



PROPOSED CONSTRUCTION OF LIBRARY PHASE 1 FOR MAASAI MARA UNIVERSITY, NAROK COUNTY

W.P. ITEM NO. D1065 RV/NRK/230, JOB NO. 11217A

TENDER NO: Mmara-U/OT/01/2023-2024

TENDER DOCUMENTS

Tender Submission Date 13th December 2023 at 1200 Noon East African time



**PROPOSED CONSTRUCTION OF LIBRARY PHASE 1 FOR MAASAI MARA
UNIVERSITY, NAROK COUNTY
W.P. ITEM NO. D1065 RV/NRK/230, JOB NO. 11217A**

TENDER DOCUMENTS

PROJECT MANAGER

Works Secretary
Ministry of L, PW, H&UD
State Department for Public Works,
P.O. BOX 30743 – 00100
NAIROBI

ARCHITECT

Chief Architect,
Ministry of L,PW,H&UD
State Department for Public Works,
P.O. Box 30743-00100,
NAIROBI.

QUANTITY SURVEYOR

Chief Quantity Surveyor,
Ministry of L,PW,H&UD
State Department for Public Works,
P.O. Box 30743-00100,
NAIROBI.

ELECTRICAL ENGINEER

Chief Engineer (Electrical)
Ministry of L, PW,H&UD
State Department for Public Works,
P.O. Box 30743-00100,
NAIROBI.

MECHANICAL ENGINEER

Chief Engineer (Mechanical-BS)
Ministry of L,PW,H&UD,
State Department for Public Works,
P.O. Box 30743-00100,
NAIROBI.

STRUCTURAL ENGINEER

Chief Engineer (Structural),
Ministry of L,PW,H&UD
State Department for Public Works,
P.O. Box 30743-00100
NAIROBI.

INTERIOR DESIGNER

Chief Designer,
Ministry of L,PW,H&UD
State Department for Public Works,
P.O. Box 30743-00100
NAIROBI.

NOVEMBER 2023

TABLE OF CONTENTS

<u>ITEM</u>	<u>PARTICULARS</u>	<u>PAGE NO</u>
1	COVER PAGE	STD / 1- STD / 2
2	TABLE OF CONTENTS PAGE	STD/ 3
3	SIGNATURE AND SPECIAL NOTES PAGE	STD/ 4
4	INVITATION TO TENDERERS	STD / 5 - STD / 7
5	SECTION ONE – TENDERING PROCEDURES	STD/8
6	INSTRUCTIONS TO TENDERERS	STD / 9 - STD / 28
7	TENDER DATA SHEETS	STD / 29- STD / 33
8	SECTION III EVALUATION AND QUALIFICATION PROCEDURES	STD / 34- STD / 47
9	SECTION IV -TENDERING FORMS	STD / 48 - STD / 83
10	SECTION TWO – PROCURING ENTITY’S INFRASTRUCTURE NEEDS	STD / 84
11	SECTION V - BILLS OF QUANTITIES	STD / 85 - STD / 99
12	SECTION VI - SPECIFICATIONS	STD 100
13	SECTION VII - DRAWINGS	STD 101
14	PART III - THE CONDITIONS OF CONTRACT AND CONTRACT	STD/102
15	SECTION VIII - GENERAL CONDITIONS OF CONTRACT (GCC)	STD / 103 - STD /167
16	SECTION IX - SPECIAL CONDITIONS OF CONTRACT	STD / 168 - STD /169
17	SECTION X - CONTRACT FORMS	STD / 170 - STD /189
18	PART IV- BILLS OF QUANTITIES	STD/190
19	SPECIFICATIONS, PREAMBLES AND PRICING NOOTES	SPEC/1-SPEC44
20	PARTICULAR PRELIMINARIES	PP/1- PP/7
21	GENERAL PRELIMINARIES	GP/1- GP/19
22	BUILDERS WORK	BWS/1
23	CIVIL WORKS	CIV1- CIV9
24	ELECTRICAL INSTALLATION AND STRUCTURED CABLING INSTALLATION WORKS	Elec. 1-62
25	2 No. PASSENGER/GOODS LIFT	LIFT1-53
26	PLUMBING, DRAINAGE AND FIRE PROTECTION WORKS	B0Q-1-223
27	PROVISIONAL SUMS	PS/1
28	GRAND SUMMARY	GS/1
29	DRAWINGS	

Prepared by: -

Quantities and Contracts Department,
State Department for Public Works,
P.O Box 30743-00100
NAIROBI.

The contract for the above-mentioned works entered into this day of 2023 by the undersigned refers to these Bills of Quantities and the Ministry of Works General Specification dated March, 1976 (together with any amendments issued thereto) shall be read and construed as part of the said contract.

.....
CONTRACTOR

.....
THE VICE CHANCELLOR,
MAASAI MARA UNIVERSITY

Date.....

Date.....

SPECIAL NOTES

- 1) 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 Principal Secretary, State Department for Public Works, Ngong Road, Nairobi at once and have the same rectified.
- 2) Should the Contractor be in doubt about the precise meaning of any item or figure for any reason whatsoever, he must inform the Principal Secretary, Stated Department for Public Works, Ngong Road, Head Office in order that the correct meaning may be decided before the date for submission of tenders.
- 3) 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



TENDER DOCUMENTS FOR PROCUREMENT OF WORKS (BUILDING AND ASSOCIATED CIVIL ENGINEERING WORKS)

1) NAME AND CONTACT ADDRESSES OF PROCURING ENTITY

Name: **MAASAI MARA UNIVERSITY**

Address: **P.O. Box 861 – 20500, NAROK**

Email address: **procurement@mmarau.ac.ke**

**2) Invitation to Tender (ITT) No: W.P. ITEM NO. D1065 RV/NRK/230, JOB NO. 11217A
TENDER NO: Mmara-U/OT/01/2023-2024**

3) Tender Name: PROPOSED CONSTRUCTION OF LIBRARY PHASE 1 FOR MAASAI MARA UNIVERSITY, NAROK COUNTY

INVITATION TO TENDER**PROCURING ENTITY: MAASAI MARA UNIVERSITY****CONTRACT NAME AND DESCRIPTION: PROPOSED CONSTRUCTION OF LIBRARY PHASE 1 FOR MAASAI MARA UNIVERSITY, NAROK COUNTY**

1. The *Vice Chancellor, Maasai Mara University* invites sealed tenders for the **PROPOSED CONSTRUCTION OF LIBRARY PHASE 1 FOR MAASAI MARA UNIVERSITY, NAROK COUNTY**
2. Tendering will be conducted under open competitive method National 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 *0900 to 1700 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 Websites www.mmarau.ac.ke or www.tenders.go.ke or from the IFMIS portal <http://supplier.treasury.go.ke> Tender documents obtained electronically will be free of charge.
5. Tender documents may be viewed and downloaded for free from the website www.mmarau.ac.ke or www.tenders.go.ke or from the IFMIS portal <http://supplier.treasury.go.ke>. Tenderers who download the tender document must forward their particulars immediately to procurement@mmrau.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 **150 days** from the date of opening of tenders.
7. All Tenders must be accompanied by a tender Security/Bid Bond inform of Bank Guarantee from a bank or insurances approved by Public Procurement Regulatory Authority (PPRA) of Kenya Shillings **Ten Million (Kshs 10,000,000)only**.
8. The Tenderer shall chronologically serialize all pages of the tender documents submitted.
9. Completed tenders must be delivered to the address below on or before **13th December ,2023 at 1200 Noon Electronic Tenders will not be permitted.**
10. Tenders will be opened immediately after the deadline date and time specified above or any dead line date and times pecified later. Tenders will be publicly opened in the presence of the Tenderers' designated representatives who choose to attend at the address below.
11. Pre tender site visit shall be on Thursday **30th November 2023 from 1000hrs to 1200 Noon** at
Masai Mara University
12. Late tenders will be rejected.
13. The addresses referred to above

