architect as soon as practicable.

412.3 This notice shall describe the physical conditions, so that they can be inspected by the Architect and shall set out the reasons why the Contractor considers them to be Unforeseeable. The Contractor shall continue executing the Works, using such proper and reasonable measures as are appropriate for the physical conditions, and shall comply with any instructions which the Architect may give. If an instruction constitutes a Variation, Clause 13 [Variations and Adjustments] shall apply.

412.4 If and to the extent that the Contractor encounters physical conditions which are Unforeseeable, gives such a notice, and suffers delay and/or incurs Cost due to these conditions, the Contractor shall be entitled subject to notice under Sub-Clause 20.1 [Contractor's Claims] to:

- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- b) payment of any such Cost, which shall be included in the Contract Price.

412.5 Upon receiving such notice and inspecting and/or investigating these physical conditions, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) whether and (if so) to what extent these physical conditions were Unforeseeable, and (ii) the matters described in sub-paragraphs (a) and (b) above related to this extent.

412.6 However, before additional Cost is finally agreed or determined under sub-paragraph (ii), the Architect may also review whether other physical conditions in similar parts of the Works (if any) were more favorable than could reasonably have been foreseen when the Contractor submitted the Tender. If and to the extent that these more favorable conditions were encountered, the Architect may proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the reductions in Cost which were due to these conditions, which may be included (as deductions) in the Contract Price and Payment Certificates. However, the net effect of all adjustments under sub-paragraph (b) and all these reductions, for all the

physical conditions encountered in similar parts of the Works, shall not result in a net reduction in the Contract Price.

- 4.12.7 The Architect shall take account of any evidence of the physical conditions foreseen by the Contractor when submitting the Tender, which shall be made available by the Contractor, but shall not be bound by the Contractor's interpretation of any such evidence.

4.13 Rights of Way and Facilities

Unless otherwise specified in the Contract the Procuring Entity shall provide effective access to and possession of the Site including special and/or temporary rights-of-way which are necessary for the Works. The Contractor shall obtain, at his risk and cost, any additional rights of way or facilities outside the Site which he may require for the purposes of the Works.

4.14 Avoidance of Interference

- 4.14.1 The Contractor shall not interfere unnecessarily or improperly with:
- a) The convenience of the public, or
 - b) The access to and use and occupation of all roads and foot paths, irrespective of whether they are public or in the possession of the Procuring Entity or of others.
- 4.14.2 The Contractor shall indemnify and hold the Procuring Entity harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from any such unnecessary or improper interference.

4.15 Access Route

- 4.15.1 The Contractor shall be deemed to have been satisfied as to the suitability and availability of access routes to the Site at Base Date. The Contractor shall use reasonable efforts to prevent any road or bridge from being damaged by the Contractor's traffic or by the Contractor's Personnel. These efforts shall include the proper use of appropriate vehicles and routes.
- 4.15.2 Except as otherwise stated in these Conditions:
- a) The Contractor shall (as between the Parties) be responsible for any maintenance which may be required for his use of access routes;
 - b) the Contractor shall provide all necessary signs or directions along access routes, and shall obtain any permission which may be required from the relevant authorities for his use of routes, signs and directions;
 - c) the Procuring Entity shall not be responsible for any claims which may arise from the use or otherwise of any access route;
 - d) the Procuring Entity does not guarantee the suitability or availability of particular access routes; and
 - e) Costs due to non-suitability or non-availability, for the use required by the Contractor, of access routes shall be borne by the Contractor.

4.16 Transport of Goods

Unless otherwise stated in the Special Conditions:

- a) the Contractor shall give the Architect not less than 21 days' notice of the date on which any Plant or a major item of other Goods will be delivered to the Site;
- b) the Contractor shall be responsible for packing, loading, transporting, receiving, unloading, storing and protecting all Goods and other things required for the Works; and
- c) the Contractor shall indemnify and hold the Procuring Entity harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from the transport of Goods and shall negotiate and pay all claims arising from their transport.

4.17 Contractor's Equipment

The Contractor shall be responsible for all Contractor's Equipment. When brought on to the Site,

Contractor's Equipment shall be deemed to be exclusively intended for the execution of the Works. The Contractor shall not remove from the Site any major items of Contractor's Equipment without the consent of the Engineer. However, consent shall not be required for vehicles transporting Goods or Contractor's Personnel off Site.

418 Protection of the Environment

- 418.1 The contractor shall comply with the applicable environmental laws, regulations and policies.
- 418.2 The Contractor shall take all reasonable steps to protect the environment (both on and off the Site) and to limit damage and nuisance to people and property resulting from pollution, noise and other results of his operations.
- 418.3 The Contractors shall ensure that emissions, surface discharges and effluent from the Contractor's activities shall not exceed the values stated in the Specification or prescribed by applicable Laws.

419 Electricity, Water and Gas

- 419.1 The Contractor shall, except as stated below, be responsible for the provision of all power, water and other services he may require for his construction activities and to the extent defined in the Specifications, for the tests.
- 419.2 The Contractor shall be entitled to use for the purposes of the Works such supplies of electricity, water, gas and other services as may be available on the Site and of which details and prices are given in the Specifications. The Contractor shall, at his risk and cost, provide any apparatus necessary for his use of these services and for measuring the quantities consumed.
- 419.3 The quantities consumed and the amounts due (at these prices) for such services shall be agreed or determined by the Architect in accordance with Sub-Clause 2.5 [Procuring Entity's Claims] and Sub-Clause 3.5 [Determinations]. The Contractor shall pay these amounts to the Procuring Entity.

420 Procuring Entity's Equipment and Free-Issue Materials

- 420.1 The Procuring Entity shall make the Procuring Entity's Equipment (if any) available for the use of the Contractor in the execution of the Works in accordance with the details, arrangements and prices stated in the Specification. Unless otherwise stated in the Specification:
 - a) The Procuring Entity shall be responsible for the Procuring Entity's Equipment, except that
 - b) the Contractor shall be responsible for each item of Procuring Entity's Equipment whilst any of the Contractor's Personnel is operating it, driving it, directing it or in possession or control of it.
- 420.1 The appropriate quantities and the amounts due (at such stated prices) for the use of Procuring Entity's Equipment shall be agreed or determined by the Architect in accordance with Sub-Clause 2.5 [Procuring Entity's Claims] and Sub-Clause 3.5 [Determinations]. The Contractor shall pay these amounts to the Procuring Entity.
- 420.2 The Procuring Entity shall supply, free of charge, the "free-issue materials" (if any) in accordance with the details stated in the Specification. The Procuring Entity shall, at his risk and cost, provide these materials at the time and place specified in the Contract. The Contractor shall then visually inspect them and shall promptly give notice to the Architect of any shortage, defect or default in these materials. Unless otherwise agreed by both Parties, the Procuring Entity shall immediately rectify the notified shortage, defect or default.
- 420.3 After this visual inspection, the free-issue materials shall come under the care, custody and control of the Contractor. The Contractor's obligations of inspection, care, custody and control shall not relieve the Procuring Entity of liability for any shortage, defect or default not apparent from a visual inspection.

421 Progress Reports

- 421.1 Unless otherwise stated in the Special Conditions, monthly progress reports shall be prepared by the

Contractor and submitted to the Architect in six copies. The first report shall cover the period up to the end of the first calendar month following the Commencement Date. Reports shall be submitted monthly thereafter, each within 7 days after the last day of the period to which it relates.

4212 Reporting shall continue until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works. Each report shall include:

- a) charts and detailed descriptions of progress, including each stage of design (if any), Contractor's Documents, procurement, manufacture, delivery to Site, construction, erection and testing; and including these stages for work by each nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]),
- b) photographs showing the status of manufacture and of progress on the Site;
- c) for the manufacture of each main item of Plant and Materials, the name of the manufacturer, manufacture location, percentage progress, and the actual or expected dates of:
 - i) commencement of manufacture,
 - ii) Contractor's inspections,
 - iii) tests, and
 - iv) shipment and arrival at the Site;
- d) the details described in Sub-Clause 6.10 [Records of Contractor's Personnel and Equipment];
- e) copies of quality assurance documents, test results and certificates of Materials;
- f) list of notices given under Sub-Clause 2.5 [Procuring Entity's Claims] and notices given under Sub-Clause 20.1 [Contractor's Claims];
- g) safety statistics, including details of any hazardous incidents and activities relating to environmental aspects and public relations; and
- h) comparison so factual and planned progress, with details of any events or circumstances which may jeopardize the completion in accordance with the Contract, and the measures being (or to be) adopted to overcome delays.

422 Security of the Site

Unless otherwise stated in the Special Conditions:

- a) The Contractor shall be responsible for keeping unauthorized persons off the Site, and
- b) authorized persons shall be limited to the Contractor's Personnel and the Procuring Entity's Personnel; and to any other personnel notified to the Contractor, by the Procuring Entity or the Engineer, as authorized personnel of the Procuring Entity's other contractors on the Site.

423 Contractor's Operations on Site

4231 The Contractor shall confine his operations to the Site, and to any additional areas which may be obtained by the Contractor and agreed by the Architect as additional working areas. The Contractor shall take all necessary precautions to keep Contractor's Equipment and Contractor's Personnel within the Site and these additional areas, and to keep them off adjacent land.

4232 During the execution of the Works, the Contractor shall keep the Site free from all unnecessary obstruction and shall store or dispose of any Contractor's Equipment or surplus materials. The Contractor shall clear away and remove from the Site any wreckage, rubbish and Temporary Works which are no longer required.

4233 Upon the issue of a Taking-Over Certificate, the Contractor shall clear away and remove, from that part of the Site and Works to which the Taking-Over Certificate refers, all Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works. The Contractor shall leave that part of the Site and the Works in a clean and safe condition. However, the Contractor may retain on Site, during the Defects Notification Period, such Goods as are required for the Contractor to fulfil obligations under the Contract.

424 Fossils

4241 All fossils, coins, articles of value or antiquity, and structures and other remains or items of geological or archaeological interest found on the Site shall be placed under the care and authority of the Procuring Entity.

The Contractor shall take reasonable precautions to prevent Contractor's Personnel or other persons from removing or damaging any of these findings.

4242 The Contractor shall, upon discovery of any such finding, promptly give notice to the Engineer, who shall issue instructions for dealing with it. If the Contractor suffers delay and/or incurs Cost from complying with the instructions, the Contractor shall give a further notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
 - b) payment of any such Cost, which shall be included in the Contract Price.
- After receiving this further notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

5 NOMINATED SUBCONTRACTORS

5.1 Definition of “nominated Subcontractor”

In this Contract, “nominated Subcontractor” means a Subcontractor:

- a) Who is nominated by the Procuring Entity, or
- b) Contractor has nominated as a Subcontractor subject to Sub-Clause 5.2 [Objection to Notification].

5.2 Objection to Nomination

The Contractor shall not be under any obligation to employ a nominated Subcontractor against whom the Contractor raises reasonable objection by notice to the Procuring Entity as soon as practicable, with supporting particulars. An objection shall be deemed reasonable if it arises from (among other things) any of the following matters, unless the Procuring Entity agrees in writing to indemnify the Contractor against and from the consequences of the matter:

- a) there are reasons to believe that the Subcontractor does not have sufficient competence, resources or financial strength;
- b) the nominated Subcontractor does not accept to indemnify the Contractor against and from any negligence or misuse of Goods by the nominated Subcontractor, his agents and employees; or
- c) the nominated Subcontractor does not accept to enter into a subcontract which specifies that, for the subcontracted work (including design, if any), the nominated Subcontractor shall:
 - i) undertake to the Contractor such obligations and liabilities as will enable the Contractor to discharge his obligations and liabilities under the Contract;
 - ii) indemnify the Contractor against and from all obligations and liabilities arising under or in connection with the Contract and from the consequences of any failure by the Subcontractor to perform these obligations or to fulfil these liabilities, and
 - iii) be paid only if and when the Contractor has received from the Procuring Entity payments for sums due under the Subcontract referred to under Sub-Clause 5.3 [Payment to nominated Subcontractors].

5.3 Payments to nominated Subcontractors

The Contractor shall pay to the nominated Subcontractor the amounts shown on the nominated Subcontractor's invoices approved by the Contractor which the Architect certifies to be due in accordance with the subcontract. These amounts plus other charges shall be included in the Contract Price in accordance with sub-paragraph (b) of Sub-Clause 13.5 [Provisional Sums], except as stated in Sub-Clause 5.4 [Evidence of Payments].

5.4 Evidence of Payments

54.1 Before issuing a Payment Certificate which includes an amount payable to a nominated Subcontractor, the Architect may request the Contractor to supply reasonable evidence that the nominated Subcontractor has received all amounts due in accordance with previous Payment Certificates, less applicable deductions for retention or otherwise. Unless the Contractor:

- (a) Submits this reasonable evidence to the Engineer, or
- (b) i) Satisfies the Architect in writing that the Contractor is reasonably entitled to withhold or refuse to pay these amounts, and

- ii) Submits to the Architect reasonable evidence that the nominated Subcontractor has been notified of the Contractor's entitlement, then the Procuring Entity may (at his sole discretion) pay, direct to the nominated Subcontractor, part or all of such amounts previously certified (less applicable deductions) as are due to the nominated Subcontractor and for which the Contractor has failed to submit the evidence described in sub-paragraphs (a) or (b) above. The Contractor shall then repay, to the Procuring Entity, the amount which the nominated Subcontractor was directly paid by the Procuring Entity.

6 STAFF AND LABOR

6.1 Engagement of Staff and Labor

Except as otherwise stated in the Specification, the Contractor shall make arrangements for the engagement of all staff and labor, local or otherwise, and for their payment, feeding, transport, and, when appropriate, housing. The Contractor is encouraged, to the extent practicable and reasonable, to employ staff and labor with appropriate qualifications and experience from sources within Kenya.

6.2 Rates of Wages and Conditions of Labor

6.2.1 The Contractor shall pay rates of wages, and observe conditions of labor, which are not lower than those established for the trade or industry where the work is carried out. If no established rates or conditions are applicable, the Contractor shall pay rates of wages and observe conditions which are not lower than the general level of wages and conditions observed locally by Procuring Entity's whose trade or industry is similar to that of the Contractor.

6.2.2 The Contractor shall inform the Contractor's Personnel about their liability to pay personal income taxes in Kenya in respect of such of their salaries, wages, allowances and any benefits as are subject to tax under the Laws of Kenya for the time being in force, and the Contractor shall perform such duties in regard to such deductions there of as may be imposed on him by such Laws.

6.3 Persons in the Service of Procuring Entity

The Contractor shall not recruit, or attempt to recruit, staff and labour from amongst the Procuring Entity's Personnel.

6.4 Labour Laws

The Contractor shall comply with all the relevant labour Laws applicable to the Contractor's Personnel, including Laws relating to their employment, employment of children, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights. The Contractor shall require his employees to obey all applicable Laws, including those concerning safety at work.

6.5 Working Hours

No work shall be carried out on the Site on locally recognized days of rest, or outside the normal working hours stated in the **Special Conditions of Contract**, unless:

- a) Otherwise stated in the Contract,
- b) The Architect gives consent, or
- c) The work is unavoidable, or necessary for the protection of life or property or for the safety of the Works, in which case the Contractor shall immediately advise the Engineer, provided that work done outside the normal working hours shall be considered and paid for as overtime.

6.6 Facilities for Staff and Labor

Except as otherwise stated in the Specification, the Contractor shall provide and maintain all necessary accommodation and welfare facilities on site for the Contractor's Personnel. The Contractor shall also provide facilities for the Procuring Entity's Personnel as stated in the Specifications. The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works.

6.7 Health and Safety

- 67.1 The Contractor shall at all times take all reasonable precautions to maintain the health and safety of the Contractor's Personnel. In collaboration with local health authorities, the Contractor shall ensure that medical staff, first aid facilities, sick bay and ambulance service are available at all times at the Site and at any accommodation for Contractor's and Procuring Entity's Personnel, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics.
- 67.2 The Contractor shall appoint an accident prevention officer at the Site, responsible for maintaining safety and protection against accidents. This person shall be qualified for this responsibility and shall have the authority to issue instructions and take protective measures to prevent accidents. Throughout the execution of the Works, the Contractor shall provide whatever is required by this person to exercise this responsibility and authority.
- 67.3 The Contractor shall send, to the Engineer, details of any accident as soon as practicable after its occurrence. The Contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the Architect may reasonably require.
- 67.4 The Contractor shall conduct an awareness programme on HIV and other sexually transmitted diseases via an approved service provider and shall undertake such other measures taken to reduce the risk of the transfer of these diseases between and among the Contractor's Personnel and the local community, to promote early diagnosis and to assist affected individuals.

68 Contractor's Superintendence

- 68.1 Throughout the execution of the Works, and as long thereafter as is necessary to fulfil the Contractor's obligations, the Contractor shall provide all necessary super intendence to plan, arrange, direct, manage, inspect and test the work.
- 68.2 Superintendence shall be given by a sufficient number of persons having adequate knowledge of the language for communications (defined in Sub-Clause 1.4 [Law and Language]) and of the operations to be carried out (including the methods and techniques required, the hazards likely to be encountered and methods of preventing accidents), for the satisfactory and safe execution of the Works.

69 Contractor's Personnel

- 69.1 The Contractor's Personnel shall be appropriately qualified, skilled and experienced in their respective trades or occupations. The Contractors Key personnel shall be named in the Special Conditions of Contract. The Architect may require the Contractor to remove (or cause to be removed) any person employed on the Site or Works, including the Contractor's Representative if applicable, who:
- a) Persists in any misconduct or lack of care,
 - b) Carries out duties in competently or negligently,
 - c) fails to conform with any provisions of the Contract,
 - d) persists in any conduct which is prejudicial to safety, health, or the protection of the environment, or
 - e) based on reasonable evidence, is determined to have engaged in Fraud and Corruption during the execution of the Works.
- 69.2 If appropriate, the Contractor shall then appoint (or cause to be appointed) a suitable replacement person.

610 Records of Contractor's Personnel and Equipment

The Contractor shall submit, to the Engineer, details showing the number of each class of Contractor's Personnel and of each type of Contractor's Equipment on the Site. Details shall be submitted each calendar month, in a form approved by the Engineer, until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works.

611 Disorderly Conduct

The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst the Contractor's Personnel, and to preserve peace and protection of persons and property on and near the Site.

612 Foreign Personnel

- 6.12.1 The Contractor shall not employ foreign personnel unless the contractor demonstrates that there are no Kenyans with the required skills.
- 6.12.2 The Contractor shall be responsible for the return of any foreign personnel to the place where they were recruited or to their domicile. In the event of the death in Kenya of any of these personnel or members of their families, the Contractor shall similarly be responsible for making the appropriate arrangements for their return or burial.
- 6.13 Supply of Water**
- The Contractor shall, having regard to local conditions, provide on the Site an adequate supply of drinking and other water for the use of the Contractor's Personnel.
- 6.14 Measures against Insect and Pest Nuisance**
- The Contractor shall at all times take the necessary precautions to protect the Contractor's Personnel employed on the Site from insect and pest nuisance, and to reduce the danger to their health. The Contractor shall comply with all the regulations of the local health authorities, including use of appropriate insecticide.
- 6.15 Alcoholic Liquor or Drugs**
- The Contractor shall not, otherwise than in accordance with the Laws of Kenya, onsite, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or allow importation, sale, gift, barter or disposal thereof by Contractor's Personnel.
- 6.16 Prohibition of Forced or Compulsory Labour**
- The Contractor shall not employ forced labor, which consists of any work or service, not voluntarily performed, that is exacted from an individual under threat of force or penalty, and includes any kind of involuntary or compulsory labor, such as indentured labor, bonded labor or similar labor-contracting arrangements.
- 6.17 Prohibition of Harmful Child Labor**
- The Contractor shall not employ children in a manner that is economically exploitative, or is likely to be hazardous, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development. Where the relevant labour laws of Kenya have provisions for employment of minors, the Contractor shall follow those laws applicable to the Contractor. Children below the age of 18 years shall not be employed in dangerous work.
- 6.18 Employment Records of Workers**
- The Contractor shall keep complete and accurate records of the employment of labour at the Site. The records shall include the names, ages, genders, hours worked and wages paid to all workers. These records shall be summarized on a monthly basis and submitted to the Engineer. These records shall be included in the details to be submitted by the Contractor under Sub-Clause 6.10 [Records of Contractor's Personnel and Equipment].
- 6.19 Workers' Organizations**
- The Contractor shall comply with the relevant labor laws that recognize workers' rights to form and to join workers' organizations of their choosing without interference.
- 6.20 Non-Discrimination and Equal Opportunity**
- The Contractor shall base the labour employment on the principle of equal opportunity and fair treatment and shall not discriminate with respect to aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, promotion, termination of employment, retirement, and discipline.

7. PLANT, MATERIALS AND WORKMANSHIP

7.1 Manner of Execution

The Contractor shall carry out the manufacture/assemble of plant, the production and manufacture of Materials, and all other execution of the Works:

- a) In the manner (if any) specified in the Contract,
- b) in a proper workman like and careful manner, in accordance with recognized good practice, and
- c) with properly equipped facilities and non-hazardous Materials, except as otherwise specified in the Contract.

7.2 Samples

The Contractor shall submit the following samples of Materials, and relevant information, to the Architect for consent prior to using the Material sin or for the Works:

- a) manufacturer's standard samples of Materials and samples specified in the Contract, all at the Contractor's cost, and
- b) additional samples instructed by the Architect as a Variation.

Each sample shall be labeled as to origin and intended use in the Works.

7.3 Inspection

7.3.1 The Procuring Entity's Personnel shall at all reasonable times:

- a) Have full access to all parts of the Site and to all places from which natural Materials are being obtained, and
- b) during production, manufacture and construction (at the Site and elsewhere), be entitled to examine, inspect, measure and test the materials and workmanship, and to check the progress of manufacture of Plant and production and manufacture of Materials.

7.3.2 The Contractor shall give the Procuring Entity's Personnel full opportunity to carry out these activities, including providing access, facilities, permissions and safety equipment. No such activity shall relieve the Contractor from any obligation or responsibility.

7.3.3 The Contractor shall give notice to the Architect whenever any work is ready and before it is covered up, put out of sight, or packaged for storage or transport. The Architect shall then either carry out the examination, inspection, measurement or testing without unreasonable delay, or promptly give notice to the Contractor that the Architect does not require to do so. If the Contractor fails to give the notice, he shall, if and when required by the Engineer, uncover the work and there after reinstate and make good, all at the Contractor's cost.

7.4 Testing

7.4.1 This Sub-Clause shall apply to all tests specified in the Contract.

7.4.2 Except as otherwise specified in the Contract, the Contractor shall provide all apparatus, assistance, documents and other information, electricity, equipment, fuel, consumables, instruments, labor, materials, and suitably qualified and experienced staff, as are necessary to carry out the specified tests efficiently. The Contractor shall agree, with the Engineer, the time and place for the specified testing of any Plant, Materials and other parts of the Works.

7.4.3 The Architect may, under Clause 13 [Variations and Adjustments], vary the location or details of specified tests, or instruct the Contractor to carry out additional tests. If these varied or additional tests show that the tested Plant, Materials or workmanship is not in accordance with the Contract, the cost of carrying out this Variation shall be borne by the Contractor, notwithstanding other provisions of the Contract.

7.4.4 The Architect shall give the Contractor not less than 24 hours' notice of the Architect intention to attend the tests. If the Architect does not attend at the time and place agreed, the Contractor may proceed with the tests, unless otherwise instructed by the Engineer, and the tests shall then be deemed to have been made in the Architect presence.

7.4.5 If the Contractor suffers delay and/ or incurs Cost from complying with these instructions or as a result of a delay for which the Procuring Entity is responsible, the Contractor shall give notice to the Architect and

shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- b) payment of any such Cost-plus profit, which shall be included in the Contract Price.

746 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

747 The Contractor shall promptly forward to the Architect duly certified reports of the tests. When the specified tests have been passed, the Architect shall endorse the Contractor's test certificate, or issue a certificate to him, to that effect. If the Architect has not attended the tests, he shall be deemed to have accepted the readings as accurate.

75 Rejection

751 If, as a result of an examination, inspection, measurement or testing, any Plant, Materials or workmanship is found to be defective or otherwise not in accordance with the Contract, the Architect may reject the Plant, Materials or workmanship by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the defect and ensure that the rejected item complies with the Contract.

752 If the Architect requires this Plant, Materials or workmanship to be retested, the tests shall be repeated under the same terms and conditions. If the rejection and retesting cause the Procuring Entity to incur additional costs, the Contractor shall subject to Sub-Clause 2.5 [Procuring Entity's Claims] pay these costs to the Procuring Entity.

76 Remedial Work

761 Notwithstanding any previous test or certification, the Architect may instruct the Contractor to:

- a) Remove from the Site and replace any Plant or Materials which is not in accordance with the Contract,
- b) remove and re-execute any other work which is not in accordance with the Contract, and
- c) execute any work which is urgently required for the safety of the Works, whether because of an accident, unforeseen able event or otherwise.

762 The Contractor shall comply with the instruction within a reasonable time, which shall be the time (if any) specified in the instruction, or immediately if urgency is specified under sub-paragraph (c).

763 If the Contractor fails to comply with the instruction, the Procuring Entity shall be entitled to employ and pay other persons to carry out the work. Except to the extent that the Contractor would have been entitled to payment for the work, the Contractor shall subject to Sub-Clause 2.5 [Procuring Entity's Claims] pay to the Procuring Entity all costs arising from this failure.

764 If the contractor repeatedly delivers defective work, the Procuring Entity may consider termination in accordance with Clause 15.

77 Ownership of Plant and Materials

Except as otherwise provided in the Contract, each item of Plant and Materials shall become the property of the Procuring Entity at whichever is the earlier of the following times, free from liens and other encumbrances:

- a) When it is incorporated in the Works;
- b) when the Contractor is paid the corresponding value of the Plant and Materials under Sub-Clause 8.10 [Payment for Plant and Materials in Event of Suspension].

78 Royalties

Unless otherwise stated in the Specification, the Contractor shall pay all royalties, rents and other payments for:

- a) Natural materials obtained from outside the Site, and
- b) The disposal of material from demolitions and excavations and of other surplus material (whether natural or man-made), except to the extent that disposal are as within the Site are specified in the Contract.

8 COMMENCEMENT, DELAYS AND SUSPENSION

8.1 Commencement of Works

8.1.1 Except as otherwise specified in the Special Conditions of Contract, the Commencement Date shall be the date at which the following precedent conditions have all been fulfilled and the Architect notification recording the agreement of both Parties on such fulfilment and instructing to commence the Work is received by the Contractor:

- a) Signature of the Contract Agreement by both Parties, and if required, approval of the Contract by relevant authorities of Kenya;
- b) except if otherwise specified in the Special Conditions of Contract, effective access to and possession of the Site given to the Contractor together with such permission(s) under (a) of Sub-Clause 1.13 [Compliance with Laws] as required for the commencement of the Works.
- c) Receipt by the Contractor of the Advance Payment under Sub-Clause 14.2 [Advance Payment] provided that the corresponding bank guarantee has been delivered by the Contractor.

8.1.2 If the said Architect instruction is not received by the Contractor within 180 days from his receipt of the Letter of Acceptance, the Contractor shall be entitled to terminate the Contract under Sub-Clause 16.2 [Termination by Contractor].

8.1.3 The Contractor shall commence the execution of the Works as soon as is reasonably practicable after the Commencement Date and shall then proceed with the Works with due expedition and without delay.

8.2 Time for Completion

The Contractor shall complete the whole of the Works, and each Section (if any), within the Time for Completion for the Works or Section (as the case may be), including:

- a) Achieving the passing of the Tests on Completion, and
- b) completing all work which is stated in the Contract as being required for the Works or Section to be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [Taking Over of the Works and Sections].

8.3 Programme

8.3.1 The Contractor shall submit a detailed time programme to the Architect within 14 days after receiving the notice under Sub-Clause 8.1 [Commencement of Works]. The Contractor shall also submit a revised programme whenever the previous programme is inconsistent with actual progress or with the Contractor's obligations. Each programme shall include:

- a) The order in which the Contractor intends to carry out the Works, including the anticipated timing of each stage of design (if any), Contractor's Documents, procurement, manufacture of Plant, delivery to Site, construction, erection and testing,
- b) each of these stages for work by each nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]),
- c) the sequence and timing of inspections and tests specified in the Contract, and
- d) a supporting report which includes:
 - i) a general description of the methods which the Contractor intends to adopt, and of the major stages, in the execution of the Works, and
 - ii) details showing the Contractor's reasonable estimate of the number of each class of Contractor's Personnel and of each type of Contractor's Equipment, required on the Site for each major stage.

8.3.2 Unless the Engineer, within 14 days after receiving a programme, gives notice to the Contractor stating the extent to which it does not comply with the Contract, the Contractor shall proceed in accordance with the programme, subject to his other obligations under the Contract. The Procuring Entity's Personnel shall be entitled to rely upon the programme when planning their activities.

8.3.3 The Contractor shall promptly give notice to the Architect of specific probable future events or circumstances which may adversely affect the work, increase the Contract Price or delay the execution of the Works.

- 834 If, at anytime, the Architect gives notice to the Contractor that a programme fails (to the extent stated) to comply with the Contractor to be consistent with actual progress and the Contractor's stated intentions, the Contractor shall submit a revised programme to the Architect in accordance with this Sub-Clause.

84 Extension of Time for Completion

- 841 The Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to an extension of the Time for Completion if and to the extent that completion for the purposes of Sub-Clause 10.1 [Taking Over of the Works and Sections] is or will be delayed by any of the following causes:
- a) a Variation (unless an adjustment to the Time for Completion has been agreed under Sub-Clause 13.3 [Variation Procedure]) or other substantial change in the quantity of an item of work included in the Contract,
 - b) a cause of delay giving an entitlement to extension of time under a Sub-Clause of these Conditions,
 - c) exceptionally adverse climatic conditions,
 - d) Unforeseeable shortages in the availability of personnel or Goods caused by epidemic or governmental actions, or
 - e) any delay, impediment or prevention caused by or attributable to the Procuring Entity, the Procuring Entity's Personnel, or the Procuring Entity's other contractors.
- 842 If the Contractor considers itself to be entitled to an extension of the Time for Completion, the Contractor shall give notice to the Architect in accordance with Sub-Clause 20.1 [Contractor's Claims]. When determining each extension of time under Sub-Clause 20.1, the Architect shall review previous determinations and may increase, but shall not decrease, the total extension of time.

85 Delays Caused by Authorities

If the following conditions apply, namely:

- a) The Contractor has diligently followed the procedures laid down by the relevant legally constituted public authorities in Kenya,
- b) These authorities delay or disrupt the Contractor's work, and
- c) the delay or disruption was Unforeseeable, then this delay or disruption will be considered as a cause of delay under sub-paragraph (b) of Sub-Clause 8.4 [Extension of Time for Completion].

86 Rate of Progress

- 86.1 If, at anytime:
- a) Actual progress is too slow to complete within the Time for Completion, and/or
 - b) Progress has fallen (or will fall) behind the current programme under Sub-Clause 8.3 [Programme], other than as a result of a cause listed in Sub-Clause 8.4 [Extension of Time for Completion], then the Architect may instruct the Contractor to submit, under Sub-Clause 8.3 [Programme], a revised programme and supporting report describing the revised methods which the Contractor proposes to adopt in order to expedite progress and complete within the Time for Completion.
- 86.2 Unless the Architect notifies otherwise, the Contractor shall adopt these revised methods, which may require increases in the working hours and/or in the numbers of Contractor's Personnel and/or Goods, at the risk and cost of the Contractor. If these revised methods cause the Procuring Entity to incur additional costs, the Contractor shall subject to notice under Sub-Clause 2.5 [Procuring Entity's Claims] pay these costs to the Procuring Entity, in addition to delay damages (if any) under Sub-Clause 8.7 below.
- 86.3 Additional costs of revised methods including acceleration measures, instructed by the Architect to reduce delays resulting from causes listed under Sub-Clause 8.4 [Extension of Time for Completion] shall be paid by the Procuring Entity, without generating, however, any other additional payment benefit to the Contractor.

87 Delay Damages

- 87.1 If the Contractor fails to comply with Sub-Clause 8.2 [Time for Completion], the Contractor shall subject to notice under Sub-Clause 2.5 [Procuring Entity's Claims] pay delay damages to the Procuring Entity for this default. These delay damages shall be the sum stated in the **Special Conditions of Contract**, which shall be paid for everyday which shall elapse between the relevant Time for Completion and the date stated in the taking-Over Certificate. However, the total amount due under this Sub-Clause shall not exceed the maximum amount of delay damages (if any) stated in the Special Conditions of Contract.
- 87.2 These delay damages shall be the only damages due from the Contractor for such default, other than in the event of termination under Sub-Clause 15.2 [Termination by Procuring Entity] prior to completion of the Works. These damages shall not relieve the Contractor from his obligation to complete the Works, or from any other duties, obligations or responsibilities which he may have under the Contract.

88 Suspension of Work

- 88.1 The Architect may at anytime instruct the Contractor to suspend progress of part or all of the Works. During such suspension, the Contractor shall protect, store and secure such part or the Works against any deterioration, loss or damage.
- 88.2 The Architect may also notify the cause for the suspension. If and to the extent that the cause is notified and is the responsibility of the Contractor, the following Sub-Clauses 8.9, 8.10 and 8.11 shall not apply.

89 Consequences of Suspension

- 89.1 If the Contractor suffers delay and/or incurs Cost from complying with the Architect instructions under Sub-Clause 8.8 [Suspension of Work] and/or from resuming the work, the Contractor shall give notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
 - b) Payment of any such Cost, which shall be included in the Contract Price.
- 89.2 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.
- 89.3 The Contractor shall not be entitled to an extension of time for, or to payment of the Cost incurred in, making good the consequences of the Contractor's faulty design, workmanship or materials, or of the Contractor's failure to protect, store or secure in accordance with Sub-Clause 8.8 [Suspension of Work].

8.10 Payment for Plant and Materials in Event of Suspension

The Contractor shall be entitled to payment of the value (as at the date of suspension) of Plant and/ or Materials which have not been delivered to Site, if:

- a) The work on Plant or delivery of Plant and/ or Materials has been suspended for more than 30 days, and
- b) the Contractor has marked the Plant and/or Materials as the Procuring Entity's property in accordance with the Architect instructions.

8.11 Prolonged Suspension

If the suspension under Sub-Clause 8.8 [Suspension of Work] has continued for more than 84 days, the Contractor may request the Architect permission to proceed. If the Architect does not give permission within 30 days after being requested to do so, the Contractor may, by giving notice to the Engineer, treat the suspension as an omission under Clause 13 [Variations and Adjustments] of the affected part of the Works. If the suspension affects the whole of the Works, the Contractor may give notice of termination under Sub-Clause 16.2 [Termination by Contractor].

8.12 Resumption of Work

After the permission or instruction to proceed is given, the Contractor and the Architect shall jointly examine the Works and the Plant and Materials affected by the suspension. The Contractor shall make good any deterioration or defect in or loss of the Works or Plant or Materials, which has occurred during the suspension after receiving from the Architect an instruction to this effect under Clause 13 [Variations and Adjustments].

9 TESTS ON COMPLETION

9.1 Contractor's Obligations

9.1.1 The Contractor shall carry out the Tests on Completion in accordance with this Clause and Sub-Clause 7.4 [Testing], after providing the documents in accordance with sub-paragraph (d) of Sub-Clause 4.1 [Contractor's General Obligations].

9.1.2 The Contractor shall give to the Architect not less than 21 days' notice of the date after which the Contractor will be ready to carry out each of the Tests on Completion. Unless otherwise agreed, Tests on Completion shall be carried out within 14 days after this date, on such day or days as the Architect shall instruct.

9.1.3 In considering the results of the Tests on Completion, the Architect shall make allowances for the effect of any use of the Works by the Procuring Entity on the performance or other characteristics of the Works. As soon as the Works, or a Section, have passed any Tests on Completion, the Contractor shall submit a certified report of the results of these Tests to the Engineer.

9.2 Delayed Tests

9.2.1 If the Tests on Completion are being unduly delayed by the Procuring Entity, Sub-Clause 7.4 [Testing] (fifth paragraph) and/ or Sub-Clause 10.3 [Interference with Tests on Completion] shall be applicable.

9.2.2 If the Tests on Completion are being unduly delayed by the Contractor, the Architect may by notice require the Contractor to carry out the Tests within 21 days after receiving the notice. The Contractor shall carry out the Tests on such day or days within that period as the Contractor may fix and of which he shall give notice to the Engineer.

9.2.3 If the Contractor fails to carry out the Tests on Completion within the period of 21 days, the Procuring Entity's Personnel may proceed with the Test at the risk and cost of the Contractor. The Tests on Completion shall then be deemed to have been carried out in the presence of the Contractor and the results of the Tests shall be accepted as accurate.

9.3 Retesting of related works

If the Works, or a Section, fail to pass the Tests on Completion, Sub-Clause 7.5 [Rejection] shall apply, and the Architect or the Contractor may require the failed Tests, and Tests on Completion on any related work,

to be repeated under the same terms and conditions.

94 Failure to Pass Tests on Completion

94.1 If the Works, or a Section, fail to pass the Tests on Completion repeated under Sub-Clause 9.3 [Retesting], the Architect shall be entitled to:

- a) Order further repetition of Tests on Completion under Sub-Clause 9.3; or
- b) if the failure deprives the Procuring Entity of substantially the whole benefit of the Works or Section, reject the Works or Section (as the case may be), in which event the Procuring Entity shall have the same remedies as are provided in sub-paragraph (c) of Sub-Clause 1.4 [Failure to Remedy Defects].

10. PROCURING ENTITY'S TAKING OVER

10.1 Taking Over of the Works and Sections

10.1.1 Except as stated in Sub-Clause 9.4 [Failure to Pass Tests on Completion], the Works shall be taken over by the Procuring Entity when (i) the Works have been completed in accordance with the Contract, including the matters described in Sub-Clause 8.2 [Time for Completion] and except as allowed in sub-paragraph (a) below, and (ii) a Taking-Over Certificate for the Works has been issued, or is deemed to have been issued in accordance with this Sub-Clause.

10.1.2 The Contractor may apply by notice to the Architect for a Taking-Over Certificate not earlier than 14 days before the Works will, in the Contractor's opinion, be complete and ready for taking over. If the Works are divided into Sections, the Contractor may similarly apply for a Taking-Over Certificate for each Section.

10.1.3 The Architect shall, within 30 days after receiving the Contractor's application:

- a) Issue the Taking-Over Certificate to the Contractor, stating the date on which the Works or Section were completed in accordance with the Contract, except for any minor outstanding work and defects which will not substantially affect the use of the Works or Section for their intended purpose (either until or whilst this work is completed and these defects are remedied); or
- b) reject the application, giving reasons and specifying the work required to be done by the Contractor to enable the Taking-Over Certificate to be issued. The Contractor shall then complete this work before issuing a further notice under this Sub-Clause.

10.1.4 If the Architect fails either to issue the Taking-Over Certificate or to reject the Contractor's application within the period of 30 days, and if the Works or Section (as the case may be) are substantially in accordance with the Contract, the Taking-Over Certificate shall be deemed to have been issued on the last day of that period.

10.2 Taking Over of Parts of the Works

10.2.1 The Architect may, at the sole discretion of the Procuring Entity, issue a Taking-Over Certificate for any part of the Permanent Works.

10.2.2 The Procuring Entity shall not use any part of the Works (other than as a temporary measure which is either specified in the Contract or agreed by both Parties) unless and until the Architect has issued a Taking-Over Certificate for this part. However, if the Procuring Entity does use any part of the Works before the Taking-Over Certificate is issued:

- a) The part which is used shall be deemed to have been taken over as from the date on which it is used,
- b) the Contractor shall cease to be liable for the care of such part as from this date, when responsibility shall pass to the Procuring Entity, and
- c) if requested by the Contractor, the Architect shall issue a Taking-Over Certificate for this part.

10.2.3 After the Architect has issued a Taking-Over Certificate for a part of the Works, the Contractor shall be given the earliest opportunity to take such steps as may be necessary to carry out any outstanding Tests on Completion. The Contractor shall carry out these Tests on Completion as soon as practicable before the expiry date of the relevant Defects Notification Period.

10.2.4 If the Contractor incurs Cost as a result of the Procuring Entity taking over and/or using a part of the Works, other than such use as is specified in the Contract, the Contractor shall (i) give notice to the Architect and (ii) be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to payment of any such accrued costs, which shall be included in the Contract Price. After receiving this notice, the

Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine this accrued cost.

- 1025 If a Taking-Over Certificate has been issued for a part of the Works (other than a Section), the delay damages thereafter for completion of the remainder of the Works shall be reduced. Similarly, the delay damages for the remainder of the Section (if any) in which this part is included shall also be reduced. For any period of delay after the date stated in this Taking-Over Certificate, the proportional reduction in these delay damages shall be calculated as the proportion which the value of the part so certified bears to the value of the Works or Section (as the case may be) as a whole. The Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these proportions. The provisions of this paragraph shall only apply to the daily rate of delay damages under Sub-Clause 8.7 [Delay Damages] and shall not affect the maximum amount of these damages.

103 Interference with Tests on Completion

- 1031 If the Contractor is prevented, for more than 14 days, from carrying out the Tests on Completion by a cause for which the Procuring Entity is responsible, the Procuring Entity shall be deemed to have taken over the Works or Section (as the case may be) on the date when the Tests on Completion would otherwise have been completed.
- 1032 The Architect shall then issue a Taking-Over Certificate accordingly, and the Contractor shall carry out the Tests on Completion as soon as practicable, before the expiry date of the Defects Notification Period. The Architect shall require the Tests on Completion to be carried out by giving 14 days' notice and in accordance with the relevant provisions of the Contract.
- 1033 If the Contractor suffers delay and/or incurs Cost as a result of this delay in carrying out the Tests on Completion, the Contractor shall give notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
 - b) payment of any such accrued costs, which shall be included in the Contract Price.
- 1034 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

104 Surfaces Requiring Reinstatement

Except as otherwise stated in a Taking-Over Certificate, a certificate for a Section or part of the Works shall not be deemed to certify completion of any ground or other surfaces requiring reinstatement.

11. DEFECTS LIABILITY

11.1 Completion of Outstanding Work and Remedying Defects

- 11.1.1 In order that the Works and Contractor's Documents, and each Section, shall be in the condition required by the Contract (fair wear and tear excepted) by the expiry date of the relevant Defects Notification Period or as soon as practicable thereafter, the Contractor shall:
- a) complete any work which is outstanding on the date stated in a Taking-Over Certificate, within such reasonable time as is instructed by the Engineer, and
 - b) execute all work required to remedy defects or damage, as may be notified by (or on behalf of) the Procuring Entity on or before the expiry date of the Defects Notification Period for the Works or Section (as the case may be).
- 11.1.2 If a defect appears or damage occurs, the Contractor shall be notified accordingly by the Engineer.

11.2 Cost of Remedying Defects

- 11.2.1 All work referred to in sub-paragraph (b) of Sub-Clause 11.1 [Completion of Outstanding Work and Remedying Defects] shall be executed at the risk and cost of the Contractor, if and to the extent that the work is attributable to:
- a) Any design for which the Contractor is responsible,

- b) Plant, Materials or workmanship not being in accordance with the Contract, or
- c) Failure by the Contractor to comply with any other obligation.

1122 If and to the extent that such work is attributable to any other cause, the Contractor shall be notified promptly by (or on behalf of) the Procuring Entity, and Sub-Clause 13.3 [Variation Procedure] shall apply.

113 Extension of Defects Notification Period

1131 The Procuring Entity shall be entitled subject to Sub-Clause 2.5 [Procuring Entity's Claims] to an extension of the Defects Notification Period for the Works or a Section if and to the extent that the Works, Section or a major item of Plant (as the case may be, and after taking over) cannot be used for the purposes for which they are intended by reason of a defect or by reason of damage attributable to the Contractor. However, a Defects Notification Period shall not be extended by more than two years.

1132 If delivery and/ or erection of Plant and/ or Materials was suspended under Sub-Clause 8.8 [Suspension of Work] or Sub-Clause 16.1 [Contractor's Entitlement to Suspend Work], the Contractor's obligations under this Clause shall not apply to any defects or damage occurring more than two years after the Defects Notification Period for the Plant and/ or Materials would otherwise have expired.

114 Failure to Remedy Defects

1141 If the Contractor fails to remedy any defect or damage within a reasonable time, a date may be fixed by the Engineer, on or by which the defect or damage is to be remedied. The Contractor shall be given reasonable notice of this date.

1142 If the Contractor fails to remedy the defect or damage by this notified date and this remedial work was to be executed at the cost of the Contractor under Sub-Clause 11.2 [Cost of Remedying Defects], the Procuring Entity may (at his option):

- (a) Carry out the work itself or by others, in a reasonable manner and at the Contractor's cost, but the Contractor shall have no responsibility for this work; and the Contractor shall subject to Sub-Clause 2.5 [Procuring Entity's Claims] pay to the Procuring Entity the costs reasonably incurred by the Procuring Entity in remedying the defect or damage;
- (b) Require the Architect to agree or determine a reasonable reduction in the Contract Price in accordance with Sub-Clause 3.5 [Determinations]; or
- (c) if the defect or damage deprives the Procuring Entity of substantially the whole benefit of the Works or any major part of the Works, terminate the Contract as a whole, or in respect of such major part which cannot be put to the intended use. Without prejudice to any other rights, under the Contractor otherwise, the Procuring Entity shall then be entitled to recover all sums paid for the Works or for such part (as the case may be), plus financing costs and the cost of dismantling the same, clearing the Site and returning Plant and Materials to the Contractor.

115 Removal of Defective Work

If the defector damage cannot be remedied expeditiously on the Site and the Procuring Entity gives consent, the Contractor may remove from the Site for the purposes of repair such items of Plant as are defective or damaged. This consent may require the Contractor to increase the amount of the Performance Security by the full replacement cost of these items, or to provide other appropriate security.

116 Further Tests

1161 If the work of remedying of any defector damage may affect the performance of the Works, the Architect may require the repetition of any of the tests described in the Contract. The requirement shall be made by notice within 14 days after the defect or damage is remedied.

1162 These tests shall be carried out in accordance with the terms applicable to the previous tests, except that they shall be carried out at the risk and cost of the Party liable, under Sub-Clause 11.2 [Cost of Remedying Defects], for the cost of the remedial work.

117 Right of Access

Until the Completion Certificate has been issued, the Contractor shall have such right of access to the Works as is reasonably required in order to comply with this Clause, except as may be inconsistent with the

Procuring Entity's reasonable security restrictions.

11.8 Contractor to Search

The Contractor shall, if required by the Engineer, search for the cause of any defect on parts of the works that have already accepted, under the direction of the Engineer. Unless the defect is to be remedied at the cost of the Contractor under Sub-Clause 11.2 [Cost of Remedying Defects], the Cost of the search plus profit shall be agreed or determined by the Architect in accordance with Sub-Clause 3.5 [Determinations] and shall be included in the Contract Price.

11.9 Completion Certificate

- 11.9.1 Performance of the Contractor's obligations shall not be considered to have been completed until the Architect has issued the Completion Certificate to the Contractor, stating the date on which the Contractor completed his obligations under the Contract.
- 11.9.2 The Architect shall issue the Completion Certificate within 30 days after the latest of the expiry dates of the Defects Liability Period, or as soon thereafter as the Contractor has supplied all the Contractor's Documents and completed and tested all the Works, including remedying any defects. A copy of the Completion Certificate shall be issued to the Procuring Entity.
- 11.9.3 Only the Completion Certificate shall be deemed to constitute acceptance of the Works.

11.10 Unfulfilled Obligations

After the Completion Certificate has been issued, each Party shall remain liable for the fulfilment of any obligation which remains unperformed at that time. For the purposes of determining the nature and extent of unperformed obligations, the Contract shall be deemed to remain in force.

11.11 Clearance of Site

- 11.11.1 Upon receiving the Completion Certificate, the Contractor shall remove any remaining Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works from the Site.
- 11.11.2 If all these items have not been removed within 30 days after receipt by the Contractor of the Completion Certificate, the Procuring Entity may sell or otherwise dispose of any remaining items. The Procuring Entity shall be entitled to be paid the costs incurred in connection with, or attributable to, such sale or disposal and restoring the Site.
- 11.11.3 Any balance of the moneys from the sale shall be paid to the Contractor. If these moneys are less than the Procuring Entity's costs, the Contractor shall pay the outstanding balance to the Procuring Entity.

12 MEASUREMENT AND DEVALUATION

12.1 Works to be Measured

- 12.1.1 The Works shall be measured, and valued for payment, in accordance with this Clause. The Contractor shall show in each application under Sub-Clauses 14.3 [Application for Interim Payment Certificates], 14.10 [Statement on Completion] and 14.11 [Application for Final Payment Certificate] the quantities and other particulars detailing the amounts which he considers to be entitled under the Contract.
- 12.1.2 Whenever the Architect requires any part of the Works to be measured, reasonable notice shall be given to the Contractor's Representative, who shall:
- a) promptly either attend or send another qualified representative to assist the Architect in making the measurement, and
 - b) supply any particulars requested by the Engineer.
- 12.1.3 If the Contractor fails to attend or send a representative, the measurement made by the Architect shall be accepted as accurate.
- 12.1.4 Except as otherwise stated in the Contract, wherever any Permanent Works are to be measured from records, these shall be prepared by the Engineer. The Contractor shall, as and when requested, attend to

examine and agree the records with the Engineer, and shall sign the same when agreed. If the Contractor does not attend, the records shall be accepted as accurate.

- 12.15 If the Contractor examines and disagrees the records, and/ or does not sign them as agreed, then the Contractor shall give notice to the Architect of the respects in which the records are asserted to be inaccurate. After receiving this notice, the Architect shall review the records and either confirm or vary them and certify the payment of the undisputed part. If the Contractor does not so give notice to the Architect within 14 days after being requested to examine the records, they shall be accepted as accurate.

12.2 Method of Measurement

Except as otherwise stated in the Contract:

- a) Measurement shall be made of the net actual quantity of each item of the Permanent Works, and
- b) the method of measurement shall be in accordance with the Bill of Quantities or other applicable Schedules.

12.3 Evaluation

- 12.3.1 Except as otherwise stated in the Contract, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the value of work done by evaluating each item of work, applying the measurement agreed or determined in accordance with the above Sub-Clauses 12.1 and 12.2 and the appropriate rate or price for the item.

- 12.3.2 For each item of work, the appropriate rate or price for the item shall be the rate or price specified for such item in the Contractor, if there is no such item, specified for similar work.

- 12.3.3 Any item of work included in the Bill of Quantities for which no rate or price was specified shall be considered as included in other rates and prices in the Bill of Quantities and will not be paid for separately.

- 12.3.4 However, for a new item of work, a new rate or price shall be appropriate for such item of work if:

- a) The work is instructed under Clause 13 [Variations and Adjustments],
- b) no rate or price is specified in the Contract for this item, and
- c) no specified rate or price is appropriate because the item of work is not of similar character, or is not executed under similar conditions, as any item in the Contract.

- 12.3.5 Each new rate or price shall be derived from any relevant rates or prices in the Contract. If no rates or prices are relevant for the new item of work, it shall be derived from the reasonable Cost of executing such work, prevailing market rates, together with profit, taking account of any other relevant matters.

- 12.3.6 Until such time as an appropriate rate or price is agreed or determined, the Architect shall determine a provisional rate or price for the purposes of Interim Payment Certificates as soon as the concerned work commences.

- 12.3.7 Where the contract price is different from the corrected tender price, in order to ensure the contractor is not paid less or more relative to the contract price (*which would be the tender price*), payment valuation certificates and variation orders on omissions and additions valued based on rates in the Bill of Quantities or schedule of rates in the Tender, will be adjusted by a plus or minus percentage. The percentage already worked out during tender evaluation is worked out as follows: *(corrected tender price – tender price) / tender price X 100*.

12.4 Omissions

Whenever the omission of any work forms part (or all) of a Variation, the value of which has not been agreed, if:

- a) The Contractor will incur (or has incurred) cost which, if the work had not been omitted, would have been deemed to be covered by a sum forming part of the Accepted Contract Amount;
- b) The omission of the work will result (or has resulted) in this sum not forming part of the Contract Price; and
- c) this cost is not deemed to be included in the evaluation of any substituted work; then the Contractor shall give notice to the Architect accordingly, with supporting particulars. Upon receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine this cost, which shall be included in the Contract Price.

13 VARIATIONS AND ADJUSTMENTS

131 Right to Vary

13.1.1 Variations may be initiated by the Architect at any time prior to issuing the Taking-Over Certificate for the Works, either by an instruction or by a request for the Contractor to submit a proposal. No Variation instructed by the Architect under this Clause shall in any way vitiate or invalidate the Contract.

13.1.2 The Contractor shall execute and be bound by each Variation, unless the Contractor promptly gives notice to the Architect stating (with supporting particulars) that (i) the Contractor cannot readily obtain the Goods required for the Variation, or (ii) such Variation triggers a substantial change in the sequence or progress of the Works. Upon receiving this notice, the Architect shall cancel, confirm or vary the instruction.

13.1.3 Each Variation may include:

- a) changes to the quantities of any item of work included in the Contract (however, such changes do not necessarily constitute a Variation),
- b) changes to the quality and other characteristics of any item of work,
- c) changes to the levels, positions and/ or dimensions of any part of the Works,
- d) omission of any work unless it is to be carried out by others,
- e) any additional work, Plant, Materials or services necessary for the Permanent Works, including any associated Tests on Completion, boreholes and other testing and exploratory work, or
- f) changes to the sequence or timing of the execution of the Works.

13.1.4 The Contractor shall not make any alteration and/or modification of the Permanent Works, unless and until the Architect instructs after obtaining approval of the Procuring Entity.

132 Variation Order Procedure

13.2.1 Prior to any Variation Order under Sub-Clause 13.1.4 the Architect shall notify the Contractor of the nature and form of such variation. As soon as possible after having received such notice, the Contractor shall submit to the Engineer:

- a) A description of work, if any, to be performed and a programme for its execution, and
- b) the Contractor's proposals for any necessary modifications to the Programme according to Sub-Clause 8.3 or to any of the Contractor's obligations under the Contract, and
- c) the Contractor's proposals for adjustment to the Contract Price.

Following the receipt of the Contractor's submission the Architect shall, after due consultation with the Employer and the Contractor, decide as soon as possible whether or not the variation shall be carried out. If the Architect decides that the variation shall be carried out, he shall issue a Variation Order clearly identified as such in accordance with the Contractor's submission or as modified by agreement.

If the Architect and the Contractor are unable to agree the adjustment of the Contract Price, the provisions of Sub-Clause 13.2.2 shall apply.

13.2.2 Disagreement on Adjustment of the Contract Price

If the Contractor and the Architect are unable to agree on the adjustment of the Contract Price, the adjustment shall be determined in accordance with the rates specified in the Bills of Quantities or Schedule of Daywork Prices. If the rates contained in the Bills of Quantities or Daywork Prices are not directly applicable to the specific work in question, suitable rates shall be established by the Architect reflecting the level of pricing in the Daywork Prices. Where rates are not contained in the said Prices, the amount shall be such as is in all the circumstances reasonable, reflecting a market price. Due account shall be taken of any over-or under-recovery of overheads by the Contractor in consequence of the variation. The Contractor shall also be entitled to be paid:

- a) The cost of any partial execution of the Works rendered useless by any such variation,
- b) The cost of making necessary alterations to Plant already manufactured or in the course of manufacture or of any work done that has to be altered in consequence of such a variation,
- c) any additional costs incurred by the Contractor by the disruption of the progress of the Works as detailed in the Programme, and
- d) the net effect of the Contractor's finance costs, including interest, caused by the variation.

The Architect shall on this basis determine the rates or prices to enable on-account payment to be included

in certificates of payment.

1323 Contractor to Proceed

On receipt of a Variation Order, the Contractor shall forth with proceed to carry out the variation and be bound to these Conditions in so doing as if such variation was stated in the Contract. The work shall not be delayed pending the granting of an extension of the Time for Completion or an adjustment to the Contract Price under Sub-Clause 31.3.

133 Value Engineering

- 13.3.1 The Contractor may, at anytime, submit to the Architect written proposal which (in the Contractor's opinion) will, if adopted, (i) accelerate completion, (ii) reduce the cost to the Procuring Entity of executing, maintaining or operating the Works, (iii) improve the efficiency or value to the Procuring Entity of the completed Works, or (iv) otherwise be of benefit to the Procuring Entity.
- 13.3.2 The proposal shall be prepared at the cost of the Contractor and shall include the items listed in Sub-Clause 13.3 [Variation Procedure].
- 13.23 If a proposal, which is approved by the Engineer, includes a change in the design of part of the Permanent Works, then unless otherwise agreed by both Parties:
- a) The Contractor shall design this part,
 - b) sub-paragraphs (a) to (d) of Sub-Clause 4.1 [Contractor's General Obligations] shall apply, and
 - c) if this change results in a reduction in the contract value of this part, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine a fee, which shall be included in the Contract Price. This fee shall be (50%) of the difference between the following amounts:
 - i) such reduction in contract value, resulting from the change, excluding adjustments under Sub-Clause 13.8 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost], and
 - ii) the reduction (if any) in the value to the Procuring Entity of the varied works, taking account of any improvement in quality, anticipated life or operational efficiencies.
- 13.3.4 However, if the amount established in item 13.2.3 (c) (i) is less than amount established in item 13.2.3 (c) (ii), there shall not be a fee. However, if the if the amount established in item 13.2.3 (c) (i) is more than amount established in item 13.2.3 (c) (ii), it shall result in a price variation to the Procuring Entity.

134 Variation Procedure for Value Engineering proposal

- 13.4.1 If the Architect requests a proposal, prior to instructing a Variation, the Contractor shall respond in writing as soon as practicable, either by giving reasons why he cannot comply (if this is the case) or by submitting:
- a) A description of the proposed work to be performed and a programme for its execution,
 - b) the Contractor's proposal for any necessary modifications to the programme according to Sub-Clause 8.3 [Programme] and to the Time for Completion, and
 - c) the Contractor's proposal for evaluation of the Variation.
- 13.4.2 The Architect shall, as soon as practicable after receiving such proposal (under Sub-Clause 13.2 [Value Project Engineering] or otherwise), respond with approval, disapproval or comments. The Contractor shall not delay any work whilst awaiting a response.
- 13.4.3 Each instruction to execute a Variation, with any requirements for the recording of Costs, shall be issued by the Architect to the Contractor, who shall acknowledge receipt.
- 13.4.4 Each Variation shall be evaluated in accordance with Clause 12 [Measurement and Evaluation], unless the Architect instructs or approves otherwise in accordance with this Clause.

135 Payment in Applicable Currencies

If the Contract provides for payment of the Contract Price in more than one currency, then whenever an adjustment is agreed, approved or determined as stated above, the amount payable in each of the applicable currencies shall be specified. For this purpose, reference shall be made to the actual or expected currency

proportions of the Cost of the varied work, and to the proportions of various currencies specified for payment of the Contract Price.

136 Provisional Sums

- 13.6.1 Each Provisional Sum shall only be used, in whole or in part, in accordance with the Architect instructions, and the Contract Price shall be adjusted accordingly. The total sum paid to the Contractor shall include only such amounts, for the work, supplies or services to which the Provisional Sum relates, as the Architect shall have instructed. For each Provisional Sum, the Architect May instruct:
- a) Work to be executed (including Plant, Materials or services to be supplied) by the Contractor and valued under Sub-Clause 13.3 [Variation Procedure]; and/or
 - b) Plant, Materials or services to be purchased by the Contractor, from a nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]) or otherwise; and for which there shall be included in the Contract Price:
 - i) The actual amounts paid (or due to be paid) by the Contractor, and
 - ii) a sum for overhead charges and profit, calculated as a percentage of these actual amounts by applying the relevant percentage rate (if any) stated in the appropriate Schedule. If there is no such rate, the percentage rate stated in **the Special Conditions of Contract** shall be applied.
- 13.6.2 The Contractor shall, when required by the Engineer, produce quotations, invoices, vouchers and accounts or receipts in substantiation.

137 Dayworks

- 13.7.1 For work of a minor or incidental nature, the Architect may instruct that a Variation shall be executed on a daywork basis. The work shall then be valued in accordance with the Daywork Schedule included in the Contract, and the following procedure shall apply. If a Daywork Schedule is not included in the Contract, this Sub-Clause shall not apply.
- 13.7.2 Before ordering Goods for the work, the Contractor shall submit quotations to the Engineer. When applying for payment, the Contractor shall submit invoices, vouchers and accounts or receipts for any Goods.
- 13.7.3 Except for any items for which the Daywork Schedule specifies that payment is not due, the Contractor shall deliver each day to the Architect accurate statements induplicate which shall include the following details of the resources used in executing the previous day's work:
- a) The names, occupations and time of Contractor's Personnel,
 - b) the identification, type and time of Contractor's Equipment and Temporary Works, and
 - c) the quantities and types of Plant and Materials used.
- 13.7.4 One copy of each statement will, if correct, or when agreed, be signed by the Architect and returned to the Contractor. The Contractor shall then submit priced statements of these resources to the Engineer, prior to their inclusion in the next Statement under Sub-Clause 14.3 [Application for Interim Payment Certificates].

138 Adjustments for Changes in Legislation

- 13.8.1 The Contract Price shall be adjusted to take account of any increase or decrease in Cost resulting from a change in the Laws of Kenya (including the introduction of new Laws and the repeal or modification of existing Laws) or in the judicial or official governmental interpretation of such Laws, made after the Base Date, which affect the Contractor in the performance of obligations under the Contract.
- 13.8.2 If the Contractor suffers (or will suffer) delay and/or incurs (or will incur) additional Cost as a result of these changes in the Laws or in such interpretations, made after the Base Date, the Contractor shall give notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
 - b) payment of any such Cost, which shall be included in the Contract Price.
- 13.8.3 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

- 13.8.4 Notwithstanding the foregoing, the Contractor shall not be entitled to an extension of time if the relevant delay has already been taken into account in the determination of a previous extension of time and such Cost shall not be separately paid if the same shall already have been taken into account in the indexing of any inputs to the table of adjustment data in accordance with the provisions of Sub-Clause 13.8 [Adjustments for Changes in Cost].

13.9 Adjustments for Changes in Cost

- 13.9.1 In this Sub-Clause, “table of adjustment data” means the completed table of adjustment data for local and foreign currencies included in the Schedules. If there is no such table of adjustment data, this Sub-Clause shall not apply.
- 13.9.2 If this Sub-Clause applies, the amounts payable to the Contractor shall be adjusted for rises or falls in the cost of labor, Goods and other inputs to the Works, by the addition or deduction of the amounts determined by the formulae prescribed in this Sub-Clause. To the extent that full compensation for any rise or fall in Costs is not covered by the provisions of this or other Clauses, the Accepted Contract Amount shall be deemed to have included a mounts to cover the contingency of other rises and falls in costs.
- 13.9.3 The adjustment to be applied to the amount otherwise payable to the Contractor, as valued in accordance with the appropriate Schedule and certified in Payment Certificates, shall be determined from formulae for each of the currencies in which the Contract Price is payable. No adjustment is to be applied to work valued on the basis of Cost or current prices. The formulae shall be of the following general type:

Price Adjustment Formula

Prices shall be adjusted for fluctuations in the cost of inputs only if **provided for in the SCC**. If so provided, the amounts certified in each payment certificate, before deducting for Advance Payment, shall be adjusted by applying the respective price adjustment factor to the payment amounts due in each currency. A separate formula of the type specified below applies:

$$P = A + B \frac{I_m}{I_o}$$

where:

P is the adjustment factor for the portion of the Contract Price payable.

A and **B** are recoefficients **specified in the SCC**, representing then on adjustable and adjustable portions, respectively, of the Contract Price payable and

I_m is the index prevailing at the end of the month being invoiced and **I_o** is the index prevailing 30 days before Bid opening for inputs payable.

NOTE: The sum of the two coefficients A and B should be 1 (one) in the formula for each currency. Normally, both coefficients shall be the same in the formulae for all currencies, since coefficient A, for the non adjustable portion of the payments, is a very approximate figure (usually 0.15) to take account of fixed cost elements or other nonadjustable components. The sum of the adjustments for each currency are added to the Contract Price.

- 13.9.4 The cost indices or reference prices stated in the table of adjustment data shall be used. If their source is in doubt, it shall be determined by the Engineer. Forth is purpose, reference shall be made to the values of the indices at stated dates (quoted in the fourth and fifth columns respectively of the table) for the purposes of clarification of the source; although these dates (and thus these values) may not correspond to the base cost indices.
- 13.9.5 In cases where the “currency of index” is not the relevant currency of payment, each index shall be converted into the relevant currency of payment at the selling rate, established by the Central Bank of Kenya, of this relevant currency on the above date for which the index is required to be applicable.
- 13.9.6 Until such time as each current cost index is available, the Architect shall determine a provisional index for the issue of Interim Payment Certificates. When a current cost index is available, the adjustment shall be recalculated accordingly.

- 13.9.7 If the Contractor fails to complete the Works within the Time for Completion, adjustment of prices there after shall be made using either (i) each index or price applicable on the date 49 days prior to the expiry of the Time for Completion of the Works, or (ii) the current index or price, whichever is more favorable to the Procuring Entity.
- 13.9.8 The weightings (coefficients) for each of the factors of cost stated in the table(s) of adjustment data shall only be adjusted if they have been rendered unreasonable, unbalanced or in applicable, as a result of Variations.

14 CONTRACT PRICE AND PAYMENT

14.1 The Contract Price

- 14.1.1 Unless otherwise stated in the Special Conditions:
- a) The value of the payment certificate shall be agreed or determined under Sub-Clause 12.3 [Evaluation] and be subject to adjustments in accordance with the Contract;
 - b) the Contractor shall pay all taxes, duties and fees required to be paid by him under the Contract, and the Contract Price shall not be adjusted for any of these costs except as stated in Sub-Clause 13.7 [Adjustments for Changes in Legislation];
 - c) any quantities which may be set out in the Bill of Quantities or other Schedule are estimated quantities and are not to be taken as the actual and correct quantities:
 - i) of the Works which the Contractor is required to execute, or
 - ii) for the purposes of Clause 12 [Measurement and Evaluation]; and
 - d) the Contractor shall submit to the Engineer, within 30 days after the Commencement Date, a proposed breakdown of each lump sum price in the Schedules. The Architect may take account of the breakdown when preparing Payment Certificates but shall not be bound by it.
- 14.1.2 Notwithstanding the provisions of subparagraph (b), Contractor's Equipment, including essential spare parts there for, imported by the Contractor for the sole purpose of executing the Contract shall not be exempt from the payment of import duties and taxes upon importation.

14.2 Advance Payment

- 14.2.1 The Procuring Entity shall make an advance payment, as an interest-free loan for mobilization and cashflow support, when the Contractor submits a guarantee in accordance with this Clause. The total advance payment, the number and timing of instalments (if more than one), and the applicable currencies and proportions, shall be as stated in the **Special Conditions of Contract**.
- 14.2.2 Unless and until the Procuring Entity receives this guarantee, or if the total advance payment is not stated in the Special Conditions of Contract, this Sub-Clause shall not apply.
- 14.2.3 The Architect shall deliver to the Procuring Entity and to the Contractor an Interim Payment Certificate for the advance payment or its first instalment after receiving a Statement (under Sub-Clause 14.3 [Application for Interim Payment Certificates]) and after the Procuring Entity receives (i) the Performance Security in accordance with Sub-Clause 4.2 [Performance Security] and (ii) a guarantee in amounts and currencies equal to the advance payment. This guarantee shall be issued by a reputable bank or financial institutions elected by the Contractor and shall be in the form annexed to the Special Conditions or in another form approved by the Procuring Entity.
- 14.2.4 The Contractor shall ensure that the guarantee is valid and enforceable until the advance payment has been repaid, but its amount shall be progressively reduced by the amount repaid by the Contractor as indicated in the Payment Certificates. If the terms of the guarantee specify its expiry date, and the advance payment has not been repaid by the date 30 days prior to the expiry date, the Contractor shall extend the validity of the guarantee until the advance payment has been repaid.
- 14.2.5 Unless stated otherwise in **the Special Conditions of Contract**, the advance payment shall be repaid through percentage deductions from the interim payments determined by the Architect in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates], as follows:

- a) Deductions shall commence in the next interim Payment Certificate following that in which the total of all certified interim payments (excluding the advance payment and deductions and repayments of retention) exceeds 30 percent (30%) of the Accepted Contract Amount less Provisional Sums; and
- b) deductions shall be made at the amortization rate stated in the **Special Conditions of Contract** of the amount of each Interim Payment Certificate (excluding the advance payment and deductions for its repayments as well as deductions for retention money) in the currencies and proportions of the advance payment until such time as the advance payment has been repaid; provided that the advance payment shall be completely repaid prior to the time when 90 percent (90%) of the Accepted Contract Amount less Provisional Sums has been certified for payment.

1426 If the advance payment has not been repaid prior to the issue of the Taking-Over Certificate for the Works or prior to termination under Clause 15 [Termination by Procuring Entity], Clause 16 [Suspension and Termination by Contractor] or Clause 19 [Force Majeure] (as the case may be), the whole of the balance then outstanding shall immediately become due and in case of termination under Clause 15 [Termination by Procuring Entity], except for Sub-Clause 14.2.7 [Procuring Entity's Entitlement to Termination for Convenience], payable by the Contractor to the Procuring Entity.

143 Application for Interim Payment Certificates

1431 The Contractor shall submit a Statement (in number of copies indicated in the **Special Conditions of Contract**) to the Architect after the end of each month, in a form approved by the Engineer, showing in detail the amounts to which the Contractor considers itself to be entitled, together with supporting documents which shall include the report on the progress during this month in accordance with Sub-Clause 4.21 [Progress Reports].

1432 The Statement shall include the following items, as applicable, which shall be expressed in the various currencies in which the Contract Price is payable, in the sequence listed:

- a) the estimated contract value of the Works executed and the Contractor's Documents produced up to the end of the month (including Variations but excluding items described in sub-paragraphs (b) to (g) below);
- b) any amounts to be added and deducted for changes in legislation and changes in cost, in accordance with Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost];
- c) any amount to be deducted for retention, calculated by applying the percentage of retention stated in **the Special Conditions of Contract** to the total of the above amounts, until the amount so retained by the Procuring Entity reaches the limit of Retention Money (if any) stated in **the Special Conditions of Contract**;
- d) any amounts to be added for the advance payment and (if more than one instalment) and to be deducted for its repayments in accordance with Sub-Clause 14.2 [Advance Payment];
- e) any amounts to be added and deducted for Plant and Materials in accordance with Sub-Clause 14.5 [Plant and Materials intended for the Works];
- f) any other additions or deductions which may have become due under the Contractor otherwise, including those under Clause 20 [Claims, Disputes and Arbitration]; and
- g) the deduction of amounts certified in all previous Payment Certificates.

144 Schedule of Payments

144.1 If the Contract includes a schedule of payments specifying the instalments in which the Contract Price will be paid, then unless otherwise stated in this schedule:

- a) The instalments quoted in this schedule of payments shall be the estimated contract values for the purposes of sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates];
- b) Sub-Clause 14.5 [Plant and Materials intended for the Works] shall not apply; and
- c) If these instalments are not defined by reference to the actual progress achieved in executing the Works, and if actual progress is found to be less or more than that on which this schedule of payments was based, then the Architect may proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine revised instalments, which shall take account of the extent to which progress is less or more than that on which the instalments were previously based.