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

- (1) Name of Procuring Entity: **MAASAI MARA UNIVERSITY**
- (2) Physical address for hand Courier Delivery to an office or Tender Box
Procurement Office
- (3) Postal Address: **P.O. Box 861 – 20500, Narok.**
- (4) Insert the name: Procurement Officer
- (5) telephone number :**0205 131 400**
- (6) and e-mail address: procurement@mmrau.ac.ke

B. Address for Submission of Tenders.

- (1) Name of Procuring Entity: **MAASAI MARA UNIVERSITY**
- (2) Postal Address: **P.O. Box 861 – 20500, Narok**
- (3) Physical address for hand Courier Delivery to an office or Tender Box at
Masai Mara University, Procurement Office

C. Address for Opening of Tenders.

- (1) Name of Procuring Entity: **MAASAI MARA UNIVERSITY**
- (2) Physical address for the location: **P.O. Box 861 – 20500, Narok**
- (3) **Procurement Office**

**Vice Chancellor,
Maasai Mara University**

Name _____

(Official of the Procuring Entity issuing the invitation)

Designation _____

Signature _____

Date _____

PART1:TENDERING PROCEDURES

SECTION I - INSTRUCTIONS TO TENDERERS

A GENERAL PROVISIONS

1.0 Scope of tender

1.1 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.

1.2 Throughout this tendering document:

- a) The term “inwriting” 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.

2.0 Fraud and corruption

2.1 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.

2.2 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.

2.3 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.

2.4 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.

3.0 Eligible tenderers

3.1 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 agreement 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**.

- 3.2** 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.
- 3.3** 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 an other tenderer;
 - b) Receives or has received any director indirect subsidy from another tenderer;
 - c) Has the same legal representative as an other tenderer;
 - d) Has a relationship with an other tenderer, directly or through common third parties, that puts it in a position to influence the tender of an other 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 conflicts stemming from such relationship has been resolved in a manner acceptable to the Procuring Entity throughout the tendering process and execution of the Contract.
- 3.4** 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
- 3.5** 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.
- 3.6** 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.

- 3.7** 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.
- 3.8** 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 enterprisetoenableitcompetewithfirmsintheprivatesectoronanequalbasis.
- 3.9** 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) byanactofcompliancewith a decision of the United Nations Security Council taken under Chapter VII of theCharterof 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.

- 3.10** 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 I II - EVALUATION AND QUALIFICATION CRITERIA, Item 9”*.
- 3.11** 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.
- 3.12** 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.
- 3.13** 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.

- 4.14 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.

4.0 Eligible goods, equipment, and services

- 4.1 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.
- 4.2 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.

5.0 Tenderer's responsibilities

- 5.1 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.
- 5.2 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 be the tenderer's own expense.
- 5.3 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 all 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.
- 5.4 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

6.0 Sections of Tender Document

- 6.1 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 Materials 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

- 6.2** 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.
- 6.3** 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.
- 7.0 Clarification of Tender Document, Site Visit, Pre-tender Meeting**
- 7.1** 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.
- 7.2** 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.
- 7.3** 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.
- 7.4** 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.
- 7.5** 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.

8.0 Amendment of Tender Documents

- 8.1 At any time prior to the deadline for submission of Tenders, the Procuring Entity may amend the Tender Documents by issuing addenda.
- 8.2 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.
- 8.3 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 with out 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.

13. Alternative Tenders

- 13.1 Unless otherwise specified in the TDS, alternative Tenders shall not be considered.
- 13.2 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.
- 13.3 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.
- 13.4 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.

14.0 Tender Prices and Discounts

- 14.1 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.
- 14.2 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.
- 14.3 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.
- 14.4 The Tenderer shall quote any discounts and the methodology for their application in the Form of Tender, in accordance with ITT 12.1.
- 14.5 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 incases 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.

14.6 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.

14.7 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.

15.0 Currencies of Tender and Payment

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

15.2 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.

15.3 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 break down 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

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

17.2 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.

17.3 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.

17.4 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.

- 17.5** 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.
- 17.6** 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.
- 17.7** 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 depending on 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 responses 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.

19.6 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.

19.7 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 ITT 47; or
 - ii) furnish a Performance Security and if required in the TDS, and any other documents required in the TDS.

- 19.8** 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.
- 19.9** 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.
- 19.10** A tenderer shall not issue a tender security to guarantee itself.

20.0 Format and Signing of Tender

- 20.1** 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 origin and the copies, the original shall prevail.
- 20.2** 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.
- 20.3** 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.
- 20.4** In case 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.
- 20.5** 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

21.0 Sealing and Marking of Tenders

- 21.1** 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 a new 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.

21.2 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.

22.0 Deadline for Submission of Tenders

22.1 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**.

22.2 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

24.1 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 withdrawal 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.

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

24.3 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

25.1 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**.

25.2 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

- 27.1** 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.
- 27.2** 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.

28.0 Deviations, Reservations, and Omissions

- 28.1** 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.

29.0 Determination of Responsiveness

- 29.1** 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.
- 29.2** 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.
- 29.3** 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.
- 29.4** 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.

30.0 Non-material Non-conformities

- 30.1** Provided that a tender is substantially responsive, the Procuring Entity may waive any non-conformities in the tender.
- 30.2** 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.

30.3 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**.

31.0 Arithmetical Errors

31.1 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.

31.2 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 prices 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

31.3 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

33.1 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.

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

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

33.4 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

34.1 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.

34.2 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.

34.3 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

35.1 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.

35.2 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.

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

35.4 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 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

37.1 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.

37.2 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.

- 37.3** 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

- 37.4** 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.

- 37.5** In case of an abnormally 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.

- 37.6** 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

- 38.1** 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.

- 38.2** 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

44.1 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.

44.2 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

- 45.1** 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.
- 45.2** 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

- 47.1** 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.
- 47.2** Within fourteen (14) days of receipt of the Contract Agreement, the successful Tenderer shall sign, date, and return to the Procuring Entity.
- 47.3** 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

- 48.1** 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.
- 48.2** 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.
- 48.3** 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	<p>The name of the Contract is: PROPOSED CONSTRUCTION OF LIBRARY PHASE 1 FOR MAASAI MARA UNIVERSITY, NAROK COUNTY</p> <p>The reference number of the contract is: W.P. ITEM NO. D1065 RV/NRK/230, JOB NO. 11217A</p> <p>TENDER NO: Mmara-U/OT/01/2023-2024</p> <p>The number and identification of Lots (contracts) comprising this tender are: <i>Not applicable</i></p> <p>Lot 1 Name: _____</p> <p>Lot 2 Name: _____</p> <p>Lot...Name: _____</p>
ITT 2.3	<p>The information made available on competing firms is as follows:</p> <ul style="list-style-type: none"> a. Standard tender documents b. Bills of quantities c. Specifications d. Drawings
ITT 2.4	<p>The firms that provided consultancy services for the contract being tendered for are:</p> <p>STATE DEPARTMENT FOR PUBLIC WORKS, P.O. Box 30743 – 00100, NAIROBI</p>
ITT 3.1	<p>The maximum number of members in a Joint Venture (JV) shall be: <i>Two (2)</i></p>
B. Contents of Tender Document	
ITT 7.1	<p>(i) The Tenderer will submit any request for clarifications in writing at the Address: <u>procurement@mmrau.ac.ke</u></p> <p>To reach the Procuring Entity not later than <u>5th December 2023</u></p> <p>(ii) The Procuring Entity shall publish its response at the website <u>www.mmarau.ac.ke</u></p>

REFERENCE TO ITC CLAUSE	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
ITT 7.2	<p>(A) A pre-arranged pretender site visit take place at the following date, time and place:</p> <p>Date: Thursday 30th November 2023 Time: 1000Hrs to 1200 Noon Place: Maasai Mara University</p> <p>(B) Pre-Tender meeting take place at the following date, time and place: N/A</p>
ITT 7.3	The Tenderer will submit any questions in writing, to reach the Procuring Entity not later than <u>5th December 2023</u> 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: <u>N/A</u>
ITT 9.1	<p>For Clarification of Tender purposes, for obtaining further information and for purchasing tender documents, the Procuring Entity's address is:</p> <p>Name of Procuring Entity: MAASAI MARA UNIVERSITY</p> <p>(1) Physical address for hand Courier Delivery to an office or Tender Box</p> <p style="padding-left: 40px;">At the Entrance of Senate Boardroom</p> <p>(2) Postal Address P.O. Box 861 – 20500, NAROK</p> <p>(3) Insert name, telephone number and e-mail address of the officer to be contacted: Procurement officer</p>
C. Preparation of Tenders	
ITT 11.1 (h)	<p>The Tenderer shall submit the following additional documents in its Tender:</p> <p><i>a) Original Standard tender documents as issued by the Procuring entity</i> <i>b) Conditions of the contract</i></p>
ITT 13.1	Alternative Tenders shall not be considered.
ITT 13.2	Alternative times for completion shall not be permitted.
ITT 13.4	<p>Alternative technical solutions shall be permitted for the following parts of the Works:</p> <p><i>a) Electrical Installation services</i> <i>b) Mechanical Installation Services</i></p>
ITT 14.5	The prices quoted by the Tenderer shall be: <i>Fixed</i>
ITT 15.2 (a)	Foreign currency requirements <i>not allowed.</i>
ITT 18.1	The Tender validity period shall be 150 days.

REFERENCE TO ITC CLAUSE	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
ITT 18.3	<p>(a) The Number of days beyond the expiry of the initial tender validity period will be 30 days.</p> <p>(b) The Tender price shall be adjusted by the following percentages of the tender price:</p> <p>(i) By <u>Not applicable %</u> the local currency portion of the Contract price adjusted to reflect local inflation during the period of extension, and</p> <p>(ii) By <u>Not applicable %</u> the foreign currency portion of the Contract price adjusted to reflect the international inflation during the period of extension.</p>
ITT 19.1	The Tenderer shall provide a Tender Security. The type of Tender security shall be a demand guarantee in the approved format <i>Bank guarantee or guarantee by an insurance company registered and licensed by IRA</i> in the amount of Kshs: 10,000,000 Only
ITT 20.1	In addition to the original of the Tender, the number of copies is: One (1)
ITT 20.3	The written confirmation of authorization to sign on behalf of the Tenderer shall consist of <i>proof of Power of attorney certified by commissioner of Oaths</i>
D. Submission and Opening of Tenders	
ITT 22.1	<p>(A) For <u>Tender submission purposes</u> only, the Procuring Entity's address is:</p> <p>(1) Name of Procuring Entity: MAASAI MARA UNIVERSITY</p> <p>(2) Postal Address: P.O. Box 861 – 20500, Narok</p> <p>(3) Physical address for hand Courier Delivery to an office or Tender Box At the Entrance of Senate Boardroom</p> <p>(4) Date and time for submission of Tenders: 13th December 2023 at 1200 Noon</p> <p>(5) Tenderers shall not submit tenders electronically.</p>
ITT 25.1	<p>The Tender opening shall take place at the time and the address for Opening of Tenders Provided below:</p> <p>(1) Name of Procuring Entity: MAASAI MARA UNIVERSITY</p> <p>(2) Physical address for the location Senate Boardroom</p> <p>(3) State date and time of tender opening. 13th December 2023 at 1200 Noon</p>
ITT 25.1	If Tenderers are allowed to submit Tenders electronically, they shall follow the electronic tender submission procedures specified below <i>[insert a description of the electronic Tender opening procedures]</i> : Not Applicable

REFERENCE TO ITC CLAUSE	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
ITT 25.5	The number of representatives of the Procuring Entity to sign is: <i>As directed by procuring entity</i>
E. Evaluation, and Comparison of Tenders	
ITT 30.3	The adjustment shall be based on the “ <i>average</i> ” 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.
ITT 32.0	The currency that shall be used for Tender Evaluation and comparison purposes to convert at the selling exchange rate all Tender prices expressed in various currencies into a single currency is Kenya Shillings
ITT 33.2	A margin of preference <i>shall not</i> apply.
ITT 33.4	The invitation to tender is extended to the following group that qualify for Reservations <i>Not applicable</i>
ITT 34.1	At this time, the Procuring Entity <i>does not intend to</i> execute certain specific parts of the Works by subcontractors selected in advance.
ITT 34.2	Contractors may propose subcontracting: Maximum percentage of subcontracting permitted is: 10 % <i>of the total contract amount</i> . 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: <i>Electrical Installation Services</i>
	<i>Mechanical Installation Services</i> 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 (d)	Additional requirements apply. These are detailed in the evaluation criteria in Section III, Evaluation and Qualification Criteria. <i>As indicated under ITT 11.1</i>
ITT 48.1	Other documents required in addition to the Performance Security are: <i>Insurances and which may be deemed necessary</i> Note On compliance with Technical Specifications, bidders shall supply equipment/items which comply with the technical specifications set out in the bid document. In this regard, the bidders will be required to submit relevant technical brochures/catalogues with the tender document, highlighting (using a mark-pen or highlighter) the Catalogue Number/model of the proposed items. Such brochures/catalogues should indicate comprehensive relevant data of the proposed equipment/items which should include butnot limited to the following: i) Standards of manufacture;

REFERENCE TO ITC CLAUSE	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
	<ul style="list-style-type: none"> ii) Performance ratings/characteristics; iii) Material of manufacture; iv) Electrical power ratings; and v) All other requirements as indicated in the technical specifications of the bid.
ITT 49.1	<p>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.</p> <p>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: procurement@mmrau.ac.ke</p> <p>For the attention: Vice Chancellor Title/position: <i>Vice Chancellor</i> Procuring Entity: <i>Maasai Mara University</i> Email address: <i>vc@mmrau.ac.ke</i></p> <p>In summary, a Procurement-related Complaint may challenge any of the following (among others):</p> <ul style="list-style-type: none"> (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:
- 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.
 - Value of single contract - Exchange rate prevailing on the date of the contract signature.
 - 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.

The Evaluation shall be carried out in the following stages

- (1) Preliminary Evaluation
- (2) Qualification Form (Technical Evaluation)
- (3) Financial Evaluation
- (4) Due Diligence
- (5) Recommendation for Award

2 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.