1442 If the Contract does not include a schedule of payments, the Contractor shall submit non-binding estimates of the payments which he expects to become due during each quarterly period. The first estimate shall be submitted within 42 days after the Commencement Date. Revised estimates shall be submitted at quarterly intervals, until the Taking-Over Certificate has been issued for the Works.

145 Plant and Materials intended for the Works

1451 If this Sub-Clause applies, Interim Payment Certificates shall include, under sub-paragraph (e) of Sub-Clause 14.3, (i) an amount for Plant and Materials which have been sent to the Site for incorporation in the Permanent Works, and (ii) a reduction when the contract value of such Plant and Materials is included as part of the Permanent Works under sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates].

1452 If the lists referred to in sub-paragraphs (b)(i) or (c)(i) below are not included in the Schedules, this Sub-Clause shall not apply.

1453 The Architect shall determine and certify each addition if the following conditions are satisfied:

- a) The Contractor has:
 - i) kept satisfactory records (including the orders, receipts, Costs and use of Plant and Materials) which are available for inspection, and
 - ii) submitted statement of the Cost of acquiring and delivering the Plant and Materials to the Site, supported by satisfactory evidence;and either:
- b) the relevant Plant and Materials:
 - i) are those listed in the Schedules for payment when shipped,
 - ii) have been shipped to Kenya, enroute to the Site, in accordance with the Contract; and
 - iii) are described in a clean shipped bill of lading or other evidence of shipment, which has been submitted to the Architect together with evidence of payment of freight and insurance, any other documents reasonably required, and a bank guarantee in a form and issued by an entity approved by the Procuring Entity in amounts and currencies equal to the amount due under this Sub-Clause: this guarantee may be in a similar form to the form referred to in Sub-Clause 14.2 [Advance Payment] and shall be valid until the Plant and Materials are properly stored on Site and protected against loss, damage or deterioration; or
- c) the relevant Plant and Materials:
 - i) are those listed in the Schedules for payment when delivered to the Site, and
 - ii) have been delivered to and are properly stored on the Site, are protected against loss, damage or deterioration and appear to be in accordance with the Contract.

1454 The additional amount to be certified shall be the equivalent of eighty percent (80%) of the Architect determination of the cost of the Plant and Materials (including delivery to Site), taking account of the documents mentioned in this Sub-Clause and of the contract value of the Plant and Materials.

1455 The currencies for this additional amount shall be the same as those in which payment will become due when the contract value is included under sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates]. At that time, the Payment Certificate shall include the applicable reduction which shall be equivalent to, and in the same currencies and proportions as, this additional amount for the relevant Plant and Materials.

146 Issue of Interim Payment Certificates

1461 No amount will be certified or paid until the Procuring Entity has received and approved the Performance Security. Thereafter, the Architect shall, within 30 days after receiving a Statement and supporting documents, deliver to the Procuring Entity and to the Contractor an Interim Payment Certificate which shall state the amount which the Architect fairly determines to be due, with all supporting particulars for any reduction or withholding made by the Architect on the Statement if any.

1462 However, prior to issuing the Taking-Over Certificate for the Works, the Architect shall not be bound to issue an Interim Payment Certificate in an amount which would (after retention and other deductions) be

less than the minimum amount of Interim Payment Certificates (if any) stated **in the Special Conditions of Contract**. In this event, the Architect shall give notice to the Contractor accordingly.

- 1463 An Interim Payment Certificate shall not be withheld for any other reason, although:
- a) if anything supplied or work done by the Contractor is not in accordance with the Contract, the cost of rectification or replacement may be withheld until rectification or replacement has been completed; and/or
 - b) if the Contractor was or is failing to perform any work or obligation in accordance with the Contract, and had been so notified by the Engineer, the value of this work or obligation may be withheld until the work or obligation has been performed.
- 4.6.4 The Architect may in any Payment Certificate make any correction or modification that should properly be made to any previous Payment Certificate. A Payment Certificate shall not be deemed to indicate the Architect acceptance, approval, consent or satisfaction.

147 Payment

- 147.1 The Procuring Entity shall pay to the Contractor:
- a) The advance payment shall be paid within 60 days after signing of the contract by both parties or within 60 days after receiving the documents in accordance with Sub-Clause 4.2 [Performance Security] and Sub- Clause 14.2 [Advance Payment], whichever is later;
 - b) The amount certified in each Interim Payment Certificate within 60 days after the Architect Issues Interim Payment Certificate; and
 - c) the amount certified in the Final Payment Certificate within 60 days after the Procuring Entity Issues Interim Payment Certificate; or after determination of any disputed amount shown in the Final Statement in accordance with Sub-Clause 16.2 [Termination by Contractor].
- 147.2 Payment of the amount due in each currency shall be made into the bank account, nominated by the Contractor, in the payment country (forth is currency) specified in the Contract.

148 Delayed Payment

- 148.1 If the Contractor does not receive payment in accordance with Sub-Clause 14.7 [Payment], the Contractor shall be entitled to receive financing charges (simple interest) monthly on the amount unpaid during the period of delay. This period shall be deemed to commence on the date for payment specified in Sub-Clause 14.7 [Payment], irrespective (in the case of its sub-paragraph (b) of the date on which any Interim Payment Certificate is issued.
- 148.2 These financing charges shall be calculated at the annual rate of three percentage points above the mean rate of the Central Bank in Kenya of the currency of payment, or if not available, the inter-bank offered rate, and shall be paid in such currency.
- 148.3 The Contractor shall be entitled to this payment without formal notice and certification, and without prejudice to any other right or remedy.

149 Payment of Retention Money

- 149.1 When the Taking-Over Certificate has been issued for the Works, the first half of the Retention Money shall be certified by the Architect for payment to the Contractor. If a Taking-Over Certificate is issued for a Section or part of the Works, a proportion of the Retention Money shall be certified and paid. This proportion shall be half (50%) of the proportion calculated by dividing the estimated contract value of the Section or part, by the estimated final Contract Price.
- 149.2 Promptly after the latest of the expiry dates of the Defects Liability Periods, the outstanding balance of the Retention Money shall be certified by the Architect for payment to the Contractor. If a Taking-Over Certificate was issued for a Section, a proportion of the second half of the Retention Money shall be certified and paid promptly after the expiry date of the Defects Notification Period for the Section. This proportion shall be half (50%) of the proportion calculated by dividing the estimated contract value of the Section by

the estimated final Contract Price.

1493 However, if any work remains to be executed under Clause 11 [Defects Liability], the Architects shall be entitled to withhold certification of the estimated cost of this work until it has been executed.

1494 When calculating these proportions, no account shall be taken of any adjustments under Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost].

1495 Unless otherwise stated in the Special Conditions, when the Taking-Over Certificate has been issued for the Works and the first half of the Retention Money has been certified for payment by the Engineer, the Contractor shall be entitled to substitute a Retention Money Security guarantee, in the form annexed to the Special Conditions or in another form approved by the Procuring Entity and issued by a reputable bank or financial institution selected by the Contractor, for the second half of the Retention Money.

1496 The Procuring Entity shall return the Retention Money Security guarantee to the Contractor within 14 days after receiving a copy of the Completion Certificate.

1410 Statement at Completion

1410.1 Within 84 days after receiving the Taking-Over Certificate for the Works, the Contractor shall submit to the Architect three copies of a Statement at completion with supporting documents, in accordance with Sub-Clause 14.3 [Application for Interim Payment Certificates], showing:

- a) the value of all work done in accordance with the Contract up to the date stated in the Taking-Over Certificate for the Works,
- b) any further sums which the Contractor considers to be due, and
- c) an estimate of any other amounts which the Contractor considers will become due to him under the Contract. Estimated amounts shall be shown separately in this Statement at completion.

1410.2 The Architect shall then certify in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates].

1411 Application for Final Payment Certificate

1411.1 Within 60 days after receiving the Completion Certificate, the Contractor shall submit, to the Engineer, six copies of a draft final statement with supporting documents showing in detail in a form approved by the Engineer:

- a) The value of all work done in accordance with the Contract, and
- b) Any further sums which the Contractor considers to be due to him under the Contract otherwise.

1411.2 If the Architect disagrees with or cannot verify any part of the draft final statement, the Contractor shall submit such further information as the Architect may reasonably require within 30 days from receipt of said draft and shall make such changes in the draft as may be agreed between them. The Contractor shall then prepare and submit to the Architect the final statement as agreed. This agreed statement is referred to in these Conditions as the "Final Statement".

1411.3 However, if, following discussions between the Architect and the Contractor and any changes to the draft final statement which are agreed, it becomes evident that a dispute exists, the Architect shall deliver to the Procuring Entity (with a copy to the Contractor) an Interim Payment Certificate for the agreed parts of the draft final statement. Thereafter, if the dispute is finally resolved under Sub-Clause 20.4 [Obtaining Dispute Board's Decision] or Sub-Clause 20.5 [Amicable Settlement], the Contractor shall then prepare and submit to the Procuring Entity (with a copy to the Engineer) a Final Statement.

1412 Discharge

When submitting the Final Statement, the Contractor shall submit a discharge which confirms that the total of the Final Statement represents full and final settlement of all moneys due to the Contractor under or in connection with the Contract. This discharge may state that it becomes effective when the Contractor has received the Performance Security and the outstanding balance of this total, in which event the discharge shall be effective on such date.

14.13 Issue of Final Payment Certificate

- 14.13.1 Within 30 days after receiving the Final Statement and discharge in accordance with Sub-Clause 14.11 [Application for Final Payment Certificate] and Sub-Clause 14.12 [Discharge], the Architect shall deliver, to the Procuring Entity and to the Contractor, the Final Payment Certificate which shall state:
- a) The amount which he fairly determines is finally due, and
 - b) After giving credit to the Procuring Entity for all amounts previously paid by the Procuring Entity and for all sums to which the Procuring Entity is entitled, the balance (if any) due from the Procuring Entity to the Contractor or from the Contractor to the Procuring Entity, as the case may be.
- 14.13.2 If the Contractor has not applied for a Final Payment Certificate in accordance with Sub-Clause 14.11 [Application for Final Payment Certificate] and Sub-Clause 14.12 [Discharge], the Architect shall request the Contractor to do so. If the Contractor fails to submit an application within a period of 30 days, the Architect shall issue the Final Payment Certificate for such amount as he fairly determines to be due.

14.14 Cessation of Procuring Entity's Liability

- 14.14.1 The Procuring Entity shall not be liable to the Contractor for any matter or thing under or in connection with the Contract or execution of the Works, except to the extent that the Contractor shall have included an amount expressly for it:
- a) in the Final Statement and also,
 - b) (except for matters or things arising after the issue of the Taking-Over Certificate for the Works) in the Statement at completion described in Sub-Clause 14.10 [Statement at Completion].
- 14.14.2 However, this Sub-Clause shall not limit the Procuring Entity's liability under his in demnification obligations, or the Procuring Entity's liability in any case of fraud, deliberate default or reckless misconduct by the Procuring Entity.

14.15 Currencies of Payment

The Contract Price shall be paid in the currency or currencies named in the Schedule of Payment Currencies. If more than one currency is so named, payments shall be made as follows:

- a) If the Accepted Contract Amount was expressed in Local Currency only:
 - i) the proportions or amounts of the Local and Foreign Currencies, and the fixed rates of exchange to be used for calculating the payments, shall be as stated in the Schedule of Payment Currencies, except as otherwise agreed by both Parties;
 - ii) payments and deductions under Sub-Clause 13.5 [Provisional Sums] and Sub-Clause 13.7 [Adjustments for Changes in Legislation] shall be made in the applicable currencies and proportions; and
 - iii) other payments and deductions under sub-paragraphs (a) to (d) of Sub-Clause 14.3 [Application for Interim Payment Certificates] shall be made in the currencies and proportions specified in sub-paragraph (a) (i) above;
- b) payment of the damages specified in the Special Conditions of Contract, shall be made in the currencies and proportions specified in the Schedule of Payment Currencies;
- c) other payments to the Procuring Entity by the Contractor shall be made in the currency in which the sum was expended by the Procuring Entity, or in such currency as may be agreed by both Parties;
- d) if any amount payable by the Contractor to the Procuring Entity in a particular currency exceeds the sum payable by the Procuring Entity to the Contractor in that currency, the Procuring Entity may recover the balance of this amount from the sums otherwise payable to the Contractor in other currencies; and
- e) if no rates of exchange are stated in the Schedule of Payment Currencies, they shall be those prevailing on the Base Date and determined by the Central Bank of Kenya.

15 TERMINATION BY PROCURING ENTITY

15.1 Notice to correct any defects or failures

If the Contractor fails to carry out any obligation under the Contract, the Architect may by notice require the Contractor to make good the failure and to remedy it within 30 days.

152 Termination by Procuring Entity

- 152.1 The Procuring Entity shall be entitled to terminate the Contract if the Contractor breaches the contract based on following circumstances which shall include but not limited to:
- a) fails to comply with Sub-Clause 4.2 [Performance Security] or with a notice under Sub-Clause 15.1 [Notice to Correct],
 - b) abandons the Works or otherwise plainly demonstrates the intention not to continue performance of his obligations under the Contract,
 - c) without reasonable excuse fails:
 - i) to proceed with the Works in accordance with Clause 8 [Commencement, Delays and Suspension], or
 - ii) to comply with a notice issued under Sub-Clause 7.5 [Rejection] or Sub-Clause 7.6 [Remedial Work], within 30 days after receiving it,
 - d) subcontracts the major part or whole of the Works or assigns the Contract without the consent of the Procuring Entity,
 - e) becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events, or
 - f) gives or offers to give (directly or indirectly) to any person any bribe, gift, gratuity, commission or other thing of value, as an induce mentor reward:
 - i) for doing or for bearing to do any action in relation to the Contract, or
 - ii) for showing or for bearing to show favor or disfavor to any person in relation to the Contract, or
 - iii) if any of the Contractor's Personnel, agents or Subcontractors gives or offers to give (directly or indirectly) to any person any such induce mentor reward as is described in this sub-paragraph (f). However, lawful inducements and rewards to Contractor's Personnel shall not entitle termination, or
 - g) If the contract or repeatedly fails to remedy delivers defective work,
 - h) based on reasonable evidence, has engaged in Fraud and Corruption as defined in paragraph 2.2 of the Appendix B to these General Conditions, in competing for or in executing the Contract.
- 152.2 In any of these events or circumstances, the Procuring Entity may, upon giving 14 days' notice to the Contractor, terminate the Contract and expel the Contractor from the Site. However, in the case of sub-paragraph (e) or (f) or (g) or (h), the Procuring Entity may by notice terminate the Contract immediately.
- 152.3 The Procuring Entity's election to terminate the Contract shall not prejudice any other rights of the Procuring Entity, under the Contractor otherwise.
- 152.4 The Contractor shall then leave the Site and deliver any required Goods, all Contractor's Documents, and other design documents made by or for him, to the Engineer. However, the Contractor shall use his best efforts to comply immediately with any reasonable instructions included in the notice (i) for the assignment of any subcontract, and (ii) for the protection of life or property or for the safety of the Works.
- 152.5 After termination, the Procuring Entity may complete the Works and/ or arrange for any other entities to do so. The Procuring Entity and these entities may then use any Goods, Contractor's Documents and other design documents made by or on behalf of the Contractor.
- 152.6 The Procuring Entity shall then give notice that the Contractor's Equipment and Temporary Works will be released to the Contractor at or near the Site. The Contractor shall promptly arrange their removal, at the risk and cost of the Contractor. However, if by this time the Contractor has failed to make a payment due to the Procuring Entity, these items may be sold by the Procuring Entity in order to recover this payment. Any balance of the proceeds shall then be paid to the Contractor.

153 Valuation at Date of Termination

As soon as practicable after a notice of termination under Sub-Clause 15.2 [Termination by Procuring Entity] has taken effect, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the value of the Works, Goods and Contractor's Documents, and any other sums due

to the Contractor for work executed in accordance with the Contract.

154 Payment after Termination

After a notice of termination under Sub-Clause 15.2 [Termination by Procuring Entity] has taken effect, the Procuring Entity may:

- a) Proceed in accordance with Sub-Clause 2.5 [Procuring Entity's Claims],
- b) withhold further payments to the Contractor until the costs of execution, completion and remedying of any defects, damages for delay in completion (if any), and all other costs incurred by the Procuring Entity, have been established, and/ or
- c) recover from the Contractor any losses and damages incurred by the Procuring Entity and any extra costs of completing the Works, after allowing for any sum due to the Contractor under Sub-Clause 15.3 [Valuation at Date of Termination]. After recovering any such losses, damages and extra costs, the Procuring Entity shall pay any balance to the Contractor.

155 Procuring Entity's Entitlement to Termination for Convenience

The Procuring Entity shall be entitled to terminate the Contract, at any time at the Procuring Entity's convenience, by giving notice of such termination to the Contractor. The termination shall take effect 30 days after the later of the dates on which the Contractor receives this notice or the Procuring Entity returns the Performance Security. The Procuring Entity shall not terminate the Contract under this Sub-Clause in order to execute the Works itself or to arrange for the Works to be executed by another contractor or to avoid a termination of the Contract by the Contractor under Clause 16.2 [Termination by Contractor]. After this termination, the Contractor shall proceed in accordance with Sub-Clause 16.3 [Cessation of Work and Removal of Contractor's Equipment] and shall be paid in accordance with Sub-Clause 16.4 [Payment on Termination].

156 Fraud and Corruption

The Contractor shall ensure compliance with the Kenya Government's Anti-Corruption Laws and its prevailing sanctions.

157 Corrupt gifts and payments of commission

15.7.1 The Contractor shall not;

- a) Offer or give or agree to give to any person in the service of the Procuring Entity any gift or consideration of any kind as an inducement or reward for doing or for bearing to do or for borne to do any act in relation to the obtaining or execution of this or any other Contract for the Procuring Entity or for showing or for bearing to show favor or disfavor to any person in relation to this or any other contract for the Procuring Entity.
- b) Enter into this or any other contract with the Procuring Entity in connection with which commission has been paid or agreed to be paid by him or on his behalf or to his knowledge, unless before the Contract is made particulars of any such commission and of the terms and conditions of any agreement for the payment thereof have been disclosed in writing to the Procuring Entity.

15.7.2 Any breach of this Condition by the Contractor or by anyone employed by him or acting on his behalf (whether with or without the knowledge of the Contractor) shall be an offence under the provisions of the Public Procurement and Asset Disposal Act (2015) and the Anti-Corruption and Economic Crimes Act (2003) of the Laws of Kenya.

16 SUSPENSION AND TERMINATION BY CONTRACTOR

16.1 Contractor's Entitlement to Suspend Work

16.1.1 If the Architect fails to certify in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates] or Sub-Clause 14.7 [Payment], or not receiving instructions that would enable the contractor to proceed with the works in accordance with the program, the Contractor may, after giving not less than 30 days' notice to the Procuring Entity, suspend work (or reduce the rate of work) unless and until the Contractor has received the Payment Certificate, reasonable evidence or payment, as the case may be and as described

in the notice.

- 16.12 The Contractor's action shall not prejudice his entitlements to financing charges under Sub-Clause 14.8 [Delayed Payment] and to termination under Sub-Clause 16.2 [Termination by Contractor].
- 16.13 If the Contractor subsequently receives such Payment Certificate, evidence or payment (as described in the relevant Sub-Clause and in the above notice) before giving a notice of termination, the Contractor shall resume normal working as soon as is reasonably practicable.
- 16.14 If the Contractor suffers delay and/or incurs Cost as a result of suspending work (or reducing the rate of work) in accordance with this Sub-Clause, the Contractor shall give notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
 - b) payment of any such Cost-plus profit, which shall be included in the Contract Price.
- 16.2** After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

16.3 Termination by Contractor

- 16.3.1 The Contractor shall be entitled to terminate the Contract if:
- a) the Architect fails, within 60 days after receiving a Statement and supporting documents, to issue the relevant Payment Certificate,
 - b) the Contractor does not receive the amount due under an Interim Payment Certificate within 90 days after the expiry of the time stated in Sub-Clause 14.7 [Payment] within which payment is to be made (except for deductions in accordance with Sub-Clause 2.5 [Procuring Entity's Claims]),
 - c) the Procuring Entity substantially fails to perform his obligations under the Contract in such manner as to materially and adversely affect the economic balance of the Contract and/or the ability of the Contractor to perform the Contract,
 - d) a prolonged suspension affects the whole of the Works as described in Sub-Clause 8.11 [Prolonged Suspension], or
 - e) the Procuring Entity becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events.
 - f) the Contractor does not receive the Architect instruction recording the agreement of both Parties on the fulfilment of the conditions for the Commencement of Works under Sub-Clause 8.1 [Commencement of Works].
- 16.3.2 In any of these events or circumstances, the Contractor may, upon giving 14 days' notice to the Procuring Entity, terminate the Contract. However, in the case of sub-paragraph (f) or (g), the Contractor may by notice terminate the Contract immediately.
- 16.3.3 The Contractor's election to terminate the Contract shall not prejudice any other rights of the Contractor, under the Contract otherwise.

16.4 Cessation of Work and Removal of Contractor's Equipment

After a notice of termination under Sub-Clause 15.5 [Procuring Entity's Entitlement to Termination for Convenience], Sub-Clause 16.2 [Termination by Contractor] or Sub-Clause 19.6 [Optional Termination, Payment and Release] has taken effect, the Contractor shall promptly:

- a) cease all further work, except for such work as may have been instructed by the Architect for the protection of life or property or for the safety of the Works,
- b) hand over Contractor's Documents, Plant, Materials and other work, for which the Contractor has received payment, and
- c) remove all other Goods from the Site, except as necessary for safety, and leave the Site.

16.5 Payment on Termination

After a notice of termination under Sub-Clause 16.2 [Termination by Contractor] has taken effect, the

Procuring Entity shall promptly:

- a) Return the Performance Security to the Contractor,
- b) pay the Contractor in accordance with Sub-Clause 19.6 [Optional Termination, Payment and Release], and
- c) pay to the Contractor the amount of any loss or damage sustained by the Contractor as a result of this termination.

17. RISK AND RESPONSIBILITY

17.1 Indemnities

17.1.1 The Contractor shall indemnify and hold harmless the Procuring Entity, the Procuring Entity's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of:

- a) Bodily injury, sickness, disease or death, of any person what so ever arising out of or in the course of or by reason of the Contractor's design (if any), the execution and completion of the Works and the remedying of any defects, unless attributable to any negligence, willful actor breach of the Contract by the Procuring Entity, the Procuring Entity's Personnel, or any of their respective agents, and
- b) damage to or loss of any property, real or personal (other than the Works), to the extent that such damage or loss arises out of or in the course of or by reason of the Contractor's design (if any), the execution and completion of the Works and the remedying of any defects, unless and to the extent that any such damage or loss is attributable to any negligence, willful act or breach of the Contract by the Procuring Entity, the Procuring Entity's Personnel, their respective agents, or anyone directly or indirectly employed by any of them.

17.1.2 The Procuring Entity shall indemnify and hold harmless the Contractor, the Contractor's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of (1) bodily injury, sickness, disease or death, which is attributable to any negligence, willful act or breach of the Contract by the Procuring Entity, the Procuring Entity's Personnel, or any of their respective agents, and (2) the matters for which liability may be excluded from insurance cover, as described in sub-paragraphs (d)(i), (ii) and (iii) of Sub-Clause 18.3 [Insurance Against Injury to Persons and Damage to Property], unless and to the extent that any such damage or loss is attributable to any negligence, willful actor breach of the Contract by the contractor, the contractor's Personnel, their respective agents, or anyone directly or indirectly employed by any of them.

17.2 Contractor's Care of the Works

17.2.1 The Contractor shall take full responsibility for the care of the Works and Goods from the Commencement Date until the Taking-Over Certificate is issued (or is deemed to be issued under Sub-Clause 10.1 [Taking Over of the Works and Sections]) for the Works, when responsibility for the care of the Works shall pass to the Procuring Entity. If a Taking-Over Certificate is issued (or is so deemed to be issued) for any Section or part of the Works, responsibility for the care of the Section or part shall then pass to the Procuring Entity.

17.2.2 After responsibility has accordingly passed to the Procuring Entity, the Contractor shall take responsibility for the care of any work which is outstanding on the date stated in a Taking-Over Certificate, until this outstanding work has been completed.

17.2.3 If any loss or damage happens to the Works, Goods or Contractor's Documents during the period when the Contractor is responsible for their care, from any cause not listed in Sub-Clause 17.3 [Procuring Entity's Risks], the Contractor shall rectify the loss or damage at the Contractor's risk and cost, so that the Works, Goods and Contractor's Documents conform with the Contract.

17.2.4 The Contractor shall be liable for any loss or damage caused by any actions performed by the Contractor after a Taking-Over Certificate has been issued. The Contractor shall also be liable for any loss or damage which occurs after a Taking-Over Certificate has been issued and which arose from a previous event for which the Contractor was liable.

17.3 Procuring Entity's Risks

The risks referred to in Sub-Clause 17.4 [Consequences of Procuring Entity's Risks] below, in so far as they directly affect the execution of the Works in Kenya, are:

- a) War hostilities (whether war be declared or not),
- b) rebellion, riot, commotion or disorder, terrorism, sabotage by persons other than the Contractor's Personnel,
- c) explosive materials, ionizing radiation or contamination by radio-activity, except as may be attributable to the Contractor's use of such explosives, radiation or radio-activity,
- d) pressure waves caused by aircraft or other aerial devices traveling at sonic or supersonic speeds,
- e) use or occupation by the Procuring Entity of any part of the Permanent Works, except as may be specified in the Contract,
- f) design of any part of the Works by the Procuring Entity's Personnel or by others for whom the Procuring Entity is responsible, and
- g) any operation of the forces of nature which is Unforeseeable or against which an experienced contractor could not reasonably have been expected to have taken adequate preventive precautions.

174 Consequences of Procuring Entity's Risks

- 174.1 If and to the extent that any of the risks listed in Sub-Clause 17.3 above results in loss or damage to the Works, Goods or Contractor's Documents, the Contractor shall promptly give notice to the Architect and shall rectify this loss or damage to the extent required by the Engineer.
- 174.2 If the Contractor suffers delay and/ or incurs Cost from rectifying this loss or damage, the Contractor shall give a further notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
- (a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
 - (b) Payment of any such Cost, which shall be included in the Contract Price. In the case of sub-paragraphs (e) and (g) of Sub-Clause 17.3 [Procuring Entity's Risks], Accrued Costs shall be payable.
- 174.3 After receiving this further notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

175 Intellectual and Industrial Property Rights

- 175.1 In this Sub-Clause, "infringement" shall refer to an infringement (or alleged infringement) of any patent, registered design, copyright, trade mark, trade name, trade secret or other intellectual or industrial property right relating to the Works; and "claim" shall refer to a claim (or proceedings pursuing a claim) alleging an infringement.
- 175.2 Whenever a Party does not give notice to the other Party of any claim within 30 days of receiving the claim, the first Party shall be deemed to have waived any right to indemnity under this Sub-Clause.
- 175.3 The Procuring Entity shall indemnify and hold the Contractor harmless against and from any claim alleging an infringement which is or was:
- a) An unavoidable result of the Contractor's compliance with the Contract, or
 - b) A result of any Works being used by the Procuring Entity:
 - i) for a purpose other than that indicated by, or reasonably to be inferred from, the Contract, or
 - ii) in conjunction with anything not supplied by the Contractor, unless such use was disclosed to the Contractor prior to the Base Date or is stated in the Contract.
- 175.4 The Contractor shall indemnify and hold the Procuring Entity harmless against and from any other claim which arises out of or in relation to (i) the manufacture, use, sale or import of any Goods, or (ii) any design for which the Contractor is responsible.
- 175.5 If a Party is entitled to be indemnified under this Sub-Clause, the indemnifying Party may (at its cost) conduct negotiations for the settlement of the claim, and any litigation or arbitration which may arise from it. The other Party shall, at the request and cost of the indemnifying Party, assist in contesting the claim. This other Party (and its Personnel) shall not make any admission which might be prejudicial to the indemnifying Party, unless the indemnifying Party failed to take over the conduct of any negotiations, litigation or arbitration upon being requested to do so by such other Party.

1756 For operation and maintenance of any plant or equipment installed, the contractor shall grant a non-exclusive and non-transferable license to the Procuring Entity under the patent, utility models ,or other intellectual rights owned by the contractor or a third party from whom the contract or has received the rights to grant sub-licenses and shall also grant to the Procuring Entity a non-exclusive and non-transferable rights (without the rights to sub-license) to use the know-how and other technical information disclosed to the contract or under the contract. Nothing contained here-in shall be construed as transferring ownership of any patent, utility model, trademark, design, copy right, know-how or other intellectual rights from the contractor or any other third party to the Procuring Entity.

176 Limitation of Liability

176.1 Neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any contractor for any in director consequential loss or damage which may be suffered by the other Party in connection with the Contract, other than as specifically provided in Sub-Clause 8.7 [Delay Damages]; Sub-Clause 11.2 [Cost of Remedying Defects]; Sub-Clause 15.4 [Payment after Termination]; Sub-Clause 16.4 [Payment on Termination]; Sub-Clause 17.1 [Indemnities]; Sub-Clause 17.4(b) [Consequences of Procuring Entity's Risks] and Sub-Clause 17.5 [Intellectual and Industrial Property Rights].

176.2 The total liability of the Contractor to the Procuring Entity, under or in connection with the Contract other than under Sub-Clause 4.19 [Electricity, Water and Gas], Sub-Clause 4.20 [Procuring Entity's Equipment and Free- Issue Materials], Sub-Clause 17.1 [Indemnities] and Sub-Clause 17.5 [Intellectual and Industrial Property Rights], shall not exceed the sum resulting from the application of a multiplier (less or greater than one) to the Accepted Contract Amount, as stated in **the Special Conditions of Contract**, or (if such multiplier or other sum is not so stated) the Accepted Contract Amount.

176.3 This Sub-Clause shall not limit liability in any case of fraud, deliberate default or reckless misconduct by the defaulting Party.

177 Use of Procuring Entity's Accommodation/Facilities

177.1 The Contractor shall take full responsibility for the care of the Procuring Entity provided accommodation and facilities, if any, as detailed in the Specification, from the respective dates of hand-over to the Contractor until cessation of occupation (where hand-over or cessation of occupation may take place after the date stated in the Taking-Over Certificate for the Works).

177.2 If any loss or damage happens to any of the above items while the Contractor is responsible for their care arising from any cause whatsoever other than those for which the Procuring Entity is liable, the Contractor shall, at his own cost, rectify the loss or damage to the satisfaction of the Engineer.

18 INSURANCE

18.1 General Requirements for Insurances

18.1.1 In this Clause, “insuring Party” means, for each type of insurance, the Party responsible for effecting and maintaining the insurance specified in the relevant Sub-Clause.

18.1.2 Wherever the Contractor is the insuring Party, each insurance shall be effected with insurers and in terms approved by the Procuring Entity. These terms shall be consistent with any terms agreed by both Parties before the date of the Letter of Acceptance. This agreement of terms shall take precedence over the provisions of this Clause.

18.1.3 Wherever the Procuring Entity is the insuring Party, each insurance shall be effected with insurers and in terms acceptable to the Contractor. These terms shall be consistent with any terms agreed by both Parties before the date of the Letter of Acceptance. This agreement of terms shall take precedence over the provisions of this Clause.

18.1.4 If a policy is required to indemnify joint insured, the cover shall apply separately to each insured as though a separate policy had been issued for each of the joint insured. If a policy indemnifies additional joint insured, namely in addition to the insured specified in this Clause, (i) the Contractor shall act under the policy on behalf of these additional joint insured except that the Procuring Entity shall act for Procuring Entity's Personnel, (ii) additional joint insured shall not be entitled to receive payments directly from the insurer or to have any other direct dealings with the insurer, and (iii) the insuring Party shall require all additional joint insured to comply with the conditions stipulated in the policy.

- 18.15 Each policy insuring against loss or damage shall provide for payments to be made in the currencies required to rectify the loss or damage. Payments received from insurers shall be used for the rectification of the loss or damage.
- 18.16 The relevant insuring Party shall, within the respective periods stated in **the Special Conditions of Contract** (calculated from the Commencement Date), submit to the other Party:
- a) Evidence that the insurances described in this Clause have been affected, and
 - b) copies of the policies for the insurances described in Sub-Clause 18.2 [Insurance for Works and Contractor's Equipment] and Sub-Clause 18.3 [Insurance against Injury to Persons and Damage to Property].
- 18.17 When each premium is paid, the insuring Party shall submit evidence of payment to the other Party. Whenever evidence or policies are submitted, the insuring Party shall also give notice to the Engineer.
- 18.18 Each Party shall comply with the conditions stipulated in each of the insurance policies. The insuring Party shall keep the insurers informed of any relevant changes to the execution of the Works and ensure that insurance is maintained in accordance with this Clause.
- 18.19 Neither Party shall make any material alteration to the terms of any insurance without the prior approval of the other Party. If an insurer makes (or attempts to make) any alteration, the Party first notified by the insurer shall promptly give notice to the other Party.
- 18.110 If the insuring Party fails to effect and keep in force any of the insurances it is required to effect and maintain under the Contract fails to provide satisfactory evidence and copies of policies in accordance with this Sub-Clause, the other Party may (at its option and without prejudice to any other right or remedy) effect insurance for the relevant coverage and pay the premiums due. The insuring Party shall pay the amount of these premiums to the other Party, and the Contract Price shall be adjusted accordingly.
- 18.111 Nothing in this Clause limits the obligations, liabilities or responsibilities of the Contractor or the Procuring Entity, under the other terms of the Contract otherwise. Any amounts not insured or not recovered from the insurers shall be borne by the Contractor and/or the Procuring Entity.
- 18.112 Procuring Entity in accordance with these obligations, liabilities or responsibilities. However, if the insuring Party fails to effect and keep in force an insurance which is available and which it is required to effect and maintain under the Contract, and the other Party neither approves the omission nor effects insurance for the coverage relevant to this default, any moneys which should have been recoverable under this insurance shall be paid by the insuring Party.
- 18.113 Payments by one Party to the other Party shall be subject to Sub-Clause 2.5 [Procuring Entity's Claims] or Sub-Clause 20.1 [Contractor's Claims], as applicable.
- 18.114 The Contractor shall be entitled to place all insurance relating to the Contract (including, but not limited to the insurance referred to Clause 18) with insurers from any eligible source country.

182 Insurance for Works and Contractor's Equipment

- 182.1 The insuring Party shall insure the Works, Plant, Material and Contractor's Documents for not less than the full reinstatement cost including the costs of demolition, removal of debris and professional fees and profit. This insurance shall be effective from the date by which the evidence is to be submitted under subparagraph (a) of Sub-Clause 18.1 [General Requirements for Insurances], until the date of issue of the Taking-Over Certificate for the Works.
- 182.2 The insuring Party shall maintain this insurance to provide cover until the date of issue of the Performance Certificate, for loss or damage for which the Contractor is liable arising from a cause occurring prior to the issue of the Taking-Over Certificate, and for loss or damage caused by the Contractor in the course of any other operations (including those under Clause 11 [Defects Liability]).
- 182.3 The insuring Party shall insure the Contractor's Equipment for not less than the full replacement value, including delivery to Site. For each item of Contractor's Equipment, the insurance shall be effective while it is being transported to the Site and until it is no longer required as Contractor's Equipment.

- 1824 Unless otherwise stated in the Special Conditions, insurances under this Sub-Clause:
- a) Shall be effected and maintained by the Contractor as insuring Party,
 - b) shall be in the joint names of the Parties, who shall be jointly entitled to receive payments from the insurers, payments being held or allocated to the Party actually bearing the costs of rectifying the loss or damage,
 - c) shall cover all loss and damage from any cause not listed in Sub-Clause 17.3 [Procuring Entity's Risks],
 - d) shall also cover, to the extent specifically required in the tendering documents of the Contract, loss or damage to a part of the Works which is attributable to the use or occupation by the Procuring Entity of another part of the Works, and loss or damage from the risks listed in sub-paragraphs (c), (g) and (h) of Sub-Clause 17.3 [Procuring Entity's Risks], excluding (in each case) risks which are not insurable at commercially reasonable terms, with deductibles per occurrence of not more than the amount stated **in the Special Conditions** of Contract (if an amount is not so stated, this sub-paragraph (d) shall not apply), and
 - e) may however exclude loss of, damage to, and reinstatement of:
 - i) a part of the Works which is in a defective condition due to a defect in its design, materials or workmanship (but cover shall include any other parts which are lost or damaged as a direct result of this defective condition and not as described in sub-paragraph (ii) below),
 - ii) apart of the Works which is lost or damaged in order to reinstate any other part of the Works if this other part is in a defective condition due to a defect in its design, materials or workmanship,
 - iii) apart of the Works which has been taken over by the Procuring Entity, except to the extent that the Contractor is liable for the loss or damage, and
 - iv) Goods while they are not in Kenya, subject to Sub-Clause 14.5 [Plant and Materials intended for the Works].

1825 If, more than one year after the Base Date, the cover described in sub-paragraph (d) above ceases to be available at commercially reasonable terms, the Contractor shall (as insuring Party) give notice to the Procuring Entity, with supporting particulars. The Procuring Entity shall then (i) be entitled subject to Sub-Clause 2.5 [Procuring Entity's Claims] to payment of an amount equivalent to such commercially reasonable terms as the Contractor should have expected to have paid for such cover, and (ii) be deemed, unless he obtains the cover at commercially reasonable terms, to have approved the omission under Sub-Clause 18.1 [General Requirements for Insurances].

183 Insurance against Injury to Persons and Damage to Property

183.1 The insuring Party shall insure against each Party's liability for any loss, damage, death or bodily injury which may occur to any physical property (except things insured under Sub-Clause 18.2 [Insurance for Works and Contractor's Equipment]) or to any person (except persons insured under Sub-Clause 18.4 [Insurance for Contractor's Personnel]), which may arise out of the Contractor's performance of the Contract and occurring before the issue of the Performance Certificate.

1832 This insurance shall be for a limit per occurrence of not less than the amount stated in **the Special Conditions of Contract**, with no limit on the number of occurrences. If an amount is not stated in the **Special Conditions of Contract**, this Sub-Clause shall not apply.

1833 Unless otherwise stated in the Special Conditions, the insurances specified in this Sub-Clause:

- a) Shall be effected and maintained by the Contractor as insuring Party,
- b) shall be in the joint names of the Parties,
- c) shall be extended to cover liability for all loss and damage to the Procuring Entity's property (except things insured under Sub-Clause 18.2) arising out of the Contractor's performance of the Contract, and
- d) may however exclude liability to the extent that it arises from:
 - i) the Procuring Entity's right to have the Permanent Works executed on, over, under, in or
 - ii) through any land, and to occupy this land for the Permanent Works,
 - iii) damage which is an unavoidable result of the Contractor's obligations to execute the
 - iv) Works and remedy any defects, and
 - v) a cause listed in Sub-Clause 17.3 [Procuring Entity's Risks], except to the extent that cover is available at commercially reasonable terms.

184 Insurance for Contractor's Personnel

- 1841 The Contractor shall effect and maintain insurance against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel.
- 1842 The insurance shall cover the Procuring Entity and the Architect against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel, except that this insurance may exclude losses and claims to the extent that they arise from any act or neglect of the Procuring Entity or of the Procuring Entity's Personnel.
- 1843 The insurance shall be maintained in full force and effect during the whole time that these personnel are assisting in the execution of the Works. For a Subcontractor's employees, the insurance may be effected by the Subcontractor, but the Contractor shall be responsible for compliance with this Clause.

19 FORCE MAJEURE

19.1 Definition of Force Majeure

- 19.1.1 In this Clause, "Force Majeure" means an exceptional event or circumstance:
- Which is beyond a Party's control,
 - Which such Party could not reasonably have provided against before entering into the Contract,
 - which, having arisen, such Party could not reasonably have avoided or overcome, and
 - which is not substantially attributable to the other Party.
- 19.1.2 Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied:
- war, hostilities (whether war be declared or not), invasion, act of foreign enemies,
 - rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war,
 - riot, commotion, disorder, strike or lockout by persons other than the Contractor's Personnel,
 - munitions of war, explosive materials, ionizing radiation or contamination by radio-activity, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity, and
 - natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.

19.2 Notice of Force Majeure

- 19.2.1 If a Party is or will be prevented from performing its substantial obligations under the Contract by Force Majeure, then it shall give notice to the other Party of the event or circumstances constituting the Force Majeure and shall specify the obligations, the performance of which is or will be prevented. The notice shall be given within 14 days after the Party became aware, or should have become aware, of the relevant event or circumstance constituting Force Majeure.
- 19.2.2 The Party shall, having given notice, be excused performance of its obligations for so long as such Force Majeure prevents it from performing them.
- 19.2.3 Notwithstanding any other provision of this Clause, Force Majeure shall not apply to obligations of either Party to make payments to the other Party under the Contract.

19.3 Duty to Minimize Delay

Each Party shall at all times use all reasonable endeavors to minimize any delay in the performance of the Contract as a result of Force Majeure. A Party shall give notice to the other Party when it ceases to be affected by the Force Majeure.

19.4 Consequences of Force Majeure

- 19.4.1 If the Contractor is prevented from performing his substantial obligations under the Contract by Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], and suffers delay and/ or incurs Cost by reason of such Force Majeure, the Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
- an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

- b) if the event or circumstance is of the kind described in sub-paragraphs (i) to (iv) of Sub-Clause 19.1 [Definition of Force Majeure] and, in sub-paragraphs (ii) to (iv), occurs in Kenya, payment of any such Cost, including the costs of rectifying or replacing the Works and/or Goods damaged or destroyed by Force Majeure, to the extent they are not indemnified through the insurance policy referred to in Sub-Clause 18.2 [Insurance for Works and Contractor's Equipment].

1942 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

195 Force Majeure Affecting Subcontractor

If any Subcontractor is entitled under any contract or agreement relating to the Works to relief from force majeure on terms additional to or broader than those specified in this Clause, such additional or broader force majeure events or circumstances shall not excuse the Contractor's non-performance or entitle him to relief under this Clause.

196 Optional Termination, Payment and Release

1961 If the execution of substantially all the Works in progress is prevented for a continuous period of 84 days by reason of Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], or for multiple periods which total more than 140 days due to the same notified Force Majeure, then either Party may give to the other Party a notice of termination of the Contract. In this event, the termination shall take effect 7 days after the notice is given, and the Contractor shall proceed in accordance with Sub-Clause 16.3 [Cessation of Work and Removal of Contractor's Equipment].

1962 Upon such termination, the Architect shall determine the value of the work done and issue a Payment Certificate which shall include:

- a) the amounts payable for any work carried out for which a price is stated in the Contract;
- b) the Cost of Plant and Materials ordered for the Works which have been delivered to the Contractor, or of which the Contractor is liable to accept delivery: this Plant and Materials shall become the property of (and be at the risk of) the Procuring Entity when paid for by the Procuring Entity, and the Contractor shall place the same at the Procuring Entity's disposal;
- c) other Cost or liabilities which in the circumstances were reasonably and necessarily incurred by the Contractor in the expectation of completing the Works;
- d) the Cost of removal of Temporary Works and Contractor's Equipment from the Site and the return of these items to the Contractor's works in his country (or to any other destination at no greater cost); and
- e) the Cost of repatriation of the Contractor's staff and lab or employed wholly in connection with the Works at the date of termination.

197 Release from Performance

Notwithstanding any other provision of this Clause, if any event or circumstance outside the control of the Parties (including, but not limited to, Force Majeure) arises which makes it impossible or unlawful for either or both Parties to fulfil its or their contractual obligations or which, under the law governing the Contract, entitles the Parties to be released from further performance of the Contract, then upon notice by either Party to the other Party of such event or circumstance:

- a) The Parties shall be discharged from further performance, without prejudice to the rights of either Party in respect of any previous breach of the Contract, and
- b) The sum payable by the Procuring Entity to the Contractor shall be the same as would have been payable under Sub-Clause 19.6 [Optional Termination, Payment and Release] if the Contract had been terminated under Sub-Clause 19.6.

20 SETTLEMENT OF CLAIMS AND DISPUTES

20.1 Contractor's Claims

- 20.1.1 If the Contractor considers itself to be entitled to any extension of the Time for Completion and/or any additional payment, under any Clause of these Conditions or otherwise in connection with the Contract, the Contractor shall give Notice to the Engineer, describing the event or circumstance giving rise to the claim. The notice shall be given as soon as practicable, and not later than 30 days after the Contractor became aware, or should have become aware, of the event or circumstance.
- 20.1.2 If the Contractor fails to give notice of a claim within such period of 30 days, the Time for Completion shall not be extended, the Contractor shall not be entitled to additional payment, and the Procuring Entity shall be discharged from all liability in connection with the claim. Otherwise, the following provisions of this Sub-Clause shall apply.
- 20.1.3 The Contractor shall also submit any other notices which are required by the Contract, and supporting particulars for the claim, all as relevant to such event or circumstance.
- 20.1.4 The Contractor shall keep such contemporary records as may be necessary to substantiate any claim, either on the Site or at another location acceptable to the Engineer. Without admitting the Procuring Entity's liability, the Architect may, after receiving any notice under this Sub-Clause, monitor the record-keeping and/ or instruct the Contractor to keep further contemporary records. The Contractor shall permit the Architect to inspect all these records and shall (if instructed) submit copies to the Engineer.
- 20.1.5 Within 42 days after the Contractor became aware (or should have become aware) of the event or circumstance giving rise to the claim, or within such other period as may be proposed by the Contractor and approved by the Engineer, the Contractor shall send to the Architect fully detailed claim which includes full supporting particulars of the basis of the claim and of the extension of time and/ or additional payment claimed. If the event or circumstance giving rise to the claim has a continuing effect:
- a) This fully detailed claim shall be considered as interim;
 - b) The Contractor shall send further interim claims at monthly intervals, giving the accumulated delay and/ or amount claimed, and such further particulars as the Architect may reasonably require; and
 - c) The Contractor shall send a final claim within 30 days after the end of the effects resulting from the event or circumstance, or within such other period as may be proposed by the Contractor and approved by the Engineer.
- 20.1.6 Within 42 days after receiving a Notice of a claim or any further particulars supporting a previous claim, or within such other period as may be proposed by the Architect and approved by the Contractor, the Architect shall respond with approval, or with disapproval and detailed comments. He may also request any necessary further particulars but shall nevertheless give his response on the principles of the claim within the above defined time period.
- 20.1.7 Within the above defined period of 42 days, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) the extension (if any) of the Time for Completion (before or after its expiry) in accordance with Sub-Clause 8.4 [Extension of Time for Completion], and/or (ii) the additional payment (if any) to which the Contractor is entitled under the Contract.
- 20.1.8 Each Payment Certificate shall include such additional payment for any claim as has been reasonably substantiated as due under the relevant provision of the Contract. Unless and until the particulars supplied are sufficient to substantiate the whole of the claim, the Contractor shall only be entitled to payment for such part of the claim as he has been able to substantiate.
- 20.1.9 If the Architect does not respond within the time frame defined in this Clause, either Party may consider that the claim is rejected by the Architect and any of the Parties may refer the dispute for amicable settlement in accordance with Clause 20.3.
- 20.1.10 The requirements of this Sub-Clause are in addition to those of any other Sub-Clause which may apply to a claim. If the Contractor fails to comply with this or another Sub-Clause in relation to any claim, any extension of time and/ or additional payment shall take account of the extent (if any) to which the failure has prevented or prejudiced proper investigation of the claim, unless the claim is excluded under the second

paragraph of this Sub-Clause 20.3.

202 Procuring Entity's Claims

- 2021 If the Procuring Entity considers itself to be entitled to any payment under any Clause of these Conditions or otherwise in connection with the Contract, and/or to any extension of the Defects Notification Period, the Procuring Entity or the Architect shall give notice and particulars to the Contractor. However, notice is not required for payments due under Sub-Clause 4.19 [Electricity, Water and Gas], under Sub-Clause 4.20 [Procuring Entity's Equipment and Free-Issue Materials], or for other services requested by the Contractor.
- 2022 The notice shall be given as soon as practicable and no longer than 30 days after the Procuring Entity became aware, or should have become aware, of the event or circumstances giving rise to the claim. A notice relating to any extension of the Defects Notification Period shall be given before the expiry of such period.
- 2023 The particulars shall specify the Clause or other basis of the claim and shall include substantiation of the amount and/or extension to which the Procuring Entity considers itself to be entitled in connection with the Contract. The Architect shall then proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) the amount (if any) which the Procuring Entity is entitled to be paid by the Contractor, and/ or (ii) the extension (if any) of the Defects Notification Period in accordance with Sub-Clause 11.3 [Extension of Defects Notification Period].
- 2024 This amount may be included as a deduction in the Contract Price and Payment Certificates. The Procuring Entity shall only be entitled to set off against or make any deduction from an amount certified in a Payment Certificate, or to otherwise claim against the Contractor, in accordance with this Sub-Clause.

203 Amicable Settlement

Where a notice of a claim has been given, both Parties shall attempt to settle the dispute amicably before the commencement of arbitration. However, unless both Parties agree otherwise, the Party giving a notice of a claim in accordance with Sub-Clause 20.1 above should move to commence arbitration after 60 days from the day on which a notice of a claim was given, even if no attempt at an amicable settlement has been made.

204 Matters that may be referred to arbitration

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 Contract by either party:

- a) Whether or not the issue of an instruction by the Architect is empowered by these Conditions.
- b) Whether or not a certificate has been improperly withheld or is not in accordance with these Conditions.
- c) Any dispute arising in respect risks arising from matters referred to in Clause 17.3 and Clause 19.
- e) All other matters shall only be referred to arbitration after the completion or alleged completion of the Works or termination or alleged termination of the Contract, unless the Procuring Entity and the Contractor agree otherwise in writing.

205 Arbitration

- 205.1 Any claim or dispute between the Parties arising out of or in connection with the Contract not settled amicably in accordance with Sub-Clause 20.3 shall be finally settled by arbitration.
- 205.2 No arbitration proceedings shall be commenced on any claim or dispute where notice of a claim or dispute has not been given by the applying party within ninety days of the occurrence or discovery of the matter or issue giving rise to the dispute.
- 205.3 Notwithstanding the issue of a notice as stated above, the arbitration of such a claim or dispute shall not commence unless an attempt has in the first instance been made by the parties to settle such claim or dispute amicably with or without the assistance of third parties. Proof of such attempt shall be required.
- 205.4 The Arbitrator shall, without prejudice to the generality of his powers, have powers 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 of or included in any certificate.

2055 The Arbitrator shall, without prejudice to the generality of his powers, have powers 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 require mentor notice had been given.

2056 The arbitrators shall have full power to open up, review and revise any certificate, determination, instruction, opinion or valuation of the Engineer, relevant to the dispute. Nothing shall disqualify representatives of the Parties and the Architect from being called as a witness and giving evidence before the arbitrators on any matter whatsoever relevant to the dispute.

2057 Neither Party shall be limited in the proceedings before the arbitrators to the evidence, or to the reasons for dissatisfaction given in its Notice of Dissatisfaction.

2057 Arbitration may be commenced prior to or after completion of the Works. The obligations of the Parties, and the Architect shall not be altered by reason of any arbitration being conducted during the progress of the Works.

2058 The terms of the remuneration of each or all the members of Arbitration shall be mutually agreed upon by the Parties when agreeing the terms of appointment. Each Party shall be responsible for paying one-half of this remuneration.

206 Arbitration with National Contractors

2061 If the Contract is with national contractors, arbitration proceedings will be conducted in accordance with the Arbitration Laws of Kenya. In case of any claim or dispute, such claim or 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 thirty days of the notice. The dispute shall be referred to the arbitration and final decision of a person to be agreed between the parties. Failing agreement to concur in the appointment of an Arbitrator, the Arbitrator shall be appointed, on the request of the applying party, by the Chairman or Vice Chairman of any of the following professional institutions;

- i) Architectural Association of Kenya
- ii) Institute of Quantity Surveyors of Kenya
- iii) Association of Consulting Engineers of Kenya
- iv) Chartered Institute of Arbitrators (Kenya Branch)
- v) Institution of Engineers of Kenya

2062 The institution written to first by the aggrieved party shall take precedence over all other institutions.

207 Arbitration with Foreign Contractors

207.1 Arbitration with foreign contractors shall be conducted in accordance with the arbitration rules of the United Nations Commission on International Trade Law (UNCITRAL); or with proceedings administered by the International Chamber of Commerce (ICC) and conducted under the ICC Rules of Arbitration; by one or more arbitrators appointed in accordance with said arbitration rules.

207.2 The place of arbitration shall be a location specified in the **SCC**; and the arbitration shall be conducted in the language for communications defined in Sub-Clause 1.4 [Law and Language].

208 Alternative Arbitration Proceedings

Alternatively, the Parties may refer the matter to the Nairobi Centre for International Arbitration (NCIA) which offers a neutral venue for the conduct of national and international arbitration with commitment to providing institutional support to the arbitral process.

209 Failure to Comply with Arbitrator's Decision

209.1 The award of such Arbitrator shall be final and binding up on the parties.

2092 In the event that a Party fails to comply with a final and binding Arbitrator's decision, then the other Party may, without prejudice to any other rights it may have, refer the matter to a competent court of law.

20.10 Contract operations to continue

Notwithstanding any reference to arbitration herein,

- 1.1.1 the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and
- 1.1.2 the Procuring Entity shall pay the Contractor any monies due the Contractor.

Section IX - Special Conditions of Contract

The following Special Conditions shall supplement the GCC. Whenever there is a conflict, the provisions here in shall prevail over those in the GCC.

Conditions	Sub-Clause	Data
Part A - Contract Data		
Procuring Entity's name and address	Heading	RONGO UNIVERSITY P.O. BOX 103 – 40404, RONGO - KENYA
Name and Reference No. of the Contract	Heading and 1.1	Name: PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK FOR RONGO UNIVERSITY Ref: <i>TENDER NUMBER: RU/TSLB/009/2024-2025</i>
Engineers Name and address	Heading and 3.1.1	Messrs. Skylon Designs Ltd. of P.O. Box 26011-00100, NAIROBI
Contractor's Representative's name	4.3.1	<i>[insert the name of the Contractor's Representative agreed by the Procuring Entity prior to Contract signature]</i>
Key Personnel names	16.9.1	<i>[insert the name of each Key Personnel agreed by the Procuring Entity prior to Contract signature]</i>
Time for Completion	1.1.	156 Weeks
Defects Notification Period	1.1	6 Months
Sections	1.1	Not Applicable
Electronic transmission systems	1.3	Project Manager's Email Address; skylondesigns.sd@gmail.com
Time for the Parties entering into a Contract Agreement	1.6	Within 30 days
Commencement Date	8.1.1	To be agreed with the employer
Time for access to the Site	2.1.1	No later than the Commencement Date, and not later than 14 (fourteen) days after Commencement Date
Architect Duties and Authority	3.1.6 (b) (ii)	Variations resulting in an increase of the Accepted Contract Amount shall require approval of the Procuring Entity.
Performance Security	4.2.1	The performance security will be in the form of a performance bond in the amount(s) of 5% (Five percent) of the Accepted Contract Amount and in the same currency(ies) of the Accepted Contract Amount.
Normal working hours	6.5	0800-1700 hrs.
Delay damages for the Works	8.7 & 14.15(b)	0.1% of the Contract Price per day.
Maximum amount of delay damages	8.7.1	10% of the final Contract Price.
Provisional Sums	13.6. (b)(ii)	Applicable
Adjustments for Changes in Cost	13.9	Not Applicable

Conditions	Sub-Clause	Data
Total advance payment	14.2.1	Not Applicable
Repayment amortization rate of advance payment	14.2.5 (b)	The following formular shall apply $R = \frac{A(XII-XI)}{90\%-30\%}$ Where R= Amount to be reimbursed A= Amount of Advance Payment Granted XII= Amount of Proposed cumulative payments as a percentage of the original contract amount. Should be >30% but not >90% XI= Amount of previous cumulative payments as a percentage of the original contract amount. Should be <90% but not <30%
Percentage of Retention	14.3.2 (c)	_10_%
Limit of Retention Money	14.3.2 (c)	10 % of the Accepted Contract Amount
Plant and Materials	14.5.3(b)(i)	If Sub-Clause 14.5 applies: Not Applicable
	14.5.3(c)(i)	Not Applicable
Minimum Amount of Interim Payment Certificates	14.6.2	Not Applicable
Publishing source of commercial interest rates for financial charges in case of delayed payment	14.8	Central Bank of Kenya (CBK) Rates
Maximum total liability of the Contractor to the Procuring Entity	17.6.2	Full value of the Accepted Contract Amount,
Periods for submission of insurance: a. evidence of insurance. b. relevant policies	18.1.6	14 days 14 days
Maximum amount of deductibles for insurance of the Procuring Entity's risks	18.2.4 (d)	- The minimum cover for insurance of the Works and of Plant and Materials in respect of the Contractor's faulty work is; Contractor's All Risk Policy - The minimum cover for loss or damage to Equipment is Full Value of the Equipment. - The minimum for insurance of other property is Full Value of the Property. - The minimum cover for personal injury or death insurance; As per the laws applicable in Kenya -
Minimum amount of third-party insurance	18.3.2	As per the laws applicable in Kenya
The place of arbitration	20.7.2	Nairobi - Kenya

SECTION X - CONTRACT FORMS

FORM No. 1 - NOTIFICATION OF INTENTION TO AWARD

FORM NO. 2 – REQUEST FOR REVIEW

FORM No. 3-LETTER OF AWARD

FORM No. 4 - CONTRACT AGREEMENT

FORM No. 5 - PERFORMANCE SECURITY [Option 1 - Unconditional Demand Bank Guarantee]

FORM No. 6- PERFORMANCE SECURITY [Option 2– Performance Bond]

FORM No. 7 - ADVANCE PAYMENT SECURITY

FORM No. 8 - RETENTION MONEY SECURITY

FORM No 1: NOTIFICATION OF INTENTION TO AWARD OF CONTRACT

This Notification of Award shall be sent to each Tenderer that submitted a Tender and was not successful. Send this Notification to the Tenderer's Authorized Representative named in the Tender Information Form on the format below.

FORMAT

1. For the attention of Tenderer's Authorized Representative

- i) Name: *[insert Authorized Representative's name]*
- ii) Address: *[insert Authorized Representative's Address]*
- iii) Telephone: *[insert Authorized Representative's telephone/fax numbers]*
- iv) Email Address: *[insert Authorized Representative's email address]*

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

2. Date of transmission: *[email]* on *[date]* (local time)

This Notification is sent by (Name and designation) _____

3. Notification of Award

- i) Procuring Entity: *[insert the name of the Procuring Entity]*
- ii) Project: *[insert name of project]*
- iii) Contract title: *[insert the name of the contract]*
- iv) ITT No: *[insert ITT reference number from Procurement Plan]*

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

4. Request a debriefing in relation to the evaluation of your tender by submitting a Procurement-related Complaint in relation to the decision to award the contracts.

a) The successful tenderers

i) Name of successful Tender _____

ii) Address of the successful Tender _____

iii) Contract price of the successful Tender Kenya Shillings _____

(in words

)

b) The reasons for your tender being unsuccessful are as follows:

c) Other Tenderers

Names of all Tenderers that submitted a Tender. If the Tender's price was evaluated include the evaluated price as well as the Tender price as read out.

SNo	Name of Tender	Tender Price as read out	Tender's evaluated price (Note a)	One Reason Why Not Evaluated
1				
2				
3				
4				
5				

(Note a) State NE if not evaluated

5. How to request a debriefing

- a) DEADLINE: The dead line to request a debriefing expires at midnight on *[insert date]* (local time).
- b) You may request a debriefing in relation to the results of the evaluation of your Tender. If you decide to request a debriefing your written request must be made within three (5) Business Days of receipt of this Notification of Intention to Award.
- c) Provide the contract name, reference number, name of the Tenderer, contact details; and address the request for debriefing as follows:
 - i) Attention: *[insert full name of person, if applicable]*
 - ii) Title/position: *[insert title/position]*
 - iii) Agency: *[insert name of Procuring Entity]*
 - iv) Email address: *[insert email address]*
- d) If your request for a debriefing is received within the 3 Days deadline, we will provide the debriefing within five (3) Business Days of receipt of your request. If we are unable to provide the debriefing within this period, the Standstill Period shall be extended by five (3) Days after the date that the debriefing is provided. If this happens, we will notify you and confirm the date that the extended Standstill Period will end.
- e) The debriefing may be in writing, by phone, video conference call or in person. We shall promptly advise you in writing how the debriefing will take place and confirm the date and time.
- f) If the deadline to request a debriefing has expired, you may still request a debriefing. In this case, we will provide the debriefing as soon as practicable, and normally no later than fifteen (15) Days from the date of publication of the Contract Award Notice.

6. How to make a complaint

- a) Period: Procurement-related Complaint challenging the decision to award shall be submitted by midnight, *[insert date]* (local time).
- b) Provide the contract name, reference number, name of the Tenderer, contact details; and address the Procurement-related Complaint as follows:
 - i) Attention: *[insert full name of person, if applicable]*
 - ii) Title/position: *[insert title/ position]*
 - iii) Agency: *[insert name of Procuring Entity]*
 - iv) Email address: *[insert email address]*
- c) At this point in the procurement process, you may submit a Procurement-related Complaint challenging the decision to award the contract. You do not need to have requested, or received, a debriefing before making this complaint. Your complaint must be submitted within the Standstill Period and received by us before the Standstill Period ends.
- d) Further information: For more information refer to the Public Procurement and Disposals Act 2015 and its Regulations available from the Website www.ppra.go.ke.

You should read these documents before preparing and submitting your complaint.

- e) There are four essential requirements:
 - i) You must be an 'interested party'. In this case, that means a Tenderer who submitted a Tender in this tendering process and is the recipient of a Notification of Intention to Award.
 - ii) The complaint can only challenge the decision to award the contract.
 - iii) You must submit the complaint within the period stated above.
 - iv) You must include, in your complaint, all of the information required to support your complaint.

7. Standstill Period

- i) DEADLINE: The Standstill Period is due to end at midnight on [*insert date*] (local time).
- ii) The Standstill Period lasts ten (14) Days after the date of transmission of this Notification of Intention to Award.
- iii) The Standstill Period may be extended as stated in paragraph Section 5(d) above.

If you have any questions regarding this Notification please do not hesitate to contact us. On behalf of the Procuring Entity:

Signature: _____

Name: _____

Title/position: _____

Telephone: _____

FORM NO. 2- REQUEST FOR REVIEW

FORM FOR REVIEW (r.203(1))

PUBLIC PROCUREMENT ADMINISTRATIVE REVIEW BOARD

APPLICATION NO.....OF.....20.....

BETWEEN

.....**APPLICANT**

AND

.....**RESPONDENT (Procuring Entity)**

Request for review of the decision of the..... (Name of the Procuring Entity of dated the...day of 20.....in the matter of Tender No.....of 20..... for..... (Tender description).

REQUEST FOR REVIEW

I/We.....,the above named Applicant(s), of address: Physical address..... P. O. Box No..... Tel. No.....Email....., hereby request the Public Procurement Administrative Review Board to review the whole/part of the above mentioned decision on the following grounds , namely:

- 1.
- 2.

By this memorandum, the Applicant requests the Board for an order/orders that:

- 1.
- 2.

SIGNED(Applicant) Dated on.....day of/...20.....

FOR OFFICIAL USE ONLY Lodged with the Secretary Public Procurement Administrative Review Board on..... day of 20.....

SIGNED

Board Secretary

FORM NO 3: LETTER OF AWARD

letterhead paper of the Procuring Entity]

[date]

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

This is to notify you that your Tender dated *[date]* for execution of the *[name of the Contract and identification number, as given in the Contract Data]* for the Accepted Contract Amount *[amount in numbers and words]* *[name of currency]*, as corrected and modified in accordance with the Instructions to Tenderers, is here by accepted by *(name of Procuring Entity)*.

You are requested to furnish the Performance Security within in accordance with the Conditions of Contract, using, for that purpose, one of the Performance Security Forms included in Section VIII, Contract Forms, of the Tender Document.

Authorized Signature:

Name and Title of Signatory:

Name of Procuring Entity:

Attachment: *Contract Agreement*:

FORM NO 4: CONTRACT AGREEMENT

THIS AGREEMENT made the day of..... 20....., between.....
.....of..... (hereinafter “the Procuring
Entity”), of the one part, and..... of
..... (hereinafter “the Contractor”), of the
other part:

WHEREAS the Procuring Entity desires that the Works known as..... should
be executed by the Contractor, and has accepted a Tender by the Contractor for the execution and completion of
these Works and the remedying of any defects there in,

The Procuring Entity and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents.
 - a) The Notification of Award
 - b) the Form of Tender
 - c) the addenda Nos..... (if any)
 - d) the Special Conditions of Contract
 - e) the General Conditions of Contract;
 - f) the Specifications
 - g) the Drawings; and
 - h) the completed Schedules and any other documents forming part of the contract.
3. In consideration of the payments to be made by the Procuring Entity to the Contractor as specified in this Agreement, the Contractor here by covenants with the Procuring Entity to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Procuring Entity here by covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects there in, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

INWITNESS where of the parties here to have caused this Agreement to be executed in accordance with the
Laws of Kenya on the day, month and year specified above.

Signed and sealed by..... (for the Procuring Entity)

Signed and sealed by..... (for the Contractor).

FORM NO. 5 - PERFORMANCE SECURITY

[Option 1 - Unconditional Demand Bank Guarantee]

[Guarantor letterhead]

Beneficiary: *[insert name and Address of Procuring Entity]*

Date: _____ *[Insert date of issue]*

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

1. We have been informed that _____ (hereinafter called "the Contractor") has entered into Contract No. _____ dated _____ with (name of Procuring Entity) _____ (the Procuring Entity as the Beneficiary), for the execution of _____ (Hereinafter called "the Contract").
2. Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.
3. At the request of the Contractor, we as Guarantor, here by irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (in words),¹ such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand it self or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.
4. This guarantee shall expire, no later than the.....Day of.....,2 ², and any demand for payment under it must be received by us at the office indicated above on or before that date.
5. The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed *[six months] [one year]*, in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

[Name of Authorized Official, signature(s) and seals/stamps]

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

¹The Guarantor shall insert an amount representing the percentage of the Accepted Contract Amount specified in the Letter of Acceptance, less provisional sums, if any, and denominated either in the currency of the Contract or a freely convertible currency acceptable to the Beneficiary.

²Insert the date twenty-eight days after the expected completion date as described in GC Clause 11.9. The Procuring Entity should note that in the event of an extension of this date for completion of the Contract, the Procuring Entity would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee.

FORM No. 6- PERFORMANCE SECURITY

[Option 2– Performance Bond]

[Note: Procuring Entities are advised to use Performance Security – Unconditional Demand Bank Guarantee instead of Performance Bond due to difficulties involved in calling Bond holder to action]

[Guarantor letterhead or SWIFT identifier code]

Beneficiary: *[insert name and Address of Procuring*

Entity] **Date:** _____

_____*[Insert date of issue]* **PERFORMANCE BOND**

No.: _____

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

1. By this Bond _____ as Principal (hereinafter called “the Contractor”) and _____] as Surety (hereinafter called “the Surety”), are held and firmly bound unto _____] as Obligatee (hereinafter called “the Procuring Entity”) in the amount of _____ for the payment of which sum well and truly to be made in the types and proportions of currencies in which the Contract Price is payable, the Contractor and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.
2. WHEREAS the Contractor has entered into a written Agreement with the Procuring Entity dated the _____ day of _____, 20_____, for _____ in accordance with the documents, plans, specifications, and amendments there to, which to the extent here in provided for, are by reference made part here of and are here in after referred to as the Contract.
3. NOW, THEREFORE, the Condition of this Obligation is such that, if the Contractor shall promptly and faithfully perform the said Contract (including any amendments thereto), then this obligation shall be null and void; otherwise, it shall remain in full force and effect. Whenever the Contractor shall be, and declared by the Procuring Entity to be, in default under the Contract, the Procuring Entity having performed the Procuring Entity's obligations there under, the Surety may promptly remedy the default, or shall promptly:
 - a) Complete the Contract in accordance with its terms and conditions; or
 - b) Obtain a tender or tenders from qualified tenderers for submission to the Procuring Entity for completing the Contract in accordance with its terms and conditions, and upon determination by the Procuring Entity and the Surety of the lowest responsive Tenderers, arrange for a Contract between such Tenderer, and Procuring Entity and make available as work progresses (even though there should be a default or a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the Balance of the Contract Price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term “Balance of the Contract Price,” as used in this paragraph, shall mean the total amount payable by Procuring Entity to Contractor under the Contract, less the amount properly paid by Procuring Entity to Contractor; or
 - c) Pay the Procuring Entity the amount required by Procuring Entity to complete the Contract in accordance with its terms and conditions upto a total not exceeding the amount of this Bond.
4. The Surety shall not be liable for a greater sum than the specified penalty of this Bond.
5. Any suit under this Bond must be instituted before the expiration of one year from the date of the issuing of the Taking-Over Certificate. No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Procuring Entity named here in or the heirs, executors, administrators, successors, and assigns of the Procuring Entity.
6. In testimony whereof, the Contractor has here unto set his hand and affixed his seal, and the Surety has caused

these presents to be sealed with his corporate seal duly at tested by the signature of his legal representative,
this day _____ of _____ 20_____.

SIGNED ON _____ on behalf of _____

By _____ in the capacity of _____

In the presence of _____

SIGNED ON _____ on behalf of _____

By _____ in the capacity of _____

In the presence of _____

FORM NO. 7 - ADVANCE PAYMENT SECURITY

[Demand Bank Guarantee]

[Guarantor letterhead]

Beneficiary: _____ [Insert name and Address of

Procuring Entity] **Date:** _____ [Insert date of issue]

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

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

1. We have been informed that _____ (hereinafter called "the Contractor") has entered into Contract No. _____ dated _____ with the Beneficiary, for the execution of _____ (hereinafter called "the Contract").
2. Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum _____ (in words _____) is to be made against an advance payment guarantee.
3. At the request of the Contractor, we as Guarantor, here by irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (in words _____)¹ upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating either that the Applicant:
 - a) Has used the advance payment for purposes other than the costs of mobilization in respect of the Works; or
 - b) Has failed to repay the advance payment in accordance with the Contract conditions, specifying the amount which the Applicant has failed to repay.
4. A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the advance payment referred to above has been credited to the Contractor on its account number _____ at _____.
5. The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as specified in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that ninety (90) percent of the Accepted Contract Amount, less provisional sums, has been certified for payment, or on the _____ day of _____, ² _____, whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.
6. The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months] [one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee.

[Name of Authorized Official, signature(s) and seals/stamps]

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

¹The Guarantor shall insert an amount representing the amount of the advance payment and denominated either in the currency of the advance payment as specified in the Contract.

²Insert the expected expiration date of the Time for Completion. The Procuring Entity should note that in the event of an extension of the time for completion of the Contract, the Procuring Entity would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee.