(1) Stage 1 Preliminary Evaluation

S/No	PRELIMINARY EVALUATION CRITERIA / MANDATORY REQUIREMENTS FOR MAIN CONTRACTOR	MET OR NOT MET
MR1	Dully filled and signed form of tender prepared in accordance with ITT 12	
MR2	Provide proof of registration with the National Construction Authority (NCA) category 1 only under builders works category with current annual contractors practicing license.	
MR3	Must submit one original copy of the Tender Document and one copy . Submission of Original and Copy (all Volumes) in the format required by the procuring entity and all the tender document (all volumes) to be tape BOUND	
MR4	Properly tape bound; perfect cover, hard cover or case bound (<i>use of spring bound and spring files will lead to automatic disqualification</i>), paginated, serialized tender document (each page of the tender submission must have a number and the numbers must be in chronological order). For pagination, Arabic Numerals shall be used, i.e. 1,2,3,4,5,6,7,8,9,10.... n (n being the last numerical page of the tender document)	
MR5	Tender Security in accordance with ITT 19.1; of Bank Guarantee from a bank or insurance company approved by Public Procurement Regulatory Authority (PPRA) in the amount of Kenya shillings Ten Million (Kshs10,000,000) . The tender security shall be as per the standard form included in Section IV, Tender Forms.	
MR6	Provide proof of power of attorney issued within the tendering period (of tender signatory if not director of the company/ partner, signed and stamped by Commissioner of Oaths)	
MR7	Valid Copy of Certificate of Incorporation/ Registration. (Certified by a Commissioner of Oaths)	
MR8	Submission of valid CR12 form showing the list of directors /shareholding (issued within the tendering period) or National Identity Card(s) for Sole Proprietorship/ Partnership (Certified by a Commissioner of Oaths)	
MR9	Valid Current Tax Compliance Certificate (To be verified by TCC Checker)	
MR10	Dully filled, signed and stamped Confidential Business Questionnaire	
MR11	Valid Copy of Current Single Business permit (for the year 2023) for the County applied. (Certified by a Commissioner of Oaths)	
MR12	Letter of authority granting permission to seek references from the Tenderer's bankers.	
MR13	Must duly fill the Certificate of Independent Tender Determination in the format provided	
MR14	Must duly fill the Self-declaration form that the person/tenderer is not debarred in the matter of the Public Procurement and Asset Disposal Act 2015 in the format provided - Form SD1 .	
MR15	Must duly fill the Self-declaration that the person/tenderer will not engage in any corrupt or fraudulent practice in the format provided - Form SD2	
MR16	Must fill and submit Declaration and Commitment to The Code of Ethics in the format provided	
MR17	Must provide NSSF Compliance Certificate (Certified by a Commissioner of Oaths)	
MR18	Must provide NHIF Compliance Certificate (Certified by a Commissioner of Oaths)	
MR19	Must provide OSHA Compliance Certificate (Certified by a Commissioner of Oaths)	

S/No	PRELIMINARY EVALUATION CRITERIA / MANDATORY REQUIREMENTS FOR MAIN CONTRACTOR	MEASURED OR NOT MET
MR20	Submit certified copies of audited accounts (Signed by Auditors and Directors) for the last three (3) years (2022,2021 and 2020) duly signed and stamped by a registered auditor /audit firm (Attach ICPAK Certificate) (Certified by a Commissioner of Oaths)	
MR21	<p>Domestic Contractor's Agreement- A duly signed and stamped Agreement dated within the period of tender for this works between the Main contractor and the</p> <p>a) Electrical Installation works subcontractor</p> <p>b) Mechanical Installation Works Subcontractor</p> <p>Stating that if the main contractor is awarded the contract, he shall work with the firms as their domestic subcontractors</p> <p>The agreement must be witnessed by an attorney/advocate (Not necessary if the main contractor is registered for specialist work)</p> <p>NB:</p> <ul style="list-style-type: none"> • The criteria for the subcontract bids shall be referred from the Mechanical and Electrical folios respectively. • Bidders who do not satisfy any of the above requirements shall be considered non-responsive and their tenders will not be evaluated further. • Preliminary Evaluation for the proposed specialist works listed under ITT 34.3 to be as contained in this volume as per the section below. • Order of evaluation of works will be as follows: <ul style="list-style-type: none"> a) Preliminary evaluation of Main Works b) Preliminary Evaluation of Electrical Installation Works, Mechanical Installation Works c) Technical Evaluation of Main Works (Qualification Form) <ul style="list-style-type: none"> 1. d) Technical Evaluation of Electrical & Mechanical Works and Financial Evaluation 	

Note-All the above documents may be verified for authenticity.

Bidders who do not satisfy any of the above requirements shall be considered non responsive and their tenders will not be evaluated further

30 TENDER EVALUATION (ITT 35)

Price evaluation: in addition to the criteria listed in ITT 35.2 (a) – (d) the following criteria shall apply:

- (i) Alternative Completion Times, if permitted under ITT13.2, will be evaluated as follows:

.....
- (ii) Alternative Technical Solutions for specified parts of the Works, if permitted under ITT 13.4, will be evaluated as follows:.....
- (iii) Other Criteria; if permitted under ITT 35.2(j):

.....

4.0 MULTIPLE CONTRACTS

- 4.1 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

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)**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.

6.0 MARGIN OF PREFERENCE

- 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 share holding 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) Incase 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 Kenya *Shillings 450,000,000.00 (Attach evidence in form of letter from bank, overdraft facility, current bank statements for the last 6 months)*
 - ii) Minimum average annual construction turnover of Kenya Shillings *1,300,000,000.00* equivalent calculated as total certified payments received for contracts in progress and/or completed within the last 3 years.
(Attach evidence in form of audited accounts serialized on every page; duly signed and stamped by a registered auditor /audit firm) (ICPAK REGISTERED- Attach Valid license for the auditor and Audit firm)
 - iii) Atleast 4 of contract(s) of a similar nature executed within Kenya, 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 each of minimum value Kenya shillings 400,000,000.00 equivalent.*(Attach evidence of letter of award, acceptance letter, contract signed and certificate of practical completion)*
 - i) Contractor's Representative and Key Personnel, which are specified as listed in qualification form *listed in the Qualification Form*.
 - iv) Contractors key equipment listed on the table "Contractor's Equipment" below and more specifically listed as *listed in qualification form*
 - v) Other conditions depending on their seriousness.

a) 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 in the last 3 years The required information shall be furnished in the appropriate form.

b) 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.

c) Litigation History

There shall be no consistent history of court/arbitral award decisions against the Tenderer, in the last 3 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.

STAGE 2 QUALIFICATION FORM (TECHNICAL EVALUATION)

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 compliance certificate or tax exemption certificate issued by Kenya Revenue Authority in accordance with ITT 3.14.	Attachment	
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 2019	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		Form CON – 2	

1	2	3	4	5
Item No.	Qualification Subject	Qualification Requirement	<i>Document To be Completed by Tenderer</i>	<i>For Procuring Entity's Use (Qualification met or Not Met)</i>
		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.		
10	Litigation History	No consistent history of court/arbitral award decisions against the Tenderer since 1 st January 2019.	Form CON – 2	
<p>1. Non performance, as decided by the Employer, shall include all contracts where (a) nonperformance was not challenged by the contractor, including through referral to the dispute resolution mechanism under the respective contract, and (b) contracts that were so challenged but fully settled against the contractor. Non performance shall not include contracts where Employers decision was overruled by the dispute resolution mechanism. Non performance must be based on all information on fully settled disputes or litigation, i.e. dispute or litigation that has been resolved in accordance with the dispute resolution mechanism under the respective contract and where all appeal instances available to the Bidder have been exhausted.</p> <p>2. This requirement also applies to contracts executed by the Bidder as JV member.</p>				

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)
11	Financial Capabilities	<p>(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 450,000,000. equivalent for the subject contract(s) net of the Tenderer's other commitments.</p> <p>(ii) The Tenderers shall also demonstrate, to the satisfaction 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.</p> <p>(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 [3] years shall be submitted and must demonstrate the current soundness of the Tenderer's financial position and indicate its prospective long-term profitability. <i>Attach evidence in form of letter from bank, overdraft facility, current bank statements for the last 6 months</i>_</p>	Form FIN – 3.1, with attachments	
12	Average Annual Construction Turnover	Minimum average annual construction turnover of Kenya Shillings 1,300,000,000 , equivalent calculated as total certified payments received for contracts in progress and/or completed within the last 3 years, divided by 3 years <i>Attach evidence in form of audited accounts serialized on every page ; duly signed and stamped by a registered auditor /audit firm(ICPAK REGISTERED, attach license)</i>	Form FIN – 3.2	

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)
13	Clearance Certificate from Credit Reference Bureau (CRB)	Attach Certified copy of Clearance Certificate from Licensed Credit Reference Bureau for 2023 (Certified by a Commissioner of Oaths)		
14	General Construction Experience	Experience under construction contracts in the role of prime contractor, JV member, sub-contractor, or management contractor for at least 15 years, starting 1 st January 2008. A minimum number of 1 contract Provide Completion certificates/ Recommendation letter	4. Form EXP – 4.1 Experience	
15	Specific Construction & Contract Management Experience	<p>A minimum number of 4 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 2019 and tender submission deadline i.e.4 (contracts, each of minimum value Kenya shillings.....400,000,000..... equivalent.</p> <p>[Bidders shall attach copies of the following:</p> <ul style="list-style-type: none"> a) Letters of Award or, b) Recommendation letters from the client c) Signed Contract and Completion Certificate for the respective projects. Or 	Form EXP 4.2(a)	

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)
		If project is ongoing, it must be at least 80% complete. Bidder to attach copies of interim payment certificatesThe similarity of the contracts shall be based on the following: <i>[Based on Section VII, Scope of Works, specify the minimum key requirements in terms of physical size, complexity, construction method, technology and/or other characteristics including part of the requirements that may be met by specialized subcontractors, if permitted in accordance with ITT 34.3]</i>		
<p>1.The similarity shall be based on the physical size, complexity, methods/technology and/or other characteristics described in the Bills of Quantities and Drawings. Summation of number of small value contracts (less than the value specified under requirement) to meet the overall requirement will not be accepted.</p> <p>2.Substantial completion shall be based on 80% or more works completed under the contract.</p> <p>3.For contracts under which the Bidder participated as a joint venture member or sub-contractor, only the Bidder's share, by value, shall be considered to meet this requirement.</p>				
16	Contractors key equipment	1. Concrete Mixers – Three (3)	Form EQU: Equipment	
		2. 15 Tonne Tipper Lorries- Four (4)	Form EQU: Equipment	
		3. Pick-ups- Two (2)	Form EQU: Equipment	
		4. Concrete Poker Vibrator – Five (5)	Form EQU: Equipment	
		5. Welding machine – Two (2)	Form EQU: Equipment	
		6. Hoists - Two (2)	Form EQU: Equipment	

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)
		7. Generator (at least 250kVA)- at least One (1)	Form EQU: Equipment	
		8. Excavator – at least one (1)	Form EQU: Equipment	
		9. Backhoe – at least three (3)	Form EQU: Equipment	
		10. Fork lifts- atleast 3 Tonnes-one (1)	Form EQU: Equipment	
		11 . Roller at least 10 ton – at least one (1)	Form EQU: Equipment	
		12. Water pump	Form EQU: Equipment	
		13. Grader atleast 1No.	Form EQU: Equipment	
		14. Steel Rebar bender atleast 1No.	Form EQU: Equipment	
		15 Scaffoldings atleast 3sets	Form EQU: Equipment	
		16 Air compressor atleast 1No.	Form EQU: Equipment	
		Notes <ul style="list-style-type: none"> • If the equipment is owned, must provide CLEAR copies of logbook or proof of ownership. • If equipment is hired or leased Provide a commitment letter from the lessor of the equipment addressed to the Vice Chancellor – Maasai Mara University indicating that the lessor shall avail the equipment upon award of the tender and submit a copy of a written agreement to lease between lessee and lessor indicating list of equipment and their corresponding copies of log books or proof of ownership by lessor; 		
17	Contractor's Representative and Key Personnel			

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)
		a) Project Manager Minimum qualifications and technical experience <ol style="list-style-type: none"> 1. Bachelor's degree in Architecture, Quantity Surveying, Construction Management or Civil / Structural Engineering. 2. Registered Professional with the respective registration bodies Engineers Board of Kenya (EBK) or Board of Registration of Architects and Quantity Surveyors (BORAQS) with a valid practicing license - Mandatory 3. General Experience –10 years. 4. Specific experience on Construction of building works – 7 years. 	Form PER -1 & Form PER -2	
		b) Site Agent Minimum qualifications and technical experience <ol style="list-style-type: none"> 1. Higher Diploma in Building Construction or equivalent. 2. Specific experience on Construction of building works – 10 years. 	Form PER -1 & Form PER -2	
		c) Foreman-Atleast 2No. Minimum qualifications and technical experience <ol style="list-style-type: none"> 1. Certificate- Building Construction or any other Equivalent 2. Experience – 5 years 	Form PER -1 & Form PER -2	

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)
		d)Artisans 4No. Minimum qualifications and technical experience 1. Trade Test certificate in relevant field 3. Experience-5 year	Form PER -1 & Form PER -2	
		e) Occupational Health and Safety Personnel 1. Minimum Certificate in Occupational and Health Safety 2. Experience – 5 years	Form PER -1 Form PER -2	
		f) Land Surveyor Minimum qualifications and technical experience 1. Bachelor's degree in Geospatial Engineering or equivalent 2. Experience-5 years	Form PER -1 & Form PER -2	
		Note: Provide copies of certificates and CVs as evidence. (Certified by a Commissioner of Oaths)		
18	Work Methodology and Work Programme	<ul style="list-style-type: none"> • Provided a detailed Work Methodology: Procedure on execution of activities as outlined in the BoQs. • Provide a detailed Work programme on A3 using Micro soft Project • Detailed Cashflow Projections 	Attachment	

- All the above documents may be verified for authenticity
- Bidders who do not satisfy any of the above requirements shall be considered non responsive and their tenders will not be evaluated further

STAGE 3 - FINANCIAL EVALUATION

Upon completion of the technical evaluation a detailed financial evaluation for the bidder shall follow. (The financial evaluation shall proceed in the manner described in the Public Procurement and Disposal Act 2015 (Revised Edition 2022) of the laws of Kenya and Public Procurement and Disposal Regulations 2022)

The evaluation shall be in three stages

- i. Correction, revision, adjustment and amendment of tender.
- ii. Comparison of Rates for the bidder
- iii. Consistency of the Rates for the bidder

A) Correction, revision, adjustment and amendment of tender

Tender sum will be corrected by the Procuring Entity as follows to Clause 82(i) of PPADA 2015 (Revised Edition 2022) and Clause 31(a) of Standard Tender Document for Procurement for Procurement of Small Works.

- i) In the event of a discrepancy between the tender amount as stated in the form of Tender and the corrected tender figure in the Main summary of the Bills of Quantities, the amount as stated in the Form of tender shall prevail.
- ii) Pursuant to section 82 the Public Procurement and Asset Disposal Act 2015 (Revised Edition 2022), the tender sum as submitted and read out during tender opening shall be absolute and final and shall not be subject correction, adjustment or amendment in any way by any person or entity.

iii) The Tenders with arithmetic errors shall be disqualified as per Clauses 33.2(b) of the Standard Tender Document for Procurement

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.”

B) Comparison of rates for the bidder

The evaluation committee will compare the rates with major components of the works and make note.

C) Consistency of the Rates

The evaluation committee will compare the consistency of rates for similar items and note all inconsistencies of the rates of similar items.

STAGE 4 - DUE DILIGENCE

Particulars of post – qualification if applicable. **The Evaluation Committee may inspect the premises and conduct due diligence** to seek further clarification/confirmation, if necessary, to confirm authenticity/compliance of any condition of the tender/qualifications of the tenderer in line with **Section 83 (1) of the Public Procurement and Asset Disposal Act, 2015 (Revised Edition 2022)**

STAGE 5: RECOMMENDATION FOR AWARD

Award Criteria: The firm achieving the lowest evaluated price will be awarded the contract in line with Section 86(1) of the Public Procurement and Disposal Act, 2015 (Revised Edition 2022)

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 <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> 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	

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>

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): _____

5. 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.