FORM NO. 8 – RETENTION MONEY SECURITY

[Demand Bank Guarantee]

[Guarantor letterhead]

Beneficiary: _____ *[Insert name and Address of Procuring Entity]*

Date: _____ *[Insert date of issue]*

Advance payment guarantee no. *[Insert guarantee reference number]*

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

1. We have been informed that _____ *[insert name of Contractor, which in the case of a joint venture shall be the name of the joint venture]* (hereinafter called "the Contractor") has entered into Contract No. _____ *[insert reference number of the contract]* dated _____ with the Beneficiary, for the execution of _____ *[insert name of contract and brief description of Works]* (hereinafter called "the Contract").
2. Furthermore, we understand that, according to the conditions of the Contract, the Beneficiary retains moneys upto the limit set forth in the Contract ("the Retention Money"), and that when the Taking-Over Certificate has been issued under the Contract and the first half of the Retention Money has been certified for payment, and payment of *[insert the second half of the Retention Money]* is to be made against a Retention Money guarantee.
3. At the request of the Contractor, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]* _____ *([insert amount in words]_____)*¹ upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or showgrounds for your demand or the sum specified there in.
4. A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the second half of the Retention Money as referred to above has been credited to the Contractor on its account number _____ at _____ *[insert name and address of Applicant's bank]*.
5. This guarantee shall expire no later than the.....Day of.....2.....², and any demand for payment under it must be received by us at the office indicated above on or before that date.
6. The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed *[six months]* *[one year]*, in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee.

[Name of Authorized Official, signature(s) and seals/stamps]

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

¹The Guarantor shall insert an amount representing the amount of the second half of the Retention Money.

²Insert a date that is twenty-eight days after the expiry of retention period after the actual completion date of the contract. The Procuring Entity should note that in the event of an extension of this date for completion of the Contract, the Procuring Entity would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee.

FORM NO. 9 BENEFICIAL OWNERSHIP DISCLOSURE FORM
(Amended and issued pursuant to PPRA CIRCULAR No. 02/2022)

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

This Beneficial Ownership Disclosure Form ("Form") is to be completed by the successful tenderer pursuant to Regulation 13 (2A) and 13 (6) of the Companies (Beneficial Ownership Information) Regulations, 2020. In case of joint venture, the tenderer must submit a separate Form for each member. The beneficial ownership information to be submitted in this Form shall be current as of the date of its submission.

For the purposes of this Form, a Beneficial Owner of a Tenderer is any natural person who ultimately owns or controls the legal person (tenderer) or arrangements or a natural person on whose behalf a transaction is conducted, and includes those persons who exercise ultimate effective control over a legal person (Tenderer) or arrangement.

Tender Reference No.: _____ [insert identification
no] Name of the Tender Title/Description: _____ [insert name of the
assignment] to: _____ [insert complete name of Procuring Entity]

In response to the requirement in your notification of award dated __ [insert date of notification of award] to furnish additional information on beneficial ownership: _____ [select one option as applicable and delete the options that are not applicable]

I) We here by provide the following beneficial ownership information.

Details of Beneficial ownership

	Details of all Beneficial Owners		% of shares a person holds in the company Directly or indirectly	% of voting rights a person holds in the company	Whether a person directly or indirectly holds a right to appoint or remove a member of the board of directors of the company or an equivalent governing body of the Tenderer (Yes / No)	Whether a person directly or indirectly exercises significant influence or control over the Company (tenderer) (Yes / No)
1.	Full Name		Directly----- ----- % of shares Indirectly---- ----- % of shares	Directly.....% of voting rights Indirectly----- % of voting rights	1. Having the right to appoint a majority of the board of the directors or an equivalent governing body of the Tenderer: Yes -----No---- 2. Is this right held directly or indirectly?: Direct..... ... Indirect..... ...	1. Exercises significant influence or control over the Company body of the Company (tenderer) Yes -----No---- 2. Is this influence or control exercised directly or indirectly? Direct..... Indirect.....
	National identity card number or Passport number					
	Personal Identification Number (where applicable)					
	Nationality					
	Date of birth [dd/mm/yyyy]					
	Postal address					
	Residential address					
	Telephone number					
	Email address					
	Occupation or profession					

	Details of all Beneficial Owners		% of shares a person holds in the company Directly or indirectly	% of voting rights a person holds in the company	Whether a person directly or indirectly holds a right to appoint or remove a member of the board of directors of the company or an equivalent governing body of the Tenderer (Yes / No)	Whether a person directly or indirectly exercises significant influence or control over the Company (tenderer) (Yes / No)
2.	Full Name		Directly----- ----- % of shares Indirectly---- ----- % of shares	Directly.....% of voting rights Indirectly----- % of voting rights	1. Having the right to appoint a majority of the board of the directors or an equivalent governing body of the Tenderer: Yes -----No---- 2. Is this right held directly or indirectly?: Direct..... ... Indirect..... ...	1. Exercises significant influence or control over the Company body of the Company (tenderer) Yes -----No---- 2. Is this influence or control exercised directly or indirectly? Direct..... Indirect.....
	National identity card number or Passport number					
	Personal Identification Number (where applicable)					
	Nationality(ies)					
	Date of birth [dd/mm/yyyy]					
	Postal address					
	Residential address					
	Telephone number					
	Email address					
	Occupation or profession					
3.						
e.t.c						

II) Am fully aware that beneficial ownership information above shall be reported to the Public Procurement Regulatory Authority together with other details in relation to contract awards and shall be maintained in the Government Portal, published and made publicly available pursuant to Regulation 13(5) of the Companies (Beneficial Ownership Information) Regulations, 2020.(Notwithstanding this paragraph Personally Identifiable Information in line with the Data Protection Act shall not be published or made public). *Note that Personally Identifiable Information (PII) is defined as any information that can be used to distinguish one person from another and can be used to deanonymize previously anonymous data. This information includes National identity card number or Passport number, Personal Identification Number, Date of birth, Residential address, email address and Telephone number.*

III) In determining who meets the threshold of who a beneficial owner is, the Tenderer must consider a natural person who in relation to the company:

- (a) holds at least ten percent of the issued shares in the company either directly or indirectly;
- (b) exercises at least ten percent of the voting rights in the company either directly or indirectly;
- (c) holds a right, directly or indirectly, to appoint or remove a director of the company; or

(d) exercises significant influence or control, directly or indirectly, over the company.

IV) What is stated to herein above is true to the best of my knowledge, information and belief.

*Name of the Tenderer *[insert complete name of the Tenderer]_____*

*Name of the person duly authorized to sign the Tender on behalf of the Tenderer: ** [insert complete name of person duly authorized to sign the Tender]*

Designation of the person signing the Tender: [insert complete title of the person signing the Tender]

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

Date this [insert date of signing] day of.....[Insert month], [insert year]

Bidder Official Stamp



BUILDERS' WORK

PART 5

PARTICULAR PRELIMINARIES

PARTICULAR PRELIMINARIES

ITEM	DESCRIPTION	
A PRICING ITEMS FOR PRELIMINARIES Prices shall be inserted against items of 'preliminaries' in the tenderer's priced Bill of Quantities. The Contractor is advised to read and understand all preliminaries. Preliminary items not priced shall be deemed to have been included in the rates of items in the Bill of Quantities. All prices shall be In Kenya Shillings. B DESCRIPTION OF THE WORKS The works to be carried out under this contract comprise construction of a Tuition And Science Laboratory Block, complete with all associated specialized services installations, civil and external works. The building is in Reinforced Concrete Padded foundation, the structure is reinforced concrete frame, With load bearing masonry walls. The roof is a mixture of a pitched with mild steel trusses for the structure covered in IT5 roofing sheets and a Concrete Flat roof. The Windows are Aluminium casement windows infilled with clear/obscure glazing. Doors are generally Steel Casement externally; solid and semi-solid core timber doors Internally. Wall finishes are generally plaster and paint Ceramic wall tiles in wet areas internally; Render and paint externally. Floors are generally finished with Terrazzo, polished ceramic tiles in general areas and Non-slip ceramic tiles in Wet areas. Ceilings are plaster and paint to slab & Gypsum Ceiling. The services installations include general electrical works, security installations, plumbing and firefighting works etc C SCOPE OF THE CONTRACT WORKS The works comprise of; i. The erection and completion of a Building and Civil Engineering Workshop as included in the builders works Bills of Quantities Part 9 ii. The mechanical installations as provided in Part 11 of the Bills of Quantities. iii. The electrical installations work as provided in Part 10 of the Bills of Quantities iv. Associated Civil and External Works. D FLOOR AREAS The total approximate built-up area is as follows;- 01. Ground Floor – 1286.00 SM 02. First Floor – 1,116.00 SM 03. Second Floor - 979.00 SM 04. Third Floor - 979.00 SM 05. Fourth & Roof - 540.00 SM TOTAL 4,900.00 SM	Carried to Collection KSHS	

ITEM	DESCRIPTION	
A	MEASUREMENTS In the event of discrepancy between the Bill of Quantities and the actual works, the site measurements shall generally take precedence. However, such discrepancies between any Contract documents shall immediately be reported to the Project Manager in accordance with Clause 22 of the Conditions of Contract. The discrepancies shall then be treated as a variation and be dealt with in accordance with Clause 22 of the said Conditions. The Bills of Quantities is prepared using SMM of Building Works and associated Civil Works for East Africa as published by AAK QS Chapter Second Edition June 2008. B LOCATION OF THE SITE The site is located within Rongo University, Rongo, Kenya. Approximately 9.0KM from the Rongo town. C CLEARING AWAY The Contractor shall remove all temporary works, rubbish, debris and surplus materials from the site as they accumulate, upon completion of the works, remove, clear away all plants, equipment, rubbish, unused materials, stains and leave in a clean tidy state to the satisfaction of the Project Manager. The whole of the works shall be delivered up clean, complete, and perfect condition in every respect to the satisfaction of the Project Manager. D CLAIMS It shall be a condition of this Contract that upon it becoming reasonably apparent to the Contractor that he has incurred losses and/or expenses due to any of the Contract Conditions, or by any other reason whatsoever, he shall present such claim or intent to claim notice to the Project Manager within the Contract period. No claim shall be entertained upon the expiry of the said Contract period. E PAYMENTS Payment will be done on monthly basis by the Project Manager on application by the Contractor. All payments shall be made by Client Department upon certification by the Project Manager. Subcontractors shall be paid through the Main Contractor. The Main Contractor must confirm that they have paid sub-contractors to be eligible for subsequent certificates. F PREVENTION OF ACCIDENTS, DAMAGE OR LOSS The Contractor is notified that the works are to be carried out on a fairly busy, high security conscious site where the Client is going on with other normal activities. He/she is therefore instructed to take reasonable care in the execution of the works so as to prevent accidents, damage or loss and disruption of normal activities being carried out by the Client. The Contractor shall allow in his rates any expenses he deems necessary by taking such care within the site.	
	Carried to Collection KSHS.	

ITEM	DESCRIPTION	
A	WORKING CONDITIONS The Contractor shall allow in his rates for any interference that he may encounter in the course of execution of the works. for the client may in some cases ask the contractor to pause the works until some activities within the site are completed as the institution will be operating as usual during the course of the contract.	
B	SIGN BOARD. Allow for providing, erecting, maintaining throughout the Contract period and clearing afterwards a sign board as designed and approved by the Project Manager.	
C	LABOUR CAMPS The Contractor shall NOT be allowed to house his labourers on site. Allow also for transporting workers to and from site during the Contract Period as may be necessary.	
D	PROJECT MANAGER'S SITE OFFICE Allow for maintaining throughout the project period temporary site office size 8x10m long comprising 50x100mm cypress timber structure, flat roof covered with 30gauge corrugated iron sheets, 32gauge corrugated iron sheet clad walls, 100mm thick RC floor well compacted and finished smooth with cement and sand (1:3) screed, timber doors, windows and all necessary office furniture (15no. arm chairs, table, calendar, visitors and site instruction books). The Contractor shall also allow for the Project Manager's use a desktop computer complete with email connecting devices as well as provision for scratch cards and payment for email or internet connectivity expenses, stationery for the duration of the contract.	
E	PRICING NOTES The tenderer shall include for all cost in executing the whole of the works, including transport, replacing damaged items, fixing, all to comply with the said Conditions of Contract and including VAT	
F	SECURITY OF THE WORKS The Contractor shall allow for providing adequate security for the works and workers during the Contract. No claim will be entertained for lack of enough security in this respect.	
G	URGENCY OF THE WORKS The Contractor should note that these works are very urgent and must be completed within the agreed contract period.	
H	PAYMENT FOR MATERIALS ON SITE All materials for incorporation in the works must be stored on site before they are considered for payment, unless specifically exempted by the Project Manager. This is to include materials of the Main Contractor, Nominated Sub-Contractors and Nominated Suppliers.	
	Carried to Collection	KSHS

ITEM	DESCRIPTION	
A B C D E	EXISTING SERVICES Prior to the commencement of any work, the Contractor is to ascertain from the relevant authority the exact position, depth and level of all existing services in the and he/she shall make whatever provisions that may be required by the authority for support, maintenance and protection of such services. PHASED IMPLEMENTATION AND SECTIONAL COMPLETION The Client based on various factors may consider sectional completion or phased implementation of the works. The Contractor will be instructed by the Project Manager to abide by such directions to suit the requirements of the Employer. Tenderers are also notified that no contractual claims or increase in prices will be allowed due to any Phased implementation of the works The last of the contract works are however to be completed within the overall Contract Completion Period. PERFORMANCE BOND A performance bond in the form of unconditional bank guarantee required is 5% of the bid price. On award of contract, no payment on account for the works executed will be made to the Contractor until he has submitted the Performance Bond to the Project Manager duly signed, sealed and stamped from an approved bank. VALUE ADDED TAX The Contractor's attention is drawn to the Legal Notice in the Finance Act part 3 Section 21(b) operative from 1st September, 1993 which requires payment of VAT on all contracts. The Contractor must therefore include V.A.T in their rates. FORM OF CONTRACT The form of Contract shall be as stipulated in the Republic of Kenya's Standard Tender Document for Procurement of Works – Building and Associated Civil Engineering Works, Published by PPRA (2022 Edition) included under this Proposal. The Conditions of Contract are also included herein (Part III General Conditions of Contract) Particulars of insertion to be made in the Special Conditions of Contract.	
	Carried to Collection KSHS	

ITEM	DESCRIPTION	
	COLLECTION Brought Forward from Page 5/1 Brought Forward from Page 5/2 Brought Forward from Page 5/3 Brought Forward from Page 5/4	
	TOTAL FOR PART NO. 5 CARRIED TO MAIN SUMMARY KSHS	

PARTICULAR INSERTIONS TO BE MADE TO THE CONDITIONS OF CONTRACT

Conditions	Sub-Clause	Data
Part A - Contract Data		
Procuring Entity's name and address	Heading	RONGO UNIVERSITY P.O. BOX 103 – 40404, RONGO - KENYA
Name and Reference No. of the Contract	Heading and 1.1	Name: PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK FOR RONGO UNIVERSITY Ref: RU/TSLB/009/2024-2025
Engineers Name and address	Heading and 3.1.1	Messrs. Skylon Designs Ltd. of P.O. Box 26011-00100, NAIROBI
Contractor's Representative's name	4.3.1	<i>[insert the name of the Contractor's Representative agreed by the Procuring Entity prior to Contract signature]</i>
Key Personnel names	16.9.1	<i>[insert the name of each Key Personnel agreed by the Procuring Entity prior to Contract signature]</i>
Time for Completion	1.1.	156 Weeks
Defects Notification Period	1.1	6 Months
Sections	1.1	Not Applicable
Electronic transmission systems	1.3	Project Manager's Email Address; skylondesigns.sd@gmail.com
Time for the Parties entering into a Contract Agreement	1.6	Within 30 days
Commencement Date	8.1.1	To be agreed with the employer
Time for access to the Site	2.1.1	No later than the Commencement Date, and not later than 14 (fourteen) days after Commencement Date
Architect Duties and Authority	3.1.6 (b) (ii)	Variations resulting in an increase of the Accepted Contract Amount shall require approval of the Procuring Entity.
Performance Security	4.2.1	The performance security will be in the form of a performance bond in the amount(s) of 5% (Five percent) of the Accepted Contract Amount and in the same currency(ies) of the Accepted Contract Amount.
Normal working hours	6.5	0800-1700 hrs.
Delay damages for the Works	8.7 & 14.15(b)	0.1% of the Contract Price per day.
Maximum amount of delay damages	8.7.1	10% of the final Contract Price.
Provisional Sums	13.6. (b)(ii)	Applicable
Adjustments for Changes in Cost	13.9	Not Applicable

Conditions	Sub-Clause	Data
Total advance payment	14.2.1	Not Applicable
Repayment amortization rate of advance payment	14.2.5 (b)	The following formular shall apply $R = \frac{A(XII-XI)}{90\%-30\%}$ Where R= Amount to be reimbursed A= Amount of Advance Payment Granted XII= Amount of Proposed cumulative payments as a percentage of the original contract amount. Should be >30% but not >90% XI= Amount of previous cumulative payments as a percentage of the original contract amount. Should be <90% but not <30%
Percentage of Retention	14.3.2 (c)	_10_%
Limit of Retention Money	14.3.2 (c)	10 % of the Accepted Contract Amount
Plant and Materials	14.5.3(b)(i)	If Sub-Clause 14.5 applies: Not Applicable
	14.5.3(c)(i)	Not Applicable
Minimum Amount of Interim Payment Certificates	14.6.2	Not Applicable
Publishing source of commercial interest rates for financial charges in case of delayed payment	14.8	Central Bank of Kenya (CBK) Rates
Maximum total liability of the Contractor to the Procuring Entity	17.6.2	Full value of the Accepted Contract Amount,
Periods for submission of insurance: a. evidence of insurance. b. relevant policies	18.1.6	14 days 14 days
Maximum amount of deductibles for insurance of the Procuring Entity's risks	18.2.4 (d)	- The minimum cover for insurance of the Works and of Plant and Materials in respect of the Contractor's faulty work is; Contractor's All Risk Policy - The minimum cover for loss or damage to Equipment is Full Value of the Equipment. - The minimum for insurance of other property is Full Value of the Property. - The minimum cover for personal injury or death insurance; As per the laws applicable in Kenya -
Minimum amount of third-party insurance	18.3.2	As per the laws applicable in Kenya
The place of arbitration	20.7.2	Nairobi - Kenya

PART VI

GENERAL PRELIMINARIES

ITEM	DESCRIPTION	KSHS	CTS
	GENERAL PRELIMINARIES		
A	PRICING OF ITEMS OF PRELIMINARIES AND PREAMBLES Prices shall be inserted against items of preliminaries in the Contractor's priced Bills of Quantities and Specifications. The Contractor shall be deemed to have included in his prices or rates for various items in the Bills of Quantities of Specifications for all costs involved in complying with all the requirements for the proper execution of the whole of the works in the Contract.		
B	ABBREVIATIONS Throughout these bills, units of measurement and terms are abbreviated and shall be interpreted as follows M3 or CM Shall mean cubic metre M2 or SM Shall mean square metre M or LM Shall mean linear metre MM Shall mean millimeter KG Shall mean kilogram NO Shall mean numbers PRS Shall mean pairs BS Shall mean the British Specification published by the British Standard Institution , 2 Park Street, London W.1 England DITTO Shall mean the whole of the preceding description except as qualified in the description in which it occurs. (ms) Shall mean measured separately a.b.d Shall mean as above described. M.S. Shall mean mild steel		
	Carried to Collection	KSHS	

ITEM	DESCRIPTION	KSHS	CTS
A	EXCEPTION TO THE STANDARD METHOD OF MEASUREMENT Attendance; Clause B19(a) of the Standard Method of Measurement is deleted and the following Clause is substituted:- Attendance on nominated Sub-Contractors shall be given as an item in each case and shall be deemed to include: allowing use of standing scaffolding, mesh rooms, sanitary accommodation and welfare facilities; provision of special scaffolding where necessary, providing space for office accommodation, and for storage of plant and materials; providing light and water for the works; clearing away rubbish; unloading checking providing electric power and removing and replacing duct covers, pipe chasings and the like necessary for the execution and testing of Sub-Contractor's work and being responsible for the accuracy of the same. Fix Only; "Fix Only" Shall mean take delivery on site where necessary, distribute to position, hoist and fix only.		
B	THE EMPLOYER The term "Employer" and "Client" wherever used in the Contract Document shall be synonymous.		
C	PROJECT MANAGER The term "PM" wherever used in this Bills of Quantities shall be deemed to imply the Project Manager as defined in Conditions of Contract or such person or persons as may be duly authorized to represent him on behalf of the Employer. The Project Manager shall be deemed to mean Skylon Designs Ltd. Of P.O. Box 26011-00100, NAIROBI, Tel. Nos. +254 726 632459 Email: skylondesigns.sd@gmail.com		
D	ARCHITECT The term Architect shall be deemed to mean Messrs. Skylon Designs Ltd. Of P.O. Box 26011-00100, NAIROBI, Tel. Nos. +254 726 632459 Email: skylondesigns.sd@gmail.com		
E	QUANTITY SURVEYOR The term "Quantity Surveyor" shall be deemed to mean the firm of Messrs Messrs. Skylon Designs Ltd. Of P.O. Box 26011-00100, NAIROBI, Tel. Nos. +254 726 632459 Email: skylondesigns.sd@gmail.com		
	Carried to Collection KSHS		

ITEM	DESCRIPTION	KSHS	CTS
A	SERVICES ENGINEER The term "Mechanical Engineer/Electrical Engineer" shall be deemed to mean Messrs. Messrs. Skylon Designs Ltd. Of P.O. Box 26011-00100, NAIROBI, Tel. Nos. +254 726 632459 Email: skylondesigns.sd@gmail.com		
B	STRUCTURAL & CIVIL ENGINEER The term "Structural & Civil Engineer" shall be deemed to mean Messrs. Messrs. Skylon Designs Ltd. Of P.O. Box 26011-00100, NAIROBI, Tel. Nos. +254 726 632459 Email: skylondesigns.sd@gmail.com		
	Carried to Collection	KSHS	

ITEM	DESCRIPTION	KSHS	CTS
A	PLANT, TOOLS AND VEHICLES Allow for providing all scaffolding, plants, tools and vehicles required for the works except in so far as may be stated otherwise herein and except for such items specifically and only required for use of nominated Sub-Contractors as described herein. No timber used for scaffolding, formwork, or temporary works of any kind should be afterwards in the permanent works.		
B	TRANSPORT Allow for transport of workmen, materials, etc. to and from the site at such hours and by such routes as may be permitted by competent Authorities in liaison with the PROJECT MANAGER.		
C	MATERIALS AND WORKMANSHIP All materials and workmanship used in the execution of the works shall be of the best quality and description unless otherwise stated. The Contractor shall order all materials to be obtained from overseas immediately after the contract is signed and shall also order for materials to be obtained from local sources as early as necessary to ensure that they are onsite when required for use in the works. The Bills of Quantities shall not be used for the purposes of ordering materials.		
D	SIGN FOR MATERIALS SUPPLIED The Contractor shall be required to sign receipts for all articles and materials supplied by the Project Manager at the time of taking delivery thereof, as having received them in good order and condition, and will thereafter be responsible for any such loss or damage and for replacement of such any loss with articles and/or materials which shall be supplied by the Project Manager at the current market prices including Customs Duty and VAT, all at the Contractors own cost and expenses, to the satisfaction of the PROJECT MANAGER.		
E	STORAGE OF MATERIALS The Contractor shall provide at his own risk and cost where directed on the site weather proof lock-up sheds and make good damaged or disturbed surfaces upon completion to the satisfaction of the PROJECT MANAGER. NOMINATED SUB-CONTRACTORS are to be made liable for the cost of any storage accommodation provided specifically for their use.		
	Carried to Collection	KSHS	

ITEM	DESCRIPTION	KSHS	CTS
A	SAMPLES The Contractor shall furnish at his own cost any samples of materials or workmanship including concrete test cubes required for the works that may be called for by the PROJECT MANAGER for his approval. The PROJECT MANAGER may reject any materials or workmanship in his opinion not to the approved sample. The PROJECT MANAGER shall arrange for testing of such materials as he/she may at his/her discretion deem desirable, but the testing shall be made at the expense of the Contractor and not at the expense of the PROJECT MANAGER. The Contractor shall pay for the testing in accordance with the current scale of testing charges laid down by Ministry of Public Works The procedure for submitting samples of materials for testing and the method of marking for identification shall be laid down by the PROJECT MANAGER. The Contractor shall allow in his tender for such samples and tests except for those in connection with nominated subcontractor's work.		
B	GOVERNMENT ACT REGARDING WORK PEOPLE ETC. Allow for complying with Government Acts, order and Regulations in connection with the employment of Labor and other matters related to the execution of the works. In particular, the Contractor's attention is drawn to the provisions of the Factory Act of 1950 and the tenderer must include for all costs arising or resulting from compliance with any Act Order or Regulation relating to insurance, pensions, and holidays for work people or so the safety and welfare of the work people. The Contractor must make himself fully acquainted with current Acts and Regulations including police regulations regarding movements, housing, security and control of labor, labor camps, passes for transport etc. It is important that the Contractor before tendering obtain information regarding all such regulations and/or restrictions which may affect the organization of the works, supply and control of labor etc: and allow accordingly in his tender. No claim shall be entertained for lack of knowledge in this respect.		
C	SECURITY OF WORKS, ETC. The Contractor shall be entirely responsible for the security of the works, materials, plant, personnel etc, both his own and subcontractor's and must provide all necessary watching, lighting and precautions necessary to ensure security against theft, loss or damage and the protection of the public.		
	Carried to Collection KSHS		

ITEM	DESCRIPTION	KSHS	CTS
A	PUBLIC AND PRIVATE ROADS Maintain as required throughout the execution of the works and make good any damage to Public or Private roads arising from or subsequent upon the execution of the works to the satisfaction of the local and other competent authority and the Project Manager.		
B	EXISTING PROPERTY The Contractor shall take every precaution to avoid damage to existing property including roads, cables, drains and other services and he will be held responsible for and shall make good all such damages arising from the execution of this Contract at his own expense at his own cost to the satisfaction of the Project Manager.		
C	VISIT THE SITE AND EXAMINE DRAWINGS The Contractor is advised to examine the drawings and visit the site location of which is described in the Particular Preliminaries hereof in liaison with PROJECT MANAGER. He shall be deemed to have acquainted him/ herself therewith as to its nature, position, means of access or any other matter which may affect his tender. No claim arising from his failure to comply with this advice shall be entertained.		
D	ACCESS TO SITE AND TEMPORARY ROADS Means of accessing the site shall be agreed with the PROJECT MANAGER prior to commencement of the works and the Contractor must allow for building any necessary temporary access road for the transport of materials, plant and workmen as may be required for the complete execution of the works including the provision of temporary culverts, crossings or any other means of accessing the site. Upon completing the works, the Contractor shall remove temporary access roads, temporary culverts etc; and make good, reinstate all works and surfaces disturbed to the satisfaction of the PROJECT MANAGER.		
E	AREA TO BE OCCUPIED BY THE CONTRACTOR The area of the site which may be occupied by the Contractor for site office, storage and for the purpose of erecting workshops etc; shall be defined on site by the PROJECT MANAGER.		
	Carried to Collection KSHS		

ITEM	DESCRIPTION	KSHS	CTS
A	OFFICE FOR THE PROJECT MANAGER The Contractor shall erect and maintain where directed on site and afterwards dismantle the site office of the type noted in Particular Preliminaries, complete with furniture. He shall also provide strong metal trunk complete with strong hasp and staple fastening and two keys. He shall provide and maintain a lock-up type water or bucket closet for the sole use of the PROJECT MANAGER including connections to the drain where applicable in conformity with Public Health Authorities and shall provide services of a cleaner and pay all conservancy charges and keep both office and closet in a clean and sanitary condition from commencement to completion of the works and thereafter dismantle and make good disturbed surfaces. The office and the closet shall be erected before the contractor is permitted to commence the works. The Contractor shall make available on site as and when required by the PROJECT MANAGER a modern and accurate level together with leveling staff, ranging rods and 50 metre metallic or linen tape measure.		
B	WATER AND ELECTRICITY SUPPLY The Contractor shall provide at his own risk all necessary water, electric light and power required for use in the works. The Contractor must make his own arrangement for connection to the nearest suitable water mains available and for metering the water used. He must also provide temporary water tank and meters as required at his own cost and clear away when no longer required and make good on completion to the entire satisfaction of the PROJECT MANAGER. The Contractor shall pay all charges in connection herewith. No guarantee is given or implied that sufficient water will be available from mains and the Contractor must make his own arrangement for augmenting this supply at his own cost.		
C	SANITATION The sanitation of the works shall be arranged and maintained by the Contractor to the satisfaction of the PROJECT MANAGER.		
	Carried to Collection KSHS		

ITEM	DESCRIPTION	KSHS	CTS
A	PRIME COST OR PC SUMS The term "Prime Cost or PC Sum" whenever used in these Bills of Quantities shall be expended upon the authority of the Project Manager.		
B	PROGRESS CHART The Contractor shall provide within two weeks of Possession of Site and in Agreement with the PROJECT MANAGER a Progress Chart for the whole of the works including the works of Nominated Subcontractors; one copy to be handed to the PROJECT MANAGER and a further copy to be retained on site. Progress to be recorded and chart to be amended as necessary as the work proceeds.		
C	ADJUSTMENT OF PC SUMS In the final account, all P.C Sums shall be deducted and the amount properly expended upon the PROJECT MANAGER'S order in respect of each of them added to the Contract Sum. The Contractor shall produce to the PROJECT MANAGER such quotations, invoices or bills, properly receipted as may be necessary to show the actual details of the sums paid by the Contractor. Items of profit upon P.C Sums shall be adjusted in the final account pro-rata to the amount paid. Items of attendance (as previously described) following P.C Sums shall be adjusted to the physical extent of the work executed (not pro-rata to the amount paid) and shall apply even though the Contractors Priced Bills shows a percentage in the rate column in respect of them. Should the Contractor be permitted to tender and his tender be accepted of any work for which a P.C Sum is included in the Bills of Quantities, profit and attendance will be allowed as it would be if the work were executed by a Nominated Sub-contractor.		
	Carried to Collection KSHS		

ITEM	DESCRIPTION	KSHS	CTS
A	ADJUSTMENT OF PROVISIONAL SUMS In the final account all Provisional Sums shall be deducted and the amount properly executed in respect of them upon the PROJECT MANAGER's order added to the Contract Sum. Such works shall be valued as described for Variations in Condition No.22 of the Conditions of Contract, but the value of such work or articles for the work to be supplied by a Nominated Subcontractor, the value of such work or article to be supplied by a Nominated Supplier, the value of such work or article shall be treated as a P.C Sum and profit and attendance comparable to that contained in the priced Bills of Quantities for similar items added.		
B	NOMINATED SUB-CONTRACTORS When any work is ordered by the PROJECT MANAGER to be executed by nominated Sub-contractors, the Main Contractor shall enter into a Sub-contract as described in Condition No.7 of the Conditions of Contract and shall thereafter be responsible for such sub-contractors in every respect. Unless otherwise described, the Contractor is to provide for such Sub-contractors any or all the facilities in these Preliminaries. They should price for these with the nominated Subcontract Contractor's work concerned in the P.C Sums under the description "Add for Attendance".		
C	DIRECT CONTRACTS Notwithstanding the foregoing conditions, the Employer 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 instances, profit relative to the P.C Sum the priced Bills of Quantities will be adjusted as described for P.C Sums and allowed.		
D	ATTENDANCE UPON OTHER TRADESMEN ETC. The Contractor shall allow for the attendance of trade upon trade and shall afford any tradesmen or any other persons employed for the execution of any work not included in this Contract every facility for carrying out the work and for use in his ordinary scaffolding. The Contractor, however, shall perform such carting away for and making good after the work of such tradesmen or persons as may be ordered by the PROJECT MANAGER and the work will be measured and paid for to the extent executed at rates provided in these bills.		
	Carried to Collection	KSHS	

ITEM	DESCRIPTION	KSHS	CTS
A	INSURANCE The Contractor shall insure as required and as outlined in the Appendix to the Conditions of Contract. No payment on account in respect of the works shall be made to the Contractor unless he/she has satisfied the PROJECT MANAGER either by production of an Insurance Policy certificate that the foregoing Insurance Clauses have been complied within all respects. Thereafter the PROJECT MANAGER shall from time to time ascertain that premiums are duly paid up by the Contractor who shall if called upon to do so, produce receipted premium renewals for the PROJECT MANAGER's inspection.		
B	PROVISIONAL WORK All work described as "Provisional" in these Bills of Quantities is subject to re-measurement in order to ascertain the actual quantity executed for which payment will be made. All "Provisional" and other work liable to adjustment under this Contract be left uncovered for a reasonable period of time to enable all measurements needed to be taken by the PROJECT MANAGER. Immediately the work is ready for measuring, the Contractor shall give notice to the PROJECT MANAGER. If the Contractor makes default in these respects he/she shall if the PROJECT MANAGER so directs uncover the work to enable all measurements to be taken afterwards reinstate at his own expense.		
C	ALTERATION TO BILLS, PRICING ETC. Any unauthorized alteration or qualification made to the text of the Bills of Quantities may cause the Tender to be disqualified and in any case be ignored. The Contractor shall be deemed to have made allowance in his/her prices generally to cover any items against which no price has been inserted in the Priced Bills of Quantities. All items of measured work shall be priced in detail and the Tenders containing Lump Sums to cover trades or groups of work must be broken down to show the prices of each item before they will be accepted.		
D	BLASTING OPERATIONS Blasting shall only be allowed with the express permission of the PROJECT MANAGER in writing. All blasting operations shall be carried out at the Contractor's sole risk and cost in accordance with any Government regulations in force for the time being and any special regulations laid down by the PROJECT MANAGER governing the use and storage of explosives.		
	Carried to Collection KSHS		

ITEM	DESCRIPTION	KSHS	CTS
A	MATERIALS ARISING FROM EXCAVATIONS Materials of any kind obtained from excavations shall be the property of the Client. Unless the PROJECT MANAGER directs otherwise such materials shall be dealt with as provided in the Contract. Such materials shall only be used in the works, in substitution for materials which the Contractor will otherwise have had to supply with the written permission of the PROJECT MANAGER. Should such permission be given, the Contractor shall make due allowance for materials so used at a price to be agreed.		
B	PROTECTION OF THE WORKS Provide protection of the whole of the works contained in the Bills of Quantities, including casing, casing up, covering or such other means as may be necessary to avoid damage to the satisfaction of the PROJECT MANAGER and remove such protection when no longer required and make good any damage which nevertheless have been done at completion free of cost to the Government.		
C	REMOVAL OF RUBBISH ETC. Removal of rubbish and debris from the buildings and site as it accumulates and at the completion of the works and remove all plant, scaffolding and unused materials at completion.		
D	WORKS TO BE DELIVERED UP CLEAN Clean and flush all gutters, rainwater and waste pipes, manholes and drains, wash (except where such treatment might cause damage) and clean all floors, sanitary fittings, glass inside and outside and any other parts of the works and remove all marks, blemishes, stains and defects from joinery, fittings and decorated surfaces generally, polish door furniture and bright parts of metal work and leave the whole of the buildings water tight, clean, perfect and fit for occupation to the approval of the PROJECT MANAGER.		
E	ADHERENCE TO COVID-19 PREVENTION PROTOCOLS The contractor shall at his own cost put in place Covid-19 prevention Protocols and clearly elaborate them in a Covid-19 Action Plan all in compliance with Standards for Management of Construction Sites and Welfare of Workers and the Community by The National Construction Authority as clearly spelt out in the Ministry of Health Guidelines i.e. screening, hand wash points, mask wearing, social distance enforcement, controlled movement, communication principles etc.		
	Carried to Collection KSHS		

ITEM	DESCRIPTION	KSHS	CTS
A	GENERAL SPECIFICATION. For the full description of materials and workmanship, method of execution of the works and notes for pricing, the Contractor is referred to Ministry of Public Works and Housing General Specification dated 1976 or any subsequent revision thereof, and which shall be allowed for in all respects unless it conflicts with the General Preliminaries, Trade Preambles or other items in these Bills of Quantities.		
B	TRAINING LEVY The Contractor's attention is drawn to legal notice No. 237 of October, 1971 which requires payment by Contractor of a Training levy at the rate of 1/4% of the Contract Sum on all Contracts of more than Kshs. 500,000.00 in value.		
C	MATERIALS ON SITE All materials for incorporation into the works must be stored on or adjacent to the site before payment is effected unless specifically exempted by the PROJECT MANAGER. This includes the materials of the Main Contractor, Nominated Subcontractors and Nominated Suppliers.		
D	HOARDING The Contractor shall enclose the site of the works under construction with a hoarding 2400mm high consisting of iron sheets on 100x50mm timber posts firmly secured at 1800mm centres with two 75x50mm timber rails. The Contractor is in addition required to take precautions necessary for the safe custody of the works, materials, plant, public and Employer's property on the site.		
E	CONTRACTOR'S SUPERINTENDENCE/ SITE AGENT The Contractor shall constantly keep on the works a literate English and Kiswahili speaking Agent Representative, competent and experienced in the kind of work involved who shall give his whole experience in the kind of work involved and shall give his whole time to the superintendence of the works. Such Agent or Representative shall receive on behalf of the Contractor all directions and instructions from the PROJECT MANAGER and such directions shall be deemed to have been given to the Contractor in accordance with the Conditions of Contract.		
F	PROTECTIVE CLOTHING The contractor shall provide all protective or any other special clothing or equipment for their employees that may be necessary. These shall include inter-alia, safety helmets, gloves, goggles, earmuffs, gumboots, steel toed boots, overalls etc. according to the type of work. The contractor shall ensure that all safety and protective gear are worn by staff on site at all times.		
	Carried to Collection KSHS		

ITEM	DESCRIPTION	
	COLLECTION Brought Forward from Page 6/1 Brought Forward from Page 6/2 Brought Forward from Page 6/3 Brought Forward from Page 6/4 Brought Forward from Page 6/5 Brought Forward from Page 6/6 Brought Forward from Page 6/7 Brought Forward from Page 6/8 Brought Forward from Page 6/9 Brought Forward from Page 6/10 Brought Forward from Page 6/11 Brought Forward from Page 6/12	
TOTAL FOR PART NO. 6 CARRIED TO MAIN SUMMARY		KSHS

PART NO. 7
TUITION BLOCK

		Qty	Unit	Rate	KSHS	CTS
a	DEMOLITIONS & REMOVALS (ALL PROVISIONAL)					
	(NOTE: Site visit is highly recommended since there will be no acceptance of review of cost due to lack of knowledge of any information while quoting in this section; Contractors to allow for providing support of existing structures not to be demolished; maintaining for the duration of the construction period; Adapting to allow progress of new works to the satisfaction of the Structural Engineers and Architect; All salvaged material to remain as property of the client.) EXISTING FOUNDATIONS Existing foundations; comprising natural stone walling, Reinforced concrete Columns, Column bases and Strip footing; grub up all foundations; Hand over redeemed material to the employer and cart away resulting debris from site;		Item			
To Collection KSHS						

		Qty	Unit	Rate	KSHS	CTS
	Collection					
	Total from Page 1					
To Summary KSHS						

		Qty	Unit	Rate	KSHS	CTS
	D20 EXCAVATING AND FILLING;					
	SITE PREPARATION;					
	Clearing site vegetation, grubbing up roots and filling up voids left with selected excavated material;					
a	Bushes, shrubs, undergrowth or the like and cart away from site including cutting down trees not exceeding 900mm girth;	1,685	m2			
	EXCAVATING					
	Topsoil for preservation;					
b	200 mm average depth starting from existing ground level;	1,685	m2			
	Excavations for Column bases;					
c	Not exceeding 1.5 m deep starting from stripped level;	1,281	m3			
d	Over 1.5 m but not exceeding 3.0 m deep;	1,281	m3			
	Excavations for Lift bases					
e	Not exceeding 1.5 m deep starting from stripped level;	21	m3			
f	Over 1.5 m but not exceeding 3.0 m deep;	21	m3			
	Excavations for Strip Footing					
g	Not exceeding 1.5 m deep starting from stripped level;	872	m3			
h	Over 1.5 m but not exceeding 3.0 m deep;	872	m3			
	Extra over excavation irrespective of depth for breaking out;					
i	Soft rock;	261	m3			
j	Hard rock;	391	m3			
To Collection KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK				SUBSTRUCTURE (ALL PROVISIONAL)		
		Qty	Unit	Rate	KSHS	CTS
	D20 EXCAVATING AND FILLING; continued ...					
	DISPOSAL					
a	Excavated material; Off site to contractor's tip;	1,773	m3			
b	FILLING TO EXCAVATIONS Return fill and Ram	2,574	m3			
	HARDCORE					
c	Well compacted in layers of 150mm thickness to approval of the engineer;	3,005	m3			
	QUARY DUST					
d	Blinding on surfaces of Hardcore fill; 50mm thick;	1,354	m2			
	HERBICIDES / INSECTICIDES					
e	Applying to surfaces Apply anti-termite treatment; "Termidor" or equal and approved in accordance with manufacturers' printed specifications and ten years guarantee;	1,354	m2			
	SURFACE TREATMENTS					
	Planking and Strutting					
f	Labour and materials; to uphold the sides of excavations; generally		item			
	Disposal of Water					
g	Labour and materials; Keeping excavations free from general water		item			
To Collection KSHS						

		Qty	Unit	Rate	KSHS	CTS
	E05 IN SITU CONCRETE CONSTRUCTION GENERALLY					
	50 mm thick mass concrete 1:3:6 foundation blinding;					
	To strip footing Foundation;					
a	Generally;	659	m2			
	To Column bases;					
b	Generally;	968	m2			
	To Lift bases;					
c	Generally;	14	m2			
	Vibrated Reinforced Concrete; Class 25(20mm agg); mix 1:1.5:3;					
	Strip Footing Foundation;					
d	Generally;	132	m3			
	Column Bases;					
e	Generally;	551	m3			
	Columns ;					
f	Generally;	89	m3			
	Steps;					
g	Generally;	4	m3			
	Lift Shaft Base;					
h	Generally;	19	m3			
	Ramp;					
i	150 mm thick;	37	m2			
	Floor bed;					
j	150 mm thick;	1,286	m2			
	Lift walls;					
k	200 mm thick;	27	m2			
To Collection KSHS						

		Qty	Unit	Rate	KSHS	CTS
E20 FORMWORK FOR IN SITU CONCRETE						
SAWN FORMWORK						
	Sides of Strip Footing Foundation;					
a	Over 300 mm wide;	371	m2			
b	Ditto but curved on plan to any radius;	40	m2			
	Sides of Column bases;					
c	Over 300 mm wide;	732	m2			
	Sides of columns;					
d	Over 300 mm wide;	608	m2			
e	Ditto but curved on plan to any radius;	199	m2			
	Sides of lift base					
f	Over 300 mm wide;	20	m2			
	Sides of Lift shaft wall					
g	Over 300 mm wide;both sides measured	53	m2			
	Open edge of strings; Entrance Steps					
h	Over 300 mm wide;	2	m2			
	Edges of Suspended Slab;					
i	Over 75mm but not exceeding 150mm wide;	229	m			
	Edges of Ramp;					
j	Over 75mm but not exceeding 150mm wide;	49	m			
	Edges of risers; Entrance Steps					
k	Over 75mm but not exceeding 150mm wide;	58	m			
To Collection KSHS						

		Qty	Unit	Rate	KSHS	CTS
	E30 REINFORCEMENT FOR IN SITU CONCRETE					
	REINFORCEMENT					
	Fabric reinforcement to BS 4483; reference A 142 mesh weight 2.22kgs per square metre (measured net - no allowance made for laps); including bends, tying wire, distance blocks and spacers;					
a	Generally;	1324	m2			
	Bars; Round; Ribbed; cold worked; b.s. 4449 - 2005,including bends, hooks tying wire, distance blocks and spacers all in position as necessary;					
	Deformed Bars					
b	8 mm Diameter;	30,008	Kg			
c	10 mm Diameter;	40,010	Kg			
d	12 mm Diameter;	10,003	Kg			
e	16 mm Diameter;	20,005	Kg			
f	20 mm Diameter;	54,014	Kg			
g	25 mm Diameter;	46,012	Kg			
	F21 NATURAL STONE / MASONRY WALLING					
	Approved local stone; squared; machine cut or fine chisel dressed; bedding and jointed in cement sand mortar (1:4);					
	Walls					
h	200 mm thick	6,590	m2			
To Collection KSHS						

		Qty	Unit	Rate	KSHS	CTS
	F30 ACCESSORIES AND SUNDRY ITEMS FOR STONE WALLING					
	DAMP PROOF COURSES					
	On surfaces					
a	200 mm wide;	443	m			
b	150 mm wide	52	m			
c	100 mm wide	28	m			
	Polythene based damp proof Membrane 1000 gauge;					
	On surfaces					
d	Over 300 mm wide	1354	m2			
	M10 SAND CEMENT /CONCRETE SCREEDS /FLOORING					
	CEMENT AND SAND					
	15 mm thick backing screed; wood floated to receive Stone facework; (m/s) to concrete or blockwork base generally;					
e	Over 300 wide	160	m2			
	STONE FACEWORK					
	Approved stone tiles, fine chisel dressed both sides; squared; bedding; jointing and recessed pointing in cement mortar (1:4) as work proceeds;					
	Plinth finish;					
f	Over 300 wide; external	160	m2			
To Collection KSHS						

		Qty	Unit	Rate	KSHS	CTS
	Collection					
	Total from Page 3					
	Total from Page 4					
	Total from Page 5					
	Total from Page 6					
	Total from Page 7					
	Total from Page 8					
To Summary KSHS						

		Qty	Unit	Rate	KSHS	CTS
E05 IN SITU CONCRETE CONSTRUCTION GENERALLY						
HOLLOW BLOCK SUSPENDED CONSTRUCTION						
	Hollow Pot Slabs					
	Ribs and Topping concrete class 25/20 mm; hollow concrete blocks size 380 x 300 x 500mm deep precast concrete slab comprising Vibrated Reinforced Concrete class 25/20 mm with and including 50mm thick vibrated concrete topping reinforced with BRC fabric Mesh Ref. A142 (m.s);	942	m2			
a						
Vibrated Reinforced Concrete; Class 25(20mm agg); mix 1:1.5:3;						
	Columns;					
b	Generally;	301	m3			
	Beams					
c	Generally;	523	m3			
	Terraces;					
d	Generally;	67	m3			
	Steps;					
e	Generally;	2	m3			
	Gutters;					
f	Generally;	191	m3			
	Tank Bearers;					
g	Generally;	10	m3			
	Lintels;					
h	Generally;	23	m3			
	Suspended slabs;					
i	200 mm thick;	2,238	m2			
j	250 mm thick;	433	m2			
	Lift Shaft Top slab;					
k	200 mm thick;	6	m2			
	Lift Shaft Walls;					
l	200 mm thick;	154	m2			
To Collection KSHS						

		Qty	Unit	Rate	KSHS	CTS
E20 FORMWORK FOR IN SITU CONCRETE						
SAWN FORMWORK						
	Sides of columns;					
a	Over 300 mm wide;	1,377	m2			
b	Ditto but Curved on plan to any radius	539	m2			
c	Ditto but Raking over 15 degrees from the horizontal;	331	m2			
	Sides and soffits of beams;					
d	Over 300 mm wide;	3,413	m2			
e	Ditto but Curved on plan to any radius	423	m2			
	Soffits of suspended slabs; Requiring strutting over 3.5m high but not exceeding 5.0m high.					
f	Over 300 mm wide;	2,672	m2			
	Soffits of 550mm thick Hollow pot slabs;					
g	Over 300 mm wide;	942	m2			
	Sides of gutters;					
h	Over 300 mm wide;	372	m2			
	Soffits of Gutters; Requiring strutting over 14.0m high but not exceeding 15.50m high.					
i	Over 300 mm wide;	196	m2			
	Sides of Lift Shaft Walls					
j	Over 300 mm wide;	308	m2			
	Sides and Soffits of Terraces					
k	Over 300 mm wide;	286	m2			
	Soffits of Lift top Slab					
l	Over 300 mm wide;	6	m2			
	Sides of Tank Bearers;					
m	Over 300 mm wide;	80	m2			
	Sides and soffits of Lintels;					
n	Over 300 mm wide;	154	m2			
To Collection KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					FRAME	
		Qty	Unit	Rate	KSHS	CTS
	E20 FORMWORK FOR IN SITU CONCRETE...Continued					
	SAWN FORMWORK					
	Edges of suspended slabs;					
a	Over 300 mm wide;	168	m2			
b	Over 225mm but not exceeding 300 mm wide;	71	m			
c	Over 150mm but not exceeding 225 mm wide; Edges of Lift top slab;	1,199	m			
d	Over 150mm but not exceeding 225 mm wide; Edges of Risers;	10	m			
e	Over 75mm but not exceeding 150 mm wide;	46	m			
	E30 REINFORCEMENT FOR IN SITU CONCRETE					
	REINFORCEMENT					
	Fabric reinforcement to BS 4483; reference A 142 mesh weight 2.22kgs per square metre (measured net - no allowance made for laps); including bends, tying wire, distance blocks and spacers;					
f	Generally;	942	m2			
	Bars; Round; Ribbed; cold worked; B.S. 4449 - 2005, including bends, hooks tying wire, distance blocks and spacers all in position as necessary;					
	Deformed Bars					
g	8 mm Diameter;	69,951	Kg			
h	10 mm Diameter;	93,268	Kg			
i	12 mm Diameter;	23,317	Kg			
j	16 mm Diameter;	46,634	Kg			
k	20 mm Diameter;	139,902	Kg			
l	25 mm Diameter;	93,268	Kg			
To Collection KSHS						

		Qty	Unit	Rate	KSHS	CTS
	Collection					
	Total from Page 10					
	Total from Page 11					
	Total from Page 12					
To Summary KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK						ROOF	
		Qty	Unit	Rate		KSHS	CTS
a	F21 NATURAL STONE MASONRY WALLING/DRESSINGS						
	Approved local stone; machine cut or fine chisel dressed; bedded and jointed in cement sand mortar (1:4);						
b	Parapet Walls						
	200 mm thick walls;	248	m2				
b	F31 PRECAST CONCRETE SILLS/LINTELS/COPINGS/FEATURES						
	PRECAST CONCRETE						
b	Copings						
	275 x 75 mm thick precast concrete class 20/20 coping, splayed top; weathered and twice throated; finished fair on exposed surfaces bedded straight on masonry parapet walls;	276	m				
c	G10 STRUCTURAL STEEL FRAMING (PROVISIONAL)						
	FRAMING FABRICATION						
c	Truss Frame Fabrication (Hoisted and Fixed to height not exceeding 18,000mm above ground floor slab)						
	The following in 6 No. Truss type T1;						
c	75 x 50 x 4.0mm thick RHS; External members (7.34kg/Lm)	1257	kg				
d	50x50x3.0mm thick SHS; Members (4.43kg/Lm)	576	kg				
e	The following in 13 No. Truss type T2						
	75 x 50 x 4.0mm thick RHS; External members (7.34kg/Lm)	4823	kg				
f	50x50x3.0mm thick SHS; Members (4.43kg/Lm)	1339	kg				
g	75 x 50 x 4.0mm thick RHS; Hip Rafters (7.34kg/Lm)	629	kg				
h	Purlins						
	100 x 50 x 20 x 2.0 mm thick Zed purlins (3.34 kg/Lm)	8543	kg				
i	Plates, Cleats, Bolts and the like;						
	Allow for plates, cleats, bolts etc	3370	kg				
j	H31 METAL PROFILED/FLAT SHEETCLADDING/COVERING						
	Metal Gutters;						
	200 mm wide x 200 mm high,galvanised iron sheet 16 gauge gutter, welded to GI fascia board (m.s);	35	m				
To Collection KSHS							

		Qty	Unit	Rate	KSHS	CTS
	H31 METAL PROFILED/FLAT SHEETCLADDING/COVERING					
	Flashings;					
	26 gauge preformed galvanized metal sheet flashing; fixed with galvanized screws to ends battens and other side dressed over masonry wall to Structural Engineer's detail drawings;					
a	570 mm girth;	35	m			
	H70 MALLEABLE METAL SHEET PREBONDED COVERINGS					
	Supply and fix galvanised, gauge 26, IT5 pre-painted metal roofing sheet covering; with heavy weight double sided 2 way reinforced fire redundant aluminium foil insulation from approved manufacturer (m.s) and of approved colour and size, including edging trim, firmly secured with galvanised steel screws or nails with end and side laps; fixed onto steel structure with all necessary curvatures, hoisting, placing and connections;					
	Coverings; fixing every tile on every fourth course with bolt; to 75 mm laps;					
b	Sloping not exceeding 30 degrees from horizontal;	1,173	m2			
c	350 mm Ridge cap to match	55	m			
d	350 mm Hip cap to match	48	m			
	Sisalation insulation membrane in 5 mm thick closed cell polyethylene foam laminated with reinforced aluminium reflective foil; laid in accordance with the manufacturers printed instructions;					
	Under roof coverings;					
e	Sloping not exceeding 45 degrees from horizontal;	1,173	m2			
To Collection KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK						ROOF	
		Qty	Unit	Rate		KSHS	CTS
	J21 MASTIC ASPHALT ROOFING/INSULATION/FINISHES						
	APP waterproofing or equal and approved water proofing agent laid in accordance with the manufacturers printed specifications; with and including a ten years guarantee						
	Roofing to falls and cross falls not exceeding 15 degrees from horizontal;						
a	To flat roof; over 300 mm wide;	614	m2				
b	To gutter over 300 mm wide;	606	m2				
c	To Parapet walls over 300 mm wide;	138	m2				
d	50 x 50 mm angle fillet dressing at joints;	667	m				
e	200 mm wide skirtings and dressings around fulbora pipe outlets;	90	m				
	M10 SAND CEMENT /CONCRETE SCREEDS /FLOORING						
	CEMENT AND SAND						
	22 mm thick backing screed; wood floated to receive precast concrete blocks; (m/s) to concrete or blockwork base generally;						
f	Over 300 mm wide;	614	m2				
	20 mm thick mix (1:4) flooring; wood floated in 2 No coats work to concrete, blockwork or brickwork base (m.s); generally to receive APP waterproofing material;						
g	Over 300 mm wide;	1,358	m2				
	M40 STONE /CONCRETE /QUARRY /CERAMIC TILING/MOSAIC						
	Precast concrete interlocking tiles; to regular pattern; bedding, jointing and pointing in cement sand mortar (1:4)						
	50mm thick; butt joints straight both ways; to cement and sand base (m/s);						
h	Floors; to falls and crossfalls or sloping not exceeding 15 degrees from horizontal; external	614	m2				
						To Collection KSHS	

		Qty	Unit	Rate	KSHS	CTS
	Collection					
	Total from Page 14					
	Total from Page 15					
	Total from Page 16					
To Summary KSHS						

		Qty	Unit	Rate	KSHS	CTS
	E05 IN SITU CONCRETE CONSTRUCTION					
	GENERALLY					
	Vibrated Reinforced Concrete; Class 25 (20 mm agg) (1:1.5:3)					
	REINFORCED					
	Staircases;					
a	Generally	27	m3			
	Beams;					
b	Generally	20	m3			
	Landings;					
c	200 mm thick landing;	39	m2			
	Ramps;					
d	200 mm thick landing;	159	m2			
	E20 FORMWORK FOR IN SITU CONCRETE					
	SAWN FORMWORK					
	Soffits of landings;					
e	Over 300 mm wide;	39	m2			
	Slopping soffits of stairs;					
f	Over 300 mm wide;	101	m2			
	Open edge of strings;					
g	300 mm extreme width; including cutting to profile;	42	m2			
	Slopping soffits of Ramps;					
h	Over 300 mm wide;	159	m2			
	Sides and soffits of Beams;					
i	Over 300 mm wide;	273	m2			
	Edges of landing slabs;					
j	Over 150 mm wide but not exceeding 225 mm high	93	m			
	Edges of Ramps;					
k	Over 150 mm wide but not exceeding 225 mm high	166	m			
	Edges of risers;					
l	Over 75 mm wide but not exceeding 150 mm high	302	m			
To Collection KSHS						

		Qty	Unit	Rate	KSHS	CTS
	E30 REINFORCEMENT FOR IN SITU CONCRETE					
	Bars; Round; Ribbed; cold worked; B.S. 4461 including bends, hooks tying wire, distance blocks and spacers;					
	Deformed Bars					
a	8 mm Diameter;	3,132	Kg			
b	10 mm Diameter;	8,614	Kg			
c	12 mm Diameter;	1,566	Kg			
d	16 mm Diameter;	2,349	Kg			
	L30 STAIRS /RAMPS/WALKWAYS /BALUSTRADES					
	Stainless steel balustrading; comprising of 50 mm diameter x 3 mm thick stainless steel handrail welded onto 25 mm diameter Stainless steel solid rod welded onto 38 mm diameter x 2 mm Stainless steel CHS baluster fixed on the steps at 1000 mm centres; 20 mm diameter Stainless steel bars welded onto the balusters at 150 mm centres vertically; all welded, grounded smooth and fixed specialist fabricator's details and shop drawings and to architect's approval					
	Staircases, corridors, and voids;					
e	1000 mm high;	394	m			
	Stainless steel balustrading; comprising of 50 mm diameter x 3 mm thick stainless steel handrail welded onto 25 mm diameter stainless steel solid rod welded onto 38 x 38 x 2 mm mild steel SHS baluster fixed on the steps at 1000 mm centres; 900 x 800 mm high in 12 mm thick laminated glass panels firmly secured to balusters; including 3 mm thick x 50 mm diameter bottom plate around baluster; all welded, grounded smooth and fixed to specialist fabricator's details and shop drawings and to architect's approval					
	Corridors, and voids;					
f	1000 mm high;	20	m			
	Stainless steel Handrail; Comprising 50 mm diameter x 3 mm thick Stainless steel handrail welded onto 20 mm solid stainless steel pin welded onto 75 mm diameter x 10 mm thick plate plugged and screwed into the wall with four bolts; all welded, ground smooth and fixed to specialist fabricator's details and shop drawings and to architect's approval					
g		119	m			
	M10 SAND CEMENT /CONCRETE SCREEDS /FLOORING					
	30 mm thick cement and sand (1:4) flooring; wood floated receive Ceramic tile flooring (m.s)					
	Landings;					
h	Over 300mm wde;	39	m2			
	Ramps;					
i	Over 300mm wde;	159	m2			
	Treads;					
j	300 mm wide	302	m			
To Collection KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					STAIRS	
		Qty	Unit	Rate	KSHS	CTS
	M10 SAND CEMENT /CONCRETE SCREEDS /FLOORING					
	30 mm thick cement and sand (1:4) flooring; wood floated receive Ceramic tile flooring (m.s)					
	Risers;					
a	150 mm high	302	m			
	Skirtings					
b	100 mm high	85	m			
	M10 SAND CEMENT /CONCRETE SCREEDS/FLOORING					
	M20 PLASTERED /RENDERED /ROUGHCAST COATINGS					
	Plaster cement and sand 1:3; work to blockwork;					
	12 mm thick in two coats;					
c	Over 300 mm; soffits of landings;	39	m2			
d	Over 300 mm; Sloping soffits of staircase	101	m2			
e	Over 300 mm; Sloping soffits of Ramps	159	m2			
f	Over 300 mm; Sides and soffits of Beams	302	m2			
g	300mm wide sloping sides of stairs;	42	m2			
h	200mm wide; edges of Ramps;	166	m			
	M40 TILING					
	NOTE:					
	Tenderer to Add for taking delivery and fixing on the P.C. Rate provided for fixing of tiles;					
	Approved Anti-slip Ceramic tiles - P.C. Rate of Kshs. 1,500 per square metre including fixing on cement sand screed backing (m.s);					
i	Over 300mm wide; Landings;	39	m2			
j	Over 300mm wide; Ramps;with 3 No. grooves at every 400mm interval; grooves infilled with epoxy;	159	m2			
k	100 mm high; skirtings;	85	m			
l	300 mm wide; treads; bull nosed; with 3 No. grooves infilled with epoxy;	302	m			
m	150 mm high; Risers;	302	m			
To Collection KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					STAIRS	
		Qty	Unit	Rate	KSHS	CTS
	M60 PAINTING/CLEAR FINISHING					
	PAINTING PLASTER					
	General surfaces; primer, two undercoats and one coat of premium quality silk vinyl paint of approved quality;					
a	Over 300 girth; to smooth plastered surfaces; internally; soffits of landing	39	m2			
b	Over 300 mm wide; smooth plastered surfaces; soffits of staircase; sloping	101	m2			
c	Over 300 mm wide; smooth plastered surfaces; soffits of Ramps; sloping	159	m2			
d	Over 300 mm wide; smooth plastered surfaces; sides and soffits of Beams;	302	m2			
e	300 mm wide; smooth plastered surfaces; sloping sides of stairs	42	m2			
f	200 mm wide; smooth plastered surfaces; Edges of Ramps;	166	m2			
</						

		Qty	Unit	Rate	KSHS	CTS
	Collection					
	Total from Page 18					
	Total from Page 19					
	Total from Page 20					
	Total from Page 21					
To Summary KSHS						-

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					WALLS	
		Qty	Unit	Rate	KSHS	CTS
	F21 NATURAL STONE / MASONRY WALLING					
	Approved local stone; squared; machine cut or fine chisel dressed; bedding and jointed in cement sand mortar (1:4);					
	External walling;					
a	200 mm thick;	1,054	m2			
	Internal walling;					
b	200 mm thick;	2,241	m2			
c	150 mm thick;	721	m2			
d	100 mm thick;	826	m2			
	F21 ALUMINIUM PARTITIONING					
	PARTITIONS					
	Supply and fix powder coated Aluminium partition; standard hollow or angle sections; 75 x 50mm x 1.5mm thick horizontal and vertical frame members mitred at corners including reinforcing cleats and all necessary ironmongery; fixing with steel screws; plugging or fixing to concrete, block work or stone work; complete with 6 mm thick Frosted glass panel 2000mm high; with 400mm and 300mm high aluminium louvers to top and bottom sections; sealing with mastic: oiling and adjusting on completion;					
	Internal walling;					
e	Over 300 mm wide;	19	m2			
To Collection KSHS						

		Qty	Unit	Rate	KSHS	CTS
	Collection					
	Total from Page 23					
To Summary KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK						WINDOWS	
		Qty	Unit	Rate		KSHS	CTS
	F31 PRECAST CONCRETE CILLS						
	Approved pre-cast concrete cill: bedded and jointed in cement sand (1:3) mortar: pointed in matching coloured cement;						
	Cills;						
a	275 x 50 mm thick cill; once weathered and throated; reinforced as necessary for handling	190	m				
	G20 CARPENTRY/TIMBER FRAMING						
	WROT MAHOGANY: PRIME GRADE;						
b	150 x 25 mm Window board; plugged;	620	m				
c	25 mm quadrant beading;	620	m				
	CURTAIN COVE						
	9.5 mm thick suspended drywall curtain cove as Rhinoboard Gypsum with and including fixing to steel studwork branderling support system with rounded, smooth compound sanded edges, edge trims, plastered, joints taped and filled; with heavy duty aluminium curtain rail or other equal and approved; complete with fixing brackets, rollers 150mm laps; runners at 100mm centres and end stops; finished in three coats of roller applied matt emulsion paint finish to approval;						
d	100 x 70mm thick;	646	m				
	L10 WINDOWS						
	SCREENS / FAÇADE / CURTAIN WALL						
	Supply and fix Anodised Aluminium or Equal and approved; 2.5mm thick curtain walls with a 6mm toughened and laminated glass; Alumil M4 system with 75 x 50 x 2.5mm thick Anodised Aluminium RHS horizontal and vertical frame members mitred at corners including reinforcing cleats, endcaps, silicone, supporting brackets, corner cleats with press, vertical, central and horizontal Mullion gaskets, adjustment parts and all necessary ironmongery; window openings including fly screen planes and accessories; fixing with (DIN ISO 7049 -A2) 4.8 x 25 stainless steel screws and M10 x 75 stud anchor cast in concrete with 75x50x4mm steel plates and fastened with nuts and washers; plugging or fixing to concrete, block work, steel/aluminium members or stone work; with all necessary steel accessories and structures including galvanizing and painting of all elements, supports and brackets; and exposed concrete and steel elements to match anodised aluminium sections; including aluminium louvres cranked at 45 degrees covered with 2mm mosquito netting; all to architect's drawings and to the approval of the Project Manager.						
e	Over 300 mm wide	1886	m2				
						To Collection KSHS	

		Qty	Unit	Rate	KSHS	CTS
	L10 WINDOWS...Continued					
	SCREENS / FAÇADE / CURTAIN WALL					
	Supply and fix powder coated aluminium windows; standard hollow sections; 75 x 50 x 2.5 mm thick RHS horizontal and vertical frame members frames mitred at corners including reinforcing cleats and all necessary ironmongery; complete with 6mm thick glazing; fixing with aluminium screws; plugging or fixing to concrete, block work or stone work; sealing with mastic; oiling and adjusting on completion;					
a	Window overall size 3600 x 2100 mm high; Top hung window; complete with window stays, Lockable fasteners; bush hinges, to architect's detailed drawings;	4	No.			
b	Window overall size 1500 x 2100 mm high; Top hung window; complete with window stays, Lockable fasteners; bush hinges, to architect's detailed drawings;	1	No.			
c	Window overall size 3000 x 2100 mm high; Top hung window; complete with window stays, Lockable fasteners; bush hinges, to architect's detailed drawings;	3	No.			
d	Window overall size 3300 x 2100 mm high; Top hung window; complete with window stays, Lockable fasteners; bush hinges, to architect's detailed drawings;	1	No.			
e	Window overall size 4400 x 2100 mm high; Top hung window; complete with window stays, Lockable fasteners; bush hinges, to architect's detailed drawings;	6	No.			
f	Window overall size 3000 x 1500 mm high; Top hung window; complete with window stays, Lockable fasteners; bush hinges, to architect's detailed drawings;	3	No.			
g	Window overall size 4400 x 1500 mm high; Top hung window; complete with window stays, Lockable fasteners; bush hinges, to architect's detailed drawings;	9	No.			
h	Window overall size 2100 x 1500 mm high; Top hung window; complete with window stays, Lockable fasteners; bush hinges, to architect's detailed drawings;	4	No.			
i	Window overall size 3200 x 3250 mm high; Top hung window; complete with window stays, Lockable fasteners; bush hinges, to architect's detailed drawings;	1	No.			
j	Window overall size 3600 x 3250 mm high; Top hung window; complete with window stays, Lockable fasteners; bush hinges, to architect's detailed drawings;	4	No.			
k	Window overall size 1800 x 1500 mm high; Top hung window; complete with window stays, Lockable fasteners; bush hinges, to architect's detailed drawings;	3	No.			
l	Window overall size 4600 x 1500 mm high; Top hung window; complete with window stays, Lockable fasteners; bush hinges, to architect's detailed drawings;	1	No.			
m	Window overall size 2450 x 1500 mm high; Top hung window; complete with window stays, Lockable fasteners; bush hinges, to architect's detailed drawings;	10	No.			
n	Window overall size 1500 x 1500 mm high; Top hung window; complete with window stays, Lockable fasteners; bush hinges, to architect's detailed drawings;	4	No.			
To Collection KSHS						

		Qty	Unit	Rate	KSHS	CTS
	L10 WINDOWS...Continued					
	SCREENS / FAÇADE / CURTAIN WALL					
	Supply and fix powder coated aluminium windows; standard hollow sections;100 x 50 x 2.5 mm thick RHS horizontal and vertical frame members frames mitred at corners including reinforcing cleats and and all necessary ironmongery; complete with 6mm thick glazing; fixing with aluminium screws; plugging or fixing to concrete, block work or stone work; sealing with mastic; oiling and adjusting on completion;					
a	Window overall size 1060 x 2100 mm high; Top hung window; complete with window stays, Lockable fasteners; bush hinges, to architect's detailed drawings;	2	No.			
b	Window overall size 380 x 2100 mm high; Top hung window; complete with window stays, Lockable fasteners; bush hinges, to architect's detailed drawings;	2	No.			
c	Window overall size 2020 x 2100 mm high; Top hung window; complete with window stays, Lockable fasteners; bush hinges, to architect's detailed drawings;	2	No.			
d	Window overall size 1400 x 2100 mm high; Top hung window; complete with window stays, Lockable fasteners; bush hinges, to architect's detailed drawings;	2	No.			
e	Window overall size 2970 x 2100 mm high; Top hung window; complete with window stays, Lockable fasteners; bush hinges, to architect's detailed drawings;	2	No.			
f	Window overall size 2350 x 2100 mm high; Top hung window; complete with window stays, Lockable fasteners; bush hinges, to architect's detailed drawings;	2	No.			
	Sunshading fins;					
	Supply, assemble and fix; Powder coated louvered sunshading; Comprising 2.5mm thick aluminium fins each at 45 degrees angle; fixed to concrete work or blockwork all as per architectural details;					
g	Over 300 mm wide	138	m2			
To Collection KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					WINDOWS	
		Qty	Unit	Rate	KSHS	CTS
a	SCREENS / FAÇADE / CURTAIN WALL Supply and fix 3 mm thick Powder Coated mild steel metal lattice façade laser cut to approved pattern and of approved colour; with and including 50 x 50 x 3mm SHS framing; fixing with steel screws; plugging or fixing to concrete, blockwork or stonework; sealing with mastic; oiling and adjusting on completion; to Architects' drawings; External Wall; Over 300mm wide;	203	m2			
	M60 PAINTING/CLEAR FINISHING PAINTING WOOD Prepare and apply one coat of aluminium wood primer on timber surfaces in contact with concrete or masonry surfaces; Painting Wood; Surfaces not exceeding 100 mm girth	620	m			
	Prepare surfaces: apply three coats polyurethane varnish on wood: to surfaces; Varnishing wood; Surfaces over 100 but not exceeding 200 mm girth:	620	m			
					To Collection KSHS	

		Qty	Unit	Rate	KSHS	CTS
	Collection					
	Total from Page 25					
	Total from Page 26					
	Total from Page 27					
	Total from Page 28					
To Summary KSHS						