5.1 FORM ELI -1.1

Tenderer

InformationForm

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: _____
<p>1. Attached are copies of original documents of</p> <p><input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above, in accordance with ITT 3.6</p> <p><input type="checkbox"/> In case of JV, letter of intent to form JV or JV agreement, in accordance with ITT 3.5</p> <p><input type="checkbox"/> In case of state-owned enterprise or institution, in accordance with ITT 3.8, documents establishing:</p> <ul style="list-style-type: none"> • Legal and financial autonomy • Operation under commercial law <p>1. Establishing that the Tenderer is not under the supervision of the Procuring Entity</p> <p>2. Included are the organizational chart and a list of Board of Directors</p>

52 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: _____
<p>1. Attached are copies of original documents of</p> <p><input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above, in accordance with ITT 3.6.</p> <p><input type="checkbox"/> In case of a state-owned enterprise or institution, documents establishing legal and financial autonomy, operation in accordance with commercial law, and that they are not under the supervision of the Procuring Entity, in accordance with ITT 3.5.</p> <p>2. Included are the organizational chart and a list of Board of Directors.</p>

53 FORM CON -2

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)
<i>[insert year]</i>	<i>[insert amount and 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> Reason(s) for nonperformance: <i>[indicate main reason(s)]</i>	<i>[insert amount]</i>

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: _____	

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:	
Litigation History in accordance with Section III, Evaluation and Qualification Criteria			
<input type="checkbox"/> No Litigation History in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.4. <input type="checkbox"/> Litigation History in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.4 as indicated below.			
<i>[insert year]</i>	<i>[insert percentage]</i>	Contract Identification: [indicate complete contract name, number, and any other identification] 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.

5.4 FORM FIN – 3.1:

Financial Situation and Performance

Tenderer's Name: _____

Date: _____

JV Member's Name _____

ITT No. and title: _____

5.4.1. 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.

5.5 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.

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		

5.7 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					

5.8 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: _____	

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 <input type="checkbox"/>	Member in JV <input type="checkbox"/>	Management Contractor <input type="checkbox"/>	Sub-contractor <input type="checkbox"/>
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 <input type="checkbox"/>	Member in JV <input type="checkbox"/>	Management Contractor <input type="checkbox"/>	Sub-contractor <input type="checkbox"/>
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:				

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	

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 <input type="checkbox"/>	Member in JV <input type="checkbox"/>	Management Contractor <input type="checkbox"/>	Sub-contractor <input type="checkbox"/>
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.

6. 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.

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.

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;
 - 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 ITT3.8];
- 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:
- Tenderer's Eligibility; Confidential Business Questionnaire - to establish we are not in any conflict of interest.
 - Certificate of Independent Tender Determination - to declare that we completed the tender without colluding with other tenderers.
 - Self-Declaration of the Tenderer - to declare that we will, if awarded a contract, not engage in any form of fraud and corruption.
 - 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

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]*

Datesigned_____dayof_____,_____

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 _____

	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,		

	Type of Conflict	Disclosure YES OR NO	If YES provide details of the relationship with 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 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/Direct or 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 theafore said Bidder, its servants and/oragents/subcontractorswillnotengageinanycorruptorfraudulent 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)
(Date)

(Signature)

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 subsection 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 subcontractor 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
- 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

- 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.

² Inspections 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 _____ (hereinafter called "the Applicant") has submitted or will submit to the Beneficiary its Tender (hereinafter 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 thereof 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, firmly 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 the 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 on or before that date.

[Date]

[Signature of the Guarantor]

[Witness]

[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	<i>[To be entered by the Procuring Entity]</i>

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 in sufficient 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

- 4.1 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.
- 4.2 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		

- 4.3 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 tender 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.

- 5.4 Where the measured items are redeemed 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 covered-up.
- 5.5 All items that have not been measured and therefore not subject to tenderers 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 “
- 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.
- 5.6 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.
- 5.7 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 percentage 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.
- 5.8 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 there of. 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

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 areas 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, waterpipes or other services in the area 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 therewith.
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 instructions 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 workyards, 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 them at town 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 be held 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.
2. 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.
3. 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.
4. The Contractor shall provide temporary sheds, offices meshrooms, sanitary, accommodation and other temporary buildings for the use of the contractor and sub-contractors, including lighting furniture equipment and attendance.
5. 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.
6. 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.
7. 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.
8. 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.

9. 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.
10. 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.
11. 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.
12. 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 remove all paint and cement and all rubbish and dirt as it accumulates. The Contractor is to find his own dump and shall pay all charges in connection therewith.
13. 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.
14. The Contractor 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.
15. 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 therefrom in the build-up of rates.
16. 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.
17. 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.

18. 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 else where.
19. 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.
20. 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.
21. 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.
22. The Contractor shall provide temporary sheds, offices meshrooms, sanitary, accommodation and other temporary buildings for the use of the contractor and sub-contractors, including lighting furniture equipment and attendance.
23. 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.
24. 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.
25. 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.
26. 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.
27. 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.
28. 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.
29. 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.
30. 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 remove all paint and cement and all rubbish and dirt as it accumulates. The Contractor is to find his own dump and shall pay all charges in connection therewith.

31. 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.
32. The Contractor 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.
33. 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 therefrom in the build-up of rates.
34. 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.
35. 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.
36. The Contractor's 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.
37. 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.	<p>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:</p> <p>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.</p> <p>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.</p>	
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>Quantit y</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

[illegible]

a. To be entered by the Tenderer.

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

Notes for preparing Specifications

1. Specifications must be drafted to present a clear and precise statement of the required standards of materials, and workmanship for tenderers to respond realistically and competitively to the requirements of the Procuring Entity and ensure responsiveness of tenders. The Specifications should require that all materials, plant, and other supplies to be permanently incorporated in the Works be new, unused, of the most recent or current models, and incorporating all recent improvements in design and materials unless provided otherwise in the Contract. Where the Contractor is responsible for the design of any part of the permanent Works, the extent of his obligations must be stated.
2. Specifications from previous similar projects are useful and may not be necessary to re-write specifications for every Works Contract.
3. There are considerable advantages in standardizing **General Specifications** for repetitive Works in recognized public sectors, such as high ways, urban housing, irrigation and water supply. The General Specifications should cover all classes of workmanship, materials and equipment commonly involved in constructions, although not necessarily to be used in a particular works contract. Deletions or addenda should then adapt the General Specifications to the particular Works.
4. Care must be taken in drafting Specifications to ensure they are not restrictive. In the Specifications of standards for materials, plant and workmanship, existing Kenya Standards should be used as much as possible, otherwise recognized international standards may also be used.
5. The Procuring Entity should decide whether technical solutions to specified parts of the Works are to be permitted. Alternatives are appropriate in cases where obvious (and potentially less costly) alternatives are possible to the technical solutions indicated in tender documents for certain elements of the Works, taking into consideration the comparative specialized advantage of potential tenderers.
6. The Procuring Entity should provide a description of the selected parts of the Works with appropriate reference to Drawings, Specifications, Bills of Quantities, and Design or Performance criteria, stating that the alternative solutions shall be at least structurally and functionally equivalent to the basic design parameters and Specifications.
7. Such alternative solutions shall be accompanied by all information necessary for a complete evaluation by the Procuring Entity, including drawings, design calculations, technical specifications, breakdown of prices, proposed construction methodology, and other relevant details. Technical alternatives permitted in this manner shall be considered by the Procuring Entity each on its own merits and independently of whether the tenderer has priced the item as described in the Procuring Entity's design included with the tender documents.

Note A list of drawings should be inserted here. The actual drawings including Site plans should be annexed in a separate booklet.

PART III - THE CONDITIONS OF CONTRACT AND CONTRACT

SECTION VIII - GENERAL CONDITIONS OF CONTRACT (GCC)

[Name of Procuring Entity]

[Name of Contract]

[Architect Name and Address]

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”**

meansthe date of completion of the Works ascertified by the Engineer.

“Contract Price” means the price defined in the contract and there after 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 may be) 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 Contract 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.

1.2 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

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

1.3 Communications

- 1.3.1 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 of 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.
- 1.3.2 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.