		Qty	Unit	Rate	KSHS	CTS
	L20 DOORS /SHUTTERS /HATCHES					
	FRAMELESS GLASS DOORS					
	Supply and fix 10 mm thick toughened frameless glass door with decorative film to manufacturers specifications, complete with approved fixing accessories; including reinforcing cleats and all necessary iron mongery including heavy duty door closer; fixing with steel screws; plugging or fixing to concrete, blockwork or stonework; sealing with mastic; oiling and adjusting on completion; to architects detail;					
a	Double Leaf, Door overall size 4400 x 3250 mm high;1000mm long stainless steel handle and center lock; All to Architect's drawings;	1	No			
b	Double Leaf, Door overall size 3600 x 3250 mm high;1000mm long stainless steel handle and center lock; All to Architect's drawings;	2	No			
c	Double Leaf, Door overall size 3600 x 3250 mm high;1000mm long stainless steel handle and center lock; All to Architect's drawings;	1	No			
	FIRE RESISTANT DOORS;					
	Supply and fix side hung self-closing Fire resistant doors Two hours (2 Hours) fire rated steel door as 'Assa Abloy Prometal Steel Door' or equal and approved with vivion panel; decoral oak finish, with fire test certificate, two unsoldered 0.7 thick galvanized steel plates assembled, filled with high density rockwool and plasterboard; biometric access control to detail; all automatic operators connected to building management system; 3 height hinges, panic lock, panic bolt, push bar all escape hardware; stainless steel kick plate ironmongery and accessories; oiling and adjusting on completion ; to referenced architect's details					
d	Double leaf door; in two equal leaves overall size 1500 x 2100 mm high; door to architects' drawings	1	No			
e	Single leaf door; overall size 1100 x 2100 mm high; door to architects' drawings	3	No			
	PANELLED / WROT MAHOGANY;					
	Panelled doors; comprising of 100 x 50 mm top rail and stiles; 100 x 50 mm bottom rail; infilled with Mahogany panels; tounge and grooved into frame; moulding all round; complete with all necessary ironmongery (m.s);					
f	Double leaf overall size 1500 x 2400 mm high in two equal leaves; to Architects' drawings ;	17	No			
g	Double leaf overall size 1800 x 2400 mm high in two equal leaves; to Architects' drawings ;	5	No			
h	Double leaf overall size 1200 x 2400 mm high in two equal leaves; to Architects' drawings ;	1	No			
i	Double leaf overall size 1100 x 2400 mm high in two equal leaves; to Architects' drawings ;	6	No			
j	Single leaf overall size 900 x 2400 mm high in two equal leaves; to Architects' drawings ;	5	No			
To Collection KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK						DOORS	
		Qty	Unit	Rate		KSHS	CTS
L20 DOORS Continued...							
FLUSH DOORS;							
Supply and fix 45 mm Thick flush door: Solid core; hardwood veneer facing to both sides: hardwood lipped edges to BS 459; Fanlight infilled with 4mm clear glass; all to referenced architect's drawings;							
a	Single leaf, Double swing door overall size 1100 x 2400 mm high; to architect's drawings;	24	No.				
b	Single leaf, single swing door overall size 900 x 2400 mm high; to architect's drawings;	31	No.				
c	Single leaf, single swing door overall size 800 x 2400 mm high; to architect's drawings;	6	No.				
d	Single leaf, single swing door overall size 800 x 2100 mm high; to architect's drawings;	33	No.				
e	Double leaf, Double swing door overall size 900 x 1500 mm high; to architect's drawings;	2	No.				
f	Single leaf, single swing door overall size 900 x 1500 mm high; to architect's drawings;	1	No.				
STEEL CASEMENT DOORS							
Supply and fix mild steel panelled door comprising 100 x 50 mm frame all round and transome, 50 x 20 x2 mm stiles, top, intermediate and bottom rails; ends welded and angles cut, mitred and welded; including 300 mm fanlight in 6mm thick One-way glass; vertically infilled with 50 x 20 x 2 mm bars; all welding ground smooth; including 2 lever metal casement single turn lock as 'Eurostar' or equivalent complete with aluminium satin finish handle and all other necessary ironmongery; all to Architect's drawings							
g	Single leaf door overall size 900 x 2400 mm high; to architect's drawings;	1	No.				
h	Double leaf door overall size 1200 x 2400 mm high; to architect's drawings;	3	No.				
MDF SLOTTED DOORS							
Supply and fix 20 mm thick slotted MDF doors; complete with 100 x 50mm hardwood frame; with 300mm wide 10mm thick Horizontal slots at 600mm centre to centre; including all necessary ironmongery; fixing with steel screws; plugging or fixing to concrete, block work or stone work; sealing with mastic; oiling and adjusting on completion;							
i	Door overall size 900 x 2400 mm high double leaf; in two equal leaves; complete with all necessary ironmongery; all to architect's details	8	No				
j	Door overall size 850 x 2400 mm high double leaf; in two equal leaves; complete with all necessary ironmongery; all to architect's details	4	No				
k	Door overall size 750 x 2400 mm high double leaf; in two equal leaves; complete with all necessary ironmongery all to architect's details	26	No				
l	Door overall size 700 x 2400 mm high double leaf; in two equal leaves; complete with all necessary ironmongery; all to architect's details	8	No				
m	Door overall size 600 x 2400 mm high double leaf; in two equal leaves; complete with all necessary ironmongery; all to architect's details	20	No				
To Collection KSHS							

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					DOORS	
		Qty	Unit	Rate	KSHS	CTS
	PRIME GRADE STAINED; MAHOGANY					
	Door frames / transomes					
a	150 x 50 mm thick;	710	m			
b	150 x 25 mm thick Transomes	106	m			
c	50 x 20 mm thick Architraves	710	m			
d	25 x 25 mm thick Quadrants	710	m			
	M60 PAINTING/CLEAR FINISHING					
	Prepare and apply one coat of aluminium wood primer on timber surfaces in contact with concrete or masonry;					
	General surfaces					
e	Over 100 but not exceeding 200 mm girth;	710	m			
	Prepare surfaces: apply three coats polyurethane clear lacquer or other equal approved: on timber surfaces: to					
	General surfaces					
f	Frames; over 100 mm but not exceeding 200 mm girth;	710	m			
g	Transomes; over 100 mm but not exceeding 200 mm girth; both sides measured;	212	m			
h	Doors; Over 300 mm girth; both sides measured;	627	m2			
	Prepare and apply one undercoat and two finishing coats of gloss oil paint;					
	Generally metal door surfaces;					
i	Over 300 mm wide; both sides measured;	22	m2			
To Collection KSHS						

		Qty	Unit	Rate	KSHS	CTS
	P21 IRONMONGERY NOTE: This section only caters for TIMBER DOORS ONLY. Therefore, bidders MUST factor in their costs all iron mongery and other accessories as described in their rates of all other doors. Supply and Fix the following as per Assa Abloy Catalogue or other equal and approved; to soft wood, hardwood or the like; fixing with matching screws; Hinges; a 100 mm brass, heavy duty 2 ball bearing hinges; 198 Pair b Ditto but Double swing Heavy duty Hinges; 36 Pair Mortice Locks; c Three lever mortice lock No. 2295 with one pair of lever handles with escutcheon No. 680-06-2 98 No d 100 mm flash bolt; 46 No e Heavy duty overhead door closer 43 No f Rubber Door stops; 40mm dia 131 No g Indicator bolts 33 No h Aluminium satin finish pull and push handles 150 No i 16 guage 900mm x 200mm high brass kick plate 24 No j 17 guage 800mm x 200mm high brass kick plate 78 No k 18 guage 1100mm x 200mm high brass kick plate 48 No					
To Collection KSHS						

		Qty	Unit	Rate	KSHS	CTS
	Collection					
	Total from Page 30					
	Total from Page 31					
	Total from Page 32					
	Total from Page 33					
To Summary KSHS						

		Qty	Unit	Rate	KSHS	CTS
	M10 SAND CEMENT /CONCRETE SCREEDS /FLOORING					
	CEMENT AND SAND					
	15 mm thick backing screed; wood floated to receive Ceramic wall tiles; (m/s) to concrete or blockwork base generally;					
a	Over 300 mm wide;	2,134	m2			
	M20 PLASTERED /RENDERED					
	Render; 9 mm first coat of cement and sand 1:6; 3 mm second coat of cement sand and lime putty (1:10); steel trowelled smooth;					
	External surfaces;					
b	Walls; over 300 mm wide;	1,054	m2			
c	Beams; Over 300 mm wide;	1,534	m2			
d	Columns; over 300 mm wide;	493	m2			
e	Gutters; Over 300 mm wide;	489	m3			
To Collection KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					WALL FINISHES	
		Qty	Unit	Rate	KSHS	CTS
	M20 PLASTERED /RENDERED continued ... Plaster; 9 mm first coat of cement and sand 1:6; 3 mm second coat of cement sand and lime putty (1:10); steel trowelled smooth; 12 mm thick in 2 No coats work; to concrete or blockwork base (m/s); generally to internal surfaces;					
a	Walls; over 300 mm wide;	6,496	m2			
b	Columns; over 300 mm wide;	1,377	m2			
c	Beams; Over 300 mm wide;	2,301	m2			
d	Lift shaft; Over 300 mm wide;	154	m2			
	M40 CERAMIC TILING NOTE: Tenderer to Add for taking delivery and fixing on the P.C. Rate provided for fixing of tiles; Approved size ceramic wall tiles - P.C. Rate of Kshs.1500 per square metre including fixing on cement sand screed backing (m.s); Approved size; butt joints straight both ways; to cement and sand base (m/s); Over 300 mm wide;;					
e		2,134	m2			
To Collection KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					WALL FINISHES	
		Qty	Unit	Rate	KSHS	CTS
M60 PAINTING/CLEAR FINISHING						
PAINTING PLASTER						
Prepare by skimming plastered surface; apply one undercoat; two coats of PolyVinyl Acetate based emulsion paint as ideal paints, basco paints, crown paints, or equal and approved;						
Steel trowelled plastered surfaces;						
a	Walls; over 300 mm wide;	6,496	m2			
b	Columns; over 300 mm wide;	1,377	m2			
c	Beams; Over 300 mm wide;	2,301	m2			
d	Lift shaft; Over 300 mm wide;	154	m2			
PAINTING RENDER						
Prepare and apply one undercoat; two finishing coats of external textured special effect all weather paint of an approved quality;						
Steel trowelled plastered surfaces;						
e	Walls; over 300 mm wide;	1,054	m2			
f	Beams; Over 300 mm wide;	1,534	m2			
g	Columns; over 300 mm wide;	493	m2			
d	Gutters; Over 300 mm wide;	489	m3			
To Collection KSHS						

		Qty	Unit	Rate	KSHS	CTS
	Collection					
	Total from Page 35					
	Total from Page 36					
	Total from Page 37					
To Summary KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					FLOOR FINISHES	
		Qty	Unit	Rate	KSHS	CTS
F30 ACCESSORIES AND SUNDRY ITEMS FOR BRICK, BLOCK AND STONE WALLING						
M10 SAND CEMENT /CONCRETE SCREEDS						
CEMENT AND SAND						
	32 mm thick backing; wood floated to receive Glazed Ceramic tiles; (m/s) to concrete or block work base generally;					
a	Over 300 mm wide;	2,158	m2			
b	100 mm high skirting;	1,298	m			
	32 mm thick backing; wood floated to receive Non-slip Ceramic tiles; (m/s) to concrete or block work base generally;					
c	Over 300 mm wide;	571	m2			
	100 mm high skirting;	97	m			
	32 mm thick backing; wood floated to receive Carpet roll flooring; (m/s) to concrete or block work base generally;					
d	Over 300 mm wide;	68	m2			
e	100 mm high skirting;	72	m			
	32 mm thick backing; wood floated to receive Polyurethane rubber flooring; (m/s) to concrete or block work base generally;					
f	Over 300 mm wide;	308	m2			
g	100 mm high skirting;	150	m			
	20 mm thick backing; wood floated to receive Terrazzo floor finish; (m/s) to concrete or block work base generally;					
h	Over 300 mm wide;	751	m2			
k	100 mm high skirting;	451	m			
	32 mm thick backing; wood floated to receive Mahogany block flooring; (m/s) to concrete or block work base generally;					
l	Over 300 mm wide;	175	m2			
m	100 mm high skirting;	156	m			
To Collection KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					FLOOR FINISHES	
		Qty	Unit	Rate	KSHS	CTS
M40 STONE /CONCRETE /QUARRY /CERAMIC TILING/MOSAIC						
Tenderer to Add for taking delivery and fixing on the P.C. Rate provided for fixing of tiles;						
Approved Glazed Porcelain tiles - P.C. Rate of Kshs.1500 per square metre including fixing on cement sand screed backing (m.s);						
a	600 x 600mm approved thickness; butt joints straight both ways; to cement and sand base (m/s); over 300 mm wide;	2,158	m2			
b	100 mm high; Skirting;	1,298	m			
Approved Non-slip Ceramic tiles - P.C. Rate of Kshs.1500 per square metre including fixing on cement sand screed backing (m.s);						
e	400 x 400mm approved thickness; butt joints straight both ways; to cement and sand base (m/s); over 300 mm wide;	571	m2			
	100 mm high; Skirting;	97	m			
Approved Carpet Roll - P.C. Rate of Kshs. 4,500 per square metre including fixing on cement sand screed backing (m.s);						
f	100% woolen wall to wall carpet of approved thickness; including carpet undelay to manufacturer's specification; fixed with approved adhesive; to cement and sand base (m/s); Over 300 mm wide;	68	m2			
g	100 mm high; Mahogany Skirting;	72	m			
Supply and install 6 mm thick Polyurethane rubber flooring, of 165mm3 abrasion resistance and 0.08mm residual indentation; of approved colour; fixed onto prepared surfaces with approved adhesive;						
h	Approved size; butt joints straight both ways; to cement and sand base (m/s); over 300 mm wide;	308	m2			
i	100 mm high; Mahogany Skirting;	150	m			
20mm thick polished terazzo paving of approved colour; cement and local marble chippings; machine polished smooth with and including plastic dividing strips at approved centers;						
j	Over 300 mm wide;	751	m2			
k	100 mm high Skirting;	451	m			
To Collection KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					FLOOR FINISHES	
		Qty	Unit	Rate	KSHS	CTS
	M40 STONE /CONCRETE /QUARRY /CERAMIC TILING/MOSAIC Tenderer to Add for taking delivery and fixing on the P.C. Rate provided for fixing of tiles; 12 mm thick Oriented Strand board; fixed on to the Cement: sand Screed (m/s) with and including appropriate adhesive ready to receive Teak wood blocks; all to Interior Designer's detail;					
b	Over 300 mm wide;	175	m2			
	Approved Mahogany Wood Blocks - P.C. Rate of Kshs.6000 per square metre including fixing on cement sand screed backing (m.s);					
	Approved size; butt joints straight both ways; to Oriented strand Boards (m/s); with appropriate adhesive to manufacturer's instruction; over 300 mm wide;	175	m2			
c	100 mm high; Mahogany skirting;	156	m			
					To Collection KSHS	

		Qty	Unit	Rate	KSHS	CTS
	Collection					
	Total from Page 39					
	Total from Page 40					
	Total from Page 41					
To Summary KSHS						

		Qty	Unit	Rate	KSHS	CTS
	K10 CEILINGS					
	600 x 600 mm suspended semi-recessed L.I.G. acoustic ceiling panels as Armstrong Fine Fissured Tegular 95% RH Second Look on white 24 mm wide lay-in grid as Trulok F24 (Armstrong) with and including fixing to suspended white powder coated aluminium 'T-grid' brander support system complete with white perimeter and curved trim and wall angles as necessary; Acoustic panel profiled Ceilings;					
a	Over 300 wide;	180	m2			
	9 mm thick Gypsum profiled Ceilings or equal and approved ceiling cover; tapered edge wallboard; joints taped and filled; firmly secured with and including fixing to steel or aluminium studwork brander support system with rounded, smooth compound sanded edges, edge trims, plastered, joints taped and filled finished to receive direct decoration; allow for provision of recessed mouldings / bulk heads on gypsum ceiling to allow for indirect lighting to detail; all in accordance with Architect's drawings; Gypsum board profiled Ceilings;					
b	Over 300 wide;	1,178	m2			
c	100 wide cornice;	642	m			
	M20 PLASTERED /RENDERED					
	Plaster; 9 mm first coat of cement and sand 1:6; 3 mm second coat of cement sand and lime putty (1:1:6); steel trowelled smooth; 12 mm thick in 2 No coats work; to concrete or blockwork base (m/s); generally to internal surfaces;					
d	Ceilings; over 300 mm wide;	3,613	m2			
	Prepare by skimming plastered surface; apply one undercoat; two coats of silk vinyl emulsion paint to ; Steel trowelled plastered surfaces;					
e	Slab soffits; Over 300 mm wide;	3,613	m2			
f	Gypsum Ceiling Surfaces; over 300 mm wide;	1,178	m2			
g	100 mm wide; Cornice	642	m			
To Collection KSHS						

		Qty	Unit	Rate	KSHS	CTS
	Collection					
	Total from Page 43					
To Summary KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					JOINERY FITTINGS	
		Qty	Unit	Rate	KSHS	CTS
<u>JOINERY FITTINGS (ALL PROVISIONAL)</u>						
Vanity Countertops						
Supply, assemble and fix Vanity top unit in 18mm thick mdf partitions, sides and shelf , 18mm thick block board top finished in 20mm thick granite countertops, 18mm thick cherry veneered MDF fronts and doors including all necessary approved ironmongery 'as per Architects specification;						
a	Overall size 650 mm long x 600 deep x 600mm high	5	No.			
b	Overall size 3600 mm long x 600 deep x 600mm high	8	No.			
c	Overall size 1300 mm long x 600 deep x 600mm high	6	No.			
<u>RECEPTION DESK</u>						
Cypress in plinth support;						
d	Size 90 x 20 mm placed on floor to support Carcases Plinths;	9	m			
e	100 mm Thick Mass concrete 1:3:6 in plinths	2	m2			
	Sawn formwork to edges of plinths 75 - 150mm high	9	m			
f	25 mm thick cement and sand screed to plinths; trowelled smooth	2	m2			
Supply, assemble and fix the following Granite Slab Counter Top Reception Desk units on 100mm thick concrete plinth (plinths m.s) in 18mm thick mdf partitions, sides and shelf , 18mm thick block board top finished in 8mm thick granito tiles, 18mm thick cherry veneered MDF drawer fronts and doors including all necessary approved ironmongery, Signage and Decorations 'as per Architects specification;						
g	Overall size 3600 mm long x 600mm deep x 1200mm high	1	No			
<u>BAR AND SERVERY COUNTERS</u>						
Cypress in plinth support;						
h	Size 90 x 20 mm placed on floor to support Carcases Plinths;	30	m			
i	100 mm Thick Mass concrete 1:3:6 in plinths	15	m2			
j	Sawn formwork to edges of plinths 75 - 150mm high	30	m			
k	25 mm thick cement and sand screed to plinths; trowelled smooth	15	m2			
To Collection KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					JOINERY FITTINGS	
		Qty	Unit	Rate	KSHS	CTS
	Supply, assemble and fix the following Granite Slab Counter Top Bar/ Servery units on 100mm thick concrete plinth (plinths m.s) in 18mm thick mdf partitions, sides and shelf , 18mm thick block board top finished in 8mm thick granito tiles, 18mm thick cherry veneered MDF drawer fronts and doors including all necessary approved ironmongery, Signage and Decorations 'as per Architects specification;					
a	Overall size 4300 mm long x 1050mm deep x 1200mm high	1	No			
b	Overall size 3700 mm long x 1550mm deep x 1200mm high	1	No			
c	Overall size 3000 mm long x 1550mm deep x 1200mm high	1	No			
	<u>COUNTERTOPS</u>					
	Cypress in plinth support;					
d	Size 90 x 20 mm placed on floor to support Carcases	33	m			
	Plinths;					
e	100 mm Thick Mass concrete 1:3:6 in plinths	10	m2			
f	Sawn formwork to edges of plinths 75 - 150mm high	33	m			
g	25 mm thick cement and sand screed to plinths; trowelled smooth	10	m2			
	Supply, assemble and fix the following Granite Slab Counter Top Desk units on 100mm thick concrete plinth (plinths m.s) in 18mm thick mdf partitions, sides and shelf , 18mm thick block board top finished in 8mm thick granito tiles, 18mm thick cherry veneered MDF drawer fronts and doors including all necessary approved ironmongery, Signage and Decorations 'as per Architects specification;					
h	Overall size 6200 mm long x 750mm deep x 1200mm high	1	No			
i	Overall size 2400 mm long x 750mm deep x 1200mm high	2	No			
j	Overall size 2700 mm long x 750mm deep x 1200mm high	1	No			
	<u>LABORATORY COUNTERTOPS</u>					
	Cypress in plinth support;					
k	Size 90 x 20 mm placed on floor to support Carcases	318	m			
	Plinths;					
l	100 mm Thick Mass concrete 1:3:6 in plinths	136	m2			
m	Sawn formwork to edges of plinths 75 - 150mm high	318	m			
n	25 mm thick cement and sand screed to plinths; trowelled smooth	136	m2			
To Collection KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					JOINERY FITTINGS	
		Qty	Unit	Rate	KSHS	CTS
	Supply, assemble and fix Laboratory worktop unit on 100mm thick concrete plinth (plinths m.s) in 18mm thick mdf partitions, sides and shelf , 18mm thick block board top finished in 20mm thick granite countertops, 18mm thick cherry veneered MDF drawer fronts and doors including all necessary approved ironmongery 'as per Architects specification;					
a	Overall size 9050 mm long x 750mm deep x 1200mm high	1	No			
b	Overall size 7900 mm long x 750mm deep x 1200mm high	1	No			
c	Overall size 8100 mm long x 750mm deep x 1200mm high	1	No			
d	Overall size 2600 mm long x 750mm deep x 1200mm high	1	No			
e	Overall size 11900 mm long x 750mm deep x 1200mm high	1	No			
f	Overall size 11700 mm long x 750mm deep x 1200mm high	1	No			
g	Overall size 14800 mm long x 750mm deep x 1200mm high	1	No			
h	Overall size 4500 mm long x 750mm deep x 1200mm high	1	No			
i	Overall size 3500 mm long x 750mm deep x 1200mm high	3	No			
j	Overall size 10400 mm long x 1200mm deep x 1200mm high	6	No			
	Supply, assemble and fix the following Counter Top units on 50 x 50 x 3mm thick SHS Vertical and Horizontal framing to Architect's specification. 18mm thick block board top including 1mm thick PVC edge lipping; All finished to Architects specification;					
k	Overall size 9050 mm long x 750mm deep x 1200mm high	1	No			
l	Overall size 7900 mm long x 750mm deep x 1200mm high	1	No			
m	Overall size 8100 mm long x 750mm deep x 1200mm high	1	No			
n	Overall size 2600 mm long x 750mm deep x 1200mm high	1	No			
o	Overall size 7600 mm long x 750mm deep x 1200mm high	1	No			
To Collection KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					JOINERY FITTINGS	
		Qty	Unit	Rate	KSHS	CTS
	WARDROBES					
	Cypress in plinth support;					
a	Size 100 x 20 mm Skirting to wardrobe plinths	12	m			
	Plinths Under Wardrobes;					
b	100 mm Thick Mass concrete 1:3:6 in plinths	3	m2			
c	Sawn formwork to edges of plinths 75 - 150mm high	12	m			
d	25 mm thick cement and sand screed to plinths; trowelled smooth	3	m2			
	Supply, assemble and fix wardrobes in 18mm thick standard laminated mdf carcass and shelves with adjustable shelves, lipped to edges with 4mm thick cherry veneered plywood, 18mm thick cherry veneered drawer fronts, 18mm thick laminated MDF door panels with 3mm thick PVC lipping, in cherry veneer finish, 18mm thick laminated MDF skirting, including all necessary ironmongery 'as per Architects specification;					
e	Overall size 1200 x 600 x 2400mm high	2	No			
f	Overall size 1800 x 600 x 2400mm high	1	No			
To Collection KSHS						

		Qty	Unit	Rate	KSHS	CTS
	Collection					
	Total from Page 45					
	Total from Page 46					
	Total from Page 47					
	Total from Page 48					
To Summary KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					FIXTURES	
		Qty	Unit	Rate	KSHS	CTS
N10 GENERAL FIXTURES /FURNISHINGS						
Writing Boards and Pin Boarda;						
White formica writing board.						
20 mm white formica writing board with 15mm x 12mm x 1.5 mm thick aluminium frame all round complete with and including a 9.5 mm thick block board backing fixed to plastered walls;including notched 300 x 100 x 0.5 mm thick mild steel duster board screwed;all to architect's detail;						
a	Overall size - 2400 x 1200 mm	8	No			
Pin Boards;						
12 mm softboard with fabric lining mounted onto face including 50 x 25 mm wrought cypress frame all round complete with fixing to plastered walls						
b	Overall size - 2400 x 1200 mm	16	No			
					To Collection KSHS	

		Qty	Unit	Rate	KSHS	CTS
	Collection					
	Total from Page 50					
To Summary KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK

		Qty	Unit	Rate	KSHS	CTS
	Summary					
	DEMOLITIONS Page 2					
	SUBSTRUCTURES Page 9					
	FRAME Page 13					
	ROOF Page 16					
	STAIRS Page 22					
	WALLS Page 24					
	WINDOWS Page 28					
	DOORS Page 34					
	WALL FINISHES Page 38					
	FLOOR FINISHES Page 41					
	CEILING FINISHES Page 43					
	JOINERY FITTINGS Page 49					
	FIXTURES Page 51					
Total for Bill KSHS						

PART NO. 8
EXTERNAL WORKS

		Qty	Unit	Rate	KSHS	CTS
	<u>Parking & Driveways</u>					
	D20 EXCAVATING AND FILLING;					
	SITE PREPARATION;					
	Clearing site vegetation, grubbing up roots and filling up voids left with selected excavated material;					
a	Bushes, shrubs, undergrowth or the like and cart away from site including cutting down trees not exceeding 900mm girth;	1104	m2			
	EXCAVATING					
	Excavations to reduce levels;					
b	Excavate for reduced levels not exceeding 1.5 m depth starting from existing ground level;	331	m3			
	SURFACE TREATMENTS					
	Grading and compacting subgrade to receive roads;					
c	Over 300 mm wide;	1104	m2			
	Disposal of Water					
d	Labour and materials; Keeping excavations free from general water		Item			
	DISPOSAL					
	Excavated material;					
e	Remove from site to contractor's tip for disposal	331	m3			
	HAND PACKED HARDCORE					
	300 mm thick; well compacted in layers of 150mm maximum thickness to approval of the Structural Engineer;	1104	m2			
	QUARRY DUST					
	Blinding on surfaces of hand packed stone fill;					
h	50 mm thick;	1104	m2			
	PAVING/PLANTING/FENCING/SITE FURNITURE					
	Q10 Kerbs/Edgings/Channels/paving accessories					
	Precast concrete; nominal; class 20/(20 mm); vibrated; part surface fair finish; kerbs; sprayed; B.S. 340; bedding, jointing and pointing in cement sand mortar (1:3); including all necessary formwork, excavations and disposal;					
i	125 x 250 mm high half battered; on and including 100 mm thick plain in situ concrete class 20/(20mm) haunched base and back 325 mm wide;	90	m			
j	Ditto but curved to any radius;	98	m			
To Collection KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					EXTERNAL WORKS	
		Qty	Unit	Rate	KSHS	CTS
	PAVING/PLANTING/FENCING/SITE FURNITURE...Continued					
	Channel; B.S. 340; bedding, jointing and pointing in cement:sand mortar (1:3); including all necessary excavation, disposal and formwork;					
a	125 x 100 mm precast concrete flush channel laid flat including plain insitu concrete class 20/(20 mm) base and 100 mm thick haunch; 300 mm girth	129	m			
b	Ditto but curved to any radius;	15	m			
	Q24 Interlocking brick/block roads/Cabro pavings					
	60 mm thick Medium duty concrete interlocking blocks; 'Cabbro' or equal and approved; herring bone pattern; laid to manufacturer's specifications;					
	Roads, loading zone, Walkways and surface parking; to falls crossfalls;Horizontal;					
c	Over 300 mm wide;	1103	m2			
	ROAD MARKING PAINT (PROVISIONAL)					
	Prepare and apply one coat approved quality reflective road marking paint on paving blocks					
	Continous;					
d	100 mm wide;	258	m			
	Ditto Intermittent;					
e	100 mm wide;	94	m			
To Collection KSHS						

		Qty	Unit	Rate	KSHS	CTS
	Collection					
	Total from Page 1/1					
	Total from Page 1/2					
To Summary KSHS						

		Qty	Unit	Rate	KSHS	CTS
	<u>Storm Water Drainage</u>					
	D20 EXCAVATING AND FILLING;					
	Excavate trenches for Storm Drainage;					
a	Excavate for Storm drainage; depth not exceeding 1.5 m deep from existing ground level;	52	m3			
	Extra over excavation irrespective of depth for breaking out;					
b	Soft rock;	4	m3			
c	Hard rock;	6	m3			
	DISPOSAL					
	Excavated material;					
d	Remove from site to contractor's tip for disposal	52	m3			
	SURFACE TREATMENTS					
	Trimming bottoms and slopping sides of excavations to achieve uniformity;					
e	Bottoms and Sides of Storm drainage;	155	m2			
	Disposal of Water					
f	Labour and materials; Keeping excavations free from general water		Item			
	E05 IN SITU CONCRETE CONSTRUCTION					
	GENERALLY					
	50 mm thick mass concrete 1:3:6 foundation blinding;					
	To Storm Drainage;					
g	Generally;	155	m2			
	Vibrated Reinforced Concrete; Class 25(20mm agg); mix 1:1.5:3;					
	Open Storm Drainage;					
i	100 mm thick;	155	m2			
	E20 FORMWORK FOR IN SITU CONCRETE					
	MARINE BOARD FORMWORK					
	Sides of Storm Drainage;					
j	Over 300 mm wide;	103	m2			
To Collection KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					EXTERNAL WORKS	
		Qty	Unit	Rate	KSHS	CTS
a	E30 REINFORCEMENT FOR IN SITU CONCRETE					
	REINFORCEMENT Fabric reinforcement to BS 4483; reference A 98 mesh weight 1.54kgs per square metre (measured net - no allowance made for laps); including bends, tying wire, distance blocks and spacers; Generally;	155	m2			
b	PRECAST CONCRETE WATER PIPES (CULVERT)					
	Normal class 20 (20mm agg.); vibrated; Part surface fair finish; pipe; sprayed; B.S 340; bedding, jointing and pointing in cement, sand mortar (1:3); including all necessary formwork; 900 x 900 mm deep (600mm internal diameter);on and including 150 mm thick plain insitu concrete class 20 (20 mm agg.) bed and sorround; Hed Walls; Wing Walls; aprons all reinforced with BRC Mesh A142 and including all necessary excavations and backfilling; all to structural engineer's details;	7	m			
To Collection KSHS						

		Qty	Unit	Rate	KSHS	CTS
	Collection					
	Total from Page 1/4					
	Total from Page 1/5					
To Summary KSHS						

		Qty	Unit	Rate	KSHS	CTS
	<u>Foul Water Drainage</u>					
	D20 EXCAVATING AND FILLING;					
	EXCAVATING TRENCHES TO RECEIVE PIPES					
	Excavations for pipe;					
a	500 mm wide for 200 mm diameter pipe including 150 mm wide concrete surround(m/s); depth not exceeding 1.5 m deep; Return fill and ram soft soil around pipe and cart away surplus spoil;	72	m			
b	Ditto but over 1.5 m but not exceeding 3.0 m deep;	73	m			
	PVC PIPES					
c	Plain concrete 1:3:6 (25 mm aggregate) bed and surround to 200 mm diameter pipe;	145	m			
d	200 mm diameter Golden brown PVC soil pipes laid down to trench	145	m			
	MANHOLES					
e	Construct 950mm wide x 750mm long x 1000mm deep (External dimensions) sewer inspection chamber, comprising 150mm thick concrete class 15 bed, 150mm thick natural stone walling in cement and sand (1:3) mortar, 100mm thick concrete class 20 cover slab with requisite reinforcement, 450 x 600mm heavy duty cast iron cover and frame bedded in cement and sand (1:3) mortar internally plastered and screeded in 12mm thick lime plaster ; 100mm thick concrete class 20 benching ; complete with necessary excavation form work and 2No. connections to pipes not exceeding 200mm diameter 950 x 750 mm external dimensions; 1000 mm average depth to invert level;	5	No			
f	Construct 1300mm wide x 1050mm long x 1500mm deep (External dimensions) sewer inspection chamber, comprising 150mm thick concrete class 15 bed, 150mm thick natural stone walling in cement and sand (1:3) mortar, 100mm thick concrete class 20 cover slab with requisite reinforcement, 450 x 600mm heavy duty cast iron cover and frame bedded in cement and sand (1:3) mortar internally plastered and screeded in 12mm thick lime plaster ; 100mm thick concrete class 20 benching ; complete with necessary excavation form work and 4No. connections to pipes not exceeding 200mm diameter 1300 x 1050 mm external dimensions; 1500 mm average depth to invert level;	6	No			
To Collection KSHS						

		Qty	Unit	Rate	KSHS	CTS
	Collection					
	Total from Page 1/7					
To Summary KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					EXTERNAL WORKS	
		Qty	Unit	Rate	KSHS	CTS
	<u>Septic Tank</u>					
	SITE PREPARATION;					
	Clearing site vegetation, grubbing up roots and filling up voids left with selected excavated material;					
a	Bushes, shrubs, undergrowth or the like and cart away from site;	39	m2			
	D20 EXCAVATING AND FILLING;					
	EXCAVATING					
	Bulk excavation for Septic tank;					
b	Not exceeding 1.5 m deep starting from stripped level;	59	m3			
c	Over 1.5 m but not exceeding 3.0 m deep;	57	m3			
d	Over 1.5 m but not exceeding 3.0 m deep;	37	m3			
	Extra over excavation irrespective of depth for breaking out;					
e	Soft rock;	18	m3			
f	Hard rock;	28	m3			
	DISPOSAL					
	Excavated material;					
g	Remove from site to contractor's tip for disposal	140	m3			
	FILLING TO EXCAVATIONS					
h	Selected excavated material to make up levels well compacted in layers not exceeding 225mm to approval of the Structural Engineer;	13	m3			
	SURFACE TREATMENTS					
	Trimming bottoms of excavations to achieve uniformity					
i	Bottoms of septic tank;	39	m2			
	Planking and Strutting					
j	Labour and materials; to uphold the sides of excavations; generally	1	Item			
	Disposal of Water;					
k	Labour and materials; Keeping excavations free from general water	1	Item			
To Collection KSHS						

		Qty	Unit	Rate	KSHS	CTS
	E05 IN SITU CONCRETE CONSTRUCTION GENERALLY					
	50 mm thick mass concrete 1:4:8 foundation blinding;					
	To Bed;					
a	Generally;	39	m2			
	Vibrated Reinforced Concrete; Class 25(20mm agg); mix 1:1.5:3 to;					
	Bed:					
b	300mm thick;	4	m2			
c	200mm thick;	33	m2			
d	150mm thick;	2	m2			
	Wall;					
e	200mm thick;	6	m2			
	Baffle Wall;					
f	150mm thick;	13	m2			
g	200mm thick;	16	m2			
	Suspended slab;					
h	150mm thick;	6	m2			
i	200mm thick;	39	m2			
To Collection KSHS						

		Qty	Unit	Rate	KSHS	CTS
	E20 FORMWORK FOR IN SITU CONCRETE					
	SAWN FORMWORK					
	Sides of Wall;					
a	Over 300 mm wide	12	m2			
	Sides and Soffits of Buffle Wall;					
b	Over 300 mm wide	66	m2			
	Soffits of Suspended slab;					
c	Over 300 mm wide	45	m2			
	Edges of Bed;					
d	Over 75 mm but not exceeding 150 mm girth;	8	m			
e	Over 150 mm but not exceeding 225 mm girth;	33	m			
f	Over 225 mm but not exceeding 300 mm girth;	10	m			
	Edges of Suspended slab					
g	Over 75 mm but not exceeding 150 mm girth;	11	m			
h	Over 150 mm but not exceeding 225 mm girth;	34	m			
	Extra over for boxing formwork;					
i	Size 800 x 600 mm;	2	No			
	E30 REINFORCEMENT FOR IN SITU CONCRETE					
	REINFORCEMENT					
	Fabric reinforcement to BS 4483; reference A 142 mesh 200 x 200 mm weight 2.22kgs per square metre (measured net - no allowance made for laps); including bends, tying wire, distance blocks and spacers;					
j	Over 300 wide;	79	m2			
	Bars; Round Ribbed; cold worked; B.S. 4449 - 2005,including bends, hooks tying wire, distance blocks and spacers all in position as					
	Deformed Bars;					
k	8 mm Diameter;	273	Kg			
l	10 mm Diameter;	364	Kg			
m	12 mm Diameter;	727	Kg			
n	16 mm Diameter;	455	Kg			
To Collection KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					EXTERNAL WORKS	
		Qty	Unit	Rate	KSHS	CTS
	F20 NATURAL STONE WALLING					
	Natural quarry stone work rough chissel dressed; jointed in cement sand mortar (1:3)					
	Walls					
a	200 mm thick	9	m2			
b	250 mm thick	90	m2			
	F30 ACCESSORIES AND SUNDRY ITEMS FOR STONE WALLING					
	Waterproofing;					
	Crystalline based waterproofing material as "VENDEX", "SIKA", " MASTERSEAL" or equivalent and approved; laid in accordance with the suppliers printed specifications and to the approval of the Engineer; on and including 10 years guarantee;					
c	50mm thick to walls and soffits of suspended slab;	222	m2			
d	50 x 50 mm angle fillet dressing at joints;	31	m			
	M10 SAND CEMENT /CONCRETE SCREEDS					
	CEMENT AND SAND					
	Screed; cement and sand (1:3); steel trowelled hard and smooth;					
	32 mm thick, 1 No. coat work to concrete, blockwork or brickwork base (m/s); generally to;					
e	Bed and top of suspended slab;	85	m2			
	M20 PLASTERED /RENDERED					
	Plaster; Cement and sand (1:3); steel trowelled smooth;					
	20 mm thick, 1 No. coat work to concrete, blockwork or brickwork base (m/s); generally to internally and externally;					
f	Walls and soffits of suspended slab; over 300 mm wide;	222	m2			
	MANHOLES					
g	Medium duty water tight 800 x 600 mm wide rectangular polysynthetic manhole cover and frame set in concrete slab;	2	No.			
	PVC PIPES					
h	100 mm diameter Golden brown PVC soil pipes	3	m			
To Collection KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					EXTERNAL WORKS	
	Collection Total from Page 1/9 Total from Page 1/10 Total from Page 1/11 Total from Page 1/12	Qty	Unit	Rate	KSHS	CTS
To Summary KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					EXTERNAL WORKS	
		Qty	Unit	Rate	KSHS	CTS
	<u>Soak Pit</u>					
	D20 EXCAVATING AND FILLING;					
	EXCAVATING					
	SITE PREPARATION;					
	Clearing site vegetation, grubbing up roots and filling up voids left with selected excavated material;					
a	Bushes, shrubs, undergrowth or the like and cart away from site;	3	m2			
	Bulk excavation for Soak Pit;					
b	Not exceeding 1.5 m deep starting from stripped level;	4	m3			
c	Over 1.5 m but not exceeding 3.0 m deep;	2	m3			
d	Over 3.0 m but not exceeding 1.5 m deep;	2	m3			
	Extra over excavation irrespective of depth for breaking out;					
e	Soft rock;	1	m3			
f	Hard rock;	1	m3			
	DISPOSAL					
	Excavated material;					
g	Remove from site to contractor's tip for disposal	6	m3			
	FILLING TO EXCAVATIONS					
h	Selected excavated material to make up levels well compacted in layers not exceeding 225mm to approval of the Structural Engineer;	1	m3			
	APPROVED HARDCORE					
i	Over 300 mm thick; well compacted in layers of 150mm maximum thickness to approval of the Structural Engineer;	4	m3			
	SURFACE TREATMENTS					
	Planking and Strutting					
j	Labour and materials; to uphold the sides of excavations; generally	1	Item			
	Disposal of Water;					
k	Labour and materials; Keeping excavations free from general water	1	Item			
To Collection KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					EXTERNAL WORKS	
		Qty	Unit	Rate	KSHS	CTS
E05 IN SITU CONCRETE CONSTRUCTION						
GENERALLY						
50 mm thick mass concrete 1:4:8 foundation blinding;						
To Strip footing;						
a	Generally;	2	m2			
Vibrated Reinforced Concrete; Class 25(20mm agg); mix 1:1.5:3 to;						
Strip footing;						
b	Generally;	1	m3			
Suspended slab;						
c	150mm thick;	2	m2			
E20 FORMWORK FOR IN SITU CONCRETE						
SAWN FORMWORK						
Sides of Strip footing;						
d	Over 300 mm wide	2	m2			
Soffits of Suspended slab;						
e	Over 300 mm wide	2	m2			
Edges of Suspended slab;						
f	Over 75 mm but not exceeding 150 mm girth;	5	m			
Extra over for boxing formwork;						
g	Size 600 x 450 mm;	1	No			
E30 REINFORCEMENT FOR IN SITU CONCRETE						
Bars; Round Ribbed; cold worked; B.S. 4449 - 2005,including bends, hooks tying wire, distance blocks and spacers all in position as necessary;						
Deformed Bars;						
h	8 mm Diameter;	17	Kg			
i	10 mm Diameter;	42	Kg			
j	12 mm Diameter;	25	Kg			
F20 NATURAL STONE WALLING						
Natural quarry stone work rough chissel dressed; jointed in cement sand mortar (1:3)						
Walls						
k	200 mm thick	4	m2			
To Collection KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					EXTERNAL WORKS	
		Qty	Unit	Rate	KSHS	CTS
	F30 ACCESSORIES AND SUNDRY ITEMS FOR STONE WALLING					
	Waterproofing;					
	Crystalline based waterproofing material as "VENDEX", "SIKA", "MASTERSEAL" or equivalent and approved; laid in accordance with the suppliers printed specifications and to the approval of the Engineer; on and including 10 years guarantee;					
a	50mm thick to walls and soffits of suspended slab;	9	m2			
b	50 x 50 mm angle fillet dressing at joints;	4	m			
	M10 SAND CEMENT /CONCRETE SCREEDS					
	CEMENT AND SAND					
	Screed; cement and sand (1:3); steel trowelled hard and smooth;					
	32 mm thick, 1 No. coat work to concrete, blockwork or brickwork base (m/s); generally to;					
c	Over 300 mm wide;;	2	m2			
	M20 PLASTERED /RENDERED					
	Plaster; Cement and sand (1:3); steel trowelled smooth;					
	20 mm thick, 1 No. coat work to concrete, blockwork or brickwork base (m/s); generally to internally and externally;					
d	Walls and soffits of suspended slab; over 300 mm wide;	7	m2			
	MANHOLES					
e	Medium duty water tight 530 mm diameter circular polysynthetic manhole cover and frame set in concrete slab;	1	No.			
	PVC PIPES					
f	100 mm diameter Golden brown PVC soil pipes	2	m			
To Collection KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					EXTERNAL WORKS	
	Collection	Qty	Unit	Rate	KSHS	CTS
	Total from Page 1/14					
	Total from Page 1/15					
	Total from Page 1/16					
To Summary KSHS						

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK					EXTERNAL WORKS	
		Qty	Unit	Rate	KSHS	CTS
Summary						
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Total for External Works KSHS						

PART NO. 9
MECHANICAL INSTALLATION WORKS

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PART A
PRELIMINARIES
AND
GENERAL CONDITIONS



PART A

PRELIMINARIES AND GENERAL CONDITINS

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PRELIMINARIES AND GENERAL CONDITIONS

1.01 : **Definition of Terms**

Throughout this document, the following terms shall be interpreted as follows:-

Employer:- RONGO UNIVERSITY,
P O BOX 103- 40404
NAIROBI

and shall include their legal personal representatives or successors.

Project Managers:- SKYLON DESIGNS LTD
P.O. BOX 26011-00100,
NAIROBI

and shall include their legal personal representatives or successors.

Architect:- SKYLON DESIGNS LTD
P.O. BOX 26011- 00100,
NAIROBI

and shall include their legal personal representatives or successors.

Quantity Surveyors:- SKYLON DESIGNS LTD
P.O. BOX 26011-00100,
NAIROBI

and shall include their legal personal representatives or successors.

Civil/Structural Engineers:- SKYLON DESIGNS LTD
P.O. BOX 26011-00100,
NAIROBI

and shall include their legal personal representatives or successors.

Electrical & Mechanical Services Engineers:- SKYLON DESIGNS LTD
P.O. BOX 26011-00100,
NAIROBI

and shall include their legal personal representatives or successors.

Sub-Contractor:- shall mean the person or persons, partnership, firm or company whose Tender for this work has been accepted and who has signed a Sub-Contract Agreement with the Main contractor of which this document is forming part and shall include his or their legal personal representative or successors.

Sub-Contract Works:- shall mean all or any portion of the work material 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.

1.02 Site

The site of the proposed works is at **RONGO UNIVERSITY RONGO, MIGORI COUNTY.**

1.03 Contract

The successful tenderer will be appointed as a nominated Sub-Contractor to the Main Contractor under the latest edition of the Agreement and Schedule of Conditions of Building Sub-Contract published by the Kenya Association of Building and Civil Engineering Contractors.

The Particular and Preliminaries of the Bills of Quantities for the main contract where appropriate shall apply equally to the Sub-Contractor who is to examine these sections of the Bills and allow for all costs incurred.

Copies of the Main Contract Agreement, Conditions of Contract, Bills of Quantities for the main contract can be seen at the offices of the Project Quantity Surveyors.

1.04 Appendix to the Schedule of Conditions of Main Contract

The Appendix to the Conditions of Main Contract has been completed as follows:-

Defects Liability Period	)	6 months from the date of
Clause 15, 16 and 30	)	Practical Completion
Percentage to cover	)	Fourteen and a half percent
professional fees for	)	(14 ½ %)
insurance purposes	)	
Date of Possession	)	In accordance with the
Clause 21	)	Main Contractor's Programme
Date of Practical	)	In accordance with the
Completion	)	Main Contractor's Programme
Clause 21	)	
Liquidated and Ascertained	)	In accordance with the
Damages	)	Main Contract
Clause 22	)	
Percentage of certified	)	10%
value retained	)	
Clause 30 (3)	)	
Percentage of certified	)	10%
value retained	)	
Clause 30 (3)	)	
Limit of retention Fund	)	To be inserted at a sum

Clause 30 (3)	)	equivalent of 10% of the
	)	Contract Sum.
Period of Final	)	6 Months from certified
Measurement and valuation)	)	Practical completion of
Clause 30 (5)	)	the Works.
Amount of Surety for)		10% of contract sum
Contractor's Performance	)	
Bond	)	
Clause 31 (1)	)	
Amount of Surety for)		Not Applicable
Employer's Performance	)	
Bond	)	
Clause 31 (2)	)	

1.05 Bond

All tenderers will submit the name of an approved Surety who will be willing to be bound to the Main Contractor in an amount equal to 10% of the Sub-Contract amount.

1.06 Stamp Charges

The tender shall be inclusive of payment of stamp charges in connection with the Surety Bond and Contract Agreement.

1.07 Firm Price Contract

The tenderers' attention is drawn to the fact that this is a firm price contract. No claim for increased costs will be entertained and the Sub-Contractor must allow in his tender price for any increase in the cost of labour, materials and plant which may occur during the currency of the sub-contract.

The tenderer's attention is also drawn to the fact that although the contract is a Firm Price Contract, premature delivery of materials shall not be entertained nor paid for. For the purposes of this clause, premature delivery of materials shall be taken as materials delivered one month before they are required on site. The tenderer's should allow in their tender prices for this special condition.

1.08 VALUE ADDED TAX (VAT) ON CONSTRUCTION SERVICES

The tenderers' attention is drawn to the Finance Bill 1993 and the Kenya Governments' latest regulations on Value Added Tax (VAT) subjecting all construction services to a VAT rating of

Sixteen Percent (16%).

Tenderers are therefore required to allow for this in their prices.

1.09 Trade Names

Where trade names or manufacturer's catalogue numbers are mentioned in the specification, the reference is deemed to be the type of article or quality of material required.

1.10 Water and Electricity for the Works

These will be made available by the Main Contractor free of Costs.

1.11 Time For Completion

There is need to complete the work in the time stated. The Sub-Contractor shall make all due preparations to safeguard against factors such as labour shifts, fluctuating weather patterns etc., that might slow his progress and no claims for extras will be considered on account of his failure to do so.

1.12 Warranty

The sub-contractor must furnish the Engineer with a general written warranty covering quality of workmanship, materials and equipment and be compelled thereby for a five year period after practical completion of the contract, except for latent defects which shall be warranted for ten years.

The Sub-Contractors must make good, at his own expense, such repairs and replacement as may be required as consequences of negligent workmanship or defective material. The Sub-Contractor must also procure such warrants and guarantees as described aforesaid from all manufacturers and/or suppliers of materials or equipment incorporated in the project under this contract.

1.13 Storage

Space and sheds for storage will be provided on the site by the Main Contractor. The Main Contractor will also be responsible for the provision of security on site. Security locking devices shall be the responsibility of the Sub-Contractor.

1.14 Samples

The Sub-Contractor shall furnish at his own cost any samples materials or workmanship that may be called for by the Engineer for his approval, and any further samples in the case of rejection until such samples are approved by the Engineer, and the Engineer may reject any materials or workmanship not in his opinion up to the approved samples.

1.15 Protection

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

1.16 Handing Over

The Sub-Contract works shall be considered complete and the 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.

1.17 Defects After Completion

The Defects Liability Period will be six months from the date of completion of the Sub-Contract as certified by the Engineer.

1.18 Insurance Against Injury to Person and Property

The Sub-Contractor shall allow for maintaining insurance cover to the value of Shillings Three Million (KShs.3,000,000/=) for any one accident or series of accident arising out of any event (unlimited in aggregate).

1.19 Stamp Charges

The tenderer shall allow for the payment of all stamp charges in connection with the Surety Bond and Sub-Contract Agreement.

1.20 Payments

Payment will be made through certificates to the Main Contractor, unless he specifically agrees to forgo 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 the site.

1.21 Damages for Delay

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

1.22 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.

1.23 Site Conditions

The Sub-Contractor shall be deemed to have visited the site to ascertain all conditions affecting his sub-contract.

1.24 No Workman to Be Housed on Site

No labourer with exception of a watchman may be housed on site.

The cost of transporting labour to and from site will be deemed to have been included in the tender.

1.25 Procedure

The Sub-Contractor shall proceed with works in such a manner and such order as the Architect may direct. The Sub-Contractor's procedure and programme must conform to the Main Contractor's programme for the Construction of Building works services.

1.26 Alternatives

Tenders are to be based strictly upon the specification attached but alternative prices for specifications of the same intent but differing in details, may be submitted in addition to this tender.

1.27 The Final Account

On completion of the work, the subcontractor shall agree with the Architect/Engineer the value of any variations outstanding as soon as possible thereafter submit to the Architect/Engineer his final statement of account showing the total sum claimed subdivided as follows:-

Statement A: Detailing the tender amount less the prime costs and the provisional sums.

Statement B: Detailing all the variations orders issued on the contract.

Statement C: Summarizing statement A and B and giving the next grand total due to the Sub-Contractor for execution of the contract.

1.28 Validity of Tender

The tender shall remain valid for acceptance within 60 days from the final date of submission of the tender, and this has to be confirmed by signing the bid bond. The Tenderer shall be exempted from this Bond if the tender was previously withdrawn in writing to the Employer before the official opening.

1.29 Variations

No alteration to the Sub-Contract Works shall be carried out until receipt by the Sub-Contractor of WRITTEN INSTRUCTIONS FROM THE ARCHITECT.

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 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 all

claims arising from delay occasioned by reason of such extension of time.

1.30 Insurance Company Fees

The 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.

1.31 Suppliers

The Sub-Contractor shall submit the names of any approved suppliers 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 the materials in question.

1.32 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 Main Contractor" who is responsible to the Employer for the whole of the Works including the Sub-Contract Works.

1.33 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 and other subsequent revisions. 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 thereunder 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.

1.34 Builders' 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 size and position of all holes and chases required.

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

Any purpose made fixing brackets shall not constituting builders' Work and shall be provided and installed by the Sub-Contractor unless stated hereinafter to the contrary.

1.35 Position of Services, Plant, Equipment, Fittings and Apparatus

The Contract Drawings give a general indication of the intended layout. The positions of the equipment and application, and also the exact routes of the ducts, mains 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 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 20 mm 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.

1.36 Identification of Plant and Components

The Sub-Contract shall supply and fix identification labels to all plant, starters, switches and items of control equipment including valves, with white triphylite 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 be contained within equipment cubicles or plant.

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.

1.37 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 as such unless exceptionally they are released for that purpose.

1.38 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 apply in writing to the Engineer not unreasonably close to the date when it is needed.

All working drawings shall be submitted to the Engineer for approval. If not so submitted 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 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 the Engineer to enable structural provision to be made including Builder's Work Drawings or Schedules and those for the detailing of holes, fixings, foundations, cables and pipework 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 arrangements of such plant and apparatus.
- c) Schematic layout drawings of services and of control equipment.
- d) Layout drawings of all embedded and non-embedded pipework ducts, electrical conduit.
- 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 be reasonably require Three copies of all Working Drawings shall be submitted to the Engineer for approval.

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 Agreement nor relieve him from correcting any errors found subsequently in the approved working drawings or other working drawings and in the Sub-Contract period and in a manner that would receive the approval of the Engineer.

1.39 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 are 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 dimension 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 plant and apparatus suitably cross-referenced to the drawings mentioned in (b) above and hereinafter.
- d) Route, types, sizes and arrangement of all pipework and ductwork including date of installation of underground pipe.
- e) Relay adjustment charts and manuals.
- f) Routes, types, sizes and arrangements of all electric cables, conduits ducts and wiring including the date of installation of buried work.
- g) System Schematic and trunking diagrams showing all salient information relating to control and instrumentation.
- h) Grading Charts.
- i) Valves schedules and locations suitably 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 multi-purpose 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 up 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 of stiff backing shall be provided not later than one month later.

The Sub-Contractor shall supply for fixing in Sub-Stations switchrooms, boiler houses, plant rooms, pump houses, the office of the maintenance Engineer and other like 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., related 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 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.

1.40 Maintenance Manual

Upon practical completion of the Sub-Contract Works, the Sub-Contractor shall furnish to 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 subdivided 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 installations 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 Specification.

- a) System Description
- b) Plant
- c) Valve or Duct 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 Wiring 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 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.

1.41 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 Main contract Works.

The procedure to be followed will be as follows:-

- a) On completion of the Sub-Contract Works to the satisfaction of the Engineer and the Employer, the Sub-Contractor shall request the Engineer 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) The Sub-Contractor shall prepare approved Hand Over Certificates and full check list of all controls and items of equipment, tools, spares and the like.
- e) 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.

1.42 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 Specification.

1.43 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 Specification or in the Price Schedules.

1.44 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 manufacture shall be applicable to Insurance Companies and Inspection Authorities as 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 certificates 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 on site.

1.45 Testing and Inspection - Installation

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

1.46 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 work 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.

1.47 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 B (Initial Maintenance) above.

The terms of any such agreement shall not be less beneficial to the Employer than the terms of agreements for other similar installation.

The Sub-Contractor shall submit with his tender for the Works, a firm quotation for the maintenance and service of the installations 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.

1.48 Supervision

During the progress of the works, the Sub-Contractor shall provide and keep constantly available for consultation on site and 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 Architect/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.

1.49 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.

PART B1

GENERAL MECHANICAL SPECIFICATION

PART B1

GENERAL MECHANICAL SPECIFICATION

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PART B1

GENERAL MECHANICAL SPECIFICATION

1. GENERAL

This section specifies the general requirements for plant, equipment and material forming part of the Sub-Contract Works and shall apply except where specifically stated elsewhere in the specification or on the contract Drawings.

2. QUALITY OF MATERIALS

All plant, equipment and materials supplied as part of the Sub-contract works shall be new and of first-class commercial quality, shall be free from defects and imperfections and where indicated shall be of grades and classifications designated herein.

All products or materials not manufactured by the Sub-contractor shall be products of reputable manufacturers and so far as the provisions of the Specification is concerned shall be as if they had been manufactured by the Sub-contractor.

Materials and apparatus required for the complete installation as called for by the Specification and Contract Drawings shall be supplied by the Sub-Contractor unless mention is made otherwise.

Materials and apparatus supplied by others for installation and connected by the Sub-Contractor shall carefully be examined on receipt and stored. Should any defects be noted, the Sub-Contractor shall immediately notify the Engineer

Defective equipment or that damaged in the course of installation or tests shall be replaced as required to the approval of the Engineer.

3. REGULATIONS AND STANDARDS

The Sub-Contract Works shall comply with the current edition of the following:-

- (a) The Kenya Government Regulations
- (b) The United Kingdom Institution of Electrical Engineering (IEE) Regulations for the electrical equipment of buildings.
- (c) The United Kingdom Chartered Institute of Building Services Engineers (CIBSE) Guides.
- (d) British Standards and Codes of Practice as published by the British Standards Institution (BSI).
- (e) The Local Council By-laws.
- (f) The Electricity supply Authority By-Laws.
- (g) Local Water Authority By-Laws.
- (h) The Kenya Building code of Regulations.

4. ELECTRICAL REQUIREMENTS

Plant and equipment supplied under this Sub-Contract shall be complete with all necessary motor starters, control boards, and other control apparatus. Where Control Panels incorporating several starters are supplied, they shall be complete with a main isolator.

The supply power up to and including local isolators shall be provided and installed by the Electrical Sub-Contractor. All other wiring shall be as described in the "Particular Specification".

The Sub-Contractor shall supply three copies of all schematic, cabling and wiring diagrams for the Engineer's approval.

The starting current of all electric motors and equipment shall not exceed the maximum permissible starting currents described in the Kenya Power and Lighting Company's (KP & LC) By-Laws.

All electrical plant and equipment supplied by the Sub-Contractor shall be rated for the supply voltage and frequency obtained in Kenya, that is 415 volts, 50HZ, 3-phase or 240 volts, 50HZ, 1-phase as specified in the "Particular Specification".

Any equipment that is not rated for the above voltages and frequencies may be rejected by the Engineer

5. TRANSPORT AND STORAGE

All plant and equipment shall, during transportation be suitably packed, crated and protected to minimise the possibility of damage and to prevent corrosion or other deterioration.

On arrival at site, all plant and equipment shall be examined and any damage to parts and protective priming coats made good before storage or installation.

Adequate measures shall be taken by the Sub-Contractor to ensure that plant and equipment do not suffer any deterioration during storage.

Prior to installation all piping, and equipment shall be thoroughly cleaned.

If, in the opinion of the Engineer any equipment has deteriorated or been damaged to such an extent that it is not suitable for installation, the Sub-Contractor shall replace this equipment at his own cost.

6. SITE SUPERVISION

The Sub-Contractor shall ensure that there is an English-speaking supervisor on the site at all times during normal working hours.

7. INSTALLATION

Installation of all special plant equipment shall be carried out by the Sub-Contractor under adequate supervision from skilled staff provided by the plant and equipment manufacturer or his appointed agent in accordance with the best standards of modern practice and to the relevant regulations and standards described under Clause 3 of this section.

8. TESTING

8.1 General

The Sub-Contractor's attention is drawn to Part "A", Sub-Clauses 1.44 and 1.45 Page A/13 of the "Preliminaries and General Conditions".

The following sub-clauses are intended to define the Sub-Contractor's responsibilities with respect to testing and inspection.

8.2 Material Tests

All material for plant and equipment to be installed under this Sub-Contract shall be tested, unless otherwise directed, in accordance with the relevant B.S. specification concerned.

For materials where no B.S. specification exists, tests are to be made in accordance with the best modern commercial methods to the approval of the Engineer, having regard to the particular type and application of the materials concerned.

The Sub-Contractor shall prepare specimens and performance tests and analyses to demonstrate conformance of the various materials with the applicable standards.

If stock material, which has not been specifically manufactured for the plant and equipment specified is used, then the Sub-Contractor shall submit satisfactory evidence to the Engineer that such materials conform to the requirements stated herein in which case tests of material may be partially or completely waived.

Certified mill test reports of plates, piping and other materials shall be deemed acceptable.

8.3 Manufactured Plant and Equipment - Works Tests

The rights of the Engineer relating to the inspection, examination and testing of plant and equipment during manufacture shall be applicable to the Insurance Companies or Inspection Authorities so nominated by the Engineer

The Sub-Contractor shall give two week's notice to the Engineer of the manufacturer's intention to carry out work tests and inspections.

The Engineer or his representative shall be entitled to witness such tests and inspections. The costs of such tests and inspections shall be borne by the Sub-Contractor.

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

Plant and 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 and inspection certificates not be approved, new tests may be ordered by the Engineer at the Sub-Contractor's expense.

8.4 Pressure Testing

All pipework installations shall be pressure tested in accordance with the requirements of the various section of this specification. The installations may be tested in section to suit the progress of the works but all tests must be carried out before the work is buried or concealed behind building finishes. All tests must be witnessed by the Engineer or his representative and the Sub-Contractor shall give 48 hours notice to the Engineer of his intention to carry out such tests.

Any pipework that is buried or concealed before witnessed tests have been carried out shall be exposed at the expense of the sub-contractor and the specified tests shall then be applied.

The Sub-Contractor shall prepare test certificates for signature by the Engineer and shall keep a progressive and up-to-date record of the Sections of the work that have been tested.

9. COLOUR CODING

Unless stated otherwise in the Particular Specification all pipework shall be colour coded in accordance with the latest edition of B.S. 1710.

10. WELDING

10.1 Preparation

Joints to be made by welding shall be accurately cut to size with edges sheared, flame cut or machined to suit the required type of joint. The prepared surface shall be free from all visible defects such as lamination, surface imperfections due to shearing or flame cutting operation, etc., and shall be free from rust, scale, grease and other foreign matter.

10.2 Method

All welding shall be carried out by the electric arc process using covered electrodes in accordance with B.S. 639.

Gas welding may be employed in certain circumstances provided that prior approval is obtained from the Engineer

10.3 Welding codes and Construction

All welded joints shall be carried out in accordance with the following specification:-

(a) Pipe Welding

All pipe welds shall be carried out in accordance with the requirements of B.S.806.

(b) General welding

All welding mild steel components other than pipework shall comply with the general requirements of B.S. 1856.

10.4 Welders Qualifications

Any welder employed on this Sub-contract shall have passed the trade tests as laid down by the Government of Kenya.

The Engineer may require to see the appropriated certificate obtained by any welder and should it be proved that the welder does not have the necessary qualifications the Engineer may instruct the Sub-Contractor to replace him by a qualified welder.

PART B2

GENERAL PLUMBING AND DRAINAGE SPECIFICATIONS

PART B.2

GENERAL PLUMBING AND DRAINAGE SPECIFICATIONS

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SECTION B2

GENERAL PLUMBING AND DRAINAGE SPECIFICATIONS

2.1 MATERIALS AND STANDARDS

2.1.1 GENERAL

This section specifies the general requirements for plant, equipment and materials forming part of the Plumbing and Drainage Installations.

PIPEWORK AND FITTINGS

Pipe materials are to be used as follows:-

2.1.2 Cold Water Mains

Unplasticised PVC or galvanised steel medium or heavy grade, as specified on the drawings.

2.1.3 Black steel Pipework

All black steel pipework up to 65 mm nominal bore shall be manufactured in accordance with B.S. 1387 Medium Grade, with tapered pipe threads in accordance with BS 21. All fittings shall be of malleable iron and manufactured in accordance with BS 143.

Pipe joints shall be screwed and socketed and sufficient couplings union shall be allowed so that fittings can be disconnected without cutting the pipe. Running nipples and long screws shall not be permitted unless exceptionally approved by the Engineer.

All black steel pipework, 80mm nominal bore up to 150mm nominal bore, shall be manufactured to comply in all respects with the specification for 65mm pipe, except that screwed and bolted flanges shall replace unions and couplings for the joining of pipes to valves and other items of plant.

All flanges shall comply with the requirements of BS 10 to the relevant classification contained hereinafter under section C of the Specification.

2.1.4 Galvanised Steel Pipework

Galvanised steel pipework shall be manufactured to comply in all respects with the standards described for black steel pipework in paragraph 2.1.3 above.

Galvanising shall be carried out in accordance with the requirements of BS 1387 and BS 143 respectively.

2.1.5 Copper Tubing

All copper tubing shall be manufactured in accordance with BS 2871 from C.160 "Phosphorus De-oxidized Non-Arsenical Copper" in accordance with BS 1172.

Pipe joints shall be made with soldered fittings and connections to equipment shall be with compression fitting manufactured in accordance with B.S. 864.

Short copper connections tubes between galvanised pipework and sanitary fittings shall not be used because of the risk of galvanic action.

If, as may occur in certain circumstances, it is not possible to make the connection in any other way than by the use of copper tubing, then a brass straight connector shall be positioned between the galvanised pipe and the copper tube in order to prevent direct contact.

2.1.6 Cast Iron Pipework

(a) Internal Services

Cast iron pipework and fittings for use above ground in connection with internal building services, shall be manufactured with spigot and socket joints of the weight required by the local authority and shall comply fully with the requirement of B.S. 416.

All joints on cast iron spigot and socket pipes shall be made with an approved cold caulking compound and so installed as to allow for any expansion or contraction, which may take place.

All cast iron pipework, branches, tees, bends and other fittings shall be supplied complete with inspection covers for cleaning purposes. These inspection covers shall be included as part of the fittings and shall comply with the requirements of B.S. 416.

(b) External Services

Cast iron pipework, which is used in connection with buried external services, shall be manufactured, coated and tested in accordance with the requirements of B.S. 1211.

All buried cast iron bends, elbows swept tees and other fittings, shall comply with the requirements of B.S. 1130.

Jointing on external cast iron pipes shall be carried out in accordance with one of the methods described in B.S. Code of Practice 301, Clause 505C (v), to the approval of the Engineer.

2.1.6 Pitch Fibre Pipework

Pitch Fibre Pipework and fittings for use in connection with external drainage services shall be manufactured in accordance with the requirements of B.S. 2760. Pipes shall be connected by means of purpose tapered joints manufactured in accordance with B.S. 2760.

Until such time as the use of pitch impregnated fibre is covered by a code of practice, the jointing laying and cutting of these pipes shall be carried out in accordance with the requirements of the notes contained under Appendix C of B.S. 2760.

2.1.7 Concrete Pipe

Where concrete pipe and fittings are used in connection with the conveyance surface water of sewage under atmospheric pressure, they shall be manufactured in accordance with the requirement of B.S. 556, Class I, except where otherwise stated. The joints of concrete pipe and fittings may be one of the following depending application and conditions:

- (1) Flexible spigot and socket type.
- (2) Flexible rebated type (Storm water drainage only)
- (3) Ordinary spigot and socket type.
- (4) Ordinary rebated type (Storm water drainage only)

Joints (1) and (2) shall be sealed with suitable rubber gaskets manufactured in accordance with B.S. 2494 except where they are likely to be contaminated by oil products, in which case the gaskets shall be manufactured in accordance with B.S. 3514.

Joints (3) and (4) shall be made with approved cement mortar mix.

2.1.8 Asbestos Cement Pressure Pipes

Where asbestos cement pressure pipes and fittings are used in connection with external, above ground or buried water services, they shall be manufactured in accordance with the requirement of B.S. 486.

The classification of these pipes fall into classes:

A., B., C., and D., respectively, and the class to be used shall depend upon the pressure conditions pertaining at site.

Where cast iron detachable joints are used for connecting pipes, the material comply with the B.S. Specification, then the materials used shall be of a quality not less than that required by this standard.

Rubber jointing rings shall be used for sealing purposes and shall comply with the requirements of B.S. 2494, except where they are likely to be contaminated by oil products, in which case the gaskets shall be manufactured in accordance with B.S. 3514.

2.1.9 Concrete Pipe

Where concrete pipe and fittings are used in connection with the conveyance of surface water or sewage under atmospheric pressure, they shall be manufactured in accordance with the requirement of B.S. 556, Class I, except where otherwise stated.

The joints of concrete pipe and fittings may be one of the following depending upon application and conditions:

- 1) Flexible spigot and socket type
- (2) Flexible rebated type (Storm water drainage only)
- (3) Ordinary Spigot and socket type
- (4) Ordinary rebated type (Storm water drainage only)

Joints (1) and (2) shall be sealed with suitable rubber gaskets manufactured in accordance with B.S. 2494 except where they are likely to be contaminated by oil products, which case the gaskets shall be manufactured in accordance with B.S. 3514.

Joints (3) and (4) shall be made with an approved cement mortar mix.

2.1.10 Asbestos Cement Pressure Pipes

Where asbestos cement pressure pipes and fittings are used in connection with external, above ground or buried water services, they shall be manufactured in accordance with the requirement of B.S.486.

The Classification of these pipes falls into four classes:

A.,B.,C., and D., respectively, and the class to be used shall depend upon the pressure conditions pertaining at Site.

Where cast iron detachable joints are used for connecting pipes, the material shall comply with B.S. Specifications, then the materials used shall be of a quality not less than that required by this standard.

Rubber jointing rings shall be used for sealing purposes and shall comply with the requirements of B.S. 2494, except where they are likely to be contaminated by oil products, in which case the gaskets shall be manufactured in accordance B.S. 3514.

2.1.11 P.V.C. (Hard) Pressure Pipe and Fittings

All P.V.C. pipes and fittings shall be manufactured in accordance with B.S. 3505 : 1968 or the relevant Kenya Standard.

Fittings shall comply in all respects with British Standard 4346 Part 1: 1969 or the relevant Kenya Standard. Pipes shall be supplied in plain-ended lengths.

Thickness

The Minimum acceptable wall thickness of pipe and fittings shall be as follows:-

Nom. Dia. (mm)	10	12	20	25	32	40	50	75	100
Thickness (mm)	1.5	1.7	1.9	2.2	2.7	3.1	3.9	5.7	7.3

Jointing

The method of jointing to be employed shall be that of Solvent welding, using the pipe and manufacturers approved cement. Seal rings joints shall be introduced where it is necessary to accommodate thermal expansion.

Anchoring

All bends, valves and hydrant tees etc, in the line of the water main shall be adequately anchored to resist thrust due to internal water pressure. A concrete block shall be cast under and around the pipe and between it and sides of the trench. Well-rammed material shall be used to support the pipe and either side of the concrete.

Workmanship

The installation method of jointing shall be solvent welding; and both jointing and fixing shall comply in all respects to the manufacturer' site-work instructions. The maximum intervals between pipe supports at 200C shall be as follows:-

Pipe Diameter	10mm	15mm	20mm	25mm	32mm	40mm	50mm	75mm	100mm
Horizontal	0.75m	0.90m	1.05m	1.20m	1.35m	1.65m	1.80m	Do	do
Vertical	1.50m	1.80m	2.10m	2.40m	2.70m	3.30m	3.60m	Do	do

Pipes passing through walls or floors shall be sleeved to allow unrestricted movements.

The works shall be inspected and tested during installation.

All work, which will be concealed, shall be tested before it is finally enclosed and verified by the Clerk of Works.

Any other test may be demanded upon completion for soundness and performance to the satisfaction of the Local Water Authority.

Pipe Bed

Pipes shall be uniformly laid on a 75mm thick bed, (Sand or red soil) and must not be allowed to rest on the joint or on stones etc.

Supports to Fittings

In underground installations care shall be taken to ensure that heavy components such as valves are fully supported so that the pipeline carries no weight.

Backfilling

For the protection of the pipe initial backfilling shall be carried out as soon as possible after laying. The initial backfill shall be fine grained material thoroughly compacted around the pipe and consolidated to depth of 6" above the crown of the pipe at no time shall heavy rocks, stones or other objects be included in the balance of the backfill that might protrude the initial backfill layer and come into contact with the pipe.

Testing

Pipelines shall be tested in sections under an internal water pressure normally one and a half times the maximum allowable working pressure of the class of pipe used. Testing shall be carried out as soon as practicable after laying and when the pipeline is anchored. Precautions shall be taken to eliminate all air from the test section and to fill the pipe slowly to avoid risk of damage due to surge.

2.1.12 MuPVC Waste Systems

All pipes and fittings shall be manufactured in accordance with B.S. 5255 : 1968 or the relevant Kenya Standard.

Pipes shall be supplied in plain-ended lengths.

Thickness

The Minimum acceptable wall thickness of pipe and fittings shall be as follows: -

Size (in)	Size (mm)	Pipe and Fittings Wall Thickness (mm)
1 1/4	32	1.8
1 1/2	40	1.9
2	50	2.0

Jointing

The method of jointing to be employed shall be that of Solvent welding, using the pipe and manufacturers approved cement. Seal rings joints shall be introduced where it is necessary to accommodate thermal expansion.

Anchoring

All bends, valves and hydrant tees etc, in the line of the water main shall be adequately anchored to resist thrust due to internal water pressure. A concrete block shall be cast under and around the pipe and between it and sides of the trench. Well-rammed material shall be used to support the pipe and either side of the concrete.

Workmanship

The installation method of jointing shall be solvent welding; and both jointing and fixing shall comply in all respects to the manufacturer' site-work instructions. The maximum intervals between pipe supports at 200C shall be as follows:-

Nominal Size (in)	Nominal Size (mm)	Horizontal (mm)	Vertical (mm)
1 1/4	32	500	1200
1 1/2	40	500	1200
2	50	900	1200
3	80	900	2000
4	100	1000	2000
6	150	1000	2000

Pipes shall be fixed in straight runs and horizontal runs shall be laid to gradients in conformity with BS 5572 Code of Practice for Sanitary Pipework and in any event not less than 18mm/m unless otherwise specified.

Pipes passing through walls or floors shall be sleeved to allow unrestricted movements.

The works shall be inspected and tested during installation at any stage in accordance with BS 5572. All work, which will be concealed, shall be tested before it is finally enclosed and verified by the Clerk of Works.

Any other test may be demanded upon completion for soundness and performance to the satisfaction of the Local Water Authority.

Pipe Bed

Pipes shall be uniformly laid on a 75mm thick bed, (Sand or red soil) and must not be allowed to rest on the joint or on stones etc.

Supports to Fittings

In underground installations care shall be taken to ensure that heavy components such as valves are fully supported so that the pipeline carries no weight.

Backfilling

For the protection of the pipe initial backfilling shall be carried out as soon as possible after laying. The initial backfill shall be fine grained material thoroughly compacted around the pipe and consolidated to depth of 6" above the crown of the pipe at no time shall heavy rocks, stones or other objects be included in the balance of the backfill that might protrude the initial backfill layer and come into contact with the pipe.

Testing

Pipelines shall be tested in sections under an internal water pressure normally one and a half times the maximum allowable working pressure of the class of pipe used. Testing shall be carried out as soon as practicable after laying and when the pipeline is anchored. Precautions shall be taken to eliminate all air from the test section and to fill the pipe slowly to avoid risk of damage due to surge.

2.1.13 A.B.S. Waste System

Where indicated on the drawings and schedules, the Sub-contractor shall supply and fix A.B.S. Waste pipes and fittings.

The pipes, traps and fittings shall be in accordance with the relevant British Standards, including B.S. 3943, and fixed generally in accordance with manufacturer's instructions, and B.S. 5572 : 1978.

Jointing of pipe shall be carried out by means of solvent welding. The manufacturer's instructions, and B.S. 5572 : 1978.

Jointing of pipe shall be carried out by means of solvent welding. The manufacturer's recommended method of joint preparation and fixing shall be followed.

Standard brackets, as supplied for use with this system, shall be used wherever possible. Where the building structure renders this impracticable the Sub-contractor shall provide purpose made supports,

Expansion joints shall be provided as indicated. Supporting brackets and pipe clips shall be fixed on each side of these joints.

2.1.14 P.V.C. Soil System

The Sub-contractor shall supply and fix P.V.C soil pipe and fittings as indicated on the drawings and schedules.

Pipes and fittings shall be in accordance with relevant British Standards, including B.S. 4514 and fixed to the manufacturer's instructions, and B.S. 5572.

The soil system shall incorporate synthetic rubber gaskets as provided by the manufacturer whose fixing instructions shall be strictly adhered to.

Connections to W.C. and pass shall be effected by the use of a W.C. connector gasket and cover, fixed to suit pan outlet.

Suitable supporting brackets and pipe clips shall be provided at maximum of metre centres.

The Sub-contractor shall be responsible for the joint into the Gully Trap or Drain Trap as indicated on the drawings.

2.1.15 uPVC Square Rainwater System Pipe and Gutter

Gutters shall be a rectilinear section 116mm or 137mm wide.

Gutters shall be supplied in plain-ended lengths.

The minimum acceptable wall thickness of gutter shall be 2.20mm.

Rainwater pipes shall be square in section 58mm or 75 mm internal diameter.

Rainwater pipes shall be supplied in plain-ended lengths.

The minimum acceptable wall thickness of rainwater pipes shall be 1.80mm.

Pipe support brackets must be adequate to screen expansion gaps.

The grade of uPVC used for gutter and pipe shall have a minimum softening point of 75°C when tested by the Vicat method as described in B.S. 2782.

The pipe and gutter shall be colour grey, to BS 5252, 10.A.07, black, white or rustic.

2.1.16 uP.V.C. Rainwater Fittings

All fittings shall be injection moulded and shall be compatible with pipe and gutters and shall conform to BS 4576 or the appropriate Kenya Standard.

All gutters, pipe and fittings shall be colour grey to British Standard 5252, 10.A.07, or black, white or rustic.

Gutter connecting fittings shall have integrally moulded seal retaining cavities housing a rubber seal of hollow section.

The fitting shall incorporate a gutter-retaining clip.

Gutter shall be supplied in plain-ended lengths.

The minimum acceptable wall thickness of gutter shall be 2.20mm.

Rainwater pipes shall be circular in section, 65mm nominal diameter complying in all respects to British Standard 4576 or the relevant Kenya Standard.

Rainwater pipes shall be supplied in plain-ended lengths. The minimum acceptable wall thickness of rainwater pipes shall be 1.80mm

Pipe support brackets must be adequate to screen expansion gaps.

The grade of uPVC used for gutter and pipe shall have a minimum softening point of 75°C when tested by the Vicat method as described in B.S. 2782.

The pipe and gutter shall be colour grey, to BS 5252, 10.A.07, black, white or rustic.

2.1.17 uP.V.C. Underground Drainage System

(a) Pipes and fittings

The pipes and fittings shall comply in all respects to British Standard 4660 & 5481 or the relevant Kenya Standards.

Pipes shall be supplied in plain-ended lengths.

The minimum acceptable wall thickness of pipe and fittings will be as follows:

110mm pipe	3.0mm	
160mm pipe	3.9mm	
110mm junction only	3.50mm socket	3.80mm body
All other fittings	3.20mm socket	3.40mm body
160mm all fittings	4.30mm socket	4.70mm body

The method of jointing to be employed shall be by lip seal socketted fittings. Jointing to other materials shall be made in the manner specified by the manufacturer.

The grade of uPVC used for the pipe shall have a minimum softening point of 82oC when tested by the `Vicat` method 102D as described in British Standard 2782, and for fittings 79oC.

The pipe and fittings shall be of colour golden brown approximating to British Standard 381C:No.414. The seal retaining caps shall be black polypropylene.

The natural rubber for lip seal joints shall be to British Standard 2494:1976.

Holderbats shall be made of mild steel protected from corrosion by galvanising or search coating for optimum fit to pipe supports a special purpose made P.V.C. packing pieces may be used.

The base of soil and vent stack connection to the below ground drain shall be made with a bend of minimum centre line radius of 250mm.

Minor changes of direction where permitted shall be made with a variable bend that has a constant effective length

(b) Excavation of Trenches

The installation, method of jointing shall conform in all respects to the manufacturer's site work instruction.

Trenches shall be excavated to a sufficient depth to allow a 50mm minimum bed below the underside of the pipe. Trench width shall be not less than the outlet diameter of the pipe plus 300mm and not wider than necessary.

(c) Trench Invert

The base of the trench shall be such that even support is given to the pipe for its full length. Soft spots shall be removed and replaced with compacted granular material as described below. High spots and rock shall be removed to allow full 50mm bed depth.

(d) Pipe bed

The bed shall be composed of granular material to the specification called for below and shall for below and shall cover the full trench width and length and boned to gradient

(e) Laying and jointing

Pipes and fittings shall be laid true to gradient in straight lines and jointed in accordance with manufacturer's instructions. All pegs used for alignment and other purposes must be removed after use and before sidefilling. All joints shall be watertight complying with CP.301, Clauses 5:3.

Pipe barrels shall be in continuous contact with the trench bed when laid.

(f) Side Filling

The side filling of pipes shall be composed of hard granular material, which shall be to the requirements below.

Side fillings must be placed equally on both sides of the pipe and compacted, so as to buttress the pipes against the trench walls. Side filling shall continue up to pipe crown level as a minimum and above this level if required by the Engineer.

(g) Back Filling

The first 300mm of backfill above crown level shall be taken from selected trench spoil all passing 25mm sieve. It shall be placed in two 150mm layers each firmly tramped. Above the 300mm level mechanical filling and compaction may be used.

Where cover is less than 450mm the pipe shall be covered with 75mm of selected material laid to support a concrete tile or slab indicating the presence of a service.

(h) Granular Material for Bed and Side Fill

All material for bed and side fill shall be hard and granular passing 20mm sieve and shall contain not more than 5 per cent fines passing 3mm sieve.

The material may be composed of crushed stone, clinker, quarry scalping, ballast, gravel, shingle or all-in aggregate to British Standard 882.

The material shall have a compaction factor of 0.3 or less.

2.1.18 VALVES

(a) Draw-off Taps and Stop Valves (Up to 50mm Nominal Bore)

Draw off taps and valves up to 50mm nominal bore, unless otherwise stated or specified for attachment or connection to sanitary fitment shall be manufactured in accordance with requirement of B.S. 1010.

(b) Gate Valves

All gates valves 80mm nominal bore and above, other than those required for fitting to buried water mains shall be of cast iron construction, in accordance with the requirement of B.S. 3464. All gate valves required for fitting to buried water mains shall be of cast iron construction in accordance with the requirements of B.S. 1218.

All gate valves up to and including 65mm nominal bore shall be of bronze construction in accordance with the requirements of B.S. 1952.

The pressure classification of all valves shall depend upon the pressure conditions pertaining to the Site of Works.

(c) Globe Valves

All globe valves upto and including 65 mm nominal bore shall be of bronze construction in accordance with the requirements of B.S. 3061.

The pressure classification of all globe valves shall depend upon the pressure conditions pertaining to the Site of Works.

(d) Check or Non-Return Valves

All check or non-return valves 80mm nominal bore and above shall be of the swing check type of cast iron construction in accordance with the requirement of B.S. 4090.

The pressure classification of all check or non-return valves shall depend upon the pressure conditions pertaining to site of the Works.

(e) Ball Valves

All ball valves for use in connection with hot and cold water services shall be of the Portsmouth type in accordance with the requirements of B.S. 1212, constructed from bronze or other corrosion resistant materials. These valves fall into three pressure classifications as follow:-

(i)	Low Pressure	3.52Bars maximum
(ii)	Medium Pressure	7.72Bars maximum
(iii)	High Pressure	12.62Bars maximum

The pressure classification required for each ball valve will be designated in the description of its associated equipment contained in section C of the specification

(f) Manually Operated Mixing Valves

Mixing valves for shower fittings and other appliances being provided under the Sub-contractor Works shall be manufactured in accordance with the requirements of B.S. 1415 from bronze or other corrosion resistant materials.

2.1.19 WASTE FITMENT TRAPS

(a) Standard and Deep Seal P & s Traps

Where standard or deep seal traps are specified they shall be manufactured in suitable non-ferrous materials in accordance with the full requirements of B.S. 1184.

In certain circumstances, cast iron traps may be required for cast iron baths and in these instances bath traps shall be provided which are manufactured in accordance with the full requirements of B.S. 1291.

(b) Anti-Syphonic Traps

Where anti-syphon traps are specified, these shall be similar or equal to the range of traps manufactured by Greenwood and Hughes Ltd., Deacon Works Littlehampton, Sussex, England.

The trade name for traps manufactured by this company is "Grevak".

2.1.20 PIPE SUPPORTS

(a) General

This Sub-clause deals with pipe support securing pipes to the structure of buildings for above ground application.

The variety and type of support shall be kept to a minimum and their design shall be such as to facilitate quick and secure fixings to metal, concrete, masonry or wood.

Consideration shall be given, when designing supports, to the maintenance of desired pipe falls and the restraining of pipe movements to a longitudinal axial direction only.

The Sub-contractor shall supply and install all steelwork forming part of the pipe support assemblies and shall be responsible for making good any damage to builders work associated with the pipe support installation.

The Sub-contractor shall submit all his proposals for pipe supports to the Engineer for approval before any erection work commences.

The Sub-Contractor shall submit all his proposals for pipe supports to the Engineer for approval before any erection work commences.

(b) Steel and Copper Pipes and Tubes

Pipe runs shall be secured by pipe clips connected to pipe hangers, wall brackets, or trapeze type supports. 'U@ bolts shall not be used as a substitute for pipe clips without the prior approval of the Engineer.

An approximate guide to the maximum permissible support spacing in metres for steel and copper pipe and tube is given in the following table for horizontal runs.

Size Nominal Bore	Copper Tube To BS 659	Steel Tube To BS 1387
15mm	1.25m	2.0m
20mm	2.0m	2.5m
25mm	2.0m	2.5m
32mm	2.5m	3.0m
40mm	2.5m	3.0m
50mm	2.5m	3.0m
65mm	3.0m	3.5m
80mm	3.0m	3.5m
100mm	3.0m	4.0m
125mm	3.5m	4.5m
150mm	4.5m	5.5m

The support spacing for vertical runs shall not exceed one and a half times the distances given for horizontal runs.

(c) Cast Iron and Asbestos Cement Spigot and Socket Jointed Pipes

Cast iron and asbestos cement socketed pipes shall generally be supported at every socket joint by means of either holderbats secured rigidly to the structure, or purpose made straps for attachment to rigid steel support brackets.

When holderbats are used, they shall conform to the requirements of B.S. 416. Suitable anchors shall be provided at all changes of pipe directions, junctions and tees, to counterpart the effect of end thrust loads.

(d) Asbestos Cement Pressure Pipes

Asbestos Cement pressure pipes with either cast iron detachable joints or asbestos cement screw joints shall be supported and anchored on either side of the joint. The joint shall remain free.

Pipe hangers and trapeze type supports shall not be suitable for the suspension of asbestos pressure pipes unless they are designated with suitable restrictions to prevent swinging while at the same time providing the necessary support requirements.

Within building, asbestos pressure pipes shall be carried either on concrete support or rigidly fixed steel wall brackets.

Suitable anchors shall be provided at all changes of pipe directions, junctions and tees to counteract the effect of end thrust loads.

(e) Concrete and Pitch Pipes

These pipes shall not be used for above ground application.

(f) Expansion Joints and Anchors

Where practicable, cold pipework systems shall be arranged with sufficient bends and changes of direction to absorb pipe expansion providing that the pipe stresses are contained within the working limits prescribed in the relevant B.S. specification.

The Sub-contractor shall pay particular care when supporting cast iron and asbestos cement pipes in order to ensure that the settlement and building movement do not break the pipe joints.

Where piping anchors are supplied, they shall be fixed to the main structure only. Details of all anchor design proposals shall be submitted to the Engineer for approval before erection commences.

The Sub-contractor when arranging his piping shall ensure that no expansion movements are transmitted directly to connections and flanges on pumps or other items of plant.

The Sub-Contractor shall supply flexible joints to prevent vibrations and other movements being transmitted from pumps to piping systems or vice versa.

2.1.21 SANITARY APPLIANCES

All Sanitary appliances supplied and installed as part of the Sub-Contract works shall comply with the general requirements of B.S. Specification.

2.1.22 PIPE SLEEVES

Main runs of pipework are to be fitted with sleeves where they pass through walls and floors. Generally the sleeve shall be of P.V.C. except where they pass through the structure, where they shall be mild steel.. The sleeves shall have 6mm - 12mm clearance all around the pipe or for insulated pipework all around the installation. The sleeve will then be packed with slag wool or similar.

2.2 INSTALLATION

2.2.0 GENERAL

Installation of all pipework, valves, fittings and equipment shall be carried out under adequate supervision from skilled staff to the relevant codes and standards as specified herein. The Sub-contractor shall be responsible to the Main contractor for ensuring that all builders work associated with his piping installation is carried out in a satisfactory manner to the approval of the Engineer.

2.2.01 ABOVE GROUND INSTALLATION

(a) Water Services

Before any joint is made, the pipes shall be hung in their supports and adjusted ensure that the joining faces are parallel and any falls which all be required are achieved without springing the pipe.

Where falls are not shown on the contract Drawings or stated elsewhere in the Specification, pipework shall be installed parallel to the line of the buildings and as close to the walls, ceilings, columns etc., as is practicable.

All water systems shall be provided with sufficient drain points and automatic air vents to enable them to function correctly. Valves and other use equipment shall be installed with adequate access for operation and maintenance. Where valves and other operational equipment are unavoidably installed beyond normal reach or in such position as to be difficult to reach from a short stepladder, extension spindles with floor or wall pedestals shall be provided.

Screwed piping shall be installed with sufficient number of unions of facilitate easy removal of valves and fittings, and to enable alterations of pipework to be carried out without the need to cut the pipe.

Full allowance shall be made for the expansion and contraction of pipework, precautions being taken to ensure that any force produced by the pipe movement are not transmitted to valves, equipment or plant.

All screwed joints to piping and fitting shall be made with P.T.F.E. Tape.

The pump shall maintain the test pressure for about one hour and if there is any leakage, it shall be measured by the quantity of water pumped into the main in that time. A general leakage of one gallon per 25mm of diameter, per 1.6 kilometres per 24 hours per 30 metres head, may be considered reasonable but any visible individual leak shall be repaired.

(b) Sanitary Services

Soil, waste and vent pipe systems shall be installed in accordance with the best standard of modern practice as described in B.S. 5572 to the approval of the Engineer.

The Sub-contractor shall be responsible for ensuring that all ground floor waster fittings are discharged to a gully trap before passing to the sewer via manhole.

The Sub-contractor shall provide all necessary roding and inspection facilities within the draining system in position where easy accessibility is available.

Where a branch requires roding facilities in a position to which normal access is unobtainable, then that branch shall be extended so as to provide a suitable purpose made roding eye in the nearest adjacent wall or floor to which easy access is available.

The vent stacks shall terminate above roof level and where stack passes through roof, a weather skirt shall be provided. The Sub-contractor shall be responsible for sealing the roof after installation of the stacks.

The open end of each stack shall be fitted with a plastic coated, or galvanised steel, wire guard.

Access for roding and testing shall be provided at the foot of each stack.

(c) Sanitary Appliances

All Sanitary appliances associated with the Sub-contract works shall be installed in accordance with the best standard of modern practice as described in B.S. 5572 to the approval of the Engineer.

2.2.02 UNDERGROUND INSTALLATION

(a) General

All underground water and drainage service installations shall be carried out in accordance with the best Standard of modern practice as described in C.P. 301 AND C.P. 310 respectively and the following clause.

(b) Sequence of Operation for Underground Service Installation

(1) Setting out

As described in B.S. Code of Practice 301 Cause 502.

(2) Breaking Up Surface (If in Roads)

As described in B.S. code of practice 301 Clause 503.

(3) Excavation and Timbering

As described in B.S. code or practice 301 Clause 503 and the following:-

Excavation shall be made to such depths and dimensions as may be required by the Engineer to obtain prior falls and firm foundations. No permanent construction shall be commenced on any bottom until the excavation to the correct level with concrete 1 : 4 : 8 to 38 mm maximum aggregate sizes.

The Sub-contractor's price shall have included for excavating in all materials met with, for trimming bottoms to the necessary falls and for any extra excavation required for planking, strutting and working space.

The Sub-contractor shall keep the whole of the trenches or other excavation free from water and shall execute such works and install such pumps as may be necessary to keep the excavation dry at all times.

No sub-soil water shall be discharged into the sewage system without written permission of the Engineer.

(4) Laying of Concrete Beds or Other Support for Pipes (if required)

As described in B.S. code or practice 301 clauses 504 and the following:-

All drains below buildings and roads shall be encased in concrete 150mm thick.

Concrete beds and supports shall be concrete 1:3:6 to 25mm maximum aggregate size.

(5) Pipe Laying and Jointing

Drainpipe shall be laid and jointed as described under B.S. code of practice 301 Clause 505.

Pitch fibre drain pipe shall be laid, jointed and cut in accordance with the requirement or the Note contained under Appendix C of B.S. 2760.

Water pipes shall be laid and jointed as described under B.S. code of practice 310, clause 401, 402, 403 and 404.

(6) Manholes

(1) General

All manholes provided under the Sub-contract works shall be constructed or approved materials and in an approved manner.

All manholes shall be watertight and if constructed of brickwork, solid blockwork or stonework, they shall be rendered internally with a cement mortar of at least 12mm thickness and finished with a smooth surface.

The sides of all channels in every manhole shall be brought up vertically to a height of not less than the diameter of the drain and shall be benched in good concrete from the top of the channels at an angle of 30 degree to the horizontal and floated to a smooth hard surface with a coat of 1:1 cement mortar.

In all other respects, manholes shall be constructed in accordance with B.S. code of practice 301.

(ii) Rectangular and Square Manholes

Rectangular and square straight through manholes shall be constructed from brickwork, solid blockwork, stonework and concrete to comply with the following minimum internal dimensions (millimetres).

Depth below Ground of Outgoing Invert	Internal Access Shaft Dimensions L X W	Size of Main Shaft Diameter	Internal Chamber Dimensions L X W	Height of Chamber above Benching	Wall Thickness
Up to 740	-	100 to 150	610x460	-	150
Up to 740		230 to 460	760x760		150
Up to 1200		100 to 150	760x760		150
160 to 1200	-	230 to 460	910x910	-	150
1220 to 1800	-	100 to 150	910x910	-	150
1220 to 1800	-	230 to 460	1070x910	-	150
1830 to 4550	760x760	100 to 150	1370x910	1370	230
1830 to 4550	760x760	230 to 460	1370x1070	1370	230
4570 & Over	760x760	100 to 150	1370x1140	1680	230
4570 & Over	760x760	230 to 460	1370x1140	1680	230

When branches are connected into the manhole, the length and width dimensions of the chamber shall be increased as follow: -

Length

Branch Diameter

100mm 300mm/branch on the side with most branches.

150mm 380mm/branch on the side with most branches.

230 and 300mm 460mm/branch on the side with most branches.

460mm 610mm/branch on the side with most branches.

Width

Branch Diameter

100mm to 300mm for each side with branches plug

160mm 460mm or the diameter of the main drain which ever is the greater.

(iii) Precast Concrete Circular Manholes

Where specified straight through precast concrete manholes shall be manufactured and constructed to comply with B.S. 556 and the following dimensional requirements, (Dimensions in Millimetres).

Depth Ground Of Outgoing Invert	Internal Access Shaft Diameter	Size Main Channel Diameter	Chamber Diameter	Height Chamber Above Benching
Up to 740	-	100 to 460	910	-
760 to 2410	-	100 to 460	1070	-
2440 to 4550	760	100 to 460	1220	1370
4570 & over	760	100 to 460	1370	2680

When branches are connected into manholes the internal diameter of the chamber shall be increased, as necessary, up to a maximum chamber diameter 1830mm.

(iv) Step Irons and Covers

Access shaft to manhole of depths greater than 760mm shall be provided with approved step irons as suitable intervals.

Every manhole or manhole access shaft shall be fitted with a removable airtight cast iron cover to adequate size and strength, fixed in a manner that prevents surface water gaining access into the drainage system.

Cast manhole covers and frames shall be manufactured in accordance with the requirements of B.S. 497 and shall generally fall into the following categories:-

Heavy Duty	:	For Carriageways
Medium Duty	:	For Footpaths
Light Duty	:	For domestic premises or other places where they do not have to carry wheeled traffic.

(v) Back Drop Connections

Where the level of the branch drain entering the manhole is higher than can be suitably accommodated by the normal type benching, then the branch drain shall be connected to the manhole by means of a back drop or practice 301.

(vi) Channels

Where the branch channel connects to the main channel in the manhole, the invert of the branch channel shall be a minimum of 38mm higher than the main channel.

(7) Testing of Pipelines

After pipelines are connected up and joints have been sealed, the pipeline shall be tested before pipes are, if required, hunched or surrounded in concrete.

Methods of testing and inspection shall be in accordance with Clause 4 of the Specification.

(8) Concrete Bedding, Hunching and Surround

Concrete bedding, hunching and surround shall be provided as necessary or where called for by the Engineer in accordance with the requirements laid down in B.S. code of Practice 301, Clause 310.

(9) Backfilling

Backfilling of trenches, heading and around manholes shall be carried out in accordance with the methods described in B.S. code of practice 301, clause 508.

(10) Reinstatement of Surface

Following the final backfilling of all trenches, headings, and manhole surrounds, the surface of the excavated areas shall be fully reinstated to the approval of the Engineer.

Where excavation have been carried out in public highways or other areas are not forming part of the site, the Sub-Contractor shall be deemed to have allowed in his price for all charges associated with the temporary and final reinstatement requirements of the local of highway Authority, whether this is carried out by the Sub-contractor or by the Authority concerned.

No Claims for extra in this respect will be accepted.

(11) Sewer Connection

The Sub-contractor shall pay all charges associated with the connection by the local Authority of the drainage to the Main sewer, including necessary reinstatement.

2.3 TESTING AND INSPECTION

2.3.01 SITE TESTS - PIPEWORK SYSTEMS

(a) Underground Water Mains

After laying, jointly and anchoring, the main shall be slowly and carefully charged with water, so that all air is expelled and allowed to stand full for three days before testing under pressure.

A long main shall be tested in section as the work of laying proceeds and all joints shall be exposed for inspection during the testing.

The open end of the main may be temporarily closed for testing under moderate pressure by fitting a water pipe expanding plug, of which several types are available. The end of the main and the plug should be secured by struts or otherwise, to resist the end thrust of the water pressure in the main.

If the section of main terminates with a sluice valve, the wedge of the valve shall not be used to retain the water, instead the valve shall be fitted temporarily with a blank flange, or if a socket valve with a plug and the wedge shall be placed in the open position while testing. The Sub-contractor shall provide suitable end support to withstand the end thrust of the water pressure in the main.

(b) Above Ground Internal Water Services Installation

All water service pipe system installed above ground shall be tested hydraulically for a period of one hour to not less than one and half times the design working pressure.

If preferred, the Sub-contractor may test the pipelines in section. Any such section found to be satisfactory need not be the subject of a further test when system has been completed, unless specifically requested by the Engineer.

During the test, each branch and joint shall be examined carefully for leaks and any defects revealed shall be made good by the Sub-contractor and the section re-tested.

The Sub-contractor shall take all necessary precautions to prevent damage occurring to special valves and fittings during the tests. Any item damaged shall be repaired or replaced at the Sub-contractor's expenses.

(c) Underground Drainage System

A site test shall be carried out on all drainage pipes before concrete hunching or surrounds are applied. These tests shall be carried out preferably from manhole to manhole.

Short branch drains connected to a main drain between manholes shall be tested as one system with the main drain. In long branches a testing junction shall be inserted next to the junction with the main drain and the branch tested separately. After the test has been passed, the testing junction shall be effectively sealed..

All tests on underground drains shall be permitted on cast iron drains at the discretion and to the approval of the Engineer.

Water tests shall be carried out in accordance with the methods described under B.S. code of Practice 301, Clause 601, (b) and (c) and the test pressure shall not be less than 1,520mm head at the highest point in the pipe section and not more than 10,360mm head at any point in the section.

The test pressure shall be maintained for a period of one hour during which time the pipe and joints shall be inspected for sweating and leakage. Any leak discovered during the tests shall be made good by the Sub-contractor and the section re-tested.

In addition to pressure tests, drainpipe runs shall also be tested for straightness where applicable. This test shall be carried out in accordance with one of the two methods described in B.S. Code of Practice 301, clause 601 (e).

Testing of manholes shall be carried out in accordance with the methods described under B.S. code of Practise 301, clause 601 (f).

(d) Above Ground Soil Waste and Ventilation System

All soil, waste and ventilating pipe system forming part of the above ground installation, shall be given appropriate test procedures as described in B.S. 5572 1972.

Smoke tests on above ground soil, waste and ventilating pipe system shall not be permitted.

Pressure tests shall be carried out before any work, which is to be concealed, is finally enclosed.

In all other respects, tests shall comply with the requirements of B.S. 5572.

2.3.02 SITE TEST - PERFORMANCE

Following satisfactory pressure test on the pipework system, operational tests shall be carried out in accordance with the relevant B.S. code of practice on the systems as a whole to establish that special valves, gauges, control, fittings, equipment and plant are functioning correctly to the satisfaction of the Engineer.

All hot water pipework shall be installed with preformed fibre glass lagging to a thickness of 25mm where the pipe runs above a false ceiling or in areas where the ambient temperature is higher than normal with the result that pipe "seating", due to condensation will cause nuisance.

All lagged pipes which run in a visible position after erection shall be given a canvas cover and prepared for a painting as follows: -

- (i) Apply a coating of suitable filler until the canvas weave disappears and allow drying.
- (ii) Apply two undercoats of an approved paint and finish in suitable gloss enamel to colours approved by the Engineer.

All lagging for cold and hot water pipes erected in crawl ways ducts, and above false ceiling which, after erection are not visible from the corridors of rooms, shall be covered with a reinforced aluminium foil finish and banded in colours to be approved the Engineer.

In all respects, unless otherwise stated, the hot and cold-water installation shall be carried out in accordance with the best standard of modern practice and described in C.P. 342 and C.P. 310 respectively to the approval of the Engineer.

The test pressure shall be applied by means of a manually operated test pump or, in the case of long main or mains or large diameter, by a power driven test pump or, in the case of long main or mains or large diameter, by a power driven test pump which shall not be left unattended. In either case precautions shall be taken to ensure that the required pressure is not exceeded.

Pressure gauges should be recalibrated before the tests.

The Sub-contractor shall be deemed to have included in his price for all test pumps, and other equipment required under this clause of the specification.

The test pressure shall be one and a half times the maximum working pressure except where a pipe is manufactured from a material for which the relevant B.S. specification designates a maximum test pressure as in the case of cast or spun iron pipes, where the test pressure should not exceed 120, 180 and 240 metre/head of clause B, C or D pipes, respectively.

2.4.0 STERILIZATION OF HOT AND COLD WATER SYSTEMS

All underground water mains and above ground water distribution system, cisterns, tanks, calorifiers, pumps, etc shall be thoroughly sterilized and flushed out after the completion of all tests of all tests and before being fully commissioned for handover.

The sterilization procedures shall be carried out by the Sub-Contractor in accordance with the requirements of B.S. code of practice 310, clause 409, to the approval of the Engineer.

2.5.0 WATER MAINS

2.5.1 Piping

All piping shall be plain ended and suitable for use with flexible mechanical couplings (e.g. Viking Johnson, Dresser or Gibault). Steel pipes shall comply with B.S. 534 - Galvanised Steel Pipes for distribution system shall comply with B.S. 1387 - 1967 medium tubes and be supplied with flanges on pipes 75mm diameter and over.

On pipes less than 75mm diameter pipes shall be screwed and socketed, unless otherwise stated.

2.5.2 uP.V.C. Pipes

uPVC piping shall be in accordance with B.S. 3505:1968.

The maximum sustained working pressure to which the pipes and fittings will be subjected is based on water at a temperature of 20°C .

The Contractor shall submit full details of the colour of the pipe he intends to supply. The colour of the pipe shall be such as to meet the requirements of Clause 2 `Material` and Clause 8.5 `Opacity` of B.S. 3505.

The pipes up to and including 50mm diameter shall be of solvent weld type. the pipe shall be supplied with interchangeable sockets pre-formed at the factory and of such internal diameter that it takes the plain end of the pipe with same nominal diameter.

The joint shall sustain the end thrust to which the pipe shall be submitted. The Contractor shall supply sufficient quantity of the cleaner and adhesive which shall be required to make the joints with the pipes.

The pipes of 75mm diameter and over shall consider of a grooved socket at one end of the pipe. The socket shall be designed to give a clearance fit on the outside diameter of the parent pipe. The sealing medium that shall seat in the groove shall be a rubber ring.

If the formation of the socket and groove results in the thinning of the original wall thickness of the pipe, it shall be compensated for by shrinking on to the outside of the socket area as reinforcing sleeve of the same material as the pipe.

The socket and groove shall incorporate no sharp angles where the stress points are created.

The joint shall take 10% deformation of the spigot at the point where it enters the socket without leakage from the pipe when subjected to the test pressure specified for the pipe. Thermal expansion of the pipe shall be accommodated in the joint. The joint shall be capable of lineal deflection up to 30o

The sealing ring shall be of first grade natural rubber and the physical properties of the mix shall meet the requirements of B.S. 2494.

The Contractor shall supply sufficient quantity of any lubricant or other material that shall be needed to make the joint, which shall be assembled by hand.

The fittings shall have the same type of joint as for the pipes to be used. The Contractor shall submit full details of the materials, dimensions and test pressures of the fittings offered.

Precautions shall be taken to avoid damage of the pipes and fittings.

In handling and storing the pipes and fittings, every care shall be taken to avoid distortion, flattening, scoring or other damage. The pipes and fittings shall not be allowed to drop or strike objects. Pipe lifting and lowering shall be carried out by approved equipment only.

Special care shall be taken in transit, handling and storage to avoid any damage to the ends.

All jointing of pipes and fittings shall be carried out strictly in accordance with the manufacturer's instructions.

2.5.3 Manufacturer's Instructions

The Contractor shall be responsible for obtaining copies of any manufacturer's instructions for pipe jointing and shall familiarise himself and his employees with these instructions.

All necessary tools and equipment required for the laying, jointing and testing of pipes and joints shall be provided by the contractor at no extra cost.

2.5.4 Fittings and Specials for Galvanised Steel Pipes.

All special shall be of such dimensions will mate with piping supplied. Screw down stop valves shall comply with B.S. 1010. Specials shall comply with B.S. 1740.

2.5.5 Flanged Adaptors and Flanges

Flanged adaptors shall be piece suitable for connecting a flanged sluice valve to the type of piping supplied. All flanges or special shall conform to B.S. 10 part 1 and shall be drilled to Table `C` and machined across the faces. The flanged adaptors shall comply with B.S. 78 and B.S. 3961:1965. All P.V.C. flanges shall be supplied with metal backing rings, jointing of flanges shall be carried out using the joint rings, bolts and washers as necessary.

2.5.6 Tees

The spigot ends of all tees shall be suitable for connection to the pipework supplied using the aforementioned flexible mechanical joints and branches shall be flanges drilled to B.S. 10 Table `C`.

2.5.7 Hydrants

The hydrants shall comprise a 75mm sluice valve and a 75mm Duckfoot bend with gunmetal screw connection to details shown on the detailed drawings. These specials shall comply with the requirements of B.S. 750: 1964.

2.5.8 Gate Valves

All gate valves 80mm nominal bore above, other than those required for fitting to buried water mains shall be of cast iron construction in accordance with the requirements of B.S. 3463. All gate valves required for fitting to buried water mains shall be of cast iron construction in accordance with the requirements of B.S. 1218.

All gate valves up to and including 65mm nominal bore shall be of bronze construction in accordance with the requirements of B.S. 1952.

The pressure classification of all gate valves shall depend upon the pressure conditions pertaining to the Site of Works.

2.5.9 Air Valves

Air valves shall be of cast iron conforming to B.S. 1452 Grade 14. They shall be suitable for working pressures not less than that specified for the class of pipe to which they are connected.

2.5.10 Ball Float Valves

Ball float valves shall be to B.S. 1212 Parts 1 and 2 shall be suitable for a working pressure not less than the working pressure for the class of pipe specified for connection to the ball float valve.

2.5.11 Non-Return Valves

Non-return valves shall be of cast iron with flanges and shall conform to B.S. 4090:1966.

2.5.12 Stop Cocks

Stopcocks up to 50mm diameter shall be brass and shall conform to B.S. 1010 Part 1 : 1959 Part 2 : 1973.

2.5.13 Rubber and Insertion Jointing

Rubber and Insertion Jointing for flange joints shall comply with B.S. 2494 Part 1 and no jointing rings shall be used in the Contract, which have not been supplied by manufacturers approved by the Engineer.

2.5.14 Bituminous Paints

All bituminous or tar paints for protection of buried steel bolts, pipes, specials etc. shall be the best of their respective kinds manufactured by approved makers.

2.5.15 Steel Pipe and Fittings for Rising Main

All piping shall be plain ended and suitable for use with flexible mechanical couplings (e.g. Viking Johnson, Dresser). The grade of steel used shall comply with the requirements of B.S. 3601: 1964. Pipes shall be welded or seamless and shall conform to B.S. 534: 1966 or an equivalent acceptable standard.

All pipes shall be externally and internally protected with bitumen in accordance with clauses 5.4 and 5.5 of B.S. 534:1966.

The external protection shall be reinforced with oven glass cloth glass tissue wrapping or by other approved material. All sheathed or wrapped pipes, fittings and specials shall be protected during transit by straw, wood wool or by other approved material.

The ends of all bitumen lined pipes, fittings and specials shall be closed by means of discs or other suitable covers firmly held in place.

2.5.16 Drain-Off Taps, Stop Valves for Water Services

Fittings for mains of size 50mm or under shall comply with B.S. 1010. Samples must be submitted to the Engineer for approval prior to installation of fittings.

2.5.17 Storage of Plants and Materials

The Contractor shall, at his own expense, make arrangements for dumps along the route of the pipe line for storage of pipes, his plant and materials, to suit his own convenience, but such arrangements shall be subject to the Engineer's approval.

2.5.18 Loading, Handling and Conveying of Pipes

The Contractor shall before commencing to lay the pipes, valves or other materials examine them and ascertain that they are in perfectly sound condition and he shall be responsible for any pipes, valves and other materials, which may be found damaged after laying. The stocking of pipes and specials on site, loading and unloading etc. shall be carried out to the satisfaction of the Engineer.

2.5.19 Interference with Fences, Drains, Pipes, Property etc

The Contractor shall ensure the proper reinstatement of fences, drains, telephone lines, K P & L. cables etc. where affected by his work. All services shall be adequately protected and propped to the satisfaction of the Engineer. The Contractor shall be liable for any damage caused to the services due to his failure to provide adequate protection.

2.5.20 Method of Excavation

- (a) The Contractor shall excavate the pipe trenches in the line and to the depths indicated by the Engineer. Except where otherwise indicated on the Drawings or directed by the Engineer, it is intended that the trench shall be excavated to such a depth as will allow of a minimum cover of 500mm over top of the barrel of the pipe when laid plus or minus a tolerance of 75mm either way. All trenches shall be excavated in open cuttings.
- (b) Where the trench passes through grassland, arable land or garden, whether enclosed or otherwise, the turf, if any, shall be pared off and stacked, and the productive soil shall be carefully removed for a width of 600mm greater than the nominated trench width or equal to the overall width of track of the excavating machine, whichever is greater, and laid aside to be subsequently used in reinstating the surface of the ground after the trench has been refilled.
- (c) The bottom of the trench shall be properly trimmed off, and all low places or irregularities shall be levelled up with fine material. Where rock or large stones are encountered, they shall be cut down to a depth of at least 75mm below the level at which the bottoms of the barrel of the pipes are to be laid, and covered to a like depth with materials, so as to form a fine and even bed for the pipe.
- (d) Joints holes shall be excavated to suit minimum dimensions as will allow the joints to be well and properly jointed.
- (e) The pipe trench shall be kept clear of water at all times.

- (f) The Contractor shall, wherever necessary by means of timbering, or otherwise support the sides of the trench so as to make them thoroughly secure, and afford adequate support to adjoining roads, lands, buildings and property, during the whole time the trench remains open and shall remove such timbering or other work shall be deemed to be included in the rates for excavation. In case the Contractor is instructed by the Engineer to leave any portion of such timber in position, he will be paid for it accordingly.
- (g) The clear width inside the timbering in the case of single pipes shall be at least 320mm in excess of the external diameter of the pipe being laid, in order to allow it to be freely lowered into position, in the trench without damage to the external protection.
- (h) Where more than one pipe is to be laid parallel, then the clear width inside the timbering shall be at least 520mm in excess of the combined external diameters of the pipes.
- (i) Should the excavation be taken out to a greater depth than is specified the bottom shall be made good to the correct level with Mix 1:3:6 concrete or other materials approved by the Engineer. No payment shall be made for any other excavation carried out by the Contractor and the cost of filling up to required levels.
- (j) If a mechanical excavator is used by the Contractor, he shall indemnify the Employer against all claims for damage that in the opinion of the Engineer, may be caused by the use of this plant. When a mechanical excavator is used the bottom 230mm of excavation shall be got out by hand to ensure an even bed for the pipes.

2.5.21 Main Laying

Mains shall be laid in straight lines and/or smooth curves as indicated on the Drawings. The vertical profile of the pipes shall be to even gradients. Any pipes not so laid shall be removed if so directed by the Engineer, and relaid in proper manner at the Contractor's expense.

In laying the pipes and specials care shall be taken not to damage the protective linings and the pipes shall be handled with tackle as directed by the Engineer.

The pipes and specials shall be slung and sounded with hand hammer for flaws before they are lowered into the trench. After the pipes or specials have been checked they shall be cleaned internally and carefully lowered into trench and set to proper gradient and line so that there is a continuous rise from each washout to air valve.

2.5.22 Temporary Bench Marks and Sight Rails.

The Contractor shall fix Sight Rails for use with boning rods at intervals of not more than 65 metres and temporary Bench Marks related to the Survey of Kenya Datum shall be provided at intervals as directed by the Engineer.

2.5.23 Curves and Bends

Large diameter curves of main shall wherever possible be formed by giving a set not exceeding 30 to each joint, bends being used only where large diameter curves are not possible.

2.5.24 Cutting of Pipes

The Contractor shall, subject to approval of the Engineer, cut pipes to such lengths as directed. Pipes should be cut off clean and square with the axis. Cuts should be made with an approved from the rotary cutting machine, but the Engineer may approve cutting by oxyacetylene cutters.

2.5.25 Flanged Joints

In laying pipes and specials with flanged joints, flanges shall be brought together and bolted with the faces absolutely parallel. A rubber jointing ring 3mm thick shall be used in each flange joint and one washer with each bolt. The ring shall be a strip ring lying within the bolt circle and a full flange width ring.

The bolts shall be tightened up gradually and equally in the customary manner in order to distribute the stress evenly over the flange. If it is found necessary to slightly from the normal run of the flange piping, the deflection shall be obtained by means of bevelled gunmetal ring washer between the flanges.

2.5.26 Surface Boxes

Sluice valves, air valves and fire hydrants shall be covered with Surface Boxes in accordance with details as shown on the Drawings. In roads and footpaths the boxes shall be laid flush with the surface.

2.5.27 Fixing of Valves, Air Valves and Washout Pipes.

The Contractor shall fix the sluice valves, air valves, washout pipes complete with iron casing for spindles and surface boxes in accordance with and in position shown on the Drawings. As far as possible the cutting of pipes for this should be avoided.

2.5.28 Support and Anchor Blocks

Concrete mix 1:3:6 shall be placed around and against bends and other specials in trenches.

2.5.29 Colour Coding

All underground pipes are to be wrapped with adhesive plastic tape at each meter in colours blue for drinking water and green for untreated water. All pipework above ground and valves in valve chambers and pits are to be painted in similar colours.

2.5.30 Lettering

- a) The lettering for sluice valves, fire hydrants, air valves and washout abbreviated SV, FH, Av and WO respectively shall be in accordance with the detail shown on the Drawings and colour coded as detailed hereafter:-

Untreated water: White lettering on green background

Drinking water: White on blue background

Fire Hydrant: White lettering on yellow background

2.5.31 Testing

- (a) The test pressure shall be one and a half the maximum working pressure except where a pipe is manufactured from a material for which the relevant B.S. Specification designates a maximum test pressure should not exceed 120, 180 and 240 metre/head for Clause B, C or D pipes, respectively.

The pump shall maintain the test pressure for about one hour and if there is any leakage, it shall be measured by the quantity of water pumped into the main that time.

- (b) When a section of the main has been jointed, the ends shall be closed with caps, plugs, or flanges, which must be strongly strutted against a solid surface to the satisfaction of the Engineer. The trench shall be properly backfilled and rammed as hereinafter specified and as shown on the Drawings, for its whole length so as to cover the main to a depth of not less than 500mm, except at the joint holes which shall be kept clear of all backfilling, if necessary by the use of timbering, so that each joint is left fully exposed for inspection. No backfilling will be permitted before testing of each section.

As long a section of main as possible shall be tested at one time subject to the maximum length of open trench approved by the Engineer or permitted by the Highway Authority, and the test shall be carried out within 12 working days of the completion of such sections of mains.

Where a main is laid across a road or in such a position as to interfere seriously with the normal use of the road, the Contractor may, with the consent of the Engineer and at his own risk, fill in such joint holes as may be necessary.

He shall, at his own expense, re-excavate any or all joint holes necessary to locate a leak and carry out repair work should the results of his hydraulic test prove unsatisfactory.

The section shall then be filled with mains water, great care being taken to drive out all air through air valves, ferrules or otherwise to the approval of the Engineer.

- (c) After the section to be tested has been charged and all air liberated it shall standing under moderate pressure for several days' final airing.

The leakage from the mains and connections from each section tested shall not exceed 4 litres of water per 25mm diameter of main, per 2 km. length each 24 hours, every 30 metres head of pressure, and any visible individual leak shall be repaired.

To determine the rate of leakage, the Contractor shall furnish a suitable hydraulic test pump, pressure gauge, connections and water meter or other appliance, for measuring the amount of water pumped.

If the leakage were at a greater rate than that specified, the Contractor should re-excavate the trench where necessary and shall remake the joints and replace defective work until the leakage shall be reduced to the allowable amount.

- (d) The Employer shall charge the Contractor the cost of any couplings required to join up tested lengths of main if, in the Engineer's opinion, greater lengths could reasonably have been tested or if failure under test requires the pipe to be cut, or other methods of laying should have been adopted.

The Contractor shall supply water used by the Contractor in testing the main. The Contractor shall carry out all work, which may be necessary for making temporary connections to the existing mains to obtain water for testing at his own expense.

- (e) In carrying out the test for water tightness the Engineer only shall authorise the operation of all valves, but the Contractor shall provide all the necessary labour to assist in the opening and closing of the valves to the Engineer's instructions, and he shall allow in his prices for all his expenses in connection with testing on completion.

The Engineer shall be the sole judge of water tightness.

2.5.32 Cleansing And Sterilizing The Main

When a pipeline is complete and where applicable, has successfully passed the test, it shall be thoroughly washed out using, if possible, an open end. Thereafter it shall be sterilized by being filled with a suitable solution containing not less than 20 p.p.m. of free available Chlorine or such other sterilizing agent as the Engineer shall approve. After standing for 24 hours the main shall again be washed out and refilled with mains water prior to the taking of Bacteriological samples.

The Contractor shall provide all necessary stop-ends fittings and chemicals for this work.

Emptying and washing out of the pipes shall be done in such a manner as not damage the trench or cause undue flooding of the vicinity, and the Contractor shall supply and use such piping, specials and/or hose as may be necessary to facilitate the flow of water to the nearest drain or watercourse. Water used for washing out and sterilizing will be supplied by the Employer.

Before any section of the main is put into use a bacteriological sample or samples will be taken by the Engineer's Representative and only on receipt of a satisfactory Certificate from the Medical Research Laboratory of the Employer will the main or section of main be permitted to be put into supply and be considered as having been substantially completed.

Any expenditure involved in providing facilities or materials for the taking of samples shall be included in the Contractor's tendered rates and the Engineer will specify and shall be the sole judge as to the number of samples required and the points at which they are to be taken.

The cost of the Bacteriological Examination will be borne by the Employer but if the sample and samples are not satisfactory the cost of any subsequent analyses will be borne by the Contractor.

2.5.33 Clearance of Site

The Contractor shall remove all surplus pipes, specials and other fittings from the site as directed by the Engineer. The site of works shall be levelled and all surplus excavation, debris, cut trees or bushes shall be carted to approved tip sites.

2.5.34 Existing Installations

(a) Cold Water

Where pipes for cold water are to be connected up to existing installations, the condition of the existing installation is to be reported to the Engineer in order to establish if part of the existing installation is to be replaced.

(b) Sanitary Fittings

Where existing sanitary fittings are to be removed or replaced, the fitting is to be removed with outmost care and fittings and taps to be handed over to the client.

(c) Sealing Off Existing Drains and Manholes

Existing foul, surface water and subsoil drains exposed during progress of work are to be recorded and reported for investigation by the Architect. Where not required to be removed, seal off with concrete or grout solid as directed. Seal off connection to manholes, demolish walls to 500mm below surrounding ground level and fill remainder of manhole with consolidated approved rubber and cover to level of surrounding ground as directed.

2.6.0 COLD WATER STORAGE TANKS

Cold-water storage tanks shall include the ball valves and connectors for inlet, supply, washout, and overflow and may also include fire reel system supply pipe. The Sub-Contractor shall also include in his pricing the price of the overflow and amount pipes to a place to be indicated by the Engineer. He shall also include the washout valve.

Where paint is required the Sub-Contractor shall use the paint, which will not be toxic.

The tanks shall be manufactured to the following British Standards:-

- (a) Galvanised Mild Steel tanks to BS 417
- (b) Sectional Steel tanks to BS 1564

Where non-standard sizes shall be used, they shall be manufactured to the relevant standard but with the approval of the Engineer.

2.7.0 WATER HEATERS

Electrically Heated

Non-pressure and low-pressure types domestic electric water heaters shall comply with B.S. 843: 1964, high-pressure types shall be of a Standard not less than the appropriate B.S.

Domestic heaters shall, if nothing else is specified, be supplied with 25mm thick fibre glass lagging and enclosed in the corrosion-proofed steel, finished in white stove enamel and be similar to manufactured 'HEATRAE'.

Electric thermostatically controlled immersion heaters shall comply with B.S. 3456: Section A8:1963 and C.P. 324. 202:1948.

Purpose made storage water heaters of the specified sizes shall comply with B.S. 853 and shall be to the specified working and test pressure. The heaters shall be provided with all necessary bosses, coils etc., and shall be hot dip galvanised after manufacture. Insulation shall, if nothing else is specified, be fibreglass to the specified thickness with finish suitable for painting.

Domestic heaters for floor mounting shall, if not provided with legs, be mounted on a minimum 100mm high concrete plinth.

Floor mounted purpose made heaters shall be provided with minimum 225mm high legs of sufficient strength welded to the heaters and to suitable floor plates before galvanising. Wall mounted heaters shall be supplied with all necessary brackets.

PART C
PARTICULAR SPECIFICATIONS
FOR
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

PART C

PARTICULAR SPECIFICATIONS

FOR

PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

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PART C

PARTICULAR SPECIFICATIONS

FOR

PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

3.1 INTRODUCTION

These specifications cover the execution of Plumbing, Drainage and Fire Fighting Installations and should be read in conjunction with other relevant specifications, drawings and contract documents issued to the contractor in conjunction with the Sub- Contract.

3.2 INCLUDED IN THE SUB-CONTRACT

The works include, unless otherwise specified, supply, delivery, installation, testing and commissioning, cleaning-up and setting to work all the installations described in the specifications and as shown on the contract drawings.

The provisions of all labour, materials, tools, instruments, testing apparatus and scaffolding necessary to execute the work in a first class manner, even such labour, materials, instruments or apparatus which are not specifically mentioned in the contract but are necessary for the satisfactory completion of the works, including such elements as: -

- Cold Water supply pipework and fittings to the water storage tanks from the existing water mains,
- Water storage tanks complete with all necessary covers, fittings, washout and overflow pipes and supports. The Sub-Contractor is expected to take the overflow and washout pipes to a reasonable discharge point,
- the water supply pipework to the functional and sanitary fittings as shown on the drawing plus the necessary fixing, supporting and jointing materials from the water storage tanks,
- The sanitary and operational fittings together with the fixing, supports and jointing to the supply and discharge pipes.
- The waste and soil pipework from the sanitary and operational fittings to the first manholes including all fixing, supports and jointing materials.
- All cutting away and all making good will, if nothing else is specified, be carried out by the Main Contractor but it will be the responsibility of the Sub-Contractor to ensure that this work is kept to a minimum, be responsible for the correct marking out of all chases and holes; and will provide all necessary details to the Main Contractor.
- The Sub-Contractor shall also be responsible for ensuring that runs for floor or wall chases, holes to be cut or left will be marked out at the appropriate stage of the structural work.

- The sub-contractor shall undertake all notifications demanded by the Authorities in order to comply with current regulations and produce all certificates, if any, from the authorities without extra charge.
- The Sub-Contractor shall as part of his Tender supply all necessary information such as manufacture, catalogue or type numbers, brochures or copies of catalogue pages, weight, and all other relevant information which are necessary to classify the equipment tendered for.
- All other materials, labour, tools, instruments, scaffolding, etc. which are necessary for final completion in a first class manner of the plants to the Engineers satisfaction. Excluded are only materials and workmanship especially mentioned herein as "Excluded from this Sub-Contract".
- The Sub-Contractor shall include for cables, pipes, etc from central facilities to working area.
- Provide the Engineer for his approval complete working and manufacturing drawings as specified.
- Commissioning and testing of the plants as specified.
- Supply of complete operation and maintenance manuals as specified as well as adequate instruction of the Client's maintenance personnel as specified.
- The Sub-Contractor shall include for full maintenance during initial maintenance period as specified.

3.3 **EXCLUDED FROM THE SUB-CONTRACT**

- All concrete works, inclusive of necessary holes, plinths, etc.
- All block work inclusive of necessary holes (to be marked by the Sub-Contractor) etc.
- All electrical wiring up to and inclusive of isolators and switchboards.
- The Main Contractor will provide central located facilities for supply of water and power during the construction period.

3.4 **EXTENT OF THE SUB-CONTRACTOR'S DUTIES**

At the commencement of the work, 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 others, are available locally. If not available, the Sub-Contractor shall at this stage place orders for the materials in question and copy the orders to Architect and/or the Engineer. Failure to do so shall in no way relieve the Sub-Contractor from supplying the specified materials and equipment in time.

Any item or material found to be defective shall be replaced by the Sub-Contractor within seven days of his being notified and any result of defective workmanship shall be repaired including supply of new parts if necessary, immediately upon being notified.

The Sub-Contractor shall furnish at his own cost any samples of materials or workmanship required for the Sub-Contract Works, that may be called for by the Engineer for his approval, and the Engineer may reject materials or workmanship not in his opinion up to the approved standard. The Sub-Contractor shall allow in his prices for such samples.

The Sub-Contractor shall when authorized in writing by the Architect or the Engineer, make variations from the specifications and drawings. No profit will be allowed on omitted items or works.

The Sub-Contractor shall submit to the Architect or to the Engineer claims for any work for which he considers demanding extra payment before the beginning of such work.

The Sub-Contractor shall be responsible for verifying all dimensions relative to his work by actual measurements taken on the site.

The Sub-Contractor shall request any alteration to the building structures within 30 days of the awarding of the Sub-Contract. Only such alterations as deemed unavoidable by the Engineer will be considered.

The Sub-Contractor shall collaborate with the Engineer and the Main Contractor in planning the installation before work is commenced. Particular care shall be taken to ensure that there is close collaboration with the other Sub-Contractor's when installing services.

The Engineer and Architect shall have full rights to inspect the work in progress and all materials and equipment for use in the installation prior to its erection whether these are on site or the Sub-Contractor's workshop.

The Sub-Contractor shall allow for all reasonable access to the works for this purpose.

Where large items of equipment are to be installed, the Sub-Contractor shall advise the Main Contractor in good time so that access is provided for installation before work is commenced on site.

The Sub-Contractor or his responsible representative shall participate in all site meetings as and when required, in order to discuss the works, make necessary decisions, receiving relevant instructions, confirm fulfilment of time schedules, etc.

3.5 **FINISH PAINTING**

When all the installations have been set to work, tested and commissioned, the Sub-Contractor shall prime the pipework with an undercoat and paint 2 No. coats of paints in accordance to BS 1710 colour coding and to the satisfaction of the Engineer and the Architect.

PART D
PARTICULAR SPECIFICATIONS
FOR
PORTABLE FIRE EXTINGUISHERS

PART D
PARTICULAR SPECIFICATIONS
FOR
PORTABLE FIRE EXTINGUISHERS
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PART D

PARTICULAR SPECIFICATION FOR THE SUPPLY AND INSTALLATION **OF PORTABLE FIRE EXTINGUISHERS**

4.00 General

The Particular specifications details the requirements for the supply and installation and commissioning of the Portable Fire Extinguishers which shall conform to BS 5423 : 1977. The Sub-Contractor shall include for all appurtenances and appliances not necessarily called for in this specification or shown on the Contract Drawings but which are necessary for the completion and satisfactory functioning of the equipment.

4.01 Scope of Works

The Sub-Contractor shall supply, deliver, erect, test and commission all the portable fire extinguishers which are called for in this specification and shown on the Contract Drawings and listed in these Bills of Quantities.

4.02 Water/CO₂ Fire Extinguishers

The portable 9-litre water filled CO₂ cartridge operated portable fire extinguishers shall comply with BS 1382 : 1977. Unless manufactured with stainless steel, bodies shall have all internal surfaces completely coated with either a lead tin, lead alloy or zinc applied by hot dipping. There shall be no visibly uncoated areas.

The extinguishers shall be clearly marked with the following:-

- a) Method of operation
- b) The words 'WATER TYPE' (GAS PRESSURE) in prominent letters
- c) Name and address of the manufacturers or responsible vendor.
- d) The nominal charge of the liquid in imperial gallons and litres
- e) The liquid level to which the extinguisher is to be charged
- f) The year of manufacture
- g) A declaration to the effect that the extinguisher has been tested to a pressure of 350 lb/sq in (24.1 Bar).
- h) The number of the British Standard "BS 1382" or "BS 5423".

4.03 **Portable Carbon Dioxide Fire Extinguishers**

The portable carbon dioxide fire extinguishers shall comply with BS 3326 : 1960 and BS 5423 : 1977

The body of the extinguishers shall be a seamless steel cylinder manufactured to one of the following British Standards, BS 401, BS 1287 or BS 1288.

The filling ratio shall comply with BS 5355 with valves fittings for compressed gas cylinders to BS 341. Where a hose is fitted it shall be flexible and have a minimum working pressure of 3000 lb/sq in (206.85 bar), the hose is not to be under internal pressure until the extinguisher is operated.

The nozzle shall be manufactured of brass gunmetal, aluminium or stainless steel and may be fitted with a suitable valve for temporarily stopping the discharge if such means are not incorporated in the operating head.

The discharging horn shall be designed and constructed so as to direct the discharge and limit the entrainment for air. It shall be constructed of electrically non-conductive material.

The extinguishers shall be clearly marked with the following:-

- a) The words 5 kg carbon dioxide fire extinguishers and to include the appropriate nominal gas content.
- b) Method of operation
- c) The words "Re-charge immediately after use"
- d) Instructions for periodical checking
- e) The number of the British Standard BS 3326 : 1960
- f) The manufacturers name or identification markings.

4.04 **Dry Powder Portable Fire Extinguishers**

The portable dry powder fire extinguishers shall comply with BS 3465 : 1962 and BS 5423. The body shall be constructed of steel not less than the requirements of BS 1449 or aluminium to BS 1470 : 1972 and shall be suitably protected against corrosion.

The dry powder charge shall be non-toxic and retain its free flowing properties under normal storage conditions. Any pressurizing agent used as an expellant shall be in dry state; in particular compressed air.

The discharge tube and gas tube if either is fitted shall be made of steel, brass, copper or other not less suitable material. Where a hose is provided it shall not exceed 1.060 m and shall be acid and alkali resistant. Provision shall be made for securing the nozzle when not in use.

The extinguisher shall be clearly marked with the following information:-

- a) The words "Dry Powder Fire Extinguisher".
- b) Method of operation in prominent letters
- c) The working pressure and the weight of the powder charge in kilogrammes
- d) Manufacturers name or identification mark
- e) The words "RECHARGE AFTER USE" if rechargeable type.
- f) Instructions to regularly check the weight of the pressure container (gas cartridge) or inspect the pressure indicator on stored pressure types when fitted, and remedy any loss indicated by either.
- g) The year of manufacture
- h) The pressure to which the extinguisher was tested.
- i) The number of this British Standard BS 3465 or BS 5423 : 1977.
- j) When appropriate complete instructions for charging the extinguisher shall be clearly marked on the extinguisher or otherwise be supplied with the refill.

4.05 **Foam Spray Portable Fire Extinguishers**

The portable foam spray fire extinguishers shall comply with BS 3465 : 1962 and BS 5423. The body shall be constructed of steel not less than the requirements of BS 1449 or aluminium to BS 1470 : 1972 and shall be suitably protected against corrosion.

The foam spray charge shall be non-toxic and retain its free flowing properties under normal storage conditions. Any pressurizing agent used as an expellant shall be in dry state; in particular compressed air.

The discharge nozzle and gas tube if either is fitted shall be made of steel, brass, copper or other not less suitable material. Provision shall be made for securing the nozzle when not in use.

The extinguisher shall be clearly marked with the following information:-

- a) The words "Foam Spray Fire Extinguisher".
- b) Method of operation in prominent letters
- c) The working pressure and the capacity of the foam charge in litres
- d) Manufacturers name or identification mark
- e) The words "RECHARGE AFTER USE" if rechargeable type.

- f) Instructions to regularly check the weight of the pressure container or inspect the pressure indicator on stored pressure types when fitted, and remedy any loss indicated by either.
- g) The year of manufacture
- h) The pressure to which the extinguisher was tested.
- i) The number of this British Standard BS 3465 or BS 5423 : 1977.
- j) When appropriate complete instructions for recharging the extinguisher shall be clearly marked on the extinguisher or otherwise be supplied with the refill.

4.06 **Fire Blanket**

The fire blanket shall be made from cloth woven with pre-asbestos yarn or any other fire proof material and to measure 1210 x 1800 mm and shall be fitted with Special tapes folded so as to offer instantaneous single action release blanket from storing jacket.

PART E
PARTICULAR SPECIFICATIONS FOR
HOSE REEL SYSTEM

PART E
PARTICULAR SPECIFICATIONS FOR
HOSE REEL SYSTEM

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PART E
PARTICULAR SPECIFICATIONS
FOR
FIRE FIGHTING HOSE REEL SYSTEM

5.01 General

The particular specification details the requirements for the supply, installation and commissioning of the hose reel installation. The hose reel installation shall comply in all respects to the requirements set out in C.O.P. 5306 Part 1: Lower Floors.

The Sub-Contractor shall include for all appurtenances and appliances not necessarily called for in this specification or shown on the Contract Drawings but which are necessary for the completion and satisfactory functioning of the Works.

No claims for extra payment shall be accepted from the Sub-Contractor because of his non-compliance with the above requirements.

If in the opinion of the Sub-Contractor there is a difference between the requirements of the specifications and the Contract Drawings, he shall clarify these differences with the Engineer before tendering.

5.02 Commencement of Works

The sub-contractor in submitting his tender shall be deemed to have included for commencing any necessary work on site at such a time as will comply with the main contractor's programme, or shall be directed by the Engineer.

5.03 Ordering

The sub-contractor shall order materials from the quantities taken from his own approved working drawings and not the quantities shown in the specifications.

5.04 Spares

Spares shall be presented to the client at hand over.

5.05 Scope of Works

The Sub-Contractor shall supply, deliver, erect, test and commission all the automatic fire fighting hose reel installation which is called for in this specification and shown on the Contract Drawings.

In connection with the above works the Sub-Contractor shall liaise fully with the plumbing Sub-Contractor who will be responsible for making a new connection to the existing water mains, supplying and laying a metered service pipe, up to the connections to the water tank.

The Sub-Contract shall handover to the Electrical Sub-Contractor all the electrical control gear for the installation. The Electrical Sub-Contractor shall supply electrical power, interconnecting cabling and wiring to the hose reel installation.

The Sub-Contractor shall supply and handover all the wiring and control diagrams necessary for the Works when required to do so.

Though the Electrical Sub-Contractor shall install the isolator and be responsible for the electrical connections in compliance with electrical regulations, the Sub-Contractor for the Works contained in this document shall supply and instal the starting and stopping gears, indication equipment and retain full responsibility for the correct functioning of the installation.

5.06 **Fire Hose Reel Pumps**

The fire hose reels pumps shall consist of a duplicate set of multi-line centrifugal pumps as Lowara Sphere Unit Model CEM 80/5 or similar approved. The pumps shall be capable of delivering 2.3 l/s (8.3 m³/hr) against a head of 25 m (2.5 bar). The complete specification of the packaged pump set to be as follows:

-

a) **Pumps**

High Efficiency single impeller pump, enclosed type motor, enclosed in a stainless steel shell.

b) **Pump Materials**

Suction and Discharge Casing to be made from Grey Cast Iron. Pump body, back plate, shaft, conveyor, diffuser and impeller made from Stainless Steel AISI 304.

c) **Motors**

T.E.F.C. Squirrel Cage Motors conforming to metric standards suitable for 240 volts (+/- 6%), single phase, 50 Hz supply. Windings insulated to Class "F", Speed 2800 RPM, permanent split capacitor, built-in thermal overload and IP 44 protection.

d) **Mechanical Seal**

Self-adjusting type with carbon/ceramic with elastomer made of NBR and other components in stainless steel.

e) **Base Frame**

Welded fabrication from Mild Steel sections with facility for lifting unit.

f) **Flexible Connections**

Flexible connections to be affixed to suction and discharge connections of the pump.

g) **Valves**

Pump Isolating Valves shall be Butterfly Valves to B.S. 5155 with Cast Iron nylon coated disc and black nitrile liner. Non-Return Valves shall be vertical lift type to be manufactured from Cast Iron with nitrile seal.

h) **Control Panel**

The control panel is to be located in the position indicated on the contract drawings.

The control panel shall be constructed of mild steel with auto lacquer finish, be moisture, insect and rodent proof and shall be provided complete with spare fuses and a wiring diagram enclosed in plastic laminate.

Standard panel cubicle to be manufactured to IP. 55 standards, containing Direct-On Line Starters or Star Delta Starters above 4.0 kW.

Safety features to include 240 volts low voltage controls except for starter coils. Panel shall be mounted on vibration isolators to minimise vibration to electrical equipment.

The panel shall incorporate HRC main fuses and thermal overloads for the pump motors, time control unit for minimum run period, start relay incorporating timing element for standby pump delay, and one set of voltage free changeover contacts to give remote alarm/indication for the indicator lights mentioned.

The pump shall be controlled by a pressure switch and the control panel shall include the following facilities to IP 54 protection:-

- i) "On" push button for setting control panel to live
- ii) Green indicator light for indicating control panel live
- iii) Duty/stand by pump auto-change over
- iv) Duty pump, pump run green indicator light
- v) Stand by pump, pump run green indicator light
- vi) Duty pump fail red indicator light
- vii) Stand by pump fail red indicator light
- viii) Hand/Off/Auto Switches
- ix) Line and control circuit fuses
- x) Low water condition pump cut out with red indicator light

i) **Pressure Switch**

It shall be of Differential adjustment type switch manufactured to IP. 44 standards.

Multi-pump sequencing control to be effected from a single pressure instrument, utilising control circuitry specially for pressure boosting applications.

j) **Pressure Gauge**

4" Dial Bottom Connection to B.S 1780 calibrated in Bars and KPa.

k) **Membrane Tank** - (24 litre Hydrosphere)

Fabricated Steel Construction housing a neutral rubber diaphragm ideally suited for drinking water applications. Precharged with Nitrogen to correct pressure at test stage.

l) **Low Level Water Cut-out**

The pumps shall be protected by a low level cut out switch to prevent dry pump run when low level water conditions occur.

5.07 **Pipework**

The pipework for the hose reel installation shall be galvanised wrought steel tubing "Medium" Grade Class "B" to B.S. 1387: 1967 with pipe threads to B.S.21.

5.08 **Pipe Fitting**

The pipe fittings shall be galvanised wrought steel pipe fittings welded or seamless fittings conforming to B.S.1740 Part 1971 or malleable iron fittings to B.S.143/1256.

All changes in direction shall be with standard bends or long radius fittings. No elbows will be permitted.

5.09 **Flanges**

The flanges shall comply with B.S.4504:1969. All flanges shall comply to a nominal pressure rating of 16 bar (P.N.16)

5.10 **Gaskets**

The gaskets for use with flanges to B.S. 4304:1969 shall comply with B.S. 4865 Part 1: 1072 for pressure up to and not exceeding 64 Bar.

5.11 **Non-return Valves**

The non-return valves up to and including 80 mm diameter shall be as Pegler to B.S.5153: 1974 with flanges to B.S. 4504 P.N.16.

The valves shall be of iron construction with gunmetal seat and bronze hinge pin.

5.12 **Gate Valves**

The gate valves up to and including 80 mm shall be as Pegler non-rising stem and wedge disc to B.S.1952.: 1964 (B.S. 5154:1974) with screwed threads to B.S. 21 taper thread.

5.13 **Sleeves**

Where pipework passes through walls, floors or ceilings, a sleeve shall be provided one diameter of the pipe, the space between to be packed with mineral wool, to the Engineer's approval.

5.14 **Hose Reels**

The hose reels to the installation shall consist of recessed automatic hose reels as Mather & Platt Model 1065 standard swinging hose reel (recessed).

All the above hose reels shall comply with B.S.: 1976 and B.S. 3169: 1970 and is to be installed to the requirements of C.P. 5306 Part 1 1976.

The hose reels shall be supplied and installed complete with first-aid non-kicking hose 30 metres long, with nylon spray jet/Shut-off nozzle. A screw down chrome plate globe valve to B.S. 1010 to the inlet of the reel shall be fitted. The orifice to the nozzle is to be not less than 4.8 mm to maintain a minimum flow of 0.4 l/s to the jet.

The hose reels shall be installed at 1.5 metres centre above the finished floor level in locations shown on contract Drawings.

5.15 **Earthing**

The hose reel installation shall be electrically earthed by a direct earth connection.

The installation of the earthing to be carried out by the Electrical Sub-Contractor.

5.16 **Finish Painting**

Upon completion of testing and commissioning of the hose reel installation the pipework shall be primed and finish painted with 2 No. coats of red paint to the Architects requirements.

5.17 **Testing and Commissioning**

The hose reel installation is to be flushed out before testing to ensure that no builders debris has entered the system. The installation is to be then tested to one and a half times the working pressure of the installation to the approval of the Engineer.

Simulated fault condition of the pumping equipment, is to be carried out before acceptance of the system by the Engineer and Architect.

5.18 **Instruction Period**

The Sub-Contractor shall allow in his contract sum for instructing of the use of the equipment to the Clients maintenance staff. The period of instruction may be within the contract period but may also be required after the contract period has expired.

The period of time required shall be stipulated by the Client but will not exceed two days in which time, the clients staff shall be instructed in the operation and maintenance of the equipment.

PART F

BILLS OF QUANTITIES

SCHEDULE OF PRICES

GENERAL NOTE

1. The total of price in the summary of prices shall include for the whole of the Sub-Contract Works in accordance with the specification as defined before and shall be carried forward to the Form of Tender.
2. Any prices omitted from any item, section or part of the price schedule shall be deemed to have been included in another item, section or part.
3. The prices shall include for all obligations under the Sub-Contract including and not limited to:-
 - a) Supply of all materials, equipment, apparatus, fittings, spares and tools
 - b) Insurance
 - c) Clearing and forwarding
 - d) Delivery and storage at site
 - e) Packing for storage
 - f) Replace any defective or damaged item
 - g) Installation
 - h) Testing
 - i) Painting
 - j) Commissioning
 - k) Maintenance during the defects liability period
4. The unit rates shall include import duty, sales tax, and VAT.