1.4 Law and Language

- 1.4.1 The Contract shall be governed by the laws of **Kenya**.
- 1.4.2 The ruling language of the Contract shall be **English**.

1.5 Priority of Documents

- a) 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: 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.

1.6 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.

1.7 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, Page 108
- 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.

1.8 Care and Supply of Documents

- 1.8.1 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.
- 1.8.2 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.
- 1.8.3 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.
- 1.8.4 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.

1.9 Timely provision of Drawings or Instructions

- 1.9.1 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.
- 1.9.2 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.
- 1.9.3 After receiving this further notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.
- 1.9.4 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.

1.103 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

1.121 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.

1.122 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

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

2.15 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.

2.2 Permits, Licenses or Approvals

2.21 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.

2.3 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 ssimilar to those which the Contractor is required to take under sub-paragraphs (a), (b) and (c) ofSub-Clause 4.8 [Safety Procedures] and under Sub-Clause 4.18 [Protection of the Environment].

2.4 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 Architectis 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.

- 3.14 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.
- 3.15 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

- 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.

3.2 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.

3.3 Instructions of the Engineer

33.1 The Architect may issue to the Contractor (at anytime) 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.

33.2 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,
- 4 receives a written confirmation of the instruction, from (or on behalf of) the Contractor, within two working days after giving the instruction, and
- a) 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).

4.2 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.

4.3 Determinations

4.3.1 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 agreement or 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].

5 THE CONTRACTOR

5.1 Contractor's General Obligations

5.1.1 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.

- 5.12 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.
- 5.13 All equipment, material, and services to be incorporated in or required for the Works shall have their origin in any eligible source country.
- 5.14 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.
- 5.15 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.
- 5.16 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.

5.2 Performance Security

- 5.21 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.
- 5.22 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.
- 5.23 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.

- 524 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.
- 525 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.
- 526 The Procuring Entity shall return the Performance Security to the Contractor within 14 days after receiving a copy of the Taking-Over Certificate.
- 527 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.

5.3 Contractor's Representative

- 531 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**.
- 532 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 an other suitable person for such appointment.
- 533 The Contractor shall not, without the prior consent of the Engineer, revoke the appointment of the Contractor's Representative or appoint a replacement.
- 534 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.
- 535 The Contractor's Representative shall, on behalf of the Contractor, receive instructions under Sub-Clause 3.3 [Instructions of the Engineer].
- 536 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.
- 537 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 interpreter available during all working hours in a number deemed sufficient by the Engineer.

5.4 Sub-contractors

- 5.4.1 The Contractor shall not subcontract the whole of the Works. The contractor may however subcontract the works as provided in Clause 34.2.
- 5.4.2 The Contractor shall be responsible for the acts or defaults of any Subcontractor, his agents or employees, as if they were 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].
- 5.4.3 The Contractor shall ensure that the requirements imposed on the Contractor by Sub-Clause 1.12 [Confidential Details] apply equally to each Subcontractor.
- 5.4.4 Where practicable, the Contractor shall give fair and reasonable opportunity for contractors from Kenya to be appointed as Subcontractors.

5.5 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.

5.6 Co-operation

- 5.6.1 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.
- 5.6.2 Any such instruction shall constitute a Variation if and to the extent that it causes the Contractor to suffer delays and/or 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.
- 5.6.3 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.

5.7 Setting Out of the Works

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

- 5.7.2 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.

4.8 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.

4.9 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.

4.10 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.

4.11 Sufficiency of the Accepted Contract Amount

4.11.1 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].

4.11.2 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.

4.12 Unforeseeable Physical Conditions

4.12.1 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.

4.12.2 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.

4.12.3 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.

4.12.4 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.

4.12.5 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.

4.12.6 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 a 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.

4.18 Protection of the Environment

- 4.18.1 The contractor shall comply with the applicable environmental laws, regulations and policies.
- 4.18.2 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.
- 4.18.3 The Contractors shall ensure that emissions, surfaced is charges and effluent from the Contractor's activities shall not exceed the values stated in the Specification or prescribed by applicable Laws.

4.19 Electricity, Water and Gas

- 4.19.1 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.
- 4.19.2 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.
- 4.19.3 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.

4.20 Procuring Entity's Equipment and Free-Issue Materials

- 4.20.1 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's 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.
- 4.20.1 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.
- 4.20.2 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.
- 4.20.3 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.

4.21 Progress Reports

- 4.21.1 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.
- 4.21.2 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; Page 122
- 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.

4.22 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.

4.23 Contractor's Operations on Site

- 4.23.1 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 adjacentl and.
- 4.23.2 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.
- 4.23.3 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.

4.24 Fossils

- 4.24.1 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.
- 4.24.2 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-

6 NOMINATED SUBCONTRACTORS

6.1 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].

6.2 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].

6.3 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].

6.4 Evidence of Payments

6.4.1 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, directly 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.

7. STAFF AND LABOR

7.1 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.

7.2 Rates of Wages and Conditions of Labor

7.2.1 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.

7.2.2 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.

7.3 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.

7.4 Lab or 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.

7.5 Working Hours

Nowork 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.

7.6 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.

7.7 Health and Safety

- 7.7.1 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.
- 7.7.2 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 what ever is required by this person to exercise this responsibility and authority.
- 7.7.3 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.
- 7.7.4 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.

7.8 Contractor's Superintendence

- 7.8.1 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.
- 7.8.2 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.

7.9 Contractor's Personnel

- 7.9.1 The Contractor's Personnel shall be appropriately qualified, skilled and experienced in their respective trades or occupations. The Contractor's 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:
- Persists in any misconduct or lack of care,
 - Carries out duties in competently or negligently,
 - fails to conform with any provisions of the Contract,
 - persists in any conduct which is prejudicial to safety, health, or the protection of the environment, or
 - based on reasonable evidence, is determined to have engaged in Fraud and

- 7.92 If appropriate, the Contractor shall then appoint (or cause to be appointed) a suitable replacement person.

7.10 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.

7.11 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.

7.12 Foreign Personnel

- 7.12.1 The Contractor shall not employ foreign personnel unless the contractor demonstrates that there are no Kenyans with the required skills.
- 7.12.2 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.

7.13 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.

7.14 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.

7.15 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.

7.16 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.

7.17 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.

7.18 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].

7.19 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.

7.20 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 or retirement, and discipline.

8 PLANT, MATERIALS AND WORKMANSHIP

8.1 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.

8.2 Samples

The Contractor shall submit the following samples of Materials, and relevant information, to the Architect for consent prior to using the Material in 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.

8.3 Inspection

8.3.1 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.

- 832 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.
- 833 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.

8.4 Testing

- 841 This Sub-Clause shall apply to all tests specified in the Contract.
- 842 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.
- 843 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.
- 844 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.
- 845 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.
- 846 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.
- 847 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.

8.5 Rejection

- 851 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.
- 852 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

8.6 Remedial Work

- 8.6.1 Notwithstanding any previous test or certification, the Architect may instruct the Contractor to:
- Remove from the Site and replace any Plant or Materials which is not in accordance with the Contract,
 - remove and re-execute any other work which is not in accordance with the Contract, and
 - execute any work which is urgently required for the safety of the Works, whether because of an accident, unforeseen able event or otherwise.
- 8.6.2 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 subparagraph (c).
- 8.6.3 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.
- 8.6.4 If the contractor repeatedly delivers defective work, the Procuring Entity may consider termination in accordance with Clause 15.

8.7 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:

- When it is incorporated in the Works;
- 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].

8.8 Royalties

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

- Natural materials obtained from outside the Site, and
- 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.

9 COMMENCEMENT, DELAYS AND SUSPENSION

9.1 Commencement of Works

- 9.1.1 Except as otherwise specified in the Special Conditions of Contract, the Commencement Date shall be the date at which the following precedent condition 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:
- Signature of the Contract Agreement by both Parties, and if required, approval of the Contract by relevant authorities of Kenya;
 - 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 permissions 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.