**PROPOSED RONGO UNIVERSITY AIR CONDITIONING SYSTEM
BILLS OF QUANTITIES**

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	<u>Bill no.1:Plumbing,Drainage,Sanitaryware & Fire protection Installations</u>				
1.0	EXTERNAL COMMON SERVICES Supply, Deliver,install,test and commision the following as follows:-				
1	UNDERGROUND WATER TANK & PUMPS Provide the following provisions to Underground concrete water tank by others. Connections to be in Mild steel paddle flanges:				
		1	NO	By Others	
i	Level regulator(high pressure ball valve)	1	NO		
ii	Internal ladder	1	NO		
iii	100Φ Bowser line	1	No.		
iv	25mm diameter inlet pipe	1	No.		
v	50mm diameter Outlet pipe (for Domestic pump)	1	No.		
vi	50mm diameter Outlet pipe (for Fire pump)	1	No.		
vii	100mm dia ditto (drain pipe and vent)	2	No.		
viii	150mm dia Overflow	1	No.		
ix	25mm dia (for level indicator)	1	No.		
x	25mm dia (float switch)	1	No.		
	Total C/F to Next Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Total B/D from Previous Page				
b	Booster Pumpset Domestic Water Booster pump set comprising a dual set of pumps (duty & standby), Complete with a Power control panel comprising: Dry run protection by float or pressure switch with selectable auto restart. _Protection functions including max number of starts per hour, minimum cycle times, over pressure and motor over current and all connecting wiring and piping. The System shall be capable of flow rate: 20.0 m³/Hr & head: 2.5 bar as: PEDROLLO 4SR10/7 SUBMERSIBLE MULTISTAGE CENTRIFUGAL PUMP , complete with a cooling jacket and a float switch in the suction and roof tank or equal and approved.	1	Item		
c	Float Switch & Cable: Tank low water level cut out float switch inclusive of cable and laying from the pump control panel to the control float switch. (approx. 50 metres).	50	Lm		
2	PIPEWORK Supply, deliver and install PPR PN20 Ariete 20 system of pipes and fittings, Polypropylene Type 3PN20 to DIN 8077-8078 A1 and DVGWE 534 standards with polyfusion welding				
a	75mm dia tubing chased in walls/floors and in duct or chased in wall	36	LM		
b	50mm dia ditto	180	LM		
c	40mm dia. – Ditto	60	LM		
d	32mm diameter	18	LM		
e	25mm dia ditto	12	LM		
f	20mm dia ditto	12	LM		
g	<u>REDUCERS</u>				
i	75x50mm dia Reducer	8	NO		
ii	32x25mm dia Reducer	30	NO		
iii	25x20mm dia Reducer	2	NO		
	Total C/F to Next Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Total B/D from Previous Page				
h	<u>TEES</u>				
i	75mm dia. Ditto	8	NO		
ii	50mm dia. – Ditto	8	NO		
iii	40mm dia. – Ditto	8	NO		
iv	25mm dia. Ditto	4	NO		
v	20mm dia. Ditto	4	NO		
i	<u>VALVES</u>				
	75mm dia. approved rising stem full way high				
i	pressure flanged gate valve with wheel and jointing to tubing	8	NO		
ii	50mm dia. – ditto	18	NO		
iii	40mm dia. – ditto	7	NO		
iv	32mm dia. – ditto	4	NO		
v	25mm dia. – ditto	4	NO		
vi	20mm dia. – ditto	2	NO		
j	<u>BENDS/ELBOWS</u>				
i	75mm dia. Bend/Elbows	8	NO		
ii	50mm dia. – ditto	12	NO		
iii	40mm dia. – ditto	4	NO		
iv	32mm dia. – ditto	4	NO		
v	25mm dia. – ditto	3	NO		
vi	20mm dia. – ditto	3	NO		
k	Single delivery stand Pipe to BS.336 with detachable or swivel outlet in gunmetal or light alloy	4	NO		
l	Garden tap in rough brass with hose union as Cobra to the support pipe	4	NO		
m	Allow for connetion to the main line with a 50mm diameter water main including the water meter, any charges associated with application for the same, excavations, backfilling and making good.	1	Item		
n	Allow for masonry meter chamber, size 450 x 450 x 300mm maximum depth (open at the bottom) with a precast concrete slab c/w handle to Structural Engineer's requirements.	1	No.		
	Total C/F to Next Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	<i>Total B/D from Previous Page</i>				
3	<u>EXTERNAL SOIL AND WASTE DRAINAGE</u> Supply and install the following Soil and Waste water drainage pipework as described and shown on the drawings.All pipes and fittings in this installation shall be UPVC and PVC to BS 5572:1978 and BS 5750 as Manufactured by"Key Terrain" or equal and approved.All jointings and fixtures shall be in accordance with the manufacturers instructions and as described.Tenders must allow for jointings,clippings,couplings,holderbats,pluggings ,reducers,spacers etc,necessary for the proper functioning of the installation when pricing.				
a	100mm diameter Light Grey soil pipe(in ducts)	166	LM		
b	100mm diameter Golden Brown buried drain pipe	312	LM		
c	150mm dia Golden Brown buried drain pipe	66	LM		
d	<u>Extra over uPVC pipe for:-</u>				
i	100mm diameter Light Grey 90°/135° Sweep Bend	9	No.		
ii	100 mm diameter Light Grey 91¼ degrees Spigot/Socket Bend	18	No.		
iii	100mm dia sweep tee	18	No.		
v	100mm dia short bend	9	No.		
e	Gully Traps comprising 100mm diameter golden brown uPVC gully piece, 100mm diameter uPVC trap spigot outlet with screws and washers and 300 x 300mm masonry gully trap chamber with mild steel plate and cover dully painted.	7	No		
	<i>Total C/F to Next Page</i>				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	<i>Total B/D from Previous Page</i>				
4	<u>RAIN WATER DRAINAGE</u> Supply and install the following Soil and Waste water drainage pipework as described and shown on the drawings.All pipes and fittings in this installation shall be UPVC and PVC to BS 5572:1978 and BS 5750 as Manufactured by"Key Terrain" or equal and approved.All jointings and fixtures shall be in accordance with the manufacturers instructions and as described.Tenders must allow for jointings,clippings,couplings,holderbats,pluggings ,reducers,spacers etc,necessary for the proper functioning of the installation when pricing.				
4.1	RAIN WATER DOWN PIPES				
a	50mm diameter Grey Upvc Pipe	6	LM		
b	100mm diameter Light Grey soil pipe	372	LM		
c	100mm dia shoe	19	No.		
d	100mm dia short bend	38	No.		
e	100mm dia sweep tee	19	No.		
f	Rain Water Gully comprising 100mm diameter golden brown uPVC gully piece, 100mm diameter uPVC trap spigot outlet with screws and washers and 300 x 300mm masonry gully trap chamber with mild steel plate and cover dully painted.	19	No.		
f	Fulbora outlet: 100mm diameter coned fulbora outlet of cast iron or other approved material and to take 110mm uPVC other approved material and to take 110mm uPVC piping including adaptor	19	No.		
	<i>Total C/F to Next Page</i>				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	<i>Total B/D from Previous Page</i>				
5	<u>FIRE PROTECTION SERVICES</u>				
5.1	<u>Hosereel Installations</u>				
	Supply and install the following fire fighting installation and equipment as described and shown on the drawings. Tenderers should allow for all fittings, jointings couplings including unions and clamps necessary for the proper functioning of the installation when pricing				
a	20mm dia ditto tubing to BS 1387 Class "B"	4	LM		
b	25mm dia ditto	4	LM		
c	50mm dia ditto	66	LM		
	<u>Extra over tubing for: -</u>				
d	25mm dia bend	4	No.		
e	25x20 dia GI Reducer	4	No.		
f	50x25 dia GI Reducer	4	No.		
g	<u>BRASSWORK</u>				
i	50mm dia approved medium pressure screw down full way rising stem wedge gate valve to BS 5154 with wheel head and joints to steel tubing. Brasswork to be as Pegler's or equal and approved	8	No.		
h	Fully automatic twin on line hose stream pumps including duty and standby electrically driven pumpset, control panel , interconnecting pipework, valves, 60 litre pressure vessel as Global water solutions,pressure switch,connectors and fittings all mounted on a fabricated steel baseplate to BS5306. Pump duty shall be 8 m3/hr at 2.0 Bar pressure as GRUNDFOS CM5-4 HORIZONTAL MULTISTAGE PUMP or approved equivalent".C/w Dry run protection float switch or equal and approved.	1	Set		
	<i>Total C/F to Next Page</i>				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	<i>Total B/D from Previous Page</i>				
5.2	<u>PORTABLE FIRE EXTINGUISHERS</u> Supply, install and commission the following portable fire extinguishers complete with initial charge and mounting brackets as per Specifications All Extinguishers must be from manufacturers who are approved by the Fire Protection Association of Kenya.				
a	5kg CO2 fire extinguisher in metal casing and fixed to wall surface unit as 'Angus' or equal and approved with contents gauge	2	No.		
b	9 Litre Water Carbon Dioxide Gas Fire Extinguisher	2	No.		
c	9 kg dry powder fire extinguisher gas cartridge type in metal casing and fixed to wall surface. Unit as 'Angus' ABC all purpose powder or equivalent and approved with content gauge	2	No.		
d	12 kg Automatic dry powder fire extinguisher gas cartridge type in metal casing and fixed to ceiling unit as 'Eversafe' or equivalent and approved with contents gauge sprinkler head & discharge nozzle for the all the lift motor rooms and submain & LV switch room	3	No.		
e	1.8metre x 1.2metre Fire Blanket manufactured to BS EN 1869:1997 and BSI Kite marked, with slim-line design with rigid plastic case, plastic that case can be wiped maintaining hygiene in kitchen environments, Includes hole so that the fire blanket can quickly and easily be wall-mounted, hinged base and complete with toggles for quick and easy to use in the case of a fire emergency.	2	No.		
	<i>Total External Works to Summary Page</i>				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
2.0	Ground Floor				
1	SANITARY FITTINGS Supply deliver and install the following appliances including their support brackets , screws etc where necessary items such as mastic, silicon, grouting etc must be included in the rates. All connectins to water supply/waste soil drainage and electrical power supply are to be the responsibility of the contractor and must be priced for. NOTE: TRADE NAMES Where Trade Names are mentioned below, it is only intended to indicate the level of quality anticipated. The contractor MAY supply alternatives which must be approved by the Engineers/Architect.				
a	WC				
i	Lecico' Floor Standing,Low level Pan with open flushing rim with horizontal outlet,seat & cover,fixing screws.	7	no		
ii	Water closet suite as "Hindustan Squatting Pan " WC3390WH, P trap loose VC4521WH, complete with Fittings comprising: WC Pan ,Bottom outlet,Brackets SR1300XX, Inlet Connector rubber CF4220XX, Flush Pipe and Clip CF6415WH.	1	no		
ii	WC Flush Valve: 1 1/4 inch,Wall Exposed WC flush valve lever Type as "DONALD FVD 001" Complete with Flush Pipe or equal and approved.	8	no		
b	Wash Hand Basins				
i	Lecico Vanity mounted Wash hand basin,size 500mm basin with 1no centre taphole.	11	no		
c	WHB Accessories				
i	VADO WAR-200' surface mounted metering,delay action pillar tap c/w 1/2" 300mm flex and angle valve as pex	11	no		
ii	pop up waste for typical basins 1 ½ sink grid waste, 70mm diameter flange, 45mm long shank, unslotted with plug, chain and backnut,model name as Tolento.	11	no		
iii	PVC 1¼' bottle trap with 75mm deep seal and 200mm long tail pipe, cap-nut and wall flange	11	no		
	Total C/F to Next Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Total B/D from Previous Page				
d	Robe hook Robe hook in Stainless steel mounted onto a concealed screw to wall/door wedges.	8	no		
e	Mirrors 6mm thick polished plate glass, silver backed mirror with bevelled edges, size 750x600mm plugged and screwed to wall with 4No. Chrome plated chrome capped screws and 5mm thick foam back rest.	11	no		
f	Urinal bowl LECICO' white vitreous china Urinal bowl with concealed pipework complete with pair of bowl supports, Plastics 1 ½ diameter domed outlet plated urinal grating.	3	no		
g	Urinal bowl accessories DOCOL' chrome plated, push button ¾' wall concealed urinal flush valve, back entry with intergral ball-o-stop valve and chrome wall plate complete with; chrome plated urinal flush and inlet adaptor.	3	no		
ii	1½ ' diameter plastic bottle P-Trap with plastic extension pipe to wall and wall flange	3	no		
iii	305mm wide x 620mm high bowl urinal division as ideal standard complete with hangers.	3	no		
h	Soap Dispensers Zalpon Mark 7' 1.136 litres white impact resistant, heavy duty, plastic glued/screwed to wall liquid soap dispenser complete with initial charge, key and mounting brackets.	6	no		
i	Hand Dryers Starmix Automatic Vandal Proof die cast aluminium case Hand Dryer Model No. T80E with a Power supply of 2.3KW 240V 50Hz automatic no-touch automatic infra sensor operated handrier. With delivery of 72 ltrs per second of warm air at 50°C above ambient temperatures at an average air speed of 20.6 m/s and a relative drying time of 35seconds.	6	no		
j	Tissue Dispenser Wall hung type ,Jumbo White in colour,made from impact resistant plastic complete with wall fixing screws and one fill of tissues at hand over-all to approval	6	no		
	Total C/F to Next Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Total B/D from Previous Page				
k	Disabled suite				
i	Disabled suite as DOC M : Water closet with a horizontal outlet and back inlet complete with heavy duty seat and cover with stainless steel top fixed hinges and wall hung brackets concealed cistern for wall hung complete with pneumatic single flush front WC actuator and plate in bright chrome plated finish complete with 1/2 inch inlet with inbuilt regulating valve,WC connectors, protection plug for 45mm diameter flush pipe, insulation against condensation for cistern and flush pipe, fastening brackets and frame, protection cover for service opening, P trap outlet. Cistern size 440mm wide by 530 mm high and 120 mm thick as ARMITAGE SHANKS or equal,	2	no		
ii	Semi - recessed wash hand basin with single central taphole , Complete with wash basin electronic infra red sensor pillar tap , Chrome plated waste fitting Cat. No. S8700AA, Chrome plated 32mm bottle trap with 75mm seal Cat No. S8900. 600mm , 4No. 600mm Grab rail Cat. No. S6896 600mm grab rail Cat. No. 6894 for the door , Hinge down grab rail with in built toilet roll holder Cat. No. S6912, Backrest rail 400mmx250mm Cat. No. S6888, and Cushioned back support with clips Cat. No. S6884	2	no		
l	Kitchen Sink: Associated Steel Ltd single bowl kitchen sink size made out of 18SWG 18/8 stainless steel sheet with 450 x 400 x 350mm deep bown in bright machine polish finish. The drainer shall be on the left hand side (insert type)	5	no		
m	Kitchen Sink Accessories				
i	EUROBATH Victoria range Vic -154/G' wall type sink mixer with swivel spout outlet, inlet connections complete with all fittings such as backnuts, washers, compression fittings etc.	5	no		
ii	Chrome plated heavy cast 1 ½' sink grid waste, 70mm diameter flange, 45mm long shank, unslotted with plug, chain and backnut	5	no		
iii	PVC 1 ½ bottle trap with 75mm deep seal and 200mm long tail pipe, cap-nut and wall flange.	5	no		
	Total Sanitaryware to Collection Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
2	<u>INTERNAL COLD WATER SUPPLY</u>				
	Supply, deliver and install PPR PN20 Ariete 20 system of pipes and fittings, Polypropylene Type 3PN20 to DIN 8077-8078 A1 and DVGWE 534 standards with polyfusion welding				
	Tenderers must allow their pipework prices for all the couplings, connectors, unions, nipples, sockets, endcape, bridges, expansion loops, jointing materials etc as required in the running lengths of pipework and also where necessary, for pipe fixing clips, collars, holderbats plugged and screwed and pipe sleeves through structural members.				
a	20mm dia tubing chased in walls/floors and in duct or chased in wall	24	LM		
b	25mm dia ditto	16	LM		
c	32mm dia ditto	16	LM		
d	40mm dia ditto	16	LM		
e	50mm dia ditto	6	LM		
	<u>Extra over PPR tubing as SUPREME for:-</u>				
f	20mm diameter PPR elbow, 90°/45°	8	no.		
g	25mm ditto	6	no.		
h	25mm PPR equal tee	6	no.		
i	25x20x25mm ditto	5	no		
j	32x40x32mm ditto	8	no		
k	25X20mm diameter PPR reducer	6	no		
l	20mm x½' diameter PPR male/female adaptors	12	no		
m	25mm x 1/2' ditto	12	no		
n	40mm x1 1/2' ditto	8	no		
o	20mm x ½' diameter PPR male threaded elbow	8	no		
p	½' diameter Angle Regulating Valve as 'Pex' marking neutral; complete with a 300mm long Flexible Connector as 'Taq' HG 1212 - ½' x ½' diameter with external stainless steel braid.	15	no		
q	50mm dia. approved rising stem full way high pressure flanged gate valve with wheel and jointing to tubing	4	no		
	Total Internal Plumbing to Collection Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
3	FOUL WATER DRAINAGE <i>Supply and fix UPVC to BS 4660 and 4515 and MuPVC waste system to BS 5255 with screwed and socketed joints to BS 21. Solvent welded joints shall be as per the systems manufacturers written instructions.</i> <i>Tenderer must allow in the pipe work prices for all the couplings, connectors, joints etc as required in the running lengths of pipework and also where necessary for pipe fixing clips, holder bats plugged and screwed. The installation must comply with BS 5572.</i> MuPVC Waste System Heavy Gauge Pipework Class 41				
a	32mm diameter waste pipe grey	7	Lm		
b	40mm diameter waste pipe	18	Lm		
c	50mm diameter waste pipe	42	Lm		
d	100mm diameter Light Grey soil pipe	12	Lm		
e	150mm diameter Light Grey soil pipe	4	Lm		
f	100mm diameter Golden Brown buried drain pipe	18	Lm		
g	Extra over MuPVC waste pipework for the following;				
i	32mm diameter 90°/135° sweep bend	4	no		
ii	40mm ditto	8	no		
iii	50mm ditto	4	no		
iv	32mm diameter Wye Tee	6	no		
v	40mm ditto	8	no		
vi	32mm diameter Access plug	4	no		
vii	40mm ditto	4	no		
viii	100mm diameter Light Grey Access Cap	10	no		
xi	100mm diameter Light Grey 90°/135° Sweep Bend	10	no		
h	100x50mm Trapped Floor Gully with 3No.40mm dia.inlets and 50mm diameter outlet c/w 150mm Floor Gully with Stainless Steel gratings and 100mm diameter inlet	7	no		
i	100 mm diameter Light Grey 91¼ degrees Spigot/Socket Bend	10	No.		
j	100 mm diameter Equal Branch	10	No.		
k	100 mm diameter Bend	10	No.		
l	100 mm dia Wc Connector	10	No.		
Total Internal Drainage to Collection Page					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Total B/D from Previous Page				
4.2	<u>PORTABLE FIRE EXTINGUISHERS</u> Supply, install and commission the following portable fire extinguishers complete with initial charge and mounting brackets as per Specifications All Extinguishers must be from manufacturers who are approved by the Fire Protection Association of Kenya.				
a	5kg CO2 fire extinguisher in metal casing and fixed to wall surface uint as 'Angus' or equal and approved with contents gauge	2	No.		
b	9 Litre Water Carbon Dioxide Gas Fire Extinguiusher	2	No.		
c	9 kg dry powder fire extinguisher gas catridge type in metal casing and fixed to wall surface. Uint as 'Angus' ABC all purpose powder or equivalent and approved with content gauge	2	No.		
	Total Hosereels & Fire Extinguishers to Collection Page				
	<u>Ground Floor Collection Page</u>				
i	Totals for Sanitaryware Installations	1	Item		
ii	Totals Plumbing Works Installations	1	Item		
iii	Totals for Drainage Installations	1	Item		
iv	Totals for Hosereel & Portables	1	Item		
	Total Ground Floor Sanitaryware,Plumbing,Drainage & Fire Protection to Summary Page				-

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
3.0	First Floor				
1	SANITARY FITTINGS Supply deliver and install the following appliances including their support brackets , screws etc where necessary items such as mastic, silicon, grouting etc must be included in the rates. All connectins to water supply/waste soil drainage and electrical power supply are to be the responsibility of the contractor and must be priced for. NOTE: TRADE NAMES Where Trade Names are mentioned below, it is only intended to indicate the level of quality anticipated. The contractor MAY supply alternatives which must be approved by the Engineers/Architect.				
a	WC				
i	Lecico' Floor Standing,Low level Pan with open flushing rim with horizontal outlet,seat & cover,fixing screws.	10	no		
ii	WC Flush Valve: 1 1/4 inch,Wall Exposed WC flush valve lever Type as "DONALD FVD 001" Complete with Flush Pipe or equal and approved.	10	no		
b	Wash Hand Basins				
i	Lecico Vanity mounted Wash hand basin,size 500mm basin with 1no centre taphole.	12	no		
c	WHB Accessories				
i	VADO WAR-200' surface mounted metering,delay action pillar tap c/w 1/2" 300mm flex and angle valve as pex	12	no		
ii	pop up waste for typical basins 1 ½ sink grid waste, 70mm diameter flange, 45mm long shank, unslotted with plug, chain and backnut,model name as Tolento.	12	no		
iii	PVC 1¼' bottle trap with 75mm deep seal and 200mm long tail pipe, cap-nut and wall flange	12	no		
	Total C/F to Next Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Total B/D from Previous Page				
d	Robe hook Robe hook in Stainless steel mounted onto a concealed screw to wall/door wedges.	10	no		
e	Mirrors 6mm thick polished plate glass, silver backed mirror with bevelled edges, size 750x600mm plugged and screwed to wall with 4No. Chrome plated chrome capped screws and 5mm thick foam back rest.	12	no		
f	Urinal bowl LECICO' white vitreous china Urinal bowl with concealed pipework complete with pair of bowl supports, Plastics 1 ½ diameter domed outlet plated urinal grating.	5	no		
g	Urinal bowl accessories DOCOL' chrome plated, push button ¾' wall concealed urinal flush valve, back entry with intergral ball-o-stop valve and chrome wall plate complete with; chrome plated urinal flush and inlet adaptor.	5	no		
ii	1½ ' diameter plastic bottle P-Trap with plastic extension pipe to wall and wall flange	5	no		
iii	305mm wide x 620mm high bowl urinal division as ideal standard complete with hangers.	5	no		
h	Soap Dispensers Zalpon Mark 7' 1.136 litres white impact resistant, heavy duty, plastic glued/screwed to wall liquid soap dispenser complete with initial charge, key and mounting brackets.	6	no		
i	Hand Dryers Starmix Automatic Vandal Proof die cast aluminium case Hand Dryer Model No. T80E with a Power supply of 2.3KW 240V 50Hz automatic no-touch automatic infra sensor operated handrier. With delivery of 72 ltrs per second of warm air at 50°C above ambient temperatures at an average air speed of 20.6 m/s and a relative drying time of 35seconds.	6	no		
j	Tissue Dispenser Wall hung type ,Jumbo White in colour,made from impact resistant plastic complete with wall fixing screws and one fill of tissues at hand over-all to approval	6	no		
	Total C/F to Next Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Total B/D from Previous Page				
k	Disabled suite				
i	Disabled suite as DOC M : Water closet with a horizontal outlet and back inlet complete with heavy duty seat and cover with stainless steel top fixed hinges and wall hung brackets concealed cistern for wall hung complete with pneumatic single flush front WC actuator and plate in bright chrome plated finish complete with 1/2 inch inlet with inbuilt regulating valve,WC connectors, protection plug for 45mm diameter flush pipe, insulation against condensation for cistern and flush pipe, fastening brackets and frame, protection cover for service opening, P trap outlet. Cistern size 440mm wide by 530 mm high and 120 mm thick as ARMITAGE SHANKS or equal,	2	no		
ii	Semi - recessed wash hand basin with single central taphole , Complete with wash basin electronic infra red sensor pillar tap , Chrome plated waste fitting Cat. No. S8700AA, Chrome plated 32mm bottle trap with 75mm seal Cat No. S8900. 600mm , 4No. 600mm Grab rail Cat. No. S6896 600mm grab rail Cat. No. 6894 for the door , Hinge down grab rail with in built toilet roll holder Cat. No. S6912, Backrest rail 400mmx250mm Cat. No. S6888, and Cushioned back support with clips Cat. No. S6884	2	no		
k	2100 WATTS LORENZETTI ' instantaneous shower heater complete with a big spreader header, hose pin and hose holder as manufactured from Brazil (Power and dp switch to be provided by the electrical sub-contractor) complete with 1/2" Stop cock & 1/2" Spout	1	no		
l	Bathroom Accessories				
i	Built-in toilet roll holder 170mm as Dali	1	no		
ii	48mm diameter x 630mm long chrome plated towel rail screwed to wall as Dali	1	no		
iii	Soap basket as Dali	1	no		
	Total Sanitaryware to Collection Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
2	<u>INTERNAL COLD WATER SUPPLY</u>				
	Supply, deliver and install PPR PN20 Ariete 20 system of pipes and fittings, Polypropylene Type 3PN20 to DIN 8077-8078 A1 and DVGWE 534 standards with polyfusion welding				
	Tenderers must allow their pipework prices for all the couplings, connectors, unions, nipples, sockets, endcape, bridges, expansion loops, jointing materials etc as required in the running lengths of pipework and also where necessary, for pipe fixing clips, collars, holderbats plugged and screwed and pipe sleeves through structural members.				
a	20mm dia tubing chased in walls/floors and in duct or chased in wall	32	LM		
b	25mm dia ditto	24	LM		
c	32mm dia ditto	24	LM		
d	40mm dia ditto	24	LM		
e	50mm dia ditto	9	LM		
	<u>Extra over PPR tubing as SUPREME for:-</u>				
f	20mm diameter PPR elbow, 90°/45°	12	no.		
g	25mm ditto	9	no.		
h	25mm PPR equal tee	9	no.		
i	25x20x25mm ditto	8	no		
j	32x40x32mm ditto	12	no		
k	25X20mm diameter PPR reducer	9	no		
l	20mm x½' diameter PPR male/female adaptors	15	no		
m	25mm x 1/2' ditto	14	no		
n	40mm x1 1/2' ditto	12	no		
o	20mm x ½' diameter PPR male threaded elbow	10	no		
p	½' diameter Angle Regulating Valve as 'Pex' marking neutral; complete with a 300mm long Flexible Connector as 'Taq' HG 1212 - ½' x ½' diameter with external stainless steel braid.	15	no		
q	50mm dia. approved rising stem full way high pressure flanged gate valve with wheel and jointing to tubing	4	no		
	Total Internal Plumbing to Collection Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
3	FOUL WATER DRAINAGE <i>Supply and fix UPVC to BS 4660 and 4515 and MuPVC waste system to BS 5255 with screwed and socketed joints to BS 21. Solvent welded joints shall be as per the systems manufacturers written instructions.</i> <i>Tenderer must allow in the pipe work prices for all the couplings, connectors, joints etc as required in the running lengths of pipework and also where necessary for pipe fixing clips, holder bats plugged and screwed. The installation must comply with BS 5572.</i> MuPVC Waste System Heavy Gauge Pipework Class 41				
a	32mm diameter waste pipe grey	12	Lm		
b	40mm diameter waste pipe	36	Lm		
c	50mm diameter waste pipe	54	Lm		
d	100mm diameter Light Grey soil pipe	12	Lm		
e	150mm diameter Light Grey soil pipe	4	Lm		
f	100mm diameter Golden Brown buried drain pipe	18	Lm		
g	Extra over MuPVC waste pipework for the following;				
i	32mm diameter 90°/135° sweep bend	6	no		
ii	40mm ditto	12	no		
iii	50mm ditto	4	no		
iv	32mm diameter Wye Tee	10	no		
v	40mm ditto	10	no		
vi	32mm diameter Access plug	6	no		
vii	40mm ditto	4	no		
viii	100mm diameter Light Grey Access Cap	12	no		
xi	100mm diameter Light Grey 90°/135° Sweep Bend	12	no		
h	100x50mm Trapped Floor Gully with 3No.40mm dia.inlets and 50mm diameter outlet c/w 150mm Floor Gully with Stainless Steel gratings and 100mm diameter inlet	7	no		
i	100 mm diameter Light Grey 91¼ degrees Spigot/Socket Bend	12	No.		
j	100 mm diameter Equal Branch	12	No.		
k	100 mm diameter Bend	12	No.		
l	100 mm dia Wc Connector	12	No.		
Total Internal Drainage to Collection Page					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Total B/D from Previous Page				
4.2	<u>PORTABLE FIRE EXTINGUISHERS</u> Supply, install and commission the following portable fire extinguishers complete with initial charge and mounting brackets as per Specifications All Extinguishers must be from manufacturers who are approved by the Fire Protection Association of Kenya.				
a	5kg CO2 fire extinguisher in metal casing and fixed to wall surface uint as 'Angus' or equal and approved with contents gauge	2	No.		
b	9 Litre Water Carbon Dioxide Gas Fire Extinguiusher	2	No.		
c	9 kg dry powder fire extinguisher gas catridge type in metal casing and fixed to wall surface. Uint as 'Angus' ABC all purpose powder or equivalent and approved with content gauge	2	No.		
	Total Hosereels & Fire Extinguishers to Collection Page				
	<u>First Floor Collection Page</u>				
i	Totals for Sanitaryware Installations	1	Item		
ii	Totals Plumbing Works Installations	1	Item		
iii	Totals for Drainage Installations	1	Item		
iv	Totals for Hosereel & Portables	1	Item		
	Total First Floor Sanitaryware,Plumbing,Drainage & Fire Protection to Summary Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
4.0	Second Floor				
1	SANITARY FITTINGS Supply deliver and install the following appliances including their support brackets , screws etc where necessary items such as mastic, silicon, grouting etc must be included in the rates. All connectins to water supply/waste soil drainage and electrical power supply are to be the responsibility of the contractor and must be priced for. NOTE: TRADE NAMES Where Trade Names are mentioned below, it is only intended to indicate the level of quality anticipated. The contractor MAY supply alternatives which must be approved by the Engineers/Architect.				
a	WC				
i	Lecico' Floor Standing,Low level Pan with open flushing rim with horizontal outlet,seat & cover,fixing screws.	9	no		
ii	WC Flush Valve: 1 1/4 inch,Wall Exposed WC flush valve lever Type as "DONALD FVD 001" Complete with Flush Pipe or equal and approved.	9	no		
b	Wash Hand Basins				
i	Lecico Vanity mounted Wash hand basin,size 500mm basin with 1no centre taphole.	11	no		
c	WHB Accessories				
i	VADO WAR-200' surface mounted metering,delay action pillar tap c/w 1/2" 300mm flex and angle valve as pex	11	no		
ii	pop up waste for typical basins 1 ½ sink grid waste, 70mm diameter flange, 45mm long shank, unslotted with plug, chain and backnut,model name as Tolento.	11	no		
iii	PVC 1¼' bottle trap with 75mm deep seal and 200mm long tail pipe, cap-nut and wall flange	11	no		
	Total C/F to Next Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Total B/D from Previous Page				
d	Robe hook Robe hook in Stainless steel mounted onto a concealed screw to wall/door wedges.	9	no		
e	Mirrors 6mm thick polished plate glass, silver backed mirror with bevelled edges, size 750x600mm plugged and screwed to wall with 4No. Chrome plated chrome capped screws and 5mm thick foam back rest.	11	no		
f	Urinal bowl LECICO' white vitreous china Urinal bowl with concealed pipework complete with pair of bowl supports, Plastics 1 ½ diameter domed outlet plated urinal grating.	5	no		
g	Urinal bowl accessories DOCOL' chrome plated, push button ¾' wall concealed urinal flush valve, back entry with intergral ball-o-stop valve and chrome wall plate complete with; chrome plated urinal flush and inlet adaptor.	5	no		
ii	1½ ' diameter plastic bottle P-Trap with plastic extension pipe to wall and wall flange	5	no		
iii	305mm wide x 620mm high bowl urinal division as ideal standard complete with hangers.	5	no		
h	Soap Dispensers Zalpon Mark 7' 1.136 litres white impact resistant, heavy duty, plastic glued/screwed to wall liquid soap dispenser complete with initial charge, key and mounting brackets.	6	no		
i	Hand Dryers Starmix Automatic Vandal Proof die cast aluminium case Hand Dryer Model No. T80E with a Power supply of 2.3KW 240V 50Hz automatic no-touch automatic infra sensor operated handrier. With delivery of 72 ltrs per second of warm air at 50°C above ambient temperatures at an average air speed of 20.6 m/s and a relative drying time of 35seconds.	6	no		
j	Tissue Dispenser Wall hung type ,Jumbo White in colour,made from impact resistant plastic complete with wall fixing screws and one fill of tissues at hand over-all to approval	6	no		
	Total C/F to Next Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Total B/D from Previous Page				
k	Disabled suite				
i	Disabled suite as DOC M : Water closet with a horizontal outlet and back inlet complete with heavy duty seat and cover with stainless steel top fixed hinges and wall hung brackets concealed cistern for wall hung complete with pneumatic single flush front WC actuator and plate in bright chrome plated finish complete with 1/2 inch inlet with inbuilt regulating valve,WC connectors, protection plug for 45mm diameter flush pipe, insulation against condensation for cistern and flush pipe, fastening brackets and frame, protection cover for service opening, P trap outlet. Cistern size 440mm wide by 530 mm high and 120 mm thick as ARMITAGE SHANKS or equal,	2	no		
ii	Semi - recessed wash hand basin with single central taphole , Complete with wash basin electronic infra red sensor pillar tap , Chrome plated waste fitting Cat. No. S8700AA, Chrome plated 32mm bottle trap with 75mm seal Cat No. S8900. 600mm , 4No. 600mm Grab rail Cat. No. S6896 600mm grab rail Cat. No. 6894 for the door , Hinge down grab rail with in built toilet roll holder Cat. No. S6912, Backrest rail 400mmx250mm Cat. No. S6888, and Cushioned back support with clips Cat. No. S6884	2	no		
	Total Sanitaryware to Collection Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
2	<u>INTERNAL COLD WATER SUPPLY</u>				
	Supply, deliver and install PPR PN20 Ariete 20 system of pipes and fittings, Polypropylene Type 3PN20 to DIN 8077-8078 A1 and DVGWE 534 standards with polyfusion welding				
	Tenderers must allow their pipework prices for all the couplings, connectors, unions, nipples, sockets, endcape, bridges, expansion loops, jointing materials etc as required in the running lengths of pipework and also where necessary, for pipe fixing clips, collars, holderbats plugged and screwed and pipe sleeves through structural members.				
a	20mm dia tubing chased in walls/floors and in duct or chased in wall	30	LM		
b	25mm dia ditto	21	LM		
c	32mm dia ditto	21	LM		
d	40mm dia ditto	21	LM		
e	50mm dia ditto	7	LM		
	<u>Extra over PPR tubing as SUPREME for:-</u>				
f	20mm diameter PPR elbow, 90°/45°	10	no.		
g	25mm ditto	7	no.		
h	25mm PPR equal tee	7	no.		
i	25x20x25mm ditto	8	no		
j	32x40x32mm ditto	10	no		
k	25X20mm diameter PPR reducer	7	no		
l	20mm x½' diameter PPR male/female adaptors	12	no		
m	25mm x 1/2' ditto	12	no		
n	40mm x1 1/2' ditto	11	no		
o	20mm x ½' diameter PPR male threaded elbow	10	no		
p	½' diameter Angle Regulating Valve as 'Pex' marking neutral; complete with a 300mm long Flexible Connector as 'Taq' HG 1212 - ½' x ½' diameter with external stainless steel braid.	17	no		
q	50mm dia. approved rising stem full way high pressure flanged gate valve with wheel and jointing to tubing	4	no		
	Total Internal Plumbing to Collection Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
3	FOUL WATER DRAINAGE <i>Supply and fix UPVC to BS 4660 and 4515 and MuPVC waste system to BS 5255 with screwed and socketed joints to BS 21. Solvent welded joints shall be as per the systems manufacturers written instructions.</i> <i>Tenderer must allow in the pipe work prices for all the couplings, connectors, joints etc as required in the running lengths of pipework and also where necessary for pipe fixing clips, holder bats plugged and screwed. The installation must comply with BS 5572.</i> MuPVC Waste System Heavy Gauge Pipework Class 41				
a	32mm diameter waste pipe grey	12	Lm		
b	40mm diameter waste pipe	36	Lm		
c	50mm diameter waste pipe	24	Lm		
d	100mm diameter Light Grey soil pipe	12	Lm		
e	150mm diameter Light Grey soil pipe	4	Lm		
f	100mm diameter Golden Brown buried drain pipe	15	Lm		
g	Extra over MuPVC waste pipework for the following;				
i	32mm diameter 90°/135° sweep bend	6	no		
ii	40mm ditto	12	no		
iii	50mm ditto	4	no		
iv	32mm diameter Wye Tee	10	no		
v	40mm ditto	11	no		
vi	32mm diameter Access plug	6	no		
vii	40mm ditto	4	no		
viii	100mm diameter Light Grey Access Cap	11	no		
xi	100mm diameter Light Grey 90°/135° Sweep Bend	11	no		
h	100x50mm Trapped Floor Gully with 3No.40mm dia.inlets and 50mm diameter outlet c/w 150mm Floor Gully with Stainless Steel gratings and 100mm diameter inlet	6	no		
i	100 mm diameter Light Grey 91¼ degrees Spigot/Socket Bend	11	No.		
j	100 mm diameter Equal Branch	11	No.		
k	100 mm diameter Bend	11	No.		
l	100 mm dia Wc Connector	11	No.		
Total Internal Drainage to Collection Page					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Total B/D from Previous Page				
4.2	<u>PORTABLE FIRE EXTINGUISHERS</u> Supply, install and commission the following portable fire extinguishers complete with initial charge and mounting brackets as per Specifications All Extinguishers must be from manufacturers who are approved by the Fire Protection Association of Kenya.				
a	5kg CO2 fire extinguisher in metal casing and fixed to wall surface uint as 'Angus' or equal and approved with contents gauge	2	No.		
b	9 Litre Water Carbon Dioxide Gas Fire Extinguiusher	2	No.		
c	9 kg dry powder fire extinguisher gas catridge type in metal casing and fixed to wall surface. Uint as 'Angus' ABC all purpose powder or equivalent and approved with content gauge	2	No.		
	Total Hosereels & Fire Extinguishers to Collection Page				
	<u>Second Floor Collection Page</u>				
i	Totals for Sanitaryware Installations	1	Item		
ii	Totals Plumbing Works Installations	1	Item		
iii	Totals for Drainage Installations	1	Item		
iv	Totals for Hosereel & Portables	1	Item		
	Total Second Floor Sanitaryware,Plumbing,Drainage & Fire Protection to Summary Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
5.0	Third Floor				
1	SANITARY FITTINGS Supply deliver and install the following appliances including their support brackets , screws etc where necessary items such as mastic, silicon, grouting etc must be included in the rates. All connectins to water supply/waste soil drainage and electrical power supply are to be the responsibility of the contractor and must be priced for. NOTE: TRADE NAMES Where Trade Names are mentioned below, it is only intended to indicate the level of quality anticipated. The contractor MAY supply alternatives which must be approved by the Engineers/Architect.				
a	WC				
i	Lecico' Floor Standing,Low level Pan with open flushing rim with horizontal outlet,seat & cover,fixing screws.	11	no		
ii	WC Flush Valve: 1 1/4 inch,Wall Exposed WC flush valve lever Type as "DONALD FVD 001" Complete with Flush Pipe or equal and approved.	11	no		
b	Wash Hand Basins				
i	Lecico Vanity mounted Wash hand basin,size 500mm basin with 1no centre taphole.	13	no		
c	WHB Accessories				
i	VADO WAR-200' surface mounted metering,delay action pillar tap c/w 1/2" 300mm flex and angle valve as pex	13	no		
ii	pop up waste for typical basins 1 ½ sink grid waste, 70mm diameter flange, 45mm long shank, unslotted with plug, chain and backnut,model name as Tolento.	13	no		
iii	PVC 1¼' bottle trap with 75mm deep seal and 200mm long tail pipe, cap-nut and wall flange	13	no		
	Total C/F to Next Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Total B/D from Previous Page				
d	Robe hook Robe hook in Stainless steel mounted onto a concealed screw to wall/door wedges.	11	no		
e	Mirrors 6mm thick polished plate glass, silver backed mirror with bevelled edges, size 750x600mm plugged and screwed to wall with 4No. Chrome plated chrome capped screws and 5mm thick foam back rest.	13	no		
f	Urinal bowl LECICO' white vitreous china Urinal bowl with concealed pipework complete with pair of bowl supports, Plastics 1 ½ diameter domed outlet plated urinal grating.	5	no		
g	Urinal bowl accessories DOCOL' chrome plated, push button ¾' wall concealed urinal flush valve, back entry with intergral ball-o-stop valve and chrome wall plate complete with; chrome plated urinal flush and inlet adaptor.	5	no		
ii	1½ ' diameter plastic bottle P-Trap with plastic extension pipe to wall and wall flange	5	no		
iii	305mm wide x 620mm high bowl urinal division as ideal standard complete with hangers.	5	no		
h	Soap Dispensers Zalpon Mark 7' 1.136 litres white impact resistant, heavy duty, plastic glued/screwed to wall liquid soap dispenser complete with initial charge, key and mounting brackets.	6	no		
i	Hand Dryers Starmix Automatic Vandal Proof die cast aluminium case Hand Dryer Model No. T80E with a Power supply of 2.3KW 240V 50Hz automatic no-touch automatic infra sensor operated handrier. With delivery of 72 ltrs per second of warm air at 50°C above ambient temperatures at an average air speed of 20.6 m/s and a relative drying time of 35seconds.	6	no		
j	Tissue Dispenser Wall hung type ,Jumbo White in colour,made from impact resistant plastic complete with wall fixing screws and one fill of tissues at hand over-all to approval	6	no		
	Total C/F to Next Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Total B/D from Previous Page				
k	Disabled suite				
i	Disabled suite as DOC M : Water closet with a horizontal outlet and back inlet complete with heavy duty seat and cover with stainless steel top fixed hinges and wall hung brackets concealed cistern for wall hung complete with pneumatic single flush front WC actuator and plate in bright chrome plated finish complete with 1/2 inch inlet with inbuilt regulating valve,WC connectors, protection plug for 45mm diameter flush pipe, insulation against condensation for cistern and flush pipe, fastening brackets and frame, protection cover for service opening, P trap outlet. Cistern size 440mm wide by 530 mm high and 120 mm thick as ARMITAGE SHANKS or equal,	2	no		
ii	Semi - recessed wash hand basin with single central taphole , Complete with wash basin electronic infra red sensor pillar tap , Chrome plated waste fitting Cat. No. S8700AA, Chrome plated 32mm bottle trap with 75mm seal Cat No. S8900. 600mm , 4No. 600mm Grab rail Cat. No. S6896 600mm grab rail Cat. No. 6894 for the door , Hinge down grab rail with in built toilet roll holder Cat. No. S6912, Backrest rail 400mmx250mm Cat. No. S6888, and Cushioned back support with clips Cat. No. S6884	2	no		
k	2100 WATTS LORENZETTI ' instantaneous shower heater complete with a big spreader header, hose pin and hose holder as manufactured from Brazil (Power and dp switch to be provided by the electrical sub-contractor) complete with 1/2" Stop cock & 1/2" Spout	2	no		
l	Bathroom Accessories				
i	Built-in toilet roll holder 170mm as Dali	2	no		
ii	48mm diameter x 630mm long chrome plated towel rail screwed to wall as Dali	2	no		
iii	Soap basket as Dali	2	no		
	Total Sanitaryware to Collection Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
2	<u>INTERNAL COLD WATER SUPPLY</u>				
	Supply, deliver and install PPR PN20 Ariete 20 system of pipes and fittings, Polypropylene Type 3PN20 to DIN 8077-8078 A1 and DVGWE 534 standards with polyfusion welding				
	Tenderers must allow their pipework prices for all the couplings, connectors, unions, nipples, sockets, endcape, bridges, expansion loops, jointing materials etc as required in the running lengths of pipework and also where necessary, for pipe fixing clips, collars, holderbats plugged and screwed and pipe sleeves through structural members.				
a	20mm dia tubing chased in walls/floors and in duct or chased in wall	32	LM		
b	25mm dia ditto	96	LM		
c	32mm dia ditto	84	LM		
d	40mm dia ditto	44	LM		
e	50mm dia ditto	9	LM		
	<u>Extra over PPR tubing as SUPREME for:-</u>				
f	20mm diameter PPR elbow, 90°/45°	42	no.		
g	25mm ditto	18	no.		
h	25mm PPR equal tee	32	no.		
i	25x20x25mm ditto	18	no		
j	32x40x32mm ditto	18	no		
k	25X20mm diameter PPR reducer	28	no		
l	20mm x½' diameter PPR male/female adaptors	32	no		
m	25mm x 1/2' ditto	33	no		
n	40mm x1 1/2' ditto	18	no		
o	20mm x ½' diameter PPR male threaded elbow	34	no		
p	½' diameter Angle Regulating Valve as 'Pex' marking neutral; complete with a 300mm long Flexible Connector as 'Taq' HG 1212 - ½' x ½' diameter with external stainless steel braid.	62	no		
q	50mm dia. approved rising stem full way high pressure flanged gate valve with wheel and jointing to tubing	14	no		
	Total Internal Plumbing to Collection Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
3	FOUL WATER DRAINAGE <i>Supply and fix UPVC to BS 4660 and 4515 and MuPVC waste system to BS 5255 with screwed and socketed joints to BS 21. Solvent welded joints shall be as per the systems manufacturers written instructions.</i> <i>Tenderer must allow in the pipe work prices for all the couplings, connectors, joints etc as required in the running lengths of pipework and also where necessary for pipe fixing clips, holder bats plugged and screwed. The installation must comply with BS 5572.</i> MuPVC Waste System Heavy Gauge Pipework Class 41				
a	32mm diameter waste pipe grey	12	Lm		
b	40mm diameter waste pipe	43	Lm		
c	50mm diameter waste pipe	36	Lm		
d	100mm diameter Light Grey soil pipe	12	Lm		
e	150mm diameter Light Grey soil pipe	4	Lm		
f	100mm diameter Golden Brown buried drain pipe	18	Lm		
g	Extra over MuPVC waste pipework for the following;				
i	32mm diameter 90°/135° sweep bend	8	no		
ii	40mm ditto	16	no		
iii	50mm ditto	4	no		
iv	32mm diameter Wye Tee	10	no		
v	40mm ditto	10	no		
vi	32mm diameter Access plug	6	no		
vii	40mm ditto	4	no		
viii	100mm diameter Light Grey Access Cap	12	no		
xi	100mm diameter Light Grey 90°/135° Sweep Bend	12	no		
h	100x50mm Trapped Floor Gully with 3No.40mm dia.inlets and 50mm diameter outlet c/w 150mm Floor Gully with Stainless Steel gratings and 100mm diameter inlet	12	no		
i	100 mm diameter Light Grey 91¼ degrees Spigot/Socket Bend	11	No.		
j	100 mm diameter Equal Branch	11	No.		
k	100 mm diameter Bend	11	No.		
l	100 mm dia Wc Connector	11	No.		
Total Internal Drainage to Collection Page					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Total B/D from Previous Page				
4.2	<u>PORTABLE FIRE EXTINGUISHERS</u> Supply, install and commission the following portable fire extinguishers complete with initial charge and mounting brackets as per Specifications All Extinguishers must be from manufacturers who are approved by the Fire Protection Association of Kenya.				
a	5kg CO2 fire extinguisher in metal casing and fixed to wall surface uint as 'Angus' or equal and approved with contents gauge	2	No.		
b	9 Litre Water Carbon Dioxide Gas Fire Extinguiusher	2	No.		
c	9 kg dry powder fire extinguisher gas catridge type in metal casing and fixed to wall surface. Uint as 'Angus' ABC all purpose powder or equivalent and approved with content gauge	2	No.		
	Total Hosereels & Fire Extinguishers to Collection Page				
	<u>Third Floor Collection Page</u>				
i	Totals for Sanitaryware Installations	1	Item		
ii	Totals Plumbing Works Installations	1	Item		
iii	Totals for Drainage Installations	1	Item		
iv	Totals for Hosereel & Portables	1	Item		
	Total Third Floor Sanitaryware,Plumbing,Drainage & Fire Protection to Summary Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
6	<u>Roof Plan</u>				
1	<u>INTERNAL COLD WATER SUPPLY</u> Supply, deliver and install PPR PN20 Ariete 20 system of pipes and fittings, Polypropylene Type 3PN20 to DIN 8077-8078 A1 and DVGWE 534 standards with polyfusion welding Tenderers must allow their pipework prices for all the couplings, connectors, unions, nipples, sockets, endcape, bridges, expansion loops, jointing materials etc as required in the running lengths of pipework and also where necessary, for pipe fixing clips, collars, holderbats plugged and screwed and pipe sleeves through structural members.				
a	100mm dia. ubing chased in walls/floors and in duct or chased in wall	144	LM		
b	75mm dia ditto	42	LM		
c	50mm dia ditto	24	LM		
d	40mm dia. – Ditto	18	LM		
e	<u>REDUCERS</u>				
i	100x75mm dia Reducer	4	NO		
ii	100x50mm dia Reducer	12	NO		
iii	75x50mm dia Reducer	4	NO		
iv	50x40mm dia Reducer	4	NO		
f	<u>TEES</u>				
i	100mm dia equal	14	NO		
ii	75mm dia. Ditto	6	NO		
iii	50mm dia. – Ditto	2	NO		
g	<u>VALVES</u>				
i	100mm dia. approved rising stem full way high pressure flanged gate valve with wheel and jointing to tubing	2	NO		
ii	75mm dia. – ditto	4	NO		
ii	50mm dia. – ditto	12	NO		
iii	40mm dia. – ditto	4	NO		
	Total C/F to Next Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Total B/D from Previous Page				
h	<u>BENDS/ELBOWS</u>				
i	100mm dia. Bend/Elbows	4	NO		
ii	75mm dia. Bend/Elbows	4	NO		
iii	50mm dia. – ditto	12	NO		
iv	40mm dia. – ditto	4	NO		
i	Pressed Steel Roof Tanks Assemble a ground level water tank made of HEAVY GALVANIZED Pressed steel sectional tank plates 5.0mm thick plates (type 1 and 2) and of size 1000mm x 1000mm capacity of Tank to be 55,500 litres of dimensions 6x5x2m . The Tank to come complete with tank cover, mosquito proof inspection vent, internal stays, jointing material, bolts and nuts including below provisions:-	1	NO		
i	Level regulator(high pressure ball valve)	1	NO		
ii	Internal ladder	1	NO		
iii	External ladder for tank platform	1	NO		
iv	50mm diameter inlet pipe	1	No.		
v	100mm diameter Outlet pipe (for Domestic pump & Fire)	1	No.		
vi	100mm dia ditto (drain pipe and vent)	1	No.		
vii	75mm dia Overflow	1	No.		
viii	25mm dia (for level indicator)	1	No.		
ix	25mm dia (float switch)	1	No.		
j	Domestic Water pressurisation pump set comprising of Pump sequence control ensuring that system demand is met in the most efficient way as well as an auto pump to equalise operating hours. _Dry run protection by float or pressure switch with selectable auto restart. _Protection functions including max number of starts per hour, minimum cycle times, over pressure and motor over current and all connecting wiring and piping. The System shall be capable of flow rate: 10.0 m³/Hr & head: 1.5 bar as DAB ESYTWIN Pumpset, comprising of Esybox 2no . Complete with Twin docking station or equal and approved.	1	NO		
	Total Plumbing on the roof to Collection Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
2	<u>EXTERNAL SOIL AND WASTE DRAINAGE</u> Supply and install the following Soil and Waste water drainage pipework as described and shown on the drawings.All pipes and fittings in this installation shall be UPVC and PVC to BS 5572:1978 and BS 5750 as Manufactured by"Key Terrain" or equal and approved.All jointings and fixtures shall be in accordance with the manufacturers instructions and as described.Tenders must allow for jointings,clippings,couplings,holderbats,pluggings ,reducers,spacers etc,necessary for the proper functioning of the installation when pricing.				
a	100mm diameter Light Grey soil pipe(in ducts)	18	LM		
b	<u>Extra over uPVC pipe for:-</u>				
i	100mm diameter Light Grey 90°/135° Sweep Bend	18	No.		
ii	100 mm diameter Light Grey 91¼ degrees Spigot/Socket Bend	18	No.		
iii	100mm dia sweep tee	18	No.		
iv	100mm dia short bend	18	No.		
c	100mm diameter Light Grey Weathering Slate	18	No.		
d	100mm diameter Light Grey Vent Cowl	18	No.		
<i>TotalFoul Drainage on the roof to Collection Page</i>					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
3	<u>ROOF RAIN WATER DRAINAGE</u> Supply and install the following Soil and Waste water drainage pipework as described and shown on the drawings.All pipes and fittings in this installation shall be UPVC and PVC to BS 5572:1978 and BS 5750 as Manufactured by"Key Terrain" or equal and approved.All jointings and fixtures shall be in accordance with the manufacturers instructions and as described.Tenders must allow for jointings,clippings,couplings,holderbats,pluggings ,reducers,spacers etc,necessary for the proper functioning of the installation when pricing.				
3.1	RAIN WATER DOWN PIPES				
a	100mm diameter Grey Upvc Pipe	36	Lm		
b	Fulbora outlet: 100mm diameter coned fulbora outlet of cast iron or other approved material and to take 110mm uPVC other approved material and to take 110mm uPVC piping including adaptor	19	No.		
c	100mm dia short bend	38	No.		
	TotalRain Water Drainage on the roof to Collection Page				

P 42

PROPOSED RONGO UNIVERSITY AIR CONDITIONING SYSTEM BILLS OF QUANTITIES

2.0	AIR HANDLING UNIT FOR AUDITORIUM AIR CONDITIONING Hygienic Air Handling Unit (AHU), for outdoor mounting. AHU to be capable of consistently providing air at a controllable, settable, Cooling/Heating capacity of 64.1/59Kw and air flow rate of between 7,500m³/hr and 14,800m³/hr at a pressure of 250Pa as Daikin/Carrier and at a regulated, settable, relative humidity of between 40% and 70%. Said pressure is output pressure of AHU, and does not account for AHU internal pressure losses. AHU to be CE and EuroVent certified and to be in compliance with HTM03-01, EN1886:2008, EN13053, EN779, EN308, EN1216, EN327 and AHU Guideline 01. AHU to come complete with 2 No., identical duty/standby plug fans for supply air, and 2 No. identical duty/standby plug fans for return/exhaust side. Outdoor AHU is mainly composed of: self-supporting frame with extruded section bars in double-wall aluminium camera for recessed screws. Section bar thickness 40 mm - Extruded gasket on panel and rounded interior. Double-wall sheet metal panels thickness 50 mm suitable for outdoor installation. Internal on AISI 304 stainless steel, external on plastic-coated galvanised steel. Insulation on injected polyurethane average density 80 kg/m³. With aluminium profile base frame. The base-plate shall be provided with spring shock-isolating mountings. The return section to include: prefilter cleanable; plug fan with double inlet and motor, inverter; silencers for return air; return air damper aluminium material; sand trap filter at the inlet. The supply section will be provided with: prefilter cleanable (G4 filter); flexible bag filters (F7 filters), Direct Expansion heating coil; Direct Expansion cooling coil; electrical steam humidifier; droplet eliminator; heating coil; plug electric fans, duty/standby with double inlet and motor, inverter; damper; silencers for supply air. It is included the protection canopy over the AHU. On board control system complete with electrical panel, thermostats, pressure probes, temperature probes, humidity probes, differential pressure switch. Also included the protection cabinet for servo actuated valves and control board.				
	Total C/F to Next Page				

Total B/D from Previous Page				
	Control System: AHU to come complete with pre-installed, pre-configured, fully integrated control system. Controller to come with panel (Human-Machine Interface) with real-time display of operating data, set points, alarms, operating status and time settings. Control system to be capable of performing the following: Temperature control of supply air and room conditions, relative humidity control, dew point control, constant air volume control, enthalpy control, excessive pressure drop alarm, heat recovery control, run-around coil heat exchanger control, electric heater control, integration of DX coil with outdoor condensing unit, fresh / return / bypass / mixing / supply air damper control, redundancy control for EC fans, AHU shut-off from external fire signal, open protocol (BACnet/Modbus over RS 485/LON) to communicate with BMS, possibility of remote access of control system via WEB, possibility of adding additional control/alarm points per user requirement, logging of various parameters, VAV integration. Control system to come complete with control panel, to be mounted at an appropriate location, as Tracer TD7 display, from Carrier, or an approved equivalent or better.	1	Item	
iii	Allow for Hoisting/Positioning of the outdoor units to their accurate position on the roof.	1	Item	
iv	Allow for Electrical works associated with above Works	1	Item	
b	DIFFUSERS & ACCESSORIES			
i	<u>AIR SUPPLY GRILLES</u> Supply and install TSF louvre faced diffusers for ceiling with a connection transition KRC and plenum box, removable damper for air control as accessories. The diffusers shall be manufactured from aluminium with a white powder coated finish (RAL 9010) measuring 600*600 "KVRADA".The connection transition will be manufactured from galvanised sheet metal and OBD's.	8	no.	
ii	<u>RETURN/EXTRACT AIR DIFFUSERS</u> Supply & install TSF louvre faced air return diffusers connected to a plenum box and flexible connector in white powder coat measuring 600*600	8	no.	
Total C/F to Next Page				

[illegible]

3.0	SERVERROOM PRECISION COOLING				
a i	Supply & install precision air conditioning unit of nominal cooling capacity as 19kw @ 30 deg centgrade with humidifier of capacity 0.6Kg/hr, down flow configuration and with initial charge of refrigerant as R410A ,complete with electric heating units in Epoxy baked powder coated and microprocessor control compatible to BMS with digital display/touch pad and alert for alarms,provision for fire alarm interface,water detection alarm system.The above to be floor standing adjustable to +/-25mm as AIRDALE DF17X-EZRE-0 or equal and approved.	1	NO		
ii	Allow for refrigerant pipework complete with lagging 7/8 “ refrigerant pipes and lagging (gas line)	12	Lm		
iii	3/8” refrigerant pipe (liquid line)	1	Lm		
iv	Refrigerant pipe trunking where they are exposed	12	Lm		
v	Drain 32mm dia PVC pipe complete with fittings	12	Lm		
vi	Electrical: Allow for associated Electrical works from the isolator to the A/C and from indoor unit to outdoor unit.	1	Item		
vi	Surge Protector: Power surge protector as SOLATEC to suite	1	No.		
vii	Mounting Bracket: Mounting bracket for the outdoor units to suite	1	No.		
viii	Servicing: Allow for quarterly servicing for a period of six month after defect liability period	1	Item		
ix	GSM/Email Module complete with Temperature and Humidity Sensor (With Free 1 Year Subscription)	1	Item		
x	Control Unit for automatic changeover of the two units as load dictates	1	Item		
xi	Allow for Electrical Connections for the unit from the Local Isolators	1	Item		
xii	Allow for setting to work,testing and commissioning of the entire system	1	Item		
	Total C/F to Next Page				

Total B/D from Previous Page					
b	<u>SINGLE SPLIT AIR-CONDITIONING SYSTEM</u>				
i	Supply, deliver and install Wall hung air conditioner units (cooling type) complete with a wireless remote controller, indoor and outdoor units as SAMSUNG or equal and approved Cooling capacity: 7.1kW (24000 BTU/hr)	2	no.		
ii	Supply, deliver and install 30 Amps Automatic Voltage Stabilisers as 'Sollatek'	2	no.		
iii	Allow for Aluminium coated wall mounting brackets for outdoor units c/w mounting rubbers, rawl bolts and other accessories.	2	lot		
iv	Allow for 3/8 and 5/8 refrigerant gas pipes complete with amarfex insulation	12	lm		
v	Allow for 2.5mm ² x 3 core flexible cable by "East Africa Cables" or equal and approved.	12	lm		
vi	Allow for all Electrical Connection from local DB switch to the equipment including all controls	2	Item		
vii	Control Unit for automatic changeover of the two units as load dictates	1	Item		
viii	CONDENSATE DRAINAGE PIPES				
i	Supply, deliver and install the condensate uPVC drainage piping and armaflex insulation Ø32mm ditto	18	lm		
Total Serverroom Air Conditioning Installations					

4	<u>Toilet Mechanical Extraction System</u>				
i	Supply and install 150mm diameter in-line mixed flow duct fans of capacity 200m³/hr as S&P model no. TD-350/125 Silent.	14	No		
ii	Supply and install Class 41 Upvc Ducting with necessary brackets, hangers/fixtures etc bends, reducers, transformations, support brackets, hangers/fixtures etc.complete as per the attached drawings.	120	LM		
iii	Supply and install Double Defflection Extract Diffuser with Opposed Blade Volume Control Damper and Grille Box - Size dia 150mm	48	No		
iv	Supply and install Flexible Duct 150mm Dia	48	LM		
v	Supply and install Extract Louver with Filter 300 x 300mm	14	No		
vi	Supply and install Fire Shutter Damper with fusible link 300 x 300x 300mm	14	No		
vii	Supply and install Volume Control Damper 300 x 300mm	14	No		
viii	Allow for Electrical Connections for the Fans from the Local Isolators	14	Item		
ix	Allow for Testing and Commissioning of the System	1	Item		
	<i>Total Mechanical Ventilation Installations to Summary Page</i>				

MAIN SUMMARY PAGE FOR HVAC

**PROPOSED RONGO UNIVERSITY AIR CONDITIONING SYSTEM
BILLS OF QUANTITIES**

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	<u>Bill no.3: Laboratory Fittings & Drainage Installations</u> <u>LABORATORY DRAINAGE AND FITTINGS</u> Supply and fix the following polypropylene Pipes and Fittings as "Vulcathane laboratory".Pipes fixed horizontally or vertically in walls,under benches or floors with fall.				
1	<u>LAB EQUIPMENTS</u> a Fume Cupboard Fume Cupboard size 1200x900mm . The cupboard to be fabricated from fire resistant material (Glass Reinforced Polyester or Stainless Steel etc.) and to be complete with a funnel sink, Bunsen burner, and water tap. The air from the extractor to be passed through an induct UVGI station as per the specification. The fume cupboard fan to be capable of 30 air changes per hour in the cupboard chamber and to discharge the exhaust air through a 6m long duct whose discharge point is 3 meters above the fume cupboard.To be as Method or equal and approved.	2	No.		
b	<u>Emergency Showers -For laboratory</u> Emergency Drench shower. For use in the labs in case of accidental splashing of acid, alkali or any other chemical which demand instant showering to dilute and wash the chemicals from the splashed individual. Emergency shower to be as "Armitage Shanks Emergency shower as Model Ref.: No 6681 700" complete with : 32 mm diameter Non-concussive valve wall mounted with chain and rubber pull. : 305 mm diameter shower head with pipe and wall stay.	2	No.		
	Total C/F to Next Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Total B/D from Previous Page				
c	Laboratory Sink Laboratory Sink to be size 492 ×419×165 mm deep manufactured from Polypropylene black in colour.The Sink to be complete with 38mm diameter BSP waste, and black nut,Butyl rubber gasket.To be as 'Vulcathane' laboratory sinks No.604 or equal and approved.	38	No.		
d	Dilution Recovery Traps Dilution Recovery Traps with a capacity of 4.6 Litres with a trap seal of 76 mm and a three top inlet connections.To be made of heat resistant borrosilicate glass base and supplied complete with horizontal inlet adapter,vertical inlet,glass dip tube and blanking off plug together with suitable support and nut couplings for screwing to waste inlets and outlets as Vulcathane W681 or equal and approved.	12	No.		
e	Water Taps Water taps to be as Laboratory sink two-way mounting fitting tap with inlet concealed supply,one swivel outlet with nozzle as Vultex Labline equipment.	40	No.		
	Total C/F to Next Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
2	Total B/D from Previous Page <u>LABORATORY DRAINAGE</u>				
a	101mm diameter pipes	410	LM		
b	51mm diameter pipes	60	LM		
c	38mm diameter pipes	66	LM		
d	38mm dia.- loose nut sweep bend	16	No.		
e	51mm dia.- loose nut sweep bend	16	No.		
f	51-38mm dia.- Reducers	16	No.		
g	4.5 litre Floor gully trap type W810 with 101mm outlet complete with silt bucket.	7	No.		
h	38mm dia Blanking off plug	40	No.		
i	101 mm dia. vent cowl	10	No.		
j	Holderbats	66	No.		
k	Weathering Slate with apron	10	No.		
3	Labaratory Waste Water treatment Plant				
i	Civil works and Equiping; As per the drawing shared & Schedules therein	1	No.		
	Total Labaratory Installations to Grand Summary Page				

PROPOSED RONGO UNIVERSITY AIR CONDITIONING SYSTEM

BILLS OF QUANTITIES

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	<u>Bill no.4:Liquified Petroleum gas Installations</u>				
1	<u>LABARATORY LPG GAS INSTALLATION</u> Supply install, test and commission the following items comprising the liquid petroleum gas supply to the Kitchens				
a	<u>Gas Tank</u>				
i	500Kg tonne gas tank complete with pressure relief valve, drain, content gauge, pressure gauge, earthing, float,gas leak detector etc as necessary.	2	Set		
ii	Allow for filling the gas tank with the initial gas charge. Client to Select Petroleum Company Brand.	1,000	Kg.		
iii	Allow for air pressure testing of pipework and Tank after installation and before burying pipes, (by applying a strong soapy solution) to all the joints of the pipework and Tank.	1	Item		
b	<u>Pipework</u> Supply, deliver and install Seamless Steel tubing to BS 1387 Class "C" and weld fittings to BS , of approved manufacturer. Tenderer must allow in their pipework prices for all the couplings, connectors, joints, unions ect., as required in running lengths of pipework and also where necessary, for pipe fixing clips, holderbats plugged and screwed, and sleeves where pipe cross structural members.				
i	15mm dia black steel tubing pipe	156	LM		
ii	20mm dia ditto	12	LM		
iii	25mm dia ditto	84	LM		
iv	32mm dia ditto	60	LM		
	<i>c/f to next page</i>				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	<i>b/d from previous page</i>				
c	<u>Extra over Black steel pipework</u>				
i	15mm dia welded elbow	24	No.		
ii	15 x 15 x 15mm Dia Tee	44	No.		
iii	25 x25 x 15mm Dia Tee	24	No.		
d	<u>Valves (LPG Gas Cocks)</u> 25mm diameter fullway gate valves, round body type with solid gun metal wedge and non-rining stem, threads to BSP as Pegler Pattern 1070 suitable for LPG installations or equal and approved. Valve to be complete with weld adaptors as necessary.	4	No.		
e	<u>Regulators</u>				
i	Rego 2503 B low pressure regulator for 25mm dia pipe.	2	No.		
ii	Rego 2403.V9 High Pressure Regulator for 32mm dia pipe	2	No.		
f	<u>Valve Chamber</u> Allow for masonry valve chamber for 25mm diameter valve size 450x450x600mm deep with reinforced precast concrete cover indented with the markings "GAS"	2	No.		
g	32mm dia UL listed LPG Meter	1	No.		
h	32mm dia UL listed LPG gas leak detector complete with asounder to mechanical Engineers approval	1	No.		
i	Pound to Pound level Pressure Regulator for 25mm dia pipe complete with the drain.	1	No.		
	<i>c/f to next page</i>				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
j	<u>b/d from previous page</u> <u>Copper Tubing</u> Supply, deliver and install copper tubing to BS 2871: Part 1 and capillary and compression fittings to BS 864: part 2. The tubing to be solid drawn round clean, smooth and free from defects and deleterious films in the bore. The fittings must be free from internal fins or other irregularities compression fittings shall be Type A (non- manipulative). Allow in your pipe prices for supports, joints etc.				
i	6/8 mm diameter copper tubing	90	LM		
ii	11/12 mm diameter copper tubing	30	LM		
k	<u>Adaptors</u> 6/8*15mm diameter adaptor for joining 6/8 copper to 15mm diameter GMS tubing	72	No.		
l	11/12*15mm diameter adaptor for joining 6/8 copper to 15mm diameter GMS tubing	24	No.		
m	<u>Gas outlets</u> Low pressure Gas outlet with safety drop lever to prevent accidental "turn-off". 2 cubic feet per minute at 2PSI 4 mm diameter outlet and 1/4" BSP tail Backnut. The outlet shall be as Vultex labline 2-way bench mounted with 2 cocks spaced at 90° c angle model No.VL 2601/D	72	No.		
n	Allow for fixing of suspended gas pipeline beneath the work benches.	Lot	Item		
o	Testing and commissioning allow for setting to work, testing and commissioning of the whole LP gas system.	Lot	Item		
p	Allow builders work for LP Gas installation	Lot	Item		
Total Labaratory Liquified Petroleum Gas Installations					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
2	<u>KITCHEN LPG GAS INSTALLATION</u> Supply install, test and commission the following items comprising the liquid petroleum gas supply to the Kitchens				
a	<u>Gas Cylinders</u>				
i	4No. 50kg gas cylinders in a bracket complete with each cylinder regulators, isolation valve, non - return valve, flexible rubber tubing, manifold, pressure gauge, high pressure regulator, fire safety gas valve, leak detector etc as necessary.	1	Set		
ii	Allow for filling the gas tank with the initial gas charge. Client to Select Petroleum Company Brand.	160	Kg.		
iii	Allow for air pressure testing of pipework and Tank after installation and before burying pipes, (by applying a strong soapy solution) to all the joints of the pipework and Tank.	Item	Lot		
b	<u>Pipework</u> Supply, deliver and install Seamless Steel tubing to BS 1387 Class "C" and weld fittings to BS , of approved manufacturer. Tenderer must allow in their pipework prices for all the couplings, connectors, joints, unions ect., as required in running lengths of pipework and also where necessary, for pipe fixing clips, holderbats plugged and screwed, and sleeves where pipe cross structural members.				
i	20mm dia black steel tubing pipe	18	LM		
c	<u>Extra over Black steel pipework</u>				
i	20mm dia welded elbow	1	No.		
ii	20 x 15 x 20mm Dia Tee	6	No.		
d	<u>Valves (LPG Gas Cocks)</u>				
i	20mm diameter fullway gate valves, round body type with solid gun metal wedge and non-rining stem, threads to BSP as Pegler Pattern 1070 suitable for LPG installations or equal and approved. Valve to be complete with weld adaptors as necessary.	1	No.		
	Total c/f to next Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	total b/f from previous page				
e	<u>Regulators</u>				
i	Rego 2503 B low pressure regulator for 20mm dia pipe.	1	No.		
ii	Rego 2403.V9 High Pressure Regulator for 20mm dia pipe	1	No.		
f	20mm dia UL listed LPG Meter	1	No.		
g	20mm dia UL listed LPG gas leak detector complete with asounder to mechanical Engineers approval	1	No.		
h	Pound to Pound level Pressure Regulator for 15mm dia pipe complete with the drain.	1	No.		
i	<u>Copper Tubing</u> Supply, deliver and install copper tubing to BS 2871: Part 1 and capillary and compression fittings to BS 864: part 2. The tubing to be solid drawn round clean, smooth and free from defects and deleterious films in the bore. The fittings must be free from internal fins or other irregularities compression fittings shall be Type A (non- manipulative). Allow in your pipe prices for supports, joints etc.				
j	6/8 mm diameter copper tubing	30	LM		
	Total Kitchen Liquefied Petroleum Gas Installations				

**PROPOSED RONGO UNIVERSITY AIR CONDITIONING SYSTEM
BILLS OF QUANTITIES**

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	<u>Bill no.5:Automatic Serverroom Fire Suppression Installations</u>				
a	FM200 clean chemical fire suppression agent storage cylinder of steel construction equipped with a pressure seat valve (CV98) and gauge capacity 425 cu ft.	2	NO		
b	Discharge Hose	2	NO		
c	Actuator Extension Hose	1	NO		
d	Electric Actuator (CV-98)	1	NO		
e	Valve Actuator Assembly	2	NO		
f	Lever Release with Handle and pin	1	NO		
g	3/4"NPT Orifice Union	2	NO		
h	Pneumatic Switch (DPST)	2	NO		
i	Master Actuator Assembly	1	NO		
j	Warning plate on the outside with Alarm	2	NO		
k	1/2" dia, 360 degree Nozzle (NPT)	5	NO		
l	1/2x1/2 ADAPTOR	5	NO		
m	1/2 " Deflector Shield	1	NO		
n	Welded Cylinder Backframe Assembly	1	NO		
o	3 No. Cylinder steel clamp	1	NO		
p	3 No. Cylinder Manifold	1	NO		
q	Control panel Assembly energised with 240 V, 50 Hz power	1	No		
r	Zone relay Module	1	NO		
s	IonIzation Detector	2	NO		
	Total C/F to Next Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
t	Total B/D from Previous Page Photoelectric Detector	2	NO		
u	Detector Base	2	NO		
v	Dual action Electric and Manual Pull station (DPST)	1	NO		
w	Releasing Module	1	NO		
x	Control Module	1	NO		
y	Monitor Module	1	NO		
z	Intelligent Release Pull Station	1	NO		
aa	Metallic Name plates	2	NO		
bb	7AMP V, Gell-Cell Battery providing 24V DC	1	NO		
cc	2 Core 0.8mm fire cable	120	LM		
dd	Flashing Horn/strobe 15 Candella	2	NO		
ee	6" Dia Alarm Bell	1	NO		
ff	Abort switch	1	NO		
gg	Low Pressure Switch Combo	1	NO		
hh	Maintenance switch	1	NO		
ii	Allow for all 20 MM DIA system piping as seamless black steel conforming to ASTM A- 53A or ASTM A-106A	1	Lot		
jj	Ditto but 25mm dia	1	NO		
kk	Allow for all electrical works associated with the installation of the whole functioning system.	1	LOT		
ll	Brochures,. Drawings, instruction and maintenance manuals for the installed system	1	LOT		
MM	Testing and Commissioning of the system	1	Lot		
	Total Automatic Serverroom Fire Suppression Installations to Grand Summary Page				

**PROPOSED RONGO UNIVERSITY AIR CONDITIONING SYSTEM
GRAND SUMMARY PAGE**

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
a	Bill no 1: Plumbing, Drainage, Sanitaryware & Fire Protection From Page 42				
i	Totals	1.00	Item		
b	Bill no 2: Heating, Ventilation and Air conditioning Installations From Page 56				
i	Totals	1.00	Item		
c	Bill no 3: Laboratory Works Installations From Page 59				
i	Totals	1.00	Item		
d	Bill no 4: Liquified Petroleum Gas Works Installations From Page 65				
i	Totals	1.00	Item		
e	Bill no 5: Server room Automatic Fire Suppression Works Installations From Page 67				
i	Totals	1.00	Item		
f	Allow for Preparation of Handover Documentation, printing and distribution as specified. Drawings to include: (a) Hard Copy As-Built Drawings - 4 sets of each (A1 size) (b) AutoCAD and PDF drawings on CDs – 3 No. (c) Operational Instructions, manuals and test certificates	1.00	Item		
	Sub- Total Mechanical Works Installations				
h	Preliminaries	1.00	Item		
	Total Mechanical Works Installations To Form of Tender				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
Grand total amount in words . Kshs----- Tenderers's. Name:----- Official Stamp:----- V.A.T. No.:----- P.I.N----- Witness:----- Signature:----- Date:-----					

PART NO. 10
ELECTRICAL INSTALLATION WORKS

**PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK -
RONGO UNIVERSITY**

Contract Conditions, Specifications and Bills of Quantities

CONTENTS:

SECTION 1:

- 1a. Form of Tender
- 1b. Form of Undertaking
- 1c. Form of Bond

SECTION 2

- 2. Scope of works and Guidelines

SECTION 3

- 3. Electrical Services Particular Specifications

SECTION 4

- 4. General Specifications

SECTION 5

- 5. Bills of Quantities

Section 1.0

1a. Form of Tender

1b. Form of Undertaking

1c. Form of Bond

1a. FORM OF TENDER

Dear Sirs,

**PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK -
RONGO UNIVERSITY**

I/We understand that the works, the subject of this tender include

ELECTRICAL INSTALLATIONS

.....

I/We undertake in accordance with the particulars set out in the preliminaries and to the satisfaction of the Engineer, to execute and complete the Contract works within..... weeks and as per the specifications and drawings for the sum of KSHS.

(KSHS.)

I/We confirm that this Tender is subject to adjustments by any variation ordered by the Engineer.

I/We undertake to commence the works within 7 days from the date of official confirmation of acceptance of the tender.

I/We understand that you are not bound to accept the lowest or any tender and that no expenses incurred by us in the preparation of this tender will be allowed.

I/We agree that this tender shall remain valid for, and shall not be withdrawn within Ninety (90) days from the final date of submission of tenders and in the event of your acceptance to execute formal contract agreement with the client.

For and on behalf of

.....

Official stamp:

Signed by..... Date:

Specifications for Electrical Services Installations

1b. FORM OF UNDERTAKING

We _____

Of _____

are willing to act as Surety and to be bound to the Client in the sum equal to Ten percent (10%) of the contract sum, for the due performance by

_____ (Tenderer)

Of P.O. Box

of a Contract which he/ they contemplate(s) entering into with the Client for the supply, installation, testing and commissioning of the Electrical, Fire Alarm, UPS & Nurse Call Installations as described in this document and the accompanying relevant drawings for **PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK – RONGO UNIVERSITY.** According to the terms of the Form of Bond, a copy of which has been inspected by us without addition of any limitations.

We agree to enter into a Bond under the above-mentioned terms when and if called upon to do so.

Signature: _____

Official Rubber Stamp & Date: _____

Witness: _____

To be completed by proposed surety
And returned with Tender Documents

Specifications for Electrical Services Installations

1c. FORM OF BOND (TO BE SUBMITTED BY NOMINATED BIDDER)

(To be used with agreement and Schedule of Conditions of Building Contract.)

KNOW ALL MEN BY THESE PRESENTS that we _____
_____ (SURETY)

Of _____

ARE BOUND to _____ (MAIN CONTRACTOR /
CLIENT)

Of _____

In the sum of KSHS _____

To be paid by us to the said _____ (MAIN CONTRACTOR /
CLIENT)

WHEREAS by an agreement in writing dated _____

between _____

(CONTRACTOR) of _____

contracted with the said _____ (MAIN CONTRACTOR /
CLIENT)

to (description of works) _____ in the said

agreement particularly described and conformable thereto. NOW THE condition of the above written bond is

such that if the said

_____ (CON

TRACTOR) is / their executors, administrators or assignees shall conform to the said agreement then the above
written bond to be void otherwise to remain in full force. Provided always and it is hereby agreed and declared
that the liability of us to the said

_____ (SURETY) under the above written bond shall not in any

way be discharged or impaired by reason of or any breach or breaches (willful or otherwise) of the said

agreement committed with or without the knowledge or consent to the said

_____ (CONTRACTOR) by or on behalf of,

with the knowledge or consent of the said

_____ (MAIN CONTRACTOR /

CLIENT)

In witness whereof we have hereunto set our hands this _____ day of _____ In the

Year _____

Witness

Specifications for Electrical Services Installations

Section 2.0

Scope of Works and General Guidelines

2.1

Scope of Works

The contract covers the supply where specified, delivery, installation, setting to work, commissioning, testing and handling over to the Client the complete Electrical Services Systems. In addition to this, the Sub-Contractor shall be responsible for the design of particular elements of works as detailed in this specification.

2.2

Electrical Services

General Description of Works

1. The supply and complete installation of sub-main distribution boards, distribution boards, isolators, switch gear and circuit breakers, fixings and final connections including all termination accessories
2. The supply and installation of all sub-mains distribution cables from the main switchboard to the sub-distribution board and distribution boards.
3. The supply and installation of all warning, shock notices and labeling.
4. The supply and installation of all power installations including the supply and installation complete of cable containment and all accessories, cabling, conduits, outlets, fittings, including final connections to equipment.
5. The installation of all luminaries complete with lamps and accessories and the supply and installation of the complete lighting installation inclusive of all cabling, conduits, switches, controls and fixings etc.
6. The installation of all emergency lighting luminaries complete with lamps inclusive of the supply and installation of all cabling, conduits, switches, emergency power supply equipment, controls, cabinets fixings and accessories etc.
7. The installation of all external lighting and luminaries complete with lamps inclusive of the supply and installation of all cabling, controls, sensors, switches and fixings etc.
8. The supply and installation of power supplies to all mechanical plant and equipment together with all control wiring inclusive of cabling, switches, wire ways etc.
9. The supply and the installation of telephone and data conduits, wire ways ducts, trunking, cable containment and cable tray, equipment etc., for the data and voice systems inclusive of linking into the existing installations in the network system.
10. The supply and installation of all electrical, earthing and bonding systems inclusive of cabling, tapes earth bars, connectors, test clamps, solid copper electrodes and where necessary, conductive media.
11. The supply and installation of all wire ways, conduits, ducts as required and directed for services to link from outlets to a central point of control for dedicated services inclusive telephone and data networks, access control, CCTV and as indicated on drawings or included in Bills of Quantities or as required for completion of installations.

2.2.1

General

1. All supports and fixings for all services shall be hot dipped galvanized finish or stainless steel.

Specifications for Electrical Services Installations

2. All switch, socket, loop-in, mounting, draw-in, adapter and outlet boxes shall be galvanized steel to approved B.S. codes only.
3. The provision of design (where applicable) working and manufacturing drawings shall be issued in AutoCAD 2004 or latest version for comments prior to commencement of the installation.
4. The preparation of builder's work drawings and the setting out of such builders work at completion of the project.
5. As Installed Drawings and Operating and Maintenance manuals for the work at completion of the project.
6. Liaison with and the preparation of all necessary information to obtain Statutory Authority approval prior to commencement of works on site.
7. Testing and Commissioning
8. Training of Employers Staff.

The foregoing is an outline description only and reference to the remaining Specification Clauses and Site inspection must be made to assess the full extent of the works.

Should any portion of the work which would reasonably and obviously be inferred as necessary for the complete, safe and satisfactory operation to the installation as a whole, not be expressly described or specified, then such works shall be executed as part of the Contract at no additional cost.

2.3

Contractor's Design Elements

The systems and plant items, scheduled below are covered by their performance requirement and workmanship within this specification.

The Sub-Contractor shall include for the liaison, including the employment of any specialist for the following: -

Fire Alarm Systems

Communication Systems

2.4

Quality Standards

The works shall comply generally with the provisions of relevant Statutory Regulations, British Standard Specifications, Euro Norms and IEC Regulations. Where specific reference is made in this Specification to the Regulation, Standard Specification or Code of Practice, this will mean compliance with the mandatory provisions of the Codes and Standards and also with all recommendations contained in the Codes and Standards and, where appropriate, in other Codes and Standards to which the quoted Codes and Standards to make reference, unless specifically varied by the Engineer to comply with local conditions and regulations.

Reference is normally made in this Specification to the latest Code or Standards but the tendered will be deemed to have included for compliance with latest version of the Codes and Standards and all amendments thereto published up to a date of Tender.

Where the provisions of the specifications exceed the requirements of the quoted Code or Standards, the provision of the Specification shall be adhered to.

Specifications for Electrical Services Installations

The works are to be executed with the materials indicated in the Specification. The Sub-Contractor's tender must include for all makes and components specified, but the Sub-Contractor may subsequently offer alternative makes at least of equal quality for consideration by the Engineer. Alternative makes may only be used upon the instruction of the Engineer.

Where materials and components are not specifically described they are to be the best of their kinds and if required, samples and drawings of such material or components are to be submitted to the Engineer for approval. No substitution of specified material will be permitted except by written permission of the Construction Manager or Engineer and this will only be given when it can be demonstrated that the specified material is not available either by reason of delay in delivery or other like circumstances.

The Engineer or his representative shall have the right to inspect the Sub-Contractor's Works on site and shall have the right to reject any materials which are unsatisfactory due to poor workmanship or damage or failure to meet the specified requirement and to instruct the Sub-Contractor to rectify same forthwith at the Sub-Contractor's own expense, any costs arising in the building works of the other Sub-Contractor's consequent of the replacement of faulty or damaged material and any cost arising from the delay in the replacement shall be at the Sub-Contractor's own expense.

Materials and products shall be supplied to suit the Coastal temperatures, pressures and other conditions of use normally expected to apply after the installation is completed, and also to withstand any tests specified therein or any document referred to herein. All equipment and materials incorporated in the Works shall be new and for the purpose intended, except where otherwise stated in this Specification.

2.5

Prohibited Materials

The Sub-Contractor shall not allow or cause to be used in the installation, any of the following materials: -

- a) High alumina cement or concrete in structural elements.
- b) Wood wool slab in permanent form work to concrete or in permanent form work to concrete or in structural elements.
- c) Calcium chloride in admixtures for use in reinforced concrete
- d) Asbestos based products
- e) Aggregate for use in reinforced concrete which do not comply with British Standards 889:1983 and/or aggregates for use in concrete which do not comply with British Standards 8110:1985
- f) Urea formaldehyde
- g) Silicate bricks or tiles
- h) Polyisocyanurate foams
- i) Materials comprising mineral fibers with diameter of 3 microns or less
- j) Lead or any materials containing lead which may be ingested, inhaled or absorbed.
- k) Materials involving the release of polyfluorocarbons in the manufacture or use and other substances or items not in accordance with good building practice, British Standards and Codes of Practice or other equivalent standards current at the date of use which are generally known in either the architectural or structural engineering professions at the specification and/or use, to be deleterious to the buildings or health and safety whether in themselves, in the quantities used, or in conjunction with other buildings.

Specifications for Electrical Services Installations

Where this clause contradicts other clauses in this Specification or on the Tender Drawings, the Sub-Contractor shall draw the Engineer 's attention to the same at the time of tender and include an equal alternative material in the tender price. Such alternatives must be approved by the Engineer prior to the placement to the Sub-Contract.

Failure to notify any discrepancy at tender stage shall mean that the Sub-Contractor accepts that all specified materials etc. comply with the above and relevant regulations.

2.6

The Structure

Details of the structure, building construction and finishes shall be as per the Architect's drawings scheduled in the Main Contract Preliminaries, amplified by the Structural Engineer's details.

The Sub-Contractor shall be fully responsible for co-coordinating all elements of the Electrical Services Installation within the structure. Particular care shall be given to ceiling voids where structural members and other services encroach into the space available and may conflict with other services to be installed. Ductwork, pipe work and electrical services shall be installed concealed in ceiling voids, service ducts and voids. No exposed services run shall be permitted unless specified as indicated on the drawings. Sleeves etc. shall be provided in walls and floors and the Sub-Contractor shall mark out the positions of these for building-in and the Sub-Contractor shall include for and install proprietary branded fire barriers to seal all his sleeves and duct openings in slabs after installation of the services and pre commissioning test are completed but prior to final commissioning and handing over of the installations.

2.7

Noise Level

The Sub-Contractor shall include for all attention measures necessary on equipment supplied under this contract to ensure when operating that the following noise level are not exceeded: -

Offices	-	NR30 - 35
Toilets	-	NR35 - 40

The specialist shall also include for all attenuation measures necessary to prevent vibration being transmitted to the building structure from either the plant or the systems.

2.8

Fire Ratings

Where ducts, pipes, cables etc., pass through fire walls, floors etc., from half hour or greater, the Sub-Contractor shall include for the necessary fire dampers, seals etc. to maintain the fire integrity and rating of the construction in accordance with the Fire Officer's requirements.

All materials used in connection with or as part of the installation shall be self-extinguishing. All materials shall be as approved by the Fire Officer.

The Sub-Contractor shall include for the fire stopping by utilizing proprietary branded fire barrier prevention sealing systems generally comprising caulk, putty, barriers kits either individually or a combination of these and in accordance with the manufacturer's instruction so as to achieve a minimum fire rating as outlined above through any penetration.

The Sub-Contractor shall be responsible for ensuring that any holes formed by the Main Contractor through which the relevant services shall pass are so achieved that compliance with the above requirements is achievable utilizing a suitable system.

Specifications for Electrical Services Installations

2.9

Support and Fixings

The Sub-Contractor shall include for all supports necessary to support and contain the installed services.

All supports shall be to the Engineers approval and shall have a hot dipped galvanized or stainless steel finish. Proprietary manufacture support and suspension systems must be used where specified in the Bills of Quantities.

The Sub-contractor shall make due allowance for the suitability of the fixing against the structural elements to the satisfaction and approval of the Structural Engineer.

2.10

Maintenance Access

The Sub-Contractor shall give proper consideration at all times to allow access for future maintenance to plant and equipment and the systems installed under this contract. The Sub-Contractor shall inform the Engineer of any additional access ways which may be required to be incorporated in the building structure to permit future or special access to equipment or services installed under this contract.

2.11

Inspection, Tests and Commissioning

The Sub-Contractor shall be responsible under this contract for carrying out all tests, commissioning procedures and demonstrations of equipment as stated in this specification to provide the complete commissioned and operational installation.

The personnel shall be capable, experienced and qualified in the work and the Engineer shall have the right to request for the replacement of personnel who, in the Engineers opinion do not possess the necessary technical experience and ability to perform the testing and commissioning to the standards required.

Where test parameters are not given, the results obtained shall be equal or greater than the minimum set out in the relevant British Standards.

The Engineer may call for further tests to be carried out at the Sub-Contractor's expense at the end of the defects liability period to confirm that the installations and equipment are continuing to perform efficiently and correctly within their designed parameters.

2.12

'As Installed' Record Drawings and Diagrams

The whole or any part of the Contract works will only be deemed complete when the Sub-Contractor has issued to the Engineer the final 'As Installed' drawings and diagrams. These shall consist of four sets of paper copies A1 and two disk copies for use on AutoCAD 2000 or above to be presented within 28 days from date of commissioning and handover.

The drawings shall show but shall not be limited to:

The location and levels of buried services.

Single line and schematic wiring diagrams for the whole works showing cable sizes and circuit references.

The layout of all electrical plant, cable tray, trunking, ducting, equipment, controls and outlets, distribution boards and ancillary equipment which form part of the Contract Works.

Any other drawings which the Engineer deems essential for future alteration, repair and maintenance of the works carried out under this contract.

Specifications for Electrical Services Installations

2.13

Operating and Maintenance Manuals

The whole or any part of the Contract Works shall only be deemed complete when the Sub-Contractor has handed over two sets of all Operating and Instruction Manuals for all equipment showing manufacturers technical literature, spare parts lists, wiring diagrams and maintenance recommendations with schedules within 28 days of commissioning and handover.

A copy of all test certificates and commissioning certificates for each installation shall be provided to the Engineer for verification and a copy of test certificates for equipment shall be attached to the operating instructions

A copy of all manufacturers warranties and guarantees, maintenance agreements offered by Sub-Contractors shall be issued to the Engineer. A list of all normal consumable items and a list of recommended spares to be kept in stock by the Employer shall include those items subject to wear and deterioration which may involve the Employer in delays through extended delivery of replacements.

In the event of the Sub-Contractor failing to comply with this clause within the time period for production, the Engineer shall have the power to recommend the Contract Works as being unacceptable to hand over to the Employer due to insufficient information being available to allow the Employer to operate and maintain the systems safely and shall have the power to instruct the work to be carried out by others and deduct the resultant costs from the Sub-Contractors final account.

The documentation shall include but shall not be limited to the following:

- 1) Detailed description of the systems installed
- 2) Descriptions of operational parameter
- 3) Diagrammatic drawings and schedules
- 4) Manufacturers detail
- 5) Technical literature
- 6) Manufacturers and Commissioning certificates
- 7) Starting up, operation and shutting down procedures
- 8) Fault finding procedures
- 9) Preventative maintenance schedules
- 10) Lubrication schedule and identification of points
- 11) Recommendation for consumables stock holding
- 12) Recommendation for spare parts holding

2.14

Client Supply Items

The Sub-Contractor shall take special note that the Client may purchase various items of equipment and accessories directly from suppliers and provide these items on site for issue to the Sub-Contractor for installation and commissioning as part of this contract. The Sub-Contractor shall allow for attendance, co-ordination, correspondence and incidental costs required for the satisfactory installation and operation of those items.

The following are listed as examples of the items that may be supplied by the Client:

- 1) Security Systems
- 2) IT and Data Systems
- 3) Client Machinery and Equipment Controls & Control / Distribution Panels
- 4) Light Fittings and Electrical Accessories
- 5) UPS
- 6) Main Switch Board

Specifications for Electrical Services Installations

2.15

Warranty

Unless otherwise specified, the contractor shall provide an unconditional manufacturers guarantee in writing covering the cabling materials, cabling equipment, and workmanship from date of acceptance of the completed works by the Engineer/Client.

All manufacturers warranties and general system guarantee shall be transferred to the Client.

All warranties shall be listed and submitted with the as installed drawings. Any parts within equipment that are subject to conditional warranty shall be specifically detailed and advised to the Client in writing.

Final payment received by the contractor shall not relieve him of these warranty conditions and obligations.

Section 3.0

Electrical Services Particular Specifications.

3.1

Introduction

This section of the Specification sets out the mode of operation and the method of installation required for the Electrical Service Specification.

3.2

General

The Sub-Contractor shall include everything necessary for the completion of the work within the installation to ensure continuous operation of all plant and equipment.

Particular care shall be taken to ensure that the installation is compatible with Architectural and Structural detailing.

The Sub-Contractor shall note the required delivery time for detailed coordinated working drawings. Where required, these shall also include dimensioned elevation drawings detailing the exact location/layout of each outlet accessory etc.

In some cases, preference for a particular material, design or type of construction may be given in this document, or a particular method of construction may be implied by the Contract Drawings. In such cases, if the tender is not sure that the preference indicated will satisfy the requirements of this document, then he must make alternative proposals and give his reasons when submitting his tender. If the tender makes no alternative proposals to any given material or method, then they will be deemed to form part of his proposals and to satisfy the stipulated requirements of this document.

3.3

Suitability of Materials

Materials and products shall be supplied to suit the Coastal climatic and other conditions of use expected to apply after the installation is completed, and also to withstand any test specified herein or any document referred to herein.

No asbestos based products shall be used.

All equipment and materials incorporated within the Works shall be new and for the purpose intended.

3.4

Sub-Distribution

Sub-Distribution cabling shall comprise multicore PVC insulated steel wire armoured PVC over sheathed cables, having copper conductors and where buried in trenches, Hatari Tiles shall be supplied and installed by the Sub-Contractor.

The cables shall be suitably rated and where more than two cables are run in a parallel route in ducts, voids or on walls, the cables shall be installed and clipped on heavy duty galvanized or stainless steel cable tray.

Armored cables installed on cable trays shall be strapped on the horizontal and cleated to the vertical to manufacturer's recommendations. Particular care shall be taken with regard to the cable ventilation and spacing requirements.

Specifications for Electrical Services Installations

Each cable shall be identified with an approved permanent tag, fitted to each end of every cable at the time of installation and shall remain in a visible position close to the cable gland after final termination. The cable identification reference shall be approved by the Engineer, prior to application.

Where indicated, separate circuit protective conductors shall be provided and installed to supplement the earthing of the cable steel wire armoring. The supplementary protective conductors shall comprise single core PVC insulated cables with copper conductors and suitably secured with tie straps to the PVC insulated single wire armored PVC sheathed cable to which it is providing the additional circuit protective conductor.

All PVC insulated wire armored PVC sheathed cables shall be terminated using proprietary cable glands, together with PVC overshrouds.

The Sub-Contractor shall ensure that all necessary de-rating factors are applied to ensure that the current carrying capacity of cables indicated on the drawings are correct for the load to be applied. In any event where the Sub-Contractor shall have reason to suspect that cable conductor is undersized and requires to be upgraded, he shall alert the Engineer without delay with information of his calculations and obtain approval from the Engineer.

3.5 Distribution Boards

The Sub-Contractor shall install, test and commission distribution boards where indicated on the drawings, to serve general lighting and power loads.

Sub-circuit charts shall be provided and installed by the sub-contractor adjacent to each distribution board. The charts shall be typed and shall indicate each circuit controlled, together with the circuit rating.

3.6 Lighting Installation

The Sub-Contractor shall supply all materials, install and connect the lighting installation as described herein and indicated on the layout drawings.

The Sub-Contractor shall include for delivery of all fittings complete with accessories including captive plugs and sockets, fixing and connection of all luminaries, together with and including assembly, fitting of lamps to all luminaries.

An outline description of each luminaire is indicated within the Specification and Bills of Quantities.

The Sub-Contractor shall be responsible for ensuring that the correct mounting boxes, cutouts, etc. are provided for each luminary.

Generally, all recessed luminaries within areas having suspended ceiling tile ceilings may be supported directly by the ceiling. However, in other locations the luminaries shall be supported independently by conduit and boxes or other approved substantial metal work supports provided and installed by the Sub-Contractor and where required, arranged to ensure that the leveling of the luminaries in relation to the adjacent ceiling may take place as required.

In any areas where plastered and/or inaccessible ceiling occur, the captive plugs and socket shall be connected to the wiring systems via flexible conduit with sufficient lengths of flexible conduit being left above these ceilings such that when luminaries are required to be removed from the ceilings, the flexible conduit and captive plugs and sockets may be pulled down from above the ceiling through a suitable hole/opening previously concealed by the luminaries, thus enabling the luminaries to be plugged/ disconnected as necessary.

Specifications for Electrical Services Installations

Where no ceilings are provided (i.e. only structural slab) the conduits shall be cast insitu with cabling entering directly into the luminaries.

The lighting installation shall be carried out using single core PVC insulated cable, having copper conductors, enclosed within heavy gauge, high impact PVC conduit flexible conduit and galvanized steel cable trunking where appropriate.

Separate earthing circuit protective conductors the same size as phase conductors, shall be provided and installed for each circuit and terminated at fittings, accessories and conduit boxes.

The lighting shall be flush/ concealed installation with conduits and trunking concealed within suspended ceiling voids and with conduits buried and cast as necessary within walls, floors and other building finishes. The Sub-Contractor shall ensure that all cabling, conduit, trunking etc. are installed clear of any thermal or acoustic installation which may be provided within the ceiling voids etc.

Wiring shall be carried out in loop-in system to allow for re-wiring at a later date. No cable termination or junctions shall be permitted in any inaccessible areas or locations.

Lighting circuits shall be contained within conduits specifically provided for the purpose and shall not be installed within conduits provided for small power or other services or vice versa.

All aspects of the lighting installation shall be closely coordinated by the Sub-Contractor with other trades and building structure with special care and attention being given to the associated finishes.

The Sub-Contractor shall be responsible for indicating the exact positioning and routing of all conduits, luminaries etc and shall prepare detailed working installation drawings. The Sub-Contractor shall submit these drawings for approval, **prior to commencement of installation.**

Local lighting switches for control of luminaries shall be suitable for flush mounting with overlapping white molded front plates of the grid switch pattern single or multigang as necessary, incorporating white rockers switches. The switches shall be rated 20Amp AC double pole, one way, two ways or intermediate, as indicated on the layout drawings and detailed in the Bills of Quantities and with ratings adjusted to suit circuit loading.

Where indicator switches are required, these shall comprise separate neon indicator lights mounted adjacent the switch on the same grids switch plate. Neon indicators will be arranged to illuminate when the switch is in the 'On' position.

Only approved Heavy gauge PVC mounting boxes to BS 4662 complete with adjusting lugs for leveling the accessory (flush or surface mounted as appropriate) shall be provided and installed by the Sub-Contractor for each lighting switch and power/accessory point.

Where switches are located in multigang assemblies greater than 3 gang, the switch plates shall be engraved to indicate the point position controlled. Engraved letters shall be 4.5mm high, filled in black.

3.7

Emergency Lighting

The Sub-Contractor shall install the emergency lighting circuits in the positions indicated on the drawings. The emergency lighting shall operate automatically in the event of a supply failure

All emergency exit lighting shall maintain constant output for a duration of three hours. The installation shall be in accordance with BS 5266, together with the Fire Officer's and statutory requirements.

Specifications for Electrical Services Installations

The emergency exit lighting units shall be non-maintained and operate in the event of a supply failure and shall be complete with sealed nickel cadmium batteries, charger unit, static switching and automatic changeover and LED indicator.

A general description of all emergency lighting luminaries is outlined within the Specification and Bills of Quantities.

The emergency lighting installation shall be carried out using single core PVC insulated cables with stranded copper conductors, enclosed within heavy gauge, high impact PVC conduit galvanized steel cable trunking to exactly match that as previously described for the Lighting installation.

Separate earthing circuit protective conductors the same size as phase conductors shall be provided and installed for each fitting and shall be terminated at the fitting, accessory and conduit box.

Key switches located adjacent to distribution boards shall be provided and installed by the Sub-Contractor. Operation of the key switches shall simulate a power failure and test the operational condition of the emergency light fittings and circuits. Each switch shall have an engraved label indicating the reference number of the circuit being controlled and the multitag plate containing the switches shall be engraved "Emergency Lighting Test".

All emergency lighting shall be designed to function continuously for three hours from any failure in any 24-hour period.

The Sub-Contractor's attention is drawn to the requirement for the certificates to be submitted on completion of the installation indicating the results of the tests associated with the emergency lighting installation.

3.8

External Lighting and Floodlighting

The Sub-Contractor shall supply, install and connect the complete external lighting installation as described herein and indicated on the drawings.

The Sub-Contractor shall include for delivery of all luminaries, mountings and accessories, fixing and connecting complete, together with and including assembly, fitting of lamps, diffusers, etc.

An outline description for each luminaire is provided within the Specification and Bills of Quantities.

Wiring for luminaries supported directly onto the buildings shall be carried out using a single core PVC insulated cables enclosed within heavy gauge, high impact PVC conduit and galvanized cable trunking installed within the buildings in a similar manner to the lighting. Connections to the luminaries shall be back entry through the walls/ structure into the luminaries from within the building.

Cabling for luminaries remote from buildings shall be carried out using PVC insulated steel wire armored PVC over sheathed cables installed underground and within service trenches. NO BURIED JOINTS WILL BE PERMITTED. The Sub-Contractor shall include for the supply and installation of Hatari tiles over buried cables and the supply and installation of cable markers.

The external lighting shall be controlled by means of 7-day time switches via contactors and photocells with the remote manual override also being provided.

The time switches shall incorporate battery back up and include facilities for selecting minimum of two On and two Off periods per day, together with including day omission as and where required.

Specifications for Electrical Services Installations

3.9

Small Power Installation General

The Sub-Contractor shall supply all materials inclusive but not limited to cables, PVC and Galvanized conduits and accessories, cable termination accessories, install and connect up complete the small power installation.

The Sub-Contractor shall allow for liaison with all Sub-Contractors to ensure suitable provision of power is available for the satisfactory operation and installation of the Clients equipment.

3.9.2

13 Amp Socket Outlets

Socket outlets for general services, unless otherwise specified, shall be 13-amp capacity, rectangular pin type to BS 1363/1947 with bases of moulded non-tracking insulating material with integral switches and shall be mounted in rectangular Heavy gauge PVC switchboxes with adjustable lugs for leveling to BS 4662 single or multigang as necessary and complete.

All outlets shall be switched incorporating white finish switches.

3.9.3

Fused Spur Outlets

Fused spur units for connection of fixed apparatus to the 13-amp outlet circuit shall consist of front plates to match those of other accessories. They shall be complete with fuse carriers and neon pilot lamps, all mounted in rectangular Heavy gauge PVC boxes complete with adjustable fixings to BS 4662.

Where it is possible to mount the spur units within 300mm of the equipment to be connected, the front plates shall have a flex outlet unless otherwise indicated.

The Sub-Contractor shall include for carrying out the final connections between each spur unit and the item of equipment, which it serves.

The Sub-Contractor shall supply and install cartridge fuses correctly rated and fitted within the spur units for protection of the appliance/equipment served.

3.9.4

Method of Wiring

The installation shall be carried out using PVC insulated cables having copper conductors enclosed within heavy gauge, high impact PVC conduits, and/or galvanized steel trunking shall be used for surface installation work and in hazardous exposed areas.

Separate earthing protective conductors shall be provided and installed for each circuit, and terminated at fittings, accessories and conduit boxes. In addition, earth bonding shall be carried out at steel trunking joints.

Cable sizes for the small power installation are indicated within the Bills of Quantities accompanying this Specification.

The general purpose switched socket outlets shall be wired on the 'ring circuit' principle with the number of sockets not exceeding 8 No. and with two gang socket outlets being considered as one point. Spurs connections to these circuits shall not be allowed.

The small power shall be flush/concealed installation with conduits and trunkings concealed within suspended ceiling voids and with conduits buried and cast in as necessary within walls, floors and other building finishes.

Specifications for Electrical Services Installations

The Sub-Contractor shall ensure that all cabling, trunking etc. installed are clear of any thermal or acoustic insulation which may be provided within the ceiling voids etc.

Small power circuits shall be contained within conduits specifically provided for the purpose and shall not be installed within conduits provided for lighting or other services, or vice versa.

Where voice and data outlets are indicated, the Sub-Contractor shall provide all wire ways complete with draw wire and installed to ensure that the required distance from power circuit installations is maintained.

All aspects of the small power installation shall be closely co-ordinated by the Sub-Contractor with the other trades and the building structure, with special care and attention being given to the associated finishes.

Detailed working installation drawings shall be prepared by the Sub-Contractor, indicating the exact positioning and routing of all conduits, trunking etc. These drawings shall be submitted by the Sub-Contractor for approval **prior to commencement of Installation.**

3.10

Supplies to Mechanical Services Plant and Equipment

The Sub-Contractor shall provide and install power supplies and control systems wiring associated with all Mechanical Services plant and equipment.

A wall mounted isolating switch shall be provided and installed by the Sub-Contractor adjacent to each item of plant/equipment.

The Sub-Contractor shall also carry out final connections between isolating switches and plant/equipment.

The Sub-Contractor shall carry out all control wiring, inclusive of all connections

The Sub-Contractor shall liaise with the relevant Services Sub-Contractor in every respect regarding all Mechanical Services systems and associated plant and requirement.

Detailed wiring and connections diagrams shall be obtained by the Sub-Contractor from the relevant Specialist for all plant and equipment, including control panels, control field wiring etc. to ensure that the system and the controls are correctly connected and that the Specialists' detailed requirement are fully met.

3.11

Wire ways

The Sub-Contractor shall include within his tender for full time attendance throughout testing and commissioning of all Mechanical Services systems and equipment.

The Sub-Contractor shall supply and install all cable trays, cable trunking and conduit wireways required for all systems and services.

It should be noted that the drawings only illustrate major wireways. However, the Sub-Contractor shall include within his tender for all services systems and shall obtain the information from other Sub-Contractors and Specialist Trades to ensure that wireways are provided and shown on his working drawings prior to commencement of works.

Specifications for Electrical Services Installations

3.12

Earthing and bonding

The entire conduit, cable tray and trunking installation, together with sheathing of cables, shall be electrically bonded to earth by means of proprietary brand bonding straps, earth lugs and gland earth rings.

All main, sub-main and final distribution boards, plant and equipment shall connect be connected to an earth electrode or electrodes in an approved manner by solid copper conductors secured by means of substantial bonding clamps.

Protective conductors, consisting of copper tape and stranded copper conductors shall be provided and installed by the Sub-Contractor.

All fixing of tapes to the building shall be by means of 3,5mm thick phosphor bronze or gunmetal saddles and brass screws and washers.

The main earthing bars, comprising exposed hard drawn copper bar installed at low level within the switchrooms, shall be provided and installed by the Sub-Contractor. The earthing and bonding systems shall be connected to these main earthing cables.

The incoming water mains and gas lines and fire hydrant system shall be effectively bonded to the relevant main earth bar. Main equipotential bonding conductors shall comprise single core PVC insulated cables with proprietary brand earth bonding.

The Sub-Contractor shall bond in all locations, all extraneous conductive parts including sinks, showers, basins, waste pipes, hot and cold water pipes, heating pipes, ductwork, suspended ceiling grids and general items of mechanical services plant etc. The bonding shall be carried out using green/yellow PVC insulated conductors. Connections shall be carried out using suitably approved proprietary bonding clamps.

The bonding conductors shall be connected to a brass earth terminal solidly fixed to the back of a flush mounted BS 4662 steel box, complete with moulded flex outlet plates. From these boxes, a green /yellow PVC insulated conductor shall be installed in conduit too the nearest power supply point where it shall terminate at the earth terminal of the accessory.

The bonding and earthing installation shall be carried out in a neat and unobtrusive manner, to the satisfaction of the Engineer and shall be accessible for periodic testing of continuity and resistance and shall be carried out utilising proprietary brand materials with BS or EC certification.

3.13

Lightning Protection

The Sub Contractor shall supply and install a complete Lightning Protection system as indicated in the Bills of Quantities to comply with the requirement of BS 6651 and shall allow for all required materials and earth pits required to obtain consistent resistance tests not exceeding 10 ohms.

The aerial network shall comprise of 25mmx3mm copper tape fixed to the roof structure in positions as shown on the layout drawings and arranged to bond the metalwork on the roof and arrestors to the down conductors. The Sub-contractor shall allow for all solid copper earth rods, test clamps, earth pits, copper tape, phosphor bronze or gunmetal saddles, fixings and clamps of proprietary manufacture and shall allow for the supply and installation of 'Bentonite' fill around the earth electrodes to increase the effectiveness of the installation. As required, the acceptance of the Structural Engineer may be issued to permit use of additional reinforcing steel bars for down conductors which must have welded 30cm overlap joints.

Specifications for Electrical Services Installations

The Sub-Contractor shall ensure that care and attention is given to the installations and shall agree the positions for installation of all surface work with the Architect and Engineer to protect the appearance of the building.

Test points shall be installed in accessible locations for periodic testing of the earthing electrodes.

3.14

Testing and Commissioning

The Sub-Contractor shall ensure that tests are carried out as the installation proceeds and that the complete installation is tested to the satisfaction of the Engineer at the completion of the installation and prior to final commissioning tests. The

Sub-Contractor shall allow for repeating a complete set of commissioning tests to be carried out at the expiration of the maintenance period.

The Sub-Contractor shall carry out testing as detailed in Appendix 6 of Wiring Regulations as issued by the Institute of Electrical Engineers and shall issue a test and completion certificate upon completion of the whole works and shall issue a new test certificate at the end of the maintenance period.

Section 4.0

General Specifications

4.1

Introduction

This section of the Specification deals with the general materials and workmanship-approved methods in connection with the design, manufacture and installation of the electrical services. This section must be read in conjunction with the previously detailed sections of the Specification and the drawings and the scheduled herein.

Except for materials or items of equipment which are specified as being supplied and/or fixed to the works by the others, the work shall include the supply, testing and delivery to the site, erection, connection, finishing and putting into service of the whole materials, fittings and all cables and conduits, cable tray, trunking cable containment, cable supports, suspension systems as necessary for the electrical installation works as specified or indicated and scheduled herein and/or indicated on the drawings issued herewith.

Materials and products shall comply with the following: -

- a) This Specification
- b) Government of Kenya Rules
- c) Local Authority's Byelaws and Regulations
- d) Water Supply Authority's requirements
- e) Electrical Supply Authority's requirements as detailed by the Kenya Power Utility Company.
- f) Telecommunications Supply Authority's requirements
- g) Fire Prevention Officer's requirements to standards as stated in Uganda or minimum International Standards for Insurance and health and safety at work.
- h) Any other special Kenyan Licensing Authority's requirement.
- i) Appropriate British Standards Specification and Codes of Practice and the Standards of the International Electro-Technical Commission (IEC), together with the Engineering Recommendations as published by the Electricity Council.
- j) Regulations for Electrical Installation (IEE wiring Regulations) latest edition or latest revised edition or latest revised edition.
- k) Insurance Officer concerned with Insurance against damage by fire Kenyan Standards.
- l) Health and Safety at Work Act KBS regulations.
- m) Environmental Health Officer's requirements Kenyan Standards.

The Sub-Contractor shall notify the Engineer of any revision or additions to the fore goings as they are published during the installation of the Works. The Engineer will give appropriate instruction in each case.

The Sub-Contractor shall allow for and shall pay complete, all charges raised by any Authority that is required to inspect and approve any part of the detailed Sub-Contract Works.

Specifications for Electrical Services Installations

a) Suitability of Materials and Products

Materials and products shall be supplied rated for normal operation in the seasonal temperatures experienced in Kenya and other conditions of use normally expected to apply after the installation is completed, and also to withstand any test specified herein or in any document referred to herein.

Materials and products shall not support any bacterial life.

b) Definitions

For the purpose of this Specification:

1. The definition given in the regulations for Electrical Installations (IEE Wiring Regulations Latest Edition) referred to herein after as the IEE Regulations, shall apply.
2. The words 'weatherproof' and 'dust protection' shall have the meanings ascribed them in BS 2817, definitions 13 and 178 respectively.
3. As applied to steel conduits and fittings, the words 'protection against corrosion according with class 4' shall have the following meanings:

Class 4 - Heavy protection both inside and outside (e.g. hot dip zinc coating.)

4. As applied to cable trunking (steel surface) the words 'protection against corrosion according with Class 3' shall have the meaning:

Class 3 - Heavy protection both inside and outside (e.g. Galvanized steel Complying with BS 2989, Class 2A or 2m)

c) Standardization

The following equipment shall be standardized throughout the installation. _

1. Switchgear
2. Cabling
3. LV distribution and sub-distribution
4. LV primary and secondary switchboards including circuit breakers, fuse switches, protection relays, instruments etc.
5. Distribution boards
6. Wall mounted switch fuses and isolators
7. Socket outlets, spur units, lighting switches etc.

Items of the above groups shall be of the same manufacture and type, specified and approved by the Engineer.

Specifications for Electrical Services Installations

Methods of Fixing

General

The size of bolt or screw used must be to the nearest permitted by the diameter of the hole in the equipment to be used, allowance shall be made to equipment or accessory load factor.

All screws and bolts shall be sherardized/brass/stainless steel.

For fixing in block walls, holes of the correct size for screws or bolts shall be neatly drilled with an electric drilling machine equipped with a tungsten carbide tipped twist drill to a depth (excluding plaster thickness) equal to the length of plug to be used. The wall plug shall be of PVC and the plug length must be correct for the new screw. Fixings shall not be made between mortar joints in block work or brickwork.

Unless otherwise specified, all fixings screw in the block work and concrete shall be 38mm long. The Engineers approval shall be obtained for specific reduction in this change on a location basis.

All fixings required to be installed in pre-cast concrete walls shall be drilled and plugged as specified.

Conduit boxes shall normally be fixed by two roundhead sherardized or brass screws.

Countersunk screws shall only be used where countersunk holes are provided, otherwise the screws shall be roundhead. Fixing screws used in conjunction with Class 3 and Class 4 conduit and trunking shall be stainless steel.

d) Lightweight Accessories

Fixing to hollow partitions etc. where the hole is bottomless shall be by means of raw plug screw anchors or similar to the Engineers approval.

Fixing to supporting metalwork shall be made where possible, by means of setscrews or bolts and nuts of appropriate sizes for the equipment; holes drilled to correct size. Each bolt and setscrew shall be fitted with a plain washer and shake proof washer under the nut. Where it is not possible to fit the nut, a tapped hole shall be provided, the plain and shake proof washer being fitted under the bolt head.

Fixings to structural steelwork shall be to the approval of the Structural Engineer.

All brackets for supporting trunking and other items forming part of the installation shall be made from mild steel, and unless otherwise specified, the brackets shall be fabricated from unistruct suspension systems. All brackets shall be hot dipped galvanized after fabrication and if altered, the galvanizing process shall be repeated or manufactured from stainless steel before final installation as required or directed by the Engineer.

4.2

Wiring System

4.2.1

General

This section of the Specification deals with the various types of the wiring systems that may be specified in the Project Specification or on the drawings relating to the installation of the main, sub-main and sub-circuit.

Specifications for Electrical Services Installations

4.2.2

Cables and Flexible Cords

All cables and flexible cords shall be manufactured in accordance with the latest relevant BRITISH cables and Standards as detailed in the sections of this Specification.

The names of the proposed cable manufactures shall be submitted at the time of tendering and detailed in the Schedule of equipment in the Project Specification for the approval of the Engineer.

The approved makes of each particular cable type shall be used throughout the installation.

No coil of cable or flexible cord manufactured more than one year prior to delivery on site shall be used in the installation. Every coil of cable and flexible cord shall bear the manufacturer's label being retained for the inspection by the Engineer.

Cables run between switchgear and accessories shall be continuous in length, no through joints being allowed without the written permission of the Engineer.

4.3

Installation of Cables.

The Specific installation requirements for the various types of cables and cabling systems shall be detailed in the following sub-sections.

Insulated, Single Wire Armoured and Sheathed Cables

This section of the Specification deals with all main, sub-mains and sub-circuits wiring specified to be carried out in PVC insulated, PVC bedded single wire armoured and PVC sheathed overall with copper cable with copper conductors XLPE insulated single wire armoured PVC sheathed overall with copper conductors also incorporating zero halon low smoke bedding in the overall sheath.

British Standards

The cables and associated materials shall comply with the following British Standards Specifications, unless otherwise stated: -

BS 1442	-	Galvanised mild steel wire for armouring cables
BS 6346	-	PVC-Insulated cables for electricity supply
BS 6360	-	copper conductors in insulated cables and cords
BS 6746	-	PVC-Insulated And sheathed of electric cables
BS 6742	-	XLPE-Insulated cables for electricity supply

a) Cable Type

Insulated power cables shall have copper conductors, steel wire armouring with installation and over sheathing as outlined within the Particular Specification and shall be XLPE insulated.

b) Cable Support System

The Cable support system shall be constructed from galvanized rolled steel sections. No cable bridge section shall be smaller than 41mm x 41mm or manufactured in a materials thickness of less than 2.7mm. The support system shall be capable of accepting the cable cleat fixing bolts or studs

Specifications for Electrical Services Installations

Unless stated otherwise, racks shall be designed to accommodate additional cables to the extent of 35% of those to be installed under this Contract.

The spacing of the racks shall not be greater than those set out in the IEE Wiring Regulations or specified elsewhere in the Contract Document.

4.3.1

Method of Installation – General

Except where special structures such as cables bridges are required, the whole of the supporting steelwork, racks, trays, cleats, clips etc. shall be supplied by the Sub-Contractor and included in his tender unless otherwise specified.

All cables shall be run in pre planned straight runs with particular regard to neatness of appearance, and parallel to walls. Multiple runs shall be marshalled so that the cables entering or leaving the crossover shall be kept to a minimum.

Cables shall be installed at least 50mm clear of plumbing and mechanical services.

a) Cable Glands on all services to be noted

All cable glands shall be of the correct type and size for the specific application and location. Cable glands for PVC insulated cables shall be of the two-stage type, which grip both the cable sheath and the armouring independently **and incorporate an external earthing lug, and PVC shroud.**

b) Straight Through Joints

Each cable shall run in one continuous length.

c) Bending Radii of Cable

Bends in cables shall be as large as possible and in no case shall the bending radii of any cable be less than that set out in section 529-3, Table 52C of the IEE Wiring Regulations

d) Cleats and Saddles to be noted

Cable cleats shall be manufactured in pressure die cast silicon aluminium grade LM6 to BS 1490. Cable cleats shall be manufactured in two identical halves and secured to the support system by two studs or bolts suitable for fixing to the support system where detailed and directed.

These shall be provided in all vertical and horizontal runs of cables at intervals of not more than 1.2 meters where detailed and directed.

Single core cables carrying alternating current for three phase working shall, as far as possible, be arranged in trefoil formation with the cables touching and where departments from the trefoil formation cannot be avoided, approved arrangement shall be employed to minimize sheath current or other undesirable effects.

The cleating arrangements for single core cables shall be of sufficient strength to withstand the forces set up during short circuit conditions.

Where installed on trays, cables not provided with cleats shall be secured by heavy gauge or plastic coated clips or saddles at intervals of not more than 1.2m, not more than 6 cables shall be embraced by one clip and not more than two layers of cables shall be run on one tray.

Specifications for Electrical Services Installations

Where installed on walls or flats surfaces, cleats shall secure cables at intervals of not more than 1.2 meters.

Every cable shall be securely supported throughout its length and at a point not more than one meter from its termination and on vertical routes passing through the floor, immediately above the floor.

e) Cable Identification to be noted

Each end of cable shall be provided with an identification label, which shall be lettered to the Engineer's instruction.

Labels shall be permanently attached to the cables in an approved manner; loose tags will not be accepted.

The materials of the labels and fastenings shall be such as to avoid corrosion due to incompatibility of materials and to ensure permanent legibility.

f) Cables installed in Service Duct, Cables Tunnels and Pipes Ducts

Where installed in service ducts, cables shall be installed at least 25mm clear of walls and ceilings on cable cleats

Cable cleats shall be fixed to the galvanized rolled steel cable support system at distances in accordance with the IEE Wiring Regulations.

Where cables emerge from a service duct and rise up a wall, a length of suitably sized galvanized steel pipe, bushed at each end, shall be threaded over the cable to 450mm above floor level so positioned as to protect the cable from mechanical damage.

Where cables are detailed to be drawn into ducts, cable-pulling eyes shall be used and the cable shall be supported on rollers without sharp edges during drawing operation. All cable ducts shall first be cleared and proved by drawing a mandrel of slightly less diameter than the duct immediately before pulling in the cables. Any lubricant use shall have no deleterious effect on the cables.

Where draw-in pits are inserted in the route, they shall be of such size that no undue strain caused by bending radii is placed upon the cables. Minimum bending shall be as specified. Cable rollers shall be used when drawing cables into a pit to ensure that no undue strain is placed upon the cables.

When the cable is taken off the drum, the bending radii shall not be less than those stated for installation.

Particular Note:

After the cable is installed in a duct, the Sub-Contractor shall supply and install a suitable purpose made sealing gland assembly within each duct to prevent the ingress of water and ensure that a complete watertight seal is provided.

g) Jointing or Terminating PVC insulated Cables

The method of stripping the sheath, filler and insulation shall be as recommended by the manufacturer, and shall be such that no damage is caused to the insulation or conductor.

h) Jointing or Making Terminations for Control and Instrument Cables (other than Telephone Type.)

These shall be PVC insulated and the method of stripping the sheath and insulation shall be as recommended by the cable manufacturers and shall be such that no damage is caused to the insulation.

Specifications for Electrical Services Installations

The Sub-Contractor shall ring through and identify the cores of each cable. Numbered ferrules or sleeves, or approved crimping tags shall be fitted, the tails shall be neatly arranged and securely laced with PVC cord or approved equivalent. All spare cores shall be terminated in accordance with the foregoing and identified for future use.

i) Labeling Joints

Each shall be clearly labeled in an approved manner, to indicate the cable number and the joint number and single core cable joints shall be so marked that the phase identity of each joint may be subsequently ascertained.

The Sub-Contractor shall dimension cable routes and markers on 'As Installed' drawings and will be held responsible for the correct positioning of route markers, even if supplied and installed by others.

i) Excavation, Backfilling of Trenches and Installation of Cable Ducts – General

The Sub-Contractor shall be responsible for ensuring all excavation and backfilling of trenches for electrical services generally as specified and the provision of cable ducts under the roads, footpaths and hard standings for external cables are protected with cable tiles or haunched in concrete and installed correctly for the services to be installed.

k) Excavation and Backfilling of Trenches for Electric and Telephone Cables, Data Fire Alarm and Sensor Cables.

Backfill shall be riddled through a sieve with a 15mm square mash. Where, in the opinion of the Engineer, the material on site is unsuitable for riddling or backfilling the Contractor shall arrange for the importation of suitable material, which shall be approved.

Protective interlocking 'Hatari' tiles shall be provided by and installed by the Sub-Contractor over each buried cable or service duct. Hatari tiles shall be manufactured in concrete to BS 2484.

Route marking tape shall be provided in all trenches at a depth of 250mm below ground level comprising yellow tape marked 'electric cables below'. Concrete Route Markers with details of the covered services stamped or permanently labeled to the Engineers approval shall be installed as directed by the Engineer.

l) Excavation and Backfilling Trenches for Electric and Telephone Cables - Workmanship

Exact location and route of each trench shall be approved on site.

Trenches shall be kept straight. Each trench shall be excavated to Approved formation and dimension and shall have vertical sides, which shall be timbered where necessary so as to avoid subsidence and Damage.

Bottoms of trenches shall be firm and smooth contour. Any damage to the high way or ground surface from slippage or breaking away of the sides of the trenches shall be prevented.

Trench excavation and filling-in shall be so excavated so as to secure against the risk of subsidence or injury to the persons or property. Work shall be carried out to the satisfaction of the authorities concerned.

When trenches pass from a footway to a roadway or at other positions where a change of level is necessary, the bottom of the trench shall rise or fall gradually. The rate of rise or fall shall be approved.

Specifications for Electrical Services Installations

All water shall be disposed of so as to prevent the risk of the cables and other materials to be laid in the trenches being detrimentally affected.

All pumps and appliances required should be provided and any necessary pumping and bailing shall be carried out.

Unless otherwise agreed, provision shall be made during excavation and until interim restoration has been completed, for reasonable access of persons and vehicles to property or places adjacent the route.

It shall be the Sub-Contractors responsibility to familiarise himself and his staff with the route, depth, location of all existing services and reasonable steps shall be taken to ascertain the position of all sewers, drains, pipes, structures etc. which are not detailed on existing 'As Installed Drawings'. A drawing showing the cross section and levels of the proposed works shall be produced for approval before operations are commenced.

When during the course of the excavation, obstruction is encountered which necessitates the diversion of, or alteration to, gas, electric, hydraulic, water or sewage installation, telephone or telegraph cables or other underground works, or alterations to buildings or foundations or when conditions necessitates the adoption of a special form of trench, the Engineer shall be notified and will instruct accordingly.

The materials excavated from each trench shall be placed so as to prevent nuisance or damage to adjacent hedges, trees, ditches, gateways and other property. Excavation material shall be stacked so as to avoid undue interference with the traffic.

A 100mm layer of sand shall be laid on the bottom of the trench immediately before cable laying commences.

NOTE:

After the cables or each level of cable have been laid by the Sub-Contractor, they shall be covered with additional sand, well punned over and round the cable to a level of 100mm above the top of the uppermost cable. Mechanical punners shall not be used for this work. Protective HATARI interlocking covers shall be laid over the top cable and shall be carefully centered over the cables forming each circuit, each cover being closely interlocked with the adjacent covers throughout the length of each cable.

Where auxiliary cables are laid under the same protective cover as power cables, there shall be at least 100mm of sand between each of the cables.

After any cable has been laid and until the whole of the cable to be laid in the trench has been covered with the protective covers, no sharp metal tools such as spades or fencing stakes shall be used in the trenches or placed in such a position that they may fall into the trench.

Filling in of trenches shall not be commenced until the Engineer has inspected and approved the cables and accessories insitu. Such inspection will not be unreasonable delayed, and the Sub-Contractor shall give seven days' notice of his intention to backfill.

All excavations made (whether for the purpose of cable laying or trials holes) shall be back filled in 150mm layers; each layer being well rammed and consolidated and sufficient allowance made for settlement. The back filling and making good to 300mm above the apparatus and the interim restoration of the upper levels shall be maintained by the Sub-Contractor at his own expense in a thoroughly safe condition for three months.

Specifications for Electrical Services Installations

NOTE:

Route marking tape shall be laid centrally over the cable or group of cables 175mm below final ground level throughout the length.

Concrete route markers 450mm high shall be installed at the final ground level over the center of the route marking tape, at the center of each bend or joint and at regular intervals not exceeding 20m, or at positions indicated on the drawings. These positions shall be agreed with Engineer.

m) Pipe Duct for Electric and Telephone Cables - Products

External services ducts shall be constructed generally in accordance with the BS Code of Practice CP 413 (1951) – Design and Construction of Duct for Service.

Materials used for back fill trenches to receive external services shall be as described under ‘Excavation and Earthworks’.

Pipe ducts shall be “High Impact PVC pipe ducts with plastic sleeves and installed in such a manner that the entire duct system is completely watertight, thus ensuring that no water can enter/penetrate into services duct.

Route makers shall consist of 100mm square 450mm high concrete flags with a 75mm letter ‘E’ embossed or as stipulated by the Engineer to identify the buried services

Draw pits for telephone services shall be in accordance with the Telephone Authority’ requirements.

Where high voltage cables shall be installed under roads, through foundations, walls or under concrete areas or where otherwise instructed by the Engineer, pipe ducts shall be installed for all externally routed cables. The minimum size of pipe ducts shall be: -

Low voltage cables	-	100mm
Fire alarm cables	-	50mm
Telephone cables	-	50mm

Route markers shall be installed at the finished surface to show exactly the point of entry of a cable laid directly in the ground to a pipe duct, the point of entry to the building, the center of any bend and above the pipe duct on either side of the road, rail or path crossing. Each way of a route of pipe duct exceeding 3m shall have a draw rope installed as the duct is laid and the draw rope left in position until a cable is drawn in.

A pipe duct through a wall shall be cut off flush on either side of the wall.

A pipe duct entering a building from below ground level passing through wall into a basement shall have a bellmouth fitted flush with the inside face of the wall.

A pipe duct entering a building from below ground level passing through foundations shall have a bellmouth section fitted flush with the finished floor level and the outside of the socket shall touch a vertical surface.

Each bend in the run of pipe ducts shall be as large as possible and shall never be less than 1m radius.

Where a pipe duct passes through a concrete, brickwork or block work, it shall be sealed into the hole with concrete and/or mastic; a flange shall fit to the pipe duct to ensure the seal is waterproof.

Specifications for Electrical Services Installations

Where the total of vertical bends in the run exceeds 90 degrees, draw pits shall be provided so that no single cable pull is through a number of vertical vends exceeding 90 degrees total.

All pipe ducts shall be laid with the joints fully closed in a concrete bed wherever subsidence of newly made up ground could cause the joints to pull apart.

A pipe duct passing over another buried service shall be encased in concrete and a route marker shall be placed on the surface over the crossing point.

A mandrill, slightly smaller than the duct itself, shall be pulled through the duct to check for obstructions and alignment. The mandrill shall be followed by a "rat" to clear any accumulated dirt.

A draw wire shall be installed in each length of duct.

NOTE:

Into each end of each way of a pipe duct the Sub-Contractor shall supply and install a suitable purpose made blanking off sealing gland/plug to prevent the ingress of water and to ensure that a complete watertight seal is provided. The draw ropes shall be fixed to the back of each sealing gland/plug.

NOTE:

Watertight sealing glands shall also be provided at the point of ducts into the building. The maximum distance for installing cables within the pipe duct system and maximum distance permitted between draw-pits shall be as follows: -

Low voltage cables	-	50m
Telephone cables	-	150m

Where a pipe duct route is in excess of the above minimum distances, and then draw-in pits will be installed in order to achieve the minimum distances.

Draw pits will be installed at any horizontally change of direction exceeding 22.5 degrees or when degrees or when the accumulated total of horizontal bends reaches this figure.

Immediately after installation, cables shall be tested with a 1000-volt test set to demonstrate that the insulation resistances between cores and earth is satisfactory.

Polyvinyl Chloride Cables enclosed in Heavy Gauge Conduit and metal Trunking

4.4.1

General

Precautions shall be taken to prevent ingress of moisture, silt, brick and concrete chippings etc. into the conduit system during and after the installation of the same. Hexagonal headed stopping plugs shall be fitted to the ends of all conduits not connected to fixing and outlet boxes. Where condensation has occurred, the conduits shall be thoroughly dried by drawing swaps through it. The inside of all conduits shall be free from burrs or other obstructions.

Where conduits enter the building from the outside or in other positions where in the opinion of the Engineer there may be substantial difference in temperature between different parts of the conduit system, junction boxes shall be inserted into the conduit system and filled with plastic compound to impede the free movement of air in the conduits.

Specifications for Electrical Services Installations

Cables shall be single core, insulated but non-sheathed and shall comply with the following: -

XLPE insulated cables for Electric Power and Lighting - BS 6742

Elastic Insulated Cables for Electric Power and Lighting - BS 6007

The rated voltage of all cables shall be 600/1000 volts.

SPECIAL NOTE:

Cables joints shall only be made at main switches, distribution boards, ceiling boxes and fixed accessories. No joints shall be made in joint boxes unless the special permission of the Engineer is first obtained.

All line cables shall be red, yellow or blue, neutral cables black and switch wires shall be either white or blue. All single pole switches shall be connected in line cables.

Conduit and cable trunking capacity as set out in the IEE Regulations shall not be exceeded.

4.5.1

Steel Conduits and Fittings

Steel conduits shall be new, heavy gauge, welded and screwed and shall comply with BS 4568: Part 1. Each length of conduit shall bear a stamp guaranteeing it to be this standard. The use of conduits less than 20mm diameter will not be permitted.

All conduit fittings and accessories, including couplers, ordinal clips, saddles, pipes hooks, screws reducers, stopping plugs, lock nuts and male and female bushes shall comply with BS 4568 Parts 1 and 2 where applicable.

All screwed couplers, reducers, unions and lock nuts shall be made of galvanised malleable iron and all stopping plugs, male and female bushes made of brass. Round locknuts only shall be used on the surface work.

a) Solid or Inspection Elbows, Bends, Tee and Inspection Couplings must not be used

For wiring purpose all draw-in and inspection boxes must be installed in readily accessible positions as agreed with the Engineer.

No more than right angles bends or equivalent sets must be made in conduit run between inspection boxes. On straight runs inspection boxes must be fitted after each second conduit run length.

Corners shall be turned by easy bends or sets made cold without altering the section or opening the seams of the conduits. No bend shall have an inside radius of less than three times the external diameter conduit. All bends must be machine made.

Where conduits are installed side by side, all 'off-sets' shall be similar and where possible 'off-sets' are necessary at switch boxes, distribution boards etc. shall be as short as possible.

Where bending the conduit causes damage to the protective finish, it shall be made good immediately with high quality zinc rich paint.

Galvanised steel and adaptable inspection boxes shall be provided and fixed in the inspection positions where more than two conduits cross. These boxes shall be fully recessed they shall be provided with 2mm mild steel lids overlapping the boxes 5mm all round.

In damp and external situations, malleable cast iron adaptable boxes shall be used. The boxes shall be

Specifications for Electrical Services Installations

provided with neoprene gaskets and malleable cast iron lids secured by four M4 brass round headscrews. The boxes shall have external fixing lugs

Boxes shall be fixed with a minimum of two No. 10 round head brass screws in plastic wall plugs.

No more than three conduits up to 25mm diameter will be allowed per side on the above adaptable boxes. Where more than three conduits per side occur proportionally larger boxes shall be used. Deeper boxes shall be provided for conduits larger than 25mm diameter.

Conduits shall be fixed to adaptable boxes, fuse/MCB boards, switches etc. by means of smooth bore male brass bushes and couplers. Spanner or purpose made tools shall be used to tighten all conduits fittings. Pliers or toothed wrenches shall not be used.

Where cables of under 6mm² are being drawn in, through boxes shall be used to minimize bending of cables. The heavy-duty type fitted with neoprene gaskets shall be used for external work. The inside surface of erected conduits and fittings shall be smooth and free from burrs or other defects.

Where boxes are flush with the ceiling or wall surfaces, approved break joint rings shall be provided where necessary to hide the joint.

4.5.2

Conduit Joints

Joints shall be made tight by painting the threads just before jointing with an approved aluminium paint to help prevent corrosion.

Running joints shall only be used where absolutely necessary; they shall be painted with two coats of the aluminium paints as soon as they have been tightened.

Conduits crossing expansion joints in the concrete shall be jointed by means of expansion coupler. The coupler shall be wrapped with waterproof building paper for a distance of 300mm on either side. An inspection box shall be fitted as close as possible on each side of the expansion coupler and a copper protective conductor complying with the IEE Regulations installed in the conduit between the boxes.

The protective conductor shall terminate at each box by means of an M4 brass RH screw tapped into the bottom of the box and 2 No. flat brass washers.

4.5.3

Inspection Boxes

Small standards circular conduits boxes shall be provided and fixed at all junctions and the necessary angles and bends of the conduits.

For surface work boxes of the raised back pattern shall be used.

Conduit boxes mounted outside a building shall have external fixing lugs.

Boxes shall be fitted with light steel covers when used internally, over-lapping type on flush work and recessed covers when used externally and in damp situations.

To ensure adequate earth continuity and fitting, it is essential that the correct size hole is cut. Holes shall be formed using a whole cutter of approved design.

Where boxes are flush with the ceiling or wall surfaces, approved break joint rings shall be provided where necessary to hide the joint.

Specifications for Electrical Services Installations

4.5.4

Flexible Conduit

SPECIAL NOTE

Where specified, final connections to machines and other items of apparatus shall be with flexible conduit. The flexible conduit shall consist of a single layer of flexible interlink jointed steel, sheathed with PVC. The flexible conduit shall terminate in couplings with treaded internal sleeve and plastic male bush of proprietary brand.

The interconnection between the solid and flexible conduit shall be via a small circular G.I conduit box.

A separate copper protective conductor complying with the IEE Regulations must be included within the conduit and connect to a brass earthing terminal at each end. Brass washers must be placed above and below the earth wire on the terminals. On no account may a screw position for securing box lids be used for earthing purposes.

4.5.5

Painting Conduits

Steel conduits and cast fittings installed behind plaster shall be given one coat of zinc rich primer immediately after erection.

On concealed installations in concrete floors and screeds where the finish of the conduits/fittings are damaged during erection, they shall be made good prior to cover by concrete or screening material.

Where installed in roof spaces, specified to be in damp situations, the conduits and fittings shall be given one coat of red primer immediately after fixing.

Galvanised conduits and fittings shall be given one coat of aluminium paint after the installed runs have been inspected by the Engineer.

All conduits must run vertically or horizontally; diagonally runs will not be permitted on walls.

All conduits, conduits fittings and equipment shall be fixed by heavy duty saddles fixed not more than 1000mm apart secured by means of 1 No. 8 brass countersunk screw, in a plastic wall plug of the correct size.

Conduits installed in concealed positions such as ceilings or floor spaces, shall be fixed by spacer bar saddles, fixed not more than 1000mm apart to the fabric of the building and as specified above.

Conduits buried in concrete shall have 40mm depth cover over its entire length. Conduits buried in plaster shall have 6mm depth of cover over its entire length.

Conduits, which are cast in the concrete, shall be laid directly on the upper surface of the shuttering before concrete is poured spaced to provide a minimum final finish cover of 6mm. Fixing holes shall not be drilled or otherwise made in the back of the conduit boxes.

A space of 75mm shall be left between adjacent and the like conduits where they are to be covered by concrete.

Conduits installed in chases shall be fixed with corrugated steel clips secured with hardened steel saddles secured with hardened pins at 1200mm centers.

Conduits laid on concrete floor slab or floor and roof beams shall be fixed with corrugated steel saddles secured by hardened pins at 1200mm centers and pre-stressed beams fixing must be into the joints between the beams, unless otherwise instructed by the Engineer.

Specifications for Electrical Services Installations

Where conduits, boxes or other fittings are fitted to girders, wrought iron girder clips of approved pattern shall be employed and in no circumstances shall holes be drilled in girders without written instructions from the Engineer.

All conduit outlets installed in concrete or other insitu construction must be plugged with extreme care to prevent ingress of foreign matter to the conduit system and to prevent the conduit system from becoming blocked during building construction due to neglect or lack of attendance.

Female bushes shall be screwed on to all free ends to conduit.

Conduit systems shall be electrically and mechanically continuous and watertight after installation. All conduits system shall be arranged wherever possible to be self-drained to conduit boxes and outlet points. Where necessary, provision shall be made to counteract condensation as directed by the Engineer.

Immediately before wiring, all conduit systems are to be thoroughly swabbed out until dry clean.

All spare ways in junction boxes etc. left for the possible future extensions shall be fitted with stopping plugs.

4.5.6

Installation of Conduits in Damp, External or Corrosive Situations

All conduits and conduit fittings used in kitchen, sculleries, laundries, boiler houses, fuel stores, externally and other specified damp and corrosive situations shall be galvanised.

Where it required to run conduits in wall cavities, floor ducts etc. only galvanized conduits shall be used. Permission must be obtained from the Engineer before these runs are installed.

Immediately before wiring, all conduits system shall be thoroughly swabbed out until dry clean.

All 'U' shaped runs shall be provided with a condensation drain outlet, this shall consist of solid 'tee', the bottom outlet being fitted with brass stopping plug having a drain approximately 3mm diameter.

4.5.7

Plastic Conduits and Fittings

Plastic conduits shall be new, heavy gauge, high impact plastic, complying with BS4607 Parts 1 and 2 as applicable. The conduit shall be metric type A, smooth inside and out, free from imperfection and of minimum 20mm diameter. The conduit shall be suitable for jointing by compression joints, adhesive solution or for screwing with standard electrical threads.

All plastic conduit fittings shall comply with BS 4607 Parts 1 and 2 as applicable.

Conduit and fittings shall be cleaned and reamed after cutting to remove all sharp edges and burrs. Threads shall be cut using tallow as the lubricant and cleaned of all debris and lubricant after screwing. Pre-cut threads shall be cleaned before use by re-running with dies and subsequent wiping.

All plastic conduits and fittings shall be protected from weather and all mechanical damage during installation or whilst stored on site.

All plastic conduits shall have separate insulated earth continuity conductors run within the conduits to ensure earth continuity between exposed metalwork in accordance with the IEE Regulations for the size of conduits used, the number of cables to include the separate insulated earthing conductors.

Specifications for Electrical Services Installations

Bends or sets shall be formed in conduit with aid of a helical spring fitted internally, with the conduit warmed sufficiently for it to move without deformation of the bore and within minimum wall thinning on the outside bend.

It is essential that the manufacturers' instructions are followed implicitly in the installation of such system with regard to bending, setting etc. Particular care shall be taken to ensure that no indentation or reduction in cross sectional areas occurs.

For wiring purposes, all draw-in and inspection boxes must be installed in readily accessible positions as agreed by the Engineer.

No more than two right angle bends or equivalent sets must be made in conduit runs between inspection boxes.

Where conduits are installed side by side, all "off" sets "shall be similar and where off sets are necessary at switch boxes, distribution boards etc. they shall be as short as possible.

4.5.8

Conduit Joints and Couplings

Conduit lengths shall be coupled together by means of plastic sockets joined by screwing or by adhesive solution.

Conduits shall have expansion couplers at intervals not exceeding 7.5m on straight lengths of 11meters and over, with clearance between ends of the two concealed with sealant.

4.5.9

Inspection Boxes

Small circular conduit boxes shall be fixed at all junctions and the necessary angles and bend of the conduits.

For surface work boxes of the raised back pattern shall be used.

Boxes shall be fitted with light plastic white covers when used internally, overlapping type on flush work and recessed covers when used externally and in damp situations.

Where boxes are flush with the ceiling or wall surfaces, approved break joint rings shall be provided where necessary to hide the joint.

4.5.10

Installation

All conduits must be run vertically or horizontally; diagonal runs will not be permitted on walls, in ceiling voids or under raised floor installations.

All conduits shall be supported by means of plastic spacer bars or distance saddles at the following centers: -

<u>Conduit Size</u>	<u>Vertical and Horizontal Spacing</u>
20mm – 25mm	1.2m
32mm – 40mm	1.5m
50mm	1.8m

Specifications for Electrical Services Installations

Saddles shall be fixed within 150mm each side of all bends, sets and draw-in boxes.

Conduits buried in concrete shall have a 40mm depth of cover over the entire length. Conduit buried in plaster shall have a minimum of 16mm depth of cover over its entire length.

Conduits, which are to be cast in concrete slabs, shall be laid directly on the upper surface of the shuttering before the concrete is poured and spaced to provide a minimum finish cover of 16mm. Fixing holes shall not be drilled or otherwise made in the back of the conduit boxes. A space of 75mm shall be left between adjacent conduits where they are to be covered with concrete and the like. Conduits installed in chases shall be fixed with corrugated steel clips, secured with hardened steel pins at 1200mm centers.

Conduits laid in concrete floor slab or floor and roof beams shall be fixed by means of corrugated steel saddles secured by hardened steel pins at 1200mm centres. On pre-stressed beams, fixings must be into the joint between the beams, unless otherwise instructed by the Engineer.

Where conduits, boxes or other fittings are fitted to girders, clips of approved pattern shall be employed and in no circumstances shall holes be drilled in girders without written instruction from the Engineer.

All conduit outlets that are to be installed in concrete or other insitu construction must be plugged with extreme care to prevent the ingress of foreign matter and the conduit system shall be protected from becoming blocked during building construction. The Sub-Contractor will be held entirely responsible for any additional cost resulting from the blockage of conduits, due to neglect or lack of attendance. Female bushes shall be screwed onto all free ends of conduit.

Conduit system shall be mechanically continuous and watertight after installation. All conduit systems shall be arranged wherever possible to be self-drained to conduit boxes and outlet points. Where necessary, provision shall be made to counteract condensation as directed by the Engineer.

Immediately prior to wiring, all conduits systems are to be thoroughly swabbed out until dry clean.

All spare ways in junction boxes etc. left for possible future extensions shall be fitted with stopping plugs.

4.6.1

Cable Trunking

Where the size of trunking is not indicated on the drawings, the wiring capacity shall be determined from the IEE Regulations and tables issued by the manufacturer; the sizes shall be agreed with the Engineer. Unless otherwise stated, trunking shall be selected to accommodate additional cables to the 20% of those to be installed under this contract.

All cable trunking and connections shall comply with BS 4678 part 1 and items of equipment and accessories e.g. end caps, connecting sleeves, bends etc. shall be in accordance with the particular manufacturer's list. Only where the manufacturer's standard fittings are inadequate to meet special local situations will fabricated trunking and fittings be accepted.

Where special fittings or sections of trunking are fabricated, they shall be prepared and finished to the same standard as the manufacturer's equipment.

Standard flange assemblies or flanged adaptors shall be used to terminate trunking in an apparatus at adaptable boxes and at points where it is desired to connect one section of trunking to another. The practice of cutting and bending the material of the trunking will not be accepted.

Specifications for Electrical Services Installations

Trunking lids shall be secured by means of anchored turn buttons and locking bars or from a system approved by the Engineer

When it is necessary to shorten a standard length of trunking cover to suit requirements at least two cover fixing buttons or approved system shall be provided in lengths over 300mm and at least one cover fixing button or approved system shall be provided in the final 300mm at each length of any length of cover.

At connections between trunking and apparatus, a 4mm paxolin fillet shall be fixed between the two to prevent chafing of cables on metalwork. As an alternative, a standard flanged adaptor or flanged assembly shall be used. Direct attachment of trunking to apparatus will only be permitted if cable entries are provided with smooth bore bushes or grommets and the return of the trunking lid is left intact.

Where trunking is used to enclose cables leaving a distribution board, the trunking shall be sized to accommodate all cables connected to the board and to leave 20% capacity room for cables that may be connected to 'spare' ways at a future date.

Holes in trunking shall be drilled, cut or punched and all cut edges painted with zinc rich primer.

Individual pieces of trunking shall be independently supported. On straight runs, fixing shall be at regular intervals not exceeding 1200mm and shall consist of one 1.75" x No. 10 round head screw. Where weatherproof trunking is used, fixing screws shall be brass.

Trunking systems erected outside a building shall be weatherproof. When installed in damp situations the trunking must be spaced from the wall by means of short tube collars.

SPECIAL NOTE:

Cable supports shall be provided at 900mm intervals in vertical runs. Where a fire barrier is required between floors, a 'cable support' shall be provided at floor level and fiberglass insulation packed between the pins.

Where extra low voltage circuits are contained in the same trunking as mains voltage circuits, cable insulation shall be to mains voltage standards. The cables for each different system shall be laced together to denote the different services and voltage ranges and shall be installed on cable separators at 900mm intervals.

Cable separators shall also be provided when it is specified on the plan that circuits are to be separated and when the space factor exceeds 20%. Cable retaining straps shall be provided above each cover-fixing button on a horizontal run of trunking when the cover is on the underside.

The trunking shall be adequately bonded throughout its entire length to comply with IEE Regulations.

4.7

Perforated Cable Trays

Perforated cable trays shall be formed from plain sheet steel complying with BS 1449: Part 1B, classifications CR4/GP. Cable trays shall not exceed 600mm in width and be of the heavy duty return flange pattern and shall be hot dipped galvanized or stainless steel as specified in the Bills of Quantities.

Bends shall be of the same material, thickness and finish as the cable tray and shall have an inner radius of 50mm and a straight length of 100mm at each end.

No perforations shall be made in the circular portion of 100mm and 150mm bends. On 225mm and 300mm bends, perforations shall be made only along a line set at 45°. On 450mm and 600mm bends, perforations shall be made only along the lines set at 30° and 60°.

Specifications for Electrical Services Installations

Tees shall be of the same material, thickness and finish as the cable tray. The distance between a point of intersection and the end of the fitting shall be 100mm.

Mushroom head zinc plated steel roofing bolts and nuts complying with BS 1494: Part 1 shall be used to fix together adjacent sections of the cable tray and/or accessories.

Cable tray edges shall only be cut along a line of plain metal, i.e. not through the perforations. All cut edges of galvanized cable tray shall be prepared and treated with a zinc rich paint.

Site fabrications of accessories shall be kept to a minimum and manufacturer's standard items shall be used. Where special sections are required, the materials, thickness and finish shall be specified for standard items.

Where welding has been employed in the fabrication of cable tray and/or accessories, the area round the joint shall be mechanically prepared and thereafter treated with zinc chromate primer and zinc rich paint, according to the original finish of the metal.

Holes cut in cable tray for the passage of cable shall be provided with grommets complying with BS 1767. Alternatively, they shall be bushed or lined.

A minimum clear space of 1200mm shall be left behind all cable trays for securing cable tray.

Fixing for cable tray shall be disposed at regular intervals not exceeding 1.2m and 225mm from bends and intersections.

Fixings shall be fabricated from mild steel flat bar complying with BS 4360. Where used with galvanized cable tray, fixings shall be hot dipped galvanized, unless only bending and drilling is required in the manufacture, when galvanized mild steel flat bar may be used. Hot dip galvanizing shall comply with BHS 729: Part 1.

Coach screws shall comply with BS 1449 and wood screws with BS 1210. Where used with galvanized fixings, screws shall be steel zinc plated (electro galvanized) to comply with BS 1706, class coatings.

All sections of the cable tray shall be thoroughly bonded to each other and to all fittings and accessories to maintain complete electrical and mechanical continuity.

4.7.1

General

Cable Racks

Cable racks shall be of 2mm thickness. All racks, accessories, screws, nuts, bolts etc. shall be hot dipped galvanized.

The Sub-Contractor shall prepare detailed layout drawings and obtain the Engineer's written consent before the installation work proceeds.

4.8

General

British Standard Specification

Generally, all the electrical installations shall comply with the following statutory requirements and regulations:

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BS 5266 Emergency Lighting

Specifications for Electrical Services Installations

BS 7671 Electrical Wiring Selection
BS 6004 Internal Wiring
BS 3676 & 1363 Switches and Socket Outlets.
BSEN 60947 Power Distribution Boards
BS 5839 Fire Alarms and Detection
BS 6651 Lightning Protection
ICE 1001 Emergency Lighting Luminaires
Chartered Institute of Building Services Engineers (CIBSE) Design Guides
IES Lighting Codes
Kenya Bureau of Standards
Regulations under the Kenya Electricity Acts
Health and safety at Work Act and Regulations

ICT, CCTV and Structured Cabling installations shall comply with the following statutory requirements and regulations: -

ANSI/TIA/EIA - Faceplates, cables, Patch panels
IEEE Standards
IETF Standards
ETSI Standards
CE certification

All fuse switchgear; circuit breakers, contactors etc. shall be of the types outlined, suitable for the fault currents of the system in accordance with the following British Standard Specifications, unless otherwise specified.

BS 89	Direct acting electrical indicating instruments
BS 142	Electrical protective relays
BS 158	Markings and arrangements of switchgear busbars, main connections and small wiring
BS 159	Busbars and busbar connections
BS 162	Electric power switchgear
BS 1449	Steel plate, sheet and strip
BS 1598	Ceramic insulating material for electrical purposes
BS 1858	Bitumen based filling compounds for electrical purposes
BS 3871	Miniature air break circuits for AC circuits
BS 3941	Voltage transformers
BS 5227	AC metal enclosed switchgear and control of rated voltage above 1kV and up to and including 72.5 kV

Specifications for Electrical Services Installations

BS 4752	Switchgear and control gear for voltage up to Part 2 and including 1000 V AC and 1200V DC Part 1: Circuit Breakers
BS 4794	Control switches (switching devices including contactor relays, for control and auxiliary circuits up to and including 1000V AC and 1200V DC)
BS 4800	Paint colours for building purposes
BS 5419	Air break switches, air break disconnectors, air break switch disconnectors and fuse combination units for voltages up to and including 100V AC to 1200 V DC
BS 5424	Control gear for voltages up to and including Part 1 1000V AC and 1200V DC, Part 1 contactors
BS 6004	Pre insulated cables (non-armored) for electric power and lighting
BS 6321	Pre insulated cables for switchgear and control gear wiring.

4.9

Fault Levels

The switchboards and switchgear shall be designed for the system fault levels to be calculated throughout the main and sub distribution networks. Circuit breakers, Switchgear, isolators, contactors, bush bars and cable connections shall be suitable for Operating at the calculated fault levels.

4.9.1

Fused Switched Isolators

All fuses and links shall be accessible from the front. Switches and isolators shall operate on all poles, i.e. the neutral link shall be switched and shall be arranged to break last and make first.

All switchgear shall be capable of making, carrying and breaking the calculated fault level. Switchgear shall be of utilization category reference AC23 and be capable of carrying a maximum prospective short time withstand peak current of twice the rated fault current.

The rated making, carrying and breaking capacity of switchgear is expressed at the arms value of AC component.

All switchgear shall be suitable for uninterrupted duty and contacts shall be silver-plated. Provision shall be made for locking isolators and switches in the off position with Standard padlock.

4.9.2

Fuses

All fuses shall be rated in accordance with BS 88 and shall be to BS rating 415AC80.

4.9.3

Contactors

All contactors shall be of the block type. Contacts shall be of the self-cleaning type and easily renewable. The design shall be such as to prevent welding in.

Specifications for Electrical Services Installations

All operating coils of contactors shall be designed to operate on the control system voltage of the main low voltage switchgear.

Each contactor shall be so screened from adjacent units and current carrying parts that It is possible to carry out, in complete safety, work on its outgoing cable whilst other equipment in the panel remains alive on load.

Means of isolation shall be provided to isolate all primary and secondary circuits to contractors, but means shall be provided to temporarily reinstate interlocks or other circuit interconnections with equipment which is required in service whilst the contactor is isolated.

If the fault level for the main low voltage switchgear is higher than that specified for the making and breaking conditions in Table 2 BS 5424 co-ordination of short circuit protective devices and contactors must be achieved. The manufacturer shall indicate the method and characteristics of achieving this co-ordination.

4.9.4

Cable Glands

All cable boxes and glands for the termination of all cabling shall be supplied as necessary by the Sub-Contractor.

All cable glands shall be in accordance with this Specification and shall be suitable for the cables specified.

Terminals shall be marked in a clear and permanent manner from date of installation.

Entry holes, suitable for the reception of PVC, SWA and MICC cables shall be provided in the gland plates.

4.9.5

Labeling

Each outgoing and incoming circuit shall be clearly labeled to indicate the circuit controlled.

Labels shall include black lettering, minimum height 5mm, on a white background for general use, and 5 mm red letter on a white background for warning labels.

All labels shall be screwed, not glued or fixed by the use of rivets.

Any labeling required inside the panel shall not be by the use of self-adhesive PVC strip.

4.9.6

Cleaning Down and Painting

At the completion of the Contract, all switch and distribution gear shall be cleaned down externally and cleaned out internally.

If the external finish of equipment is damaged during installation, it shall be painted with one undercoat and one finishing coat of a colour indicated by the Engineer. The Sub-Contractor shall allow in his Tender for the cost of any repainting.

On a direct contract, the Sub-Contractor shall allow for employing the appropriate tradesman to carry out his work.

Specifications for Electrical Services Installations

4.10

Fuses and Miniature Circuit Breakers

4.10.1

Fuses Generally

All fuses shall comply with the requirements of BS 88 and shall be supplied to suit the rating of the circuits protected in accordance with the requirements of the IEE Wiring Regulations

4.10.2

Power Fuses

All cartridge fuses shall be fitted with a device to indicate a blown element.

Fuses shall be of the make and type specified and only one make and type shall be used throughout the installation to ensure proper discrimination between fuses.

4.10.3

Control Fuses

Where a control circuit is supplied directly from main power conductors, it shall be protected by HRC power fuses as in power fuses above.

In general, control fuse bases and carriers of the fully shrouded type having cartridge fuses will be accepted, subject to the approval of the Engineer.

The fuse bases and carriers shall be coloured as follows, in accordance with Clause 42 of BS 162: -

5-amp	Black
14-amp	Light Green
Link	White

Fuses of ratings other than 5 or 15 amps shall have the ratings inscribed on the fuse carrier or label. Such fuses shall be distinguished by approved colourings. Thermo setting self-adhesive labels shall be fitted adjacent all control fuses and links.

4.10.4

Fuses for Plugs and Spur Units

Fuses for plugs and spur units shall be of the rating of the equipment they protect and shall be to BS 1362 for the 13 amp and ring final circuit accessories or to BS 196 for industrial ring final circuit accessories.

4.10.5

Miniature Circuit Breakers

All miniature circuit breakers shall be rated to withstand the prospective short circuit currents of the circuits they protect without causing any interference in any other protective devices associated with the distribution system.

At the same time, the design of the circuit breaker shall be such that it will protect the circuit for which it is intended, and not cause or allow other protective devices to operate when overload current conditions apply.

Specifications for Electrical Services Installations

Miniature circuit breakers shall be in accordance with BS 3871: Part 1 and comply with the IEE Wiring Regulations.

4.11

Lighting Installation

4.11.1

General

The lighting installation shall comply with the previous sections of this Specification in as far as they are applicable.

4.11.2

Wiring for Lighting Circuits

Wiring for lighting circuits shall be carried out on the 'loop in' principle. The 'feed' and 'neutral' shall be looped at the lighting point using the 'three plate' system.

The wiring shall be in cable of the appropriate rating, type and grade in accordance with the IEE Regulations.

SPECIAL NOTE:

The conduit box at each lighting and ceiling switch point shall be provided with an earthing terminal consisting of a 12mm M4 RH brass screw and two flat washers fitted to a tapped hole in the box.

To facilitate the connection of the protective conductors, a length of 1.5mm² yellow/green PVC flexible cord fitted to a 5-amp porcelain shrouded brass connector shall be secured to the earthing terminal.

4.11.3

Concealed Conduit Installation

Small circular G.I metal conduit boxes ('loop-in') boxes shall be provided at each lighting point in which to terminate hard wiring.

Sub boxes shall be securely fixed to the structure of the buildings in order to support the weight of the luminaire. Two boxes shall be used for supporting fluorescent luminaires.

Where ceiling boxes finish behind surface level, the correct size extension ring shall be used to finish level with the ceiling finish.

4.11.4

Surface Conduit Installation

Small circular raised back G.I metal boxes shall be provided and securely fixed at all lighting points.

The hard wiring shall be terminated in. Heat resisting cables shall be used or heat resisting sleeving applied to PVC sheathed cables and taken into the luminary from the hard wiring.

When the fluorescent luminaires are to be installed on existing lighting points consisting of only one duty box, spacers shall be fitted behind and at each end of the fitting to give additional support.

4.11.5

Recessed Luminaries in Suspended Ceilings

SPECIAL NOTE:

Where recessed luminaries are specified to be fitted in suspended ceilings the conduit box shall be fitted with a captive 5 amps 3 pin socket outlet and plug. The socket outlet shall be fixed adjacent the lighting fitting and connected to it by a length of 3 core 1.5mm² EPR sheathed flexible cord.

4.11.6

Luminaries

SPECIAL NOTE:

At every lighting point, the Sub-Contractor shall supply and fix the luminary complete with all metalwork and glassware lamps and controls etc.

4.11.7

Installation of Luminaries

SPECIAL NOTE:

White break joint rings shall be provided between the luminaries and conduit box. Except where otherwise specified, the luminaries shall be connected to the sub-circuit using 5 amp porcelain shrouded brass connectors approved by the Engineer and 1.5mm² twin twisted EPR insulated, taped and glazed cotton braided flexible cord.

4.11.8

Lamps and Tubes

Every luminary shall be complete with the number of and size of lamps shown in the Sub-Contractor's detailed Schedule of Luminaries and shall be suitable for the mains voltage or other voltage applicable.

Where fluorescent lamps are indicated they shall be manufactured to BS 1270, type MCF/U. The lamp colour shall be natural daylight 'white' colour code 840 unless specified otherwise for areas requiring special colour rendering or appearances.

SPECIAL NOTE:

At the Practical Completion of the Contract the Sub-Contractor shall allow for replacing all defective and burnt out lamps and shall supply 5% of each type and rating of lamp and tube installed as spare parts and allowance for all costs shall be deemed to be included in the total cost for the luminaries.

A minimum of two of each type and rating shall be supplied and all are to be left with the Employer from whom a signature must be obtained.

4.11.9

Switches

Switch boxes shall comply with BS 4662 and shall be fixed by means of two No. 8 RH screws in plastic walls plugs. In external and damp situations, brass screws shall be used.

20 amp switches shall be supplied and installed where required. Equivalent two-way and intermediate switches shall be provided where necessary.

Specifications for Electrical Services Installations

Multi-gang switches shall be on one plate, if necessary to the next highest available; spare positioned being banked off.

4.11.10 Cleaning Luminaries

At completion of the Contract, the Sub-Contractor shall thoroughly clean all luminaries to ensure all dirt, grit, building rubbish etc is to be removed from each luminaries.

4.12 Power Installation

4.12.1 General

The general power installation shall comply with the various sections of this Specification in as far as they are applicable.

4.12.2 Makes of Accessories and Equipment

The make and finish of accessories and equipment shall be as indicated in the detailed Bills of Quantities.

4.12.3 13 Amp Outlets and Spur Units

The socket outlets shall generally be wired on to 30-amp ring circuits. Where radial circuits are to be installed, these shall be as indicated within the Distribution Schedule.

The Sub-Contractor shall ensure that the correct size fuse is fitted to the plug tops and spur units where they are concerned.

4.13 Emergency Lighting Installation.

4.13.1 General

The emergency lighting and exit sign installation shall conform to previous sections of this Specification insofar, as they are applicable and to BS 5266 Part 1, and to the requirements of the Local Fire Officer.

The system shall comprise either self-contained non-maintained luminaries or maintained general-purpose luminaries. The system will be described elsewhere in this Specification. Provisions may be made through inverter circuits.

Self-contained emergency lighting units shall comply with BS 764, GLC and ICEL 1001 Specifications.

The units shall be complete with the tube and control gear and be suitable for a minimum three-hour operation without significant loss of output.

Specifications for Electrical Services Installations

4.14

Mains Supply

The emergency lighting units shall be provided with a permanent supply, which shall originate from the local sub-circuit fuse or MCB. A key switch shall be incorporated into this supply to allow for capacity testing of emergency lighting power packs.

4.14.1

Emergency Lighting Test Certificate

On completion of the installation, the Sub-Contractor shall submit to the Engineer an 'Emergency Lighting Test Certificate' as referred to in BS 5266 Part 1.

4.15

Fire Detection and Alarm Systems

4.15.1

Mains Supply

The supply shall be taken from an SP&N moulded circuit breaker mounted on the main switchboard. A label shall be fixed to the switch fuse engraved 'FIRE ALARM-DO NOT SWITCH OFF'. The circuit breaker shall be finished painted red.

4.16

Main Equipotential Earthing and Bonding

4.16.1

Materials General

All materials used in the earthing network shall be of high conductivity annealed copper of type, size and with protective covering manufactured to the appropriate British Standard.

4.16.2

Method of Installation

Non-current carrying metalwork shall be bonded to extraneous fixed metalwork and the whole of the non-current carrying metalwork shall be bonded together and to the incoming gas and water services in accordance with the 17th Edition IEE (or latest revised edition) Wiring Regulations. A separate earth electrode system shall be provided at the sub-distribution board to provide the earth system for the complete installation.

4.16.3

Main Earth Electrodes

Earth electrodes shall consist of solid drawn copper earth rods, minimum length 2.4m, 19mm diameter copper, steel cored earth rods driven vertically into the earth.

The rods shall have internal screw joints and shall not be less than 16mm diameter. These rods shall be connected to each other and to any main earth test points using clamp strand connections fixed to the head of each rod and earth cable.

Earth cables must be buried 750mm below ground level unless the earth rod is installed through the bottom of cable manhole to draw in pit, in which case, the cover shall be permanently marked 'Main Electrical Earth'.

Specifications for Electrical Services Installations

4.16.4

Connection of Main Earth Switchgear to Main Earth

All non-current carrying metal parts of main switchgear shall be connected to the main earth bar in accordance with the following table: -

4.16.5

Bonding of Protective Conductors

SPECIAL NOTE AT LV. SWITCHBOARD

All metal pipes or conduits in which the cables have been installed shall be bonded to the main equipotential earth point. The joints, metal sheath and armour, if any, of the cables shall be connected to the main earth point in an approved manner by means of proprietary brand bonding straps, earth lugs and gland earth rings.

Unless otherwise detailed, the cross sectional area of every bond for power cables shall be such that the resistance of each bond to metal sheath and armour, if any, of the cable shall not increase the resistance of the protective conductor. Where cables are more than 365 metres in length, the metal sheaths and armour of such cables shall be bonded to earth at intervals of 150 metres.

4.16.6

Earth Tapes

All connections to earth tapes shall be made by means of tinning, sweating and bolting. All connections to fixings of earth tapes to the building shall be by means of 3.5mm thick phosphor bronze or gunmetal saddles and brass screws.

4.16.7

Bonding to Extraneous Metalwork

Metal sinks, waste pipes, hot and cold pipes and water tanks shall be bonded to the nearest socket outlet and/or spur unit by means of a 2.5mm² PVC insulated cable, coloured green, enclosed with HGSW conduit terminating at a low level in a BS1363 box fitted with a flex outlet plate complete with a solidly mounted earth stud. From the flex outlet plate, a 4mm² PVC insulated cable coloured green, shall be insulated in a neat and tidy manner and is to be securely bonded to the extraneous metalwork by means of proprietary brand earth lug or bonding strap.

4.16.8

Protective Conductors associated with Flexible Conduits

Where flexible conduits are installed, each shall be provided with a separate earth conductor of 4mm² minimum size and shall be connected to the nearest conduit box and the apparatus served by means of tinned copper lugs, brass screws and washers. The protective conductor shall not be installed within the flexible conduit unless otherwise specifically agreed in writing by the Engineer.

4.17

Mounting Heights

4.17.1

General

Unless otherwise indicated, all units shall be mounted at the following heights from finished floor level, to the centre of the unit: -

- b) Lighting switches 1200mm
- c) Socket outlets (wall mounted)

-general 300mm
-plant rooms 1000mm

- d) Fuse spur boxes general (wall mounted) 1400mm
- e) Individual items of switchgear general (wall mounted) 1400mm

4.18

Testing and Commissioning

4.18.1

General

As the installation proceeds and on completion of the installation and at the expiration of the maintenance period, the Sub-Contractor shall carry out tests in the presence of the Engineer on all sections of the Electrical Services Installation and shall submit six signed copies of the results of the tests to the Engineer, together with six copies of a Completion and Inspection Certificate as required by the IEE Regulations for the Electrical Equipment of Buildings, Part 4.

Site testing of all systems and components comprising the Contract Works shall be carried out in the presence of and to the complete satisfaction of the Engineer, after the Sub-Contractor has first satisfied himself that the systems are operating correctly.

The Sub-Contractor shall prepare and submit for approval, comprehensive commissioning documents prior to commencement of testing.

No section of the installation shall be energized until these tests have been completed.

The Sub-Contractor shall provide all certified instruments, equipment, plant, labour and materials necessary for conducting specified tests and shall be responsible for and prepared to demonstrate the accuracy of all test instruments supplied by him.

All installations, plant and tests must satisfy the requirements of the Factories Act and the requirements of all other interested Authorities and the Sub-Contractor shall include for all safety devices etc. required by such Act or Authority.

Observations shall be made of the operation and performance of the installations and subsequent readjustments made as necessary.

Accurate records of all commissioning and tests shall be kept and the results comprehensively reported to the Engineer when the installed system(s) are functioning correctly.

Specifications for Electrical Services Installations

Where it is not possible at a particular time of commissioning and/or demonstration of the plant for full load conditions to be obtained or assimilated, the Sub-Contractor shall repeat the requisite operations of the commissioning and demonstrations under such full load conditions (or the reasonable approximation or assimilation of such conditions acceptable to the Engineer) at the first opportunity.

The Sub-Contractor shall ensure that all equipment and plant under his supply shall be tested at the makers' works before dispatch and six copies of test certificates in respect of each test shall be forwarded to the Engineer.

All works shall comply with the relevant British Standard Specification, IEC Standard Specification and shall be sufficient to show that equipment will function correctly when installed as part of the Contract Works.

Each item of electrical plant or equipment so tested shall be fitted with a plate giving: -

Date of test

Individual equipment serial number

BSS number if any

Test voltage

Operating voltage (if different from test voltage)

Test current

Full load current (if different from test current)

Loading (expressed in KVA) and power factor

Phase

Frequency (expressed in HZ)

The above information shall be included on the test certificate for each item of plant or equipment. This shall also include a description of any particular method of wiring and/or connection with the location of the test and signature of the witness.

The following test results shall be submitted: -

- a) Continuity of ring and final circuit conductors
- b) Continuity of protective conductors, including main and supplementary equipotential bonding
- c) Earth electrode
- d) Insulation resistance
- f) Protection or electrical separation
- i) Earth fault loop impedance
- k) Operation of residual current devices and fault voltage operated protective devices
- l) Each circuit breaker shall be operated manually or electrically 50 times to the satisfaction of the Engineer. Where the circuit breaker is designated for electrical operation at least 10 of these operations shall be made with 80% normal voltage applied to the trip coil in accordance with BS 116: 1952. During this test, the trip free feature shall be demonstrated.

Specifications for Electrical Services Installations

SECTION 05:

Bills of Quantities

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK - RONGO UNIVERSITY
ELECTRICAL INSTALLATIONS

No.	DESCRIPTIONS	UNIT	QTY	UNIT PRICE (KES)	TOTAL (KES)
1	ELEMENT NO.1: ELECTRICAL INSTALLATIONS - GROUND FLOOR				
	GROUND FLOOR				
A	LIGHTING				
1	Lighting points, wired using 3 x 1.5mm ² single core PVC insulated Copper cables drawn in 20mm diameter heavy gauge conduit concealed in floor and roof space for one way switching but excluding the fittings and switches.	No	135		
2	Ditto but <u>Photo cell Switched</u> wired using 3 x 1.5mm ² single core PVC insulated Copper cables ditto	No	47		
3	Supply and install the following light fittings as detailed in the drawing:				
i	Type F2: Philips SmartBright LED Batten complete with opal diffuser, L1200, Colour Temperature 6500k 2000lm 1x20W or equal and approved	No	52		
ii	Type D1: LED BULKHEAD IP65 15W LED10/NW ROUND as Philips WL008C or an equal and approved equivalent.	No	20		
iii	Type D2: IP20 Philips Essential SmartBright LED Downlight DN027B LED9/CW D125 RD , Colour Temperature 6500k, 900lm 20W or an equal and approved equivalent.	No	30		
iv	Type D3: IP44 Philips Essential SmartBright LED Downlight , Colour Temperature 6500k, 20W or an equal and approved equivalent.	No	7		
v	Type B1: IP44 Philips spot light, Colour Temperature 6500k, 12W or an equal and approved equivalent 50mm diameter	No	25		
vi	Type W1: LED BULKHEAD IP65 15W LED10/NW ROUND as Philips WL008C or an equal and approved equivalent.	No	22		
vii	Type W3: LED BULKHEAD 15W LED as Philips or an equal and approved equivalent for lift shaft	No	1		
viii	Type P1: LED Pendant lighting fitting complete with 2m cord, 12W as Philips or an equal and approved equivalent	No	12		
ix	Type Exit: Safe Edge Double sided Exit light-3hours maintained.	No	3		
3	Supply and install the following 10 A moulded switch plates as schneider electric or an equal and approved equivalent.				
i	One Gang one way switch	No	12		
ii	One Gang two way switch	No	4		
iii	Two Gang two way switch	No	5		
iv	Three Gang two way switch	No	4		
v	360°, 8M flush mount ceiling type motion sensor	No	4		
4	Photo Electric Cell (PEC) wired in 3 x 1.5mm ² PVC cables in PVC conduit.	No	2		
5	Lovato 20Amps 2 poles AC modular contactor in enclosure surface fixed adjacent to the DB-I and wired in 3 x 1.5mm ² PVC cables in PVC conduit.	No	2		
B	SMALL POWER INSTALLATIONS				
1	Ring circuits wired in 3x2.5 mm sq. cables drawn in concealed 25mm diameter PVC heavy gauge conduits.	No	68		
2	Radial circuits wired in 3x2.5 mm sq. cables drawn in concealed 25mm diameter PVC heavy gauge conduits. (Mechanical equipment)	No	7		
3	Radial circuits wired in 3x6 mm sq. cables drawn in concealed 25mm diameter PVC heavy gauge conduits. (Cooker)	No	1		
4	Radial circuits wired in 5x2.5 mm sq. cables drawn in concealed 25mm diameter PVC heavy gauge conduits. (booster pump/Samander/Griddle/Bone Saw)	No	4		
	TOTAL CARRIED FORWARD TO THE NEXT PAGE				

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK - RONGO UNIVERSITY
ELECTRICAL INSTALLATIONS

No.	DESCRIPTIONS	UNIT	QTY	UNIT PRICE (KES)	TOTAL (KES)
	Bal B/F - GROUND FLOOR				
5	Radial circuits wired in 5x6 mm sq. cables drawn in concealed 25mm diameter PVC heavy gauge conduits. (Cooker/Oven/Dough mixer)	No	4		
6	Radial circuits wired in 5x4 mm sq. cables drawn in concealed 25mm diameter PVC heavy gauge conduits. (Frier)	No	1		
7	Supply and install the following accessories as Schneider Electric or an Equal and approved equivalent.				
i	13Amps twin switched socket outlet plate	No	53		
ii	13Amps Single switched socket outlet plate	No	15		
iii	20Amps DP Switch	No	4		
iv	13A un-switched spur units (Toilet Extract Fans/Fire Alarm Panel)	No	3		
v	20A TPN Isolator as Legrand or approved equivalent	No	1		
vi	45 Amps Cooker Control Unit face plate with neon indicator	No.	3		
vii	Cooker connection unit	No.	3		
C	<u>DATA & TV CABLE WAYS</u>				
i	Data outlet, TV, CCTV, Acces Control & WAP points with a draw-wire left inside 25mm dia. PVC heavy gauge conduits.	No	35		
ii	Fire Alarm points with a draw-wire left inside 25mm dia. PVC heavy gauge conduits.	No	28		
iii	300 x 300 x 75mm deep cable adaptable boxes complete with screwed cover plate over painted to approval.	No	3		
D	<u>DISTRIBUTION BOARD</u>				
1	Supply and install 8-WAY TPN Distribution Board (DB-GF1) with integral Incomer 125A TP MCCB excluding Outgoing MCBs. All switchgear units to be Schneider electric	No	1		
2	Miniature circuit breakers (MCBs) as Schneider rated at 500Vac for above items				
i	10A(SP)	No	8		
ii	20A(SP)	No	8		
iii	20A (TP) for booster pump	No	1		
iv	40A (SP) for Cooker	No	0		
v	Blanking plate covers	No	5		
3	Supply and install a 10sq. mm 4c PVC/SWA/PVC cable, complete with lugs and cable glands from the above DB to the LV Panel	M	30		
4	Supply and install 12-WAY TPN Distribution Board (DB-GF2) with integral Incomer 125A TP MCCB excluding Outgoing MCBs. All switchgear units to be Schneider electric	No	1		
5	Miniature circuit breakers (MCBs) as Schneider rated at 500Vac for above items				
i	10A(SP)	No	8		
ii	20A(SP)	No	6		
iii	40A (TP) for Cooker/Oven/Dough Mixer	No	4		
iv	32A (TP) for Well Frier	No	1		
v	16A (TP) for Salamander/Griddle/Bone Saw	No	3		
v	Blanking plate covers	No	1		
6	Supply and install a 25sq. mm 4c PVC/SWA/PVC cable, complete with lugs and cable glands from the above DB to the LV Panel	M	30		
	TOTAL FOR GROUND FLOOR CARRIED FORWARD TO SUMMARY PAGE				

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK - RONGO UNIVERSITY
ELECTRICAL INSTALLATIONS

No.	DESCRIPTIONS	UNIT	QTY	UNIT PRICE (KES)	TOTAL (KES)
2	ELEMENT NO.2: ELECTRICAL INSTALLATIONS - FIRST FLOOR				
	FIRST FLOOR				
A	<u>LIGHTING</u>				
1	Lighting points, wired using 3 x 1.5mm ² single core PVC insulated Copper cables drawn in 20mm diameter heavy gauge conduit concealed in floor and roof space for one way switching but excluding the fittings and switches.	No	122		
2	Supply and install the following light fittings as detailed in the drawing:				
i	Type F1: Philips 1200x300mm Panel LED light 22W or equal and approved	No	31		
ii	Type F2: Philips SmartBright LED Batten complete with opal diffuser, L1200, Colour Temperature 6500k 2000lm 1x20W or equal and approved	No	12		
iii	Type F3: Philips CertaFlux LED Panel 600X600MM 865 MD2, Colour Temperature 6500k, 3200lm 44W or an equal approved	No	3		
iv	Type D1: LED BULKHEAD IP65 15W LED10/NW ROUND as Philips WL008C or an equal and approved equivalent.	No	25		
v	Type D2: IP20 Philips Essential SmartBright LED Downlight DN027B LED9/CW D125 RD , Colour Temperature 6500k, 900lm 20W or an equal and approved equivalent.	No	39		
vi	Type D4: IP20 Philips Dimmable LED Downlight, Colour Temperature 6500k, 20W or an equal and approved equivalent.	No	6		
vii	Type W3: LED BULKHEAD 15W LED as Philips or an equal and approved equivalent for lift shaft	No	0		
viii	Type PR: LED Colour Changing Projector lighting fitting complete with 50m cord, 25W as Philips or an equal and approved equivalent	No	2		
3	Type Exit: Safe Edge Double sided Exit light-3hours maintained.	No	4		
	Supply and install the following 10 A moulded switch plates as schneider electric or an equal and approved equivalent.				
i	One Gang one way switch	No	20		
ii	One Gang two way switch	No	11		
iii	Two Gang two way switch	No	5		
iv	Three Gang two way switch	No	1		
v	360°, 8M flush mount ceiling type motion sensor	No	6		
B	<u>SMALL POWER INSTALLATIONS</u>				
1	Ring circuits wired in 3x2.5 mm sq. cables drawn in concealed 25mm diameter PVC heavy gauge conduits.	No	45		
2	Ring circuits wired in 3x2.5 mm sq. cables drawn in concealed 25mm diameter PVC heavy gauge conduits. (AC IDUs)	No	8		
3	Radial circuits wired in 3x2.5 mm sq. cables drawn in concealed 25mm diameter PVC heavy gauge conduits. (Mechanical equipment)	No	7		
4	Radial circuits wired in 5x4 mm sq. cables drawn in concealed 25mm diameter PVC heavy gauge conduits. (CCU AC)	No	2		
	TOTAL CARRIED FORWARD TO THE NEXT PAGE				

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK - RONGO UNIVERSITY
ELECTRICAL INSTALLATIONS

No.	DESCRIPTIONS	UNIT	QTY	UNIT PRICE (KES)	TOTAL (KES)
	Bal B/F - FIRSTFLOOR				
5	Supply and install the following accessories as Schneider Electric or an Equal and approved equivalent.				
i	13Amps twin switched socket outlet plate	No	30		
ii	13Amps Single switched socket outlet plate	No	15		
iii	20Amps DP Switch	No	6		
iv	13A un-switched spur units (Toilet Extract Fans/Fire Alarm Panel)	No	4		
v	32A TPN Isolator as Legrand or approved equivalent	No	2		
vi	45 Amps Cooker Control Unit face plate with neon indicator	No.	0		
vii	Cooker connection unit	No.	0		
C	DATA & TV CABLE WAYS				
i	Data outlet, TV, CCTV, Acces Control & WAP points with a draw-wire left inside 25mm dia. PVC heavy gauge conduits.	No	43		
ii	Fire Alarm points with a draw-wire left inside 25mm dia. PVC heavy gauge conduits.	No	21		
iii	300 x 300 x 75mm deep cable adaptable boxes complete with screwed cover plate over painted to approval.	No	4		
D	DISTRIBUTION BOARD				
1	Supply and install 8-WAY TPN Distribution Board (DB-FF1) with integral Incomer 125A TP MCCB excluding Outgoing MCBs. All switchgear units to be Schneider electric	No	2		
2	Miniature circuit breakers (MCBs) as Schneider rated at 500Vac for above items				
i	10A(SP)	No	12		
ii	20A(SP)	No	16		
iii	32A (TP) for AC CCU	No	2		
iv	Blanking plate covers	No	14		
3	Supply and install a 10sq. mm 4c PVC/SWA/PVC cable, complete with lugs and cable glands from the above DB to the LV Panel	M	70		
	TOTAL FOR FIRST FLOOR CARRIED FORWARD TO SUMMARY PAGE				

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK - RONGO UNIVERSITY

No.	DESCRIPTIONS	UNIT	QTY	UNIT PRICE (KES)	TOTAL (KES)
3	ELEMENT NO.3: ELECTRICAL INSTALLATIONS - SECOND FLOOR				
	SECOND FLOOR				
A	<u>LIGHTING</u>				
1	Lighting points, wired using 3 x 1.5mm ² single core PVC insulated Copper cables drawn in 20mm diameter heavy gauge conduit concealed in floor and roof space for one way switching but excluding the fittings and switches.	No	115		
2	Supply and install the following light fittings as detailed in the drawing:				
i	Type F4: Philips SmartBright LED Batten, L1200, Colour Temperature 6500k 2000lm 1x20W or equal and approved	No	46		
ii	Type F3: Philips CertaFlux LED Panel 600X600MM 865 MD2, Colour Temperature 6500k, 3200lm 44W or an equal approved	No	4		
iii	Type D1: LED BULKHEAD IP65 15W LED10/NW ROUND as Philips WL008C or an equal and approved equivalent.	No	22		
iv	Type D2: IP20 Philips Essential SmartBright LED Downlight				
v	DN027B LED9/CW D125 RD , Colour Temperature 6500k, 900lm 20W or an equal and approved equivalent.	No	28		
vi	Type W3: LED BULKHEAD 15W LED as Philips or an equal and approved equivalent for lift shaft	No	1		
3	Type Exit: Safe Edge Double sided Exit light-3hours maintained.	No	4		
	Supply and install the following 10 A moulded switch plates as schneider electric or an equal and approved equivalent.				
i	One Gang one way switch	No	15		
ii	One Gang two way switch	No	7		
iii	Two Gang two way switch	No	8		
iv	Three Gang two way switch	No	0		
v	360°, 8M flush mount ceiling type motion sensor	No	6		
B	<u>SMALL POWER INSTALLATIONS</u>				
1	Ring circuits wired in 3x2.5 mm sq. cables drawn in concealed 25mm diameter PVC heavy gauge conduits.	No	230		
2	Ring circuits wired in 3x2.5 mm sq. cables drawn in concealed 25mm diameter PVC heavy gauge conduits. (AC IDUs)	No	24		
3	Radial circuits wired in 3x2.5 mm sq. cables drawn in concealed 25mm diameter PVC heavy gauge conduits. (Mechanical equipment)	No	8		
	TOTAL CARRIED FORWARD TO THE NEXT PAGE				

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK - RONGO UNIVERSITY
ELECTRICAL INSTALLATIONS

No.	DESCRIPTIONS	UNIT	QTY	UNIT PRICE (KES)	TOTAL (KES)
	Bal B/F - SECOND FLOOR				
4	Supply and install the following accessories as Schneider Electric or an Equal and approved equivalent.				
i	13Amps twin switched socket outlet plate	No	213		
ii	13Amps Single switched socket outlet plate	No	17		
iii	20Amps DP Switch	No	4		
iv	13A un-switched spur units (Toilet Extract Fans/Fire Alarm Panel)	No	4		
v	32A TPN Isolator as Legrand or approved equivalent	No	0		
vi	45 Amps Cooker Control Unit face plate with neon indicator	No.	0		
vii	Cooker connection unit	No.	0		
	C DATA & TV CABLE WAYS				
i	Data outlet, TV, CCTV, Acces Control & WAP points with a draw-wire left inside 25mm dia. PVC heavy gauge conduits.	No	155		
ii	Fire Alarm points with a draw-wire left inside 25mm dia. PVC heavy gauge conduits.	No	22		
iii	300 x 300 x 75mm deep cable adaptable boxes complete with screwed cover plate over painted to approval.	No	4		
	D DISTRIBUTION BOARD				
1	Supply and install 4-WAY TPN Distribution Board (DB-SF1/2) with integral Incomer 125A TP MCCB excluding Outgoing MCBs. All switchgear units to be Schneider electric	No	2		
2	Miniature circuit breakers (MCBs) as Schneider rated at 500Vac for above items				
i	10A(SP)	No	8		
ii	20A(SP)	No	8		
iii	63A (TP) for EDB CP1/CP2	No	2		
iv	Blanking plate covers	No	2		
3	Supply and install a 10sq. mm 4c PVC/SWA/PVC cable, complete with lugs and cable glands from the above DBs to the LV Panel	M	80		
4	Supply and install UPS Power 4-WAY TPN Distribution Board (DB-CP1/2) with integral Incomer 125A TP MCCB excluding Outgoing MCBs. All switchgear units to be Schneider electric	No	2		
5	Miniature circuit breakers (MCBs) as Schneider rated at 500Vac for above items				
i	10A(SP)	No	0		
ii	20A(SP)	No	24		
iii	Blanking plate covers	No	0		
6	Supply and install a 10sq. mm 4c PVC/SWA/PVC cable, complete with lugs and cable glands from the above DBs to the second floor Raw Power DBs	M	80		
7	2 compartment recessed in floor box complete with cover and 1No. Twin socket outlet, 1No. Dual RJ/11, RJ45 outlet	No	148		
	TOTAL FOR SECOND FLOOR CARRIED FORWARD TO SUMMARY PAGE				

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK - RONGO UNIVERSITY
ELECTRICAL INSTALLATIONS

No.	DESCRIPTIONS	UNIT	QTY	UNIT PRICE (KES)	TOTAL (KES)
4	ELEMENT NO.4: ELECTRICAL INSTALLATIONS - THIRD FLOOR				
	THIRD FLOOR				
A	LIGHTING				
1	Lighting points, wired using 3 x 1.5mm ² single core PVC insulated Copper cables drawn in 20mm diameter heavy gauge conduit concealed in floor and roof space for one way switching but excluding the fittings and switches.	No	115		
2	Supply and install the following light fittings as detailed in the drawing:				
i	Type F2: Philips SmartBright LED Batten complete with opal diffuser, L1200, Colour Temperature 6500k 2000lm 1x20W or equal and approved	No	41		
ii	Type F3: Philips CertaFlux LED Panel 600X600MM 865 MD2, Colour Temperature 6500k, 3200lm 44W or an equal approved	No	2		
iii	Type D1: LED BULKHEAD IP65 15W LED10/NW ROUND as Philips WL008C or an equal and approved equivalent.	No	26		
iv	Type D2: IP20 Philips Essential SmartBright LED Downlight DN027B LED9/CW D125 RD , Colour Temperature 6500k, 900lm 20W or an equal and approved equivalent.	No	30		
v	Type W4: LED Wall mounted Mirror light 12W or an equal and approved equivalent	No	2		
vi	Type W2: LED Decorative wall mounted 9W or an equal and approved equivalent for lift shaft	No	5		
3	Type Exit: Safe Edge Double sided Exit light-3hours maintained.	No	4		
	Supply and install the following 10 A moulded switch plates as schneider electric or an equal and approved equivalent.				
i	One Gang one way switch	No	20		
ii	One Gang two way switch	No	11		
iii	Two Gang two way switch	No	5		
iv	Three Gang two way switch	No	1		
v	360°, 8M flush mount ceiling type motion sensor	No	6		
B	SMALL POWER INSTALLATIONS				
1	Ring circuits wired in 3x2.5 mm sq. cables drawn in concealed 25mm diameter PVC heavy gauge conduits.	No	51		
2	Ring circuits wired in 3x2.5 mm sq. cables drawn in concealed 25mm diameter PVC heavy gauge conduits. (AC IDUs)	No	14		
3	Radial circuits wired in 3x2.5 mm sq. cables drawn in concealed 25mm diameter PVC heavy gauge conduits. (Mechanical equipment)	No	12		
	TOTAL CARRIED FORWARD TO THE NEXT PAGE				

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK - RONGO UNIVERSITY
ELECTRICAL INSTALLATIONS

No.	DESCRIPTIONS	UNIT	QTY	UNIT PRICE (KES)	TOTAL (KES)
	Bal B/F - THIRD FLOOR				
5	Supply and install the following accessories as Schneider Electric or an Equal and approved equivalent.				
	i 13Amps twin switched socket outlet plate	No	39		
	ii 13Amps Single switched socket outlet plate	No	12		
	iii 20Amps DP Switch	No	6		
	iv 13A un-switched spur units (Toilet Extract Fans/Fire Alarm Panel)	No	4		
	v 16A SPN Isolator as Legrand or approved equivalent	No	0		
	<u>C DATA & TV CABLE WAYS</u>				
	i Data outlet, TV, CCTV, Acces Control & WAP points with a draw-wire left inside 25mm dia. PVC heavy gauge conduits.	No	52		
	ii Fire Alarm points with a draw-wire left inside 25mm dia. PVC heavy gauge conduits.	No	24		
	iii 300 x 300 x 75mm deep cable adaptable boxes complete with screwed cover plate over painted to approval.	No	4		
	<u>D DISTRIBUTION BOARD</u>				
	1 Supply and install 8-WAY TPN Distribution Board (DB-TF1) with integral Incomer 125A TP MCCB excluding Outgoing MCBs. All switchgear units to be Schneider electric	No	2		
	2 Miniature circuit breakers (MCBs) as Schneider rated at 500Vac for above items				
	i 10A(SP)	No	12		
	ii 20A(SP)	No	18		
	iii 63A (DP) for apartment units	No	2		
	iv Blanking plate covers	No	16		
	3 Supply and install a 10sq. mm 4c PVC/SWA/PVC cable, complete with lugs and cable glands from the above DB to the LV Panel	M	90		
	Supply and install 4-WAY SPN Consumer Unit with integral Incomer 100A				
	7 DPN MCB excluding Outgoing MCBs. All switchgear units to be Schneider electric	No	2		
	Miniature circuit breakers (MCBs) as Schneider rated at 500Vac for above items				
	i 10A(SP)	No	2		
	ii 20A(SP)	No	2		
	iii Blanking plates for items above	No	4		
	8 Supply and install a 6sq. mm 3c PVC/PVC cable, complete with lugs from the Floor Distribution Board to the CUs	M	70		
	TOTAL FOR THIRD FLOOR CARRIED FORWARD TO SUMMARY PAGE				

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK - RONGO UNIVERSITY
ELECTRICAL INSTALLATIONS

No.	DESCRIPTIONS	UNIT	QTY	UNIT PRICE (KES)	TOTAL (KES)
5	ELEMENT NO.5: ELECTRICAL INSTALLATIONS - ROOF LEVEL				
	ROOF LEVEL				
A	LIGHTING				
1	Lighting points, wired using 3 x 1.5mm ² single core PVC insulated Copper cables drawn in 20mm diameter heavy gauge conduit concealed in floor and roof space for one way switching but excluding the fittings and switches.	No	5		
2	Supply and install the following light fittings as detailed in the drawing: Type D2:IP20 Philips Essential SmartBright LED Downlight				
i	DN027B LED9/CW D125 RD , Colour Temperature 6500k, 900lm 20W or an equal and approved equivalent.	No	4		
ii	Type W3: LED BULKHEAD 15W LED as Philips or an equal and approved equivalent for lift shaft	No	1		
3	Supply and install the following 10A moulded switch plates as schneider electric or an equal and approved equivalent.				
i	One Gang one way switch	No	1		
ii	One Gang two way switch	No	0		
iii	Two Gang two way switch	No	1		
iv	Three Gang two way switch	No	0		
B	SMALL POWER INSTALLATIONS				
1	Ring circuits wired in 3x2.5 mm sq. cables drawn in concealed 25mm diameter PVC heavy gauge conduits.	No	1		
2	Radial circuits wired in 3x2.5 mm sq. cables drawn in concealed 25mm diameter PVC heavy gauge conduits. (Booster pumps / Hose reel pumps)	No	2		
5	Supply and install the following accessories as Schneider Electric or an Equal and approved equivalent.				
i	13Amps twin switched socket outlet plate	No	0		
ii	13Amps Single switched socket outlet plate	No	1		
iii	20Amps DP Switch	No	0		
iv	20A SPN Isolator as Legrand or approved equivalent booster pumps	No	2		
v	100A TPN Isolator as Legrand or approved equivalent - AC ODU Auditorium	No	1		
vi	63A TPN Isolator as Legrand or approved equivalent - AC ODU Comp Labs	No	2		
vii	63A TPN Isolator as Legrand or approved equivalent - Lift	No	1		
viii	50A TPN Isolator as Legrand or approved equivalent - AC ODU Wet Labs	No	1		
ix	40A TPN Isolator as Legrand or approved equivalent - AC ODU Nursing & Moot Court	No	1		
x	32A TPN Isolator as Legrand or approved equivalent - AC ODU Dry Laboratory	No	1		
C	DATA & TV CABLE WAYS				
i	Data outlet, TV, CCTV, Acces Control & WAP points with a draw-wire left inside 25mm dia. PVC heavy gauge conduits.	No	1		
ii	Fire Alarm points with a draw-wire left inside 25mm dia. PVC heavy gauge conduits.	No	0		
iii	300 x 300 x 75mm deep cable adaptable boxes complete with screwed cover plate over painted to approval.	No	2		
	TOTAL CARRIED FORWARD TO THE NEXT PAGE				

**PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK - RONGO UNIVERSITY
ELECTRICAL INSTALLATIONS**

No.	DESCRIPTIONS	UNIT	QTY	UNIT PRICE (KES)	TOTAL (KES)
	ROOF LEVEL				
D	DISTRIBUTION BOARD				
1	Supply and install wall mounted sub-board with Incomer 300A TPN MCCB and 400A TPN+E bus bars excluding Outgoing MCBs. All switchgear units to be Schneider electric				
	Miniature circuit breakers (MCBs) as Schneider rated at 500Vac				
i	1x100A (TP) for AC ODU Auditorium				
ii	3x63A (TP) for AC ODU Comp Labs & Lift				
iii	1x50A (TP) for AC ODU Wet Labs				
iv	1x40A (TP) for AC ODU Nursing & Moot Court				
v	1x40A (TP) for AC ODU Dry Laboratory				
vi	2xTP Spares	Item	1		
	Supply and install a 25sq. mm 4c PVC/SWA/PVC cable, complete with lugs and cable glands from the above sub-board to the Auditorium AC ODU	M	50		
	Supply and install a 16sq. mm 4c PVC/SWA/PVC cable, complete with lugs and cable glands from the above sub-board to the Comp Labs AC ODU	M	100		
	Supply and install a 10sq. mm 4c PVC/SWA/PVC cable, complete with lugs and cable glands from the above sub-board to the Lift	M	20		
	Supply and install a 10sq. mm 4c PVC/SWA/PVC cable, complete with lugs and cable glands from the above sub-board to the Wet Labs AC ODU	M	50		
	Supply and install a 10sq. mm 4c PVC/SWA/PVC cable, complete with lugs and cable glands from the above sub-board to the Nursing & Moot Court AC ODU	M	50		
	Supply and install a 6sq. mm 4c PVC/SWA/PVC cable, complete with lugs and cable glands from the above sub-board to the Dry Laboratory AC ODU	M	50		
	Supply and Install ECC circuit of 1Cx35mm ² PVC PVC copper cables complete with glands and lugs between sub-board and respective earthing location	M	50		
	Supply and install a 35sq. mm 4c PVC/SWA/PVC cable, connected in parallel complete with lugs and cable glands from the above sub-board to the LV Panel. Rate per linear meter of a single run	M	100		
	TOTAL FOR ROOF LEVEL CARRIED FORWARD TO SUMMARY PAGE				

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK - RONGO UNIVERSITY
ELECTRICAL INSTALLATIONS

No.	DESCRIPTIONS	UNIT	QTY	UNIT PRICE (KES)	TOTAL (KES)
6	ELEMENT NO.6: MAINS DISTRIBUTION SYSTEM Supply and deliver to site fitting , equipment and material for distribution system installation. Allow for storage on site of all the material fitting and equipment as stated below. Install connect-up complete, test and commission including all conduits supports, fixing, sleeves and accessories required for complete installation. Allow for Testing and commissioning (Both Hot & Cold) of the entire installations set complete with all accessories, interconnections,& controls. Design-verified switchgear and control gear assemblies conforming to IEC 61439 standards conforming to Form 3b type 2 cubicle pattern to IP54 protection and to specifications, comprising of Legrand, Schneider Electric, Terasaki or ABB switchgear. All earthing accessories/materials shall be as Furse. Earth Inspection chambers should be of HEAVY GAUGE (5000Kgs) minimum, with Lockable lid & should be engraved 'EARTH'				
1	Supply and install complete block set type tested assembly switchboard within the switch room. With indicators for: Power available & Power on Load, voltage, current, kW, kWh, kVA, , etc. (In the main switch room) :- :- A MAINS BUS BARS (Including Neutral and Earth Bars):1 No. Set of Copper sealed bus bars rated 700A: INCOMER:600 Amps with adjustable overcurrent ratings on a scale of 0.75 - 1 incomer including all accessories having a short circuit breaking capacity of 25KA. OUTGOERS: (i) 1X300Amps TPN MCCBS to SDB RF (ii) 1X125Amps TPN MCCBS to EDB GF2 (iii) 3X TPN Spare ways for additional capacity. B GENSET BUS BARS (Including Neutral and Earth Bars):1 No. Set of Copper sealed bus bars rated 200A: INCOMER:2 x 160 Amps MCCBS mechanically and electrically interlocked with adjustable overcurrent ratings on a scale of 0.75 - 1 incomer including all accessories having a short circuit breaking capacity of 25KA. OUTGOERS: (i) 7X63Amps TPN MCCBs (iv) 2XTPN Spare ways for additional capacity. C PFC (vi) 1X160Amps TPN MCB for PFC complete with 4x35 S/C CU connector cables with the PFC D Surge Arrestor Device Class 10				

**PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK - RONGO UNIVERSITY
ELECTRICAL INSTALLATIONS**

ITEM	DESCRIPTION	UNIT	QTY.	RATE (KES)	AMOUNT IN (KES)
E	INDICATORS Phase presence indicators for KPLC & Genset Red, Blue and yellow phases. Supply and Install a Set of digital energy multimetres (complete with current transformers and fuse holder/fuses) for indication of voltage, current, kW, kWh, KVA, power factor, etc. as shown in drawings				
F	MAINS METERING Mains Metering complete with sealable C.T Chamber. 1No. Three Phase Check Meter to be installed as necessary. o - 600A rated digital ammeter for KPLC mains supply, complete with all necessary accessories o - 500V rated digital voltmeter for both KPLC mains supply, complete with all necessary accessories 1No. Digital Power logic meter complete with all necessary accessories and protection as per drawing [PM810 is a guide, Equal products are acceptable upon approval by the engineer]				
G	PFC 12 step 90 KVAR Power Factor Correction Bank with the following characteristics: 6x10 KVar, 6x5 KVar Kvar rated capacitors, complete with appropriately sized fuses for capacitor protection and special contactors for capacitor switching. The capacitor bank-control shall have independent phase-switching and the operating characteristic shall be configurable for classic voltage, adaptive voltage, VAr, or current. The control's configurable operating characteristic shall employ definite as well as inverse timing and provide an adjustable bandwidth to optimize bank operation and eliminate unnecessary switching. The configurable operating characteristic shall allow time and/or temperature overrides. The selected operating characteristic shall have further user-configurable selections to refine its switching decision. NOTE: Accessories shall be as specified or equal and approved.	Item	1		
2	Copper Tapes, Earth Rods, Test Clamps, Earthing Matt, Bentonite, Manhole, Labels, Fixings and Testings to attain IEE Regulations, tests requirements for earthing points for distribution system. Exact location shall be determined on site.	Item	1		
3	Supply and Install ECC circuit of 1Cx120mm ² PVC PVC copper cables complete with glands and lugs between LV Panel and respective earthing locations	Lm.	10		
4	300x25mm x 16 SWG galvanized sheet steel cable tray in the electrical duct complete	Lm.	50		
5	200x50mm x 16 SWG powder coated trunking inclusive of all accessories in the electrical duct	Lm.	50		
TOTAL FOR MAIN DISTRIBUTION SYSTEM CARRIED FORWARD TO THE SUMMARY PAGE					

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK - RONGO UNIVERSITY

No.	DESCRIPTIONS	UNIT	QTY	UNIT PRICE (KES)	TOTAL (KES)
7.0	ELEMENT NO. 7: LIGHTNING PROTECTION				
i	Air termination Type Furse RA 225 + RA 600 rawl bolted on roofing strucutre with water tight rubber gaskets	No	2		
ii	Copper air rod base as Furse Cat No. SD 105	No	2		
iii	25 x 3mm timed copper tape as Furse Cat No. TC 030 fixed with M6 bars nuts Furse and rubber washer on roof sheet at 750mm intervals to approved detail	M	50		
iv	Copper rod to tape coupling as Furse Cat No. CG600	No	2		
v	Oblong test / junction damp as Furse Cat No. CN 105	No	2		
vi	Earth to tape conductors clamps Furse CR520	No	2		
vii	Earth rod as Furse Cat No. RC 015 complete with driving stud, Furse ST015 and spike SP015 driven into ground	No	2		
viii	50sqmm ECC in 32mm diameter PVC conduit between the test clamp and the earth rods	M	20		
ix	Concrete earthing inspection pit, Furse PT-110	No	2		
TOTAL CARRIED FORWARD TO THE SUMMARY PAGE					

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK - RONGO UNIVERSITY
ELECTRICAL INSTALLATIONS

No.	DESCRIPTIONS	UNIT	QTY	UNIT PRICE (KES)	TOTAL (KES)
8.0	ELEMENT NO-8: CLEAN POWER - UPS Supply and install complete , Uninterrupted Power Supply (UPS) equipment complete in all respects and of the following specifications. 1 Capacity: 15KVA Input: Voltage 415V Three Phases +/- 15%. Frequency: 50Hz +/- 6%. Output: Voltage 415V Three Phase +/- 1%. Frequency: 50Hz +/- 0.5 Hz. Wave Form: Sine Wave. Features: - Soft-Start; Linear from 0-100% input current with no inrush within a period of 10 seconds. - True on Line - Double Conversion. - Continuous voltage and frequency regulation system with wide input power voltage range. -Sized for 30 minutes autonomous standby time at full load - To be with in-bult static bypass and surge protection	Item	2		
2	Supply and Install 1Cx10mm² PVC PVC copper cables (R,G,Y,N and E complete with lugs between UPS and Clean Power DBs. Rate per 1m of a single run	M	50		
TOTAL CARRIED FORWARD TO THE SUMMARY PAGE					-

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK - RONGO UNIVERSITY
ELECTRICAL INSTALLATIONS

No.	DESCRIPTIONS	UNIT	QTY	UNIT PRICE (KES)	TOTAL (KES)
9.0	ELEMENT NO-9: BACK UP GENERATOR Supply and install complete sound proof genset complete in all respects and of the following specifications. 1 Capacity: 100KVA Prime Rated Input: Voltage 415V Three Phases +/- 15%. Frequency: 50Hz +/- 6%. Output: Voltage 415V Three Phase +/- 1%. Frequency: 50Hz +/- 0.5 Hz. Wave Form: Sine Wave. Features: Sound proof diesel engine generator set including load manager features suitable for AMF operation and 160A MCCB incorporated with intelligent system for connection of generator signal cable, base fuel tank and all necessary accessories	Item		0	
	2 Supply and Draw in trenches 4Cx35mm² PVC SWA PVC copper cable complete with lugs and glands drawn between the genset and the Low voltage switchboard	LM		0	
	3 Supply all materials inclusive but not limited to earthing cable, Copper Tapes , Earth Rods, Test Clamps, Earthing Matt, Bentonite, Manhole, Labels, Fixings and Testings to attain IEE Regulations, tests requirements for earthing points for distribution system.	Item		0	
	4 Supply and Install 4C x 2.5mm² PVC SWA PVC copper cable for control system	Lm		0	
	5 Supply and install 25mm² ECC single core cables laid in cable trays from generator control panel to earthing location	LM		0	
TOTAL CARRIED FORWARD TO THE SUMMARY PAGE					

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK - RONGO UNIVERSITY
ELECTRICAL INSTALLATIONS

No.	DESCRIPTIONS	UNIT	QTY	UNIT PRICE (KES)	TOTAL (KES)
10.0	ELEMENT NO-10: ADDRESSABLE FIRE ALARM INSTALLATION				
	Supply install and set to work the following; All detectors to be as COOPER / EATON model numbers indicated or equal and approved. All detectors to be complete with mounting base (Attach catalogues)				
	1 Fire alarm points, wired in 2 loops using 2C, 1.5mm2 fire resistant screened cable FP200 drawn in 25mm diameter PVC heavy gauge conduits concealed in roof space and wall from control panel through the detectors.	No	76		
	2 Fire sounder / break glass points, wired in 2 spur using 2C, 1.5mm2 fire resistant screened cable FP200 drawn in 25mm space and wall from control panel through the sounders	No	18		
	3 Addressable photoelectric smoke detectors 400002FIRE-0002X	No	66		
	4 Addressable photoelectric heat detectors	No	10		
	5 Addressable break glass units CBG370S	No	9		
	6 Fire alarm electronic sounders CAS381	No	9		
	7 Addressable 4 Loop Control Panel c/w Printer as Cooper Menvier CF30004G	No	1		
TOTAL CARRIED FORWARD TO THE SUMMARY PAGE					

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK - RONGO UNIVERSITY ELECTRICAL INSTALLATIONS

No.	DESCRIPTIONS	UNIT	QTY	UNIT PRICE KES	TOTAL KES
11.0	ELEMENT NO.11: CCTV INSTALLATIONS Supply, install and set to work the following: - Rates to include, labour and any others items required for proper operation. - (Manufacturer to be HIK Vision or equal and approved. Provide datasheets for each component)				
1	Wiring of CCTV camera with Cat6 4 pair UTP Cable PE Central Cross separator Solid Bare Copper with 24 AWG conductor metal as D-Link or an equal and approved equivalent	Lm.	2000		
2	Category 6 UTP 24 Port Patch Panel high density as D-Link or an equal and approved equivalent.	No	2		
3	4 pair UTP RJ45 patch leads 1 Meter	No	45		
4	4MP Fixed Dome Camera with IR, CMOS Image Sensor	No	39		
5	6MP Fixed Bullet Camera with IR, 2MP CMOS Image Sensor	No	3		
6	64 Channel PoE NVR Recorder with 64integrated PoE network interfaces as Hikvision DS-9664NXI-I8/S 64-ch 2U 4K AcuSense NVR or an equal and approved equivalent and 6TB Surveillance HDD for storage	No	1		
7	CCTV monitor TFT LCD Monitor 32" complete with cabling, splitter and all accessories	No	4		
8	Terminate to NVR, program, test and commission	Item	1		
TOTAL CARRIED FORWARD TO THE SUMMARY PAGE					

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK - RONGO UNIVERSITY
ELECTRICAL INSTALLATIONS

No.	DESCRIPTIONS	UNIT	QTY	UNIT PRICE (KES)	TOTAL KES
12.0	ELEMENT NO.12: STRUCTURED CABLING INSTALLATIONS Supply, install and set to work the following: - Rates to include, labour and any others items required for proper operation. (Provide datasheets for each component)				
1	Cat6 4 pair UTP Cable PE Central Cross separator Solid Bare Copper with 24 AWG conductor metal as D-Link or an equal and approved equivalent	Lm	1000		
2	Category 6 UTP single faceplate with modules	No	212		
3	Category 6 UTP 48 Port Patch Panel high density as D-Link or an equal and approved equivalent.	No	5		
4	Category 6 UTP 24 Port Patch Panel high density as D-Link or an equal and approved equivalent.(For Audio Visual)	No	1		
5	Cable Manager 19" 1U	No	4		
6	22U Floor Mount Cabinet with one 6 way PDU	No	1		
7	24 port Gigabit Smart Managed POE network access switch as DLink DGS-1210-24P or an equal and approved equivalent.(For Audio Visual)	No	1		
7	48 port Gigabit Smart Managed POE network access switch as DLink DGS-1210-52MP or an equal and approved equivalent.	No	5		
8	4 pair UTP RJ45 patch leads 1 Meter	No	232		
9	4 pair UTP RJ45 patch leads 3 Meter	No	12		
10	UniFi6 Long-Range wireless ceiling mount access point	No	20		
11	APC Smart-UPS C1500VA 2U Rack mountable LCD 230V with SmartConnect or an equal and approved equivalent.	No	1		
TOTAL CARRIED FORWARD TO THE SUMMARY PAGE					

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK - RONGO UNIVERSITY

[illegible]

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK - RONGO UNIVERSITY
ELECTRICAL INSTALLATIONS

No.	DESCRIPTIONS				TOTAL KES
	MAIN SUMMARY				
1	ELEMENT NO.1: ELECTRICAL INSTALLATIONS - GROUND FLOOR				
2	ELEMENT NO.2: ELECTRICAL INSTALLATIONS - FIRST FLOOR				
3	ELEMENT NO.3: ELECTRICAL INSTALLATIONS - SECOND FLOOR				
4	ELEMENT NO.4: ELECTRICAL INSTALLATIONS - THIRD FLOOR				
5	ELEMENT NO.5: ELECTRICAL INSTALLATIONS - ROOF LEVEL				
6	ELEMENT NO.6: MAINS DISTRIBUTION SYSTEM				
7	ELEMENT NO. 7: LIGHTNING PROTECTION				
8	ELEMENT NO-8: CLEAN POWER - UPS				
9	ELEMENT NO-9: BACK UP GENERATOR				
10	ELEMENT NO-10: ADDRESSABLE FIRE ALARM INSTALLATION				
11	ELEMENT NO.11: CCTV INSTALLATIONS				
12	ELEMENT NO.12: STRUCTURED CABLING INSTALLATIONS				
13	ELEMENT NO. 13: ACCESS CONTROL SYSTEM				
14	SUB-TOTAL-1				
	PC SUMS				
15	LIFT (13 PAX)				-
16	AUDIO VISUAL (AUDITORIUM)				2,500,000.00
17	KPLC Power Supply (315kVA Transformer and Power Line)				4,000,000.00
18	SUB-TOTAL-2				<u>6,500,000.00</u>
19	SUB-TOTAL-3 Inclusive of PC Sums				<u>6,500,000.00</u>
20	GRAND TOTAL				
Grand total amount in words . Kshs----- Tender's Name:----- Official Stamp:----- V.A.T. No.:----- P.I.N----- Witness:----- Signature:----- Date:-----					

PART NO. 11
PROVISIONAL SUMS

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK

NO.	DESCRIPTION			
	<u>PART NO. 11</u> <u>PROVISIONAL SUMS</u> <u>ELEMENT NO. 1</u> <u>NOTES:</u> 1. The following sums may be expended in whole or in part at the sole discretion and on the sole written authority of the Project Manager. 2. The following sums <u>include</u> 16% V.A.T. <u>Provide Provisional Sums to cover the cost of the following items to be carried out at Main Contractor's Bill rates or rates pro-rata thereto:</u> A <u>Reinforced Concrete Underground Tank</u> Shillings One Million Five Hundred Thousand (Shs. 1,500,000.00) only for Construction of a Reinforced Concrete Underground Tank; B <u>Power House</u> Shillings One Million Five Hundred Thousand (Shs. 1,500,000.00) only for Construction of a Power House; C <u>Contingencies</u> Shillings Ten Million (Shs. 10,000,000.00) only for contingencies to cover cost of any unforeseen or minor additional works;			
		Item		1,500,000.00
		Item		1,500,000.00
		Item		10,000,000.00
	Total Amount of Element No. 1 Provisional Sums Carried to Part Summary			13,000,000.00

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK

NO.	DESCRIPTION
	<u>SUMMARY</u> <u>PROVISIONAL SUMS</u> <u>ELEMENT NO.</u> <u>ELEMENT</u> 1 Provisional Sums 13,000,000.00
	TOTAL FOR PROVISIONAL SUMS TO MAIN SUMMARY 13,000,000.00

PART NO. 12

MAIN SUMMARY

Based on stated Completion of **156 (One Hundred Fifty Six) Calender Weeks.**

PART NO. 12

SPECIFICATIONS

AND

BILLS OF QUANTITIES

FOR

PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK

FOR

RONGO UNIVERSITY

MAIN SUMMARY

PART NO.	PART	PAGE NO.	KSHS.	CTS.
	<u>BILLS OF QUANTITIES FOR: -</u>			
7	Tuition Block	7/52		
8	External Works	8/18		
9	Mechanical Installation Works	P-2		
10	Electrical Installation Works	10/22		
	<u>Sub-Total</u>	Shs.		
5	Particular Preliminaries	5/7		
6	General Preliminaries	6/29		
11	Provisional Sums	12/2	13,000,000	00
<u>TOTAL AMOUNT OF TENDER (V.A.T Inclusive)</u>		KSHS		

PART NO. 12
SPECIFICATIONS
AND
BILLS OF QUANTITIES
FOR
PROPOSED CONSTRUCTION OF TUITION AND SCIENCE LABORATORY BLOCK
FOR
RONGO UNIVERSITY
MAIN SUMMARY (Ctd).
(TENDER)

Signature of Tenderer

Name of Tenderer

Address

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Date

Signature of Witness

Name of Witness

Address

.....

Date