9.12 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 6.2 [Termination by Contractor].

9.13 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.

9.2 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 Test 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].

9.3 Programme

9.3.1 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.

- 832 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.
- 833 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.

8.4 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.

8.5 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].

8.6 Rate of Progress

- 861 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.
- 862 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.
- 863 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.

8.7 Delay Damages

- 871 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.
- 872 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.

8.8 Suspension of Work

- 881 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.
- 882 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.

8.9 Consequences of Suspension

- 891 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

b) Payment of any such Cost, which shall be included in the Contract Price.

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

893 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].

10 TESTS ON COMPLETION

10.1 Contractor's Obligations

10.1.1 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].

10.1.2 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.

10.1.3 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.

10.2 Delayed Tests

- 10.2.1 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.
- 10.2.2 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.
- 10.2.3 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.

10.3 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.

10.4 Failure to Pass Tests on Completion

- 10.4.1 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:
- Order further repetition of Tests on Completion under Sub-Clause 9.3; or
 - 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].

11. PROCURING ENTITY'S TAKING OVER

11.1 Taking Over of the Works and Sections

- 11.1.1 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.
- 11.1.2 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.
- 11.1.3 The Architect shall, within 30 days after receiving the Contractor's application:
- 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
 - 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 his Sub-Clause.
- 11.1.4 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.

11.2 Taking Over of Parts of the Works

- 11.2.1 The Architect may, at the sole discretion of the Procuring Entity, issue a Taking-Over Certificate for any part of the Permanent Works.
- 11.2.2 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:
- The part which is used shall be deemed to have been taken over as from the date on which it is used,
 - 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
 - if requested by the Contractor, the Architect shall issue a Taking-Over Certificate for this part.
- 11.2.3 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.
- 11.2.4 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 Contractor agreed by the Contractor, 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.
- 11.2.5 If a Taking-Over Certificate has been issued for a part of the Works (other than a Section), the delay damages there after 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.

11.3 Interference with Tests on Completion

- 11.3.1 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.
- 11.3.2 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.
- 11.3.3 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 deemed 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.

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

11.4 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.

12 DEFECTS LIABILITY

12.1 Completion of Outstanding Work and Remedying Defects

12.1.1 In order that the Works and Contractor's Documents, and each Section, shall be in the condition required by the Contract (fairwear and tear excepted) by the expiry date of the relevant Defects Notification Period or as soon as practicable there after, 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).

12.1.2 If a defect appears or damage occurs, the Contractor shall be notified accordingly by the Engineer.

12.2 Cost of Remedying Defects

12.2.1 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.

12.2.2 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.

12.3 Extension of Defects Notification Period

12.3.1 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.

12.3.2 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 defect or damage occurring

12.4 Failure to Remedy Defects

- 12.4.1 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.
- 12.4.2 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.

12.5 Removal of Defective Work

If the defect or 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.

12.6 Further Tests

- 12.6.1 If the work of remedying of any defect or 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.
- 12.6.2 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.

12.7 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.

12.8 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

12.9 Completion Certificate

- 129.1 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.
- 129.2 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.
- 129.3 Only the Completion Certificate shall be deemed to constitute acceptance of the Works.

12.10 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.

12.11 Clearance of Site

- 12.11.1 Upon receiving the Completion Certificate, the Contractor shall remove any remaining Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works from the Site.
- 12.11.2 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.
- 12.11.3 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.

13 MEASUREMENT AND DEVALUATION

13.1 Works to be Measured

- 13.1.1 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.
- 13.1.2 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.
- 13.1.3 If the Contractor fails to attend or send a representative, the measurement made by the Architect shall be accepted as accurate.
- 13.1.4 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 her records with the Engineer, and shall sign the same when agreed. If the Contractor does not attend, the records shall be accepted as accurate.

- 13.15 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.

13.2 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.

13.3 Evaluation

- 13.3.1 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.

- 13.3.2 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.

- 13.3.3 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.

- 13.3.4 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.

- 13.3.5 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.

- 13.3.6 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.

- 13.3.7 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: $(\text{corrected tender price} - \text{tender price}) / \text{tender price} \times 100$.

13.4 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.

14 VARIATIONS AND ADJUSTMENTS

14.1 Right to Vary

14.1.1 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.

14.1.2 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.

14.1.3 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.

14.1.4 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.

13.2 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 Architecture 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 Dayworks 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 Dayworks 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 Work 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 financial 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.

13.2.3 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.

13.3 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].
- 13.2.3 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 half (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

- 134.1 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.
- 134.2 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 waiting a response.
- 134.3 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.
- 134.4 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

- 136.1 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**

- 1362 The Contractor shall, when required by the Engineer, produce quotations, invoices, vouchers and accounts or receipts in substantiation.

134 Dayworks

- 1341 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.
- 1342 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.
- 1343 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.
- 1344 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].

135 Adjustments for Changes in Legislation

- 1351 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.
- 1352 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.
- 1353 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.
- 1354 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].

136 Adjustments for Changes in Cost

- 1361 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.

- 13.62 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 amounts to cover the contingency of other rises and falls in costs.
- 13.63 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

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:

$$P = A + B I_m/I_o$$

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.

- 13.64 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. For this 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.
- 13.65 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.
- 13.66 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.
- 13.67 If the Contractor fails to complete the Works within the Time for Completion, adjustment of prices thereafter 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.

- 13.6.8 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 inapplicable, as a result of Variations.

15 CONTRACT PRICE AND PAYMENT

15.1 The Contract Price

15.1.1 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 break down when preparing Payment Certificates but shall not be bound by it.

- 15.1.2 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.

15.2 Advance Payment

- 15.2.1 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**.

- 15.2.2 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.

- 15.2.3 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.

- 15.2.4 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.

- 1525 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.
- 1526 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.

15.3 Application for Interim Payment Certificates

- 153.1 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 there portion the progress during this month in accordance with Sub-Clause 4.21 [Progress Reports].
- 153.2 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.

15.4 Schedule of Payments

- 154.1 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.
- 154.2 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.

15.5 Plant and Materials intended for the Works

- 155.1 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].
- 155.2 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.
- 155.3 The Architect shall determine and certify each addition if the following conditions are resatisfied:
- 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

- 1554 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.
- 1555 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.

15.6 Issue of Interim Payment Certificates

- 1561 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.
- 1562 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.
- 1563 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.

14.7 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 (and its currency) specified in the Contract.

14.8 Delayed Payment

- 14.8.1 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.
- 14.8.2 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.
- 14.8.3 The Contractor shall be entitled to this payment without formal notice and certification, and without prejudice to any other right or remedy.

14.9 Payment of Retention Money

- 14.9.1 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.
- 14.9.2 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.
- 14.9.3 However, if any work remains to be executed under Clause 11 [Defects Liability], the Architect shall be entitled to withhold certification of the estimated cost of this work until it has been executed.
- 14.9.4 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].
- 14.9.5 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.
- 14.9.6 The Procuring Entity shall return the Retention Money Security guarantee to the Contractor within 14 days after receiving a copy of the Completion Certificate.

14.10 Statement at Completion

- 14.10.1 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.

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

14.11 Application for Final Payment Certificate

- 14.11.1 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 Contractor otherwise.
- 14.11.2 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".
- 14.11.3 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.

14.12 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

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:
- in the Final Statement and also,
 - (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:

- If the Accepted Contract Amount was expressed in Local Currency only:
 - 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;
 - 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
 - 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;
- 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;
- 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;
- 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
- 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.

16 TERMINATION BY PROCURING ENTITY

16.1 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.

16.2 Termination by Procuring Entity

- 1621 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, incompeteting for or in executing the Contract.
- 1622 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.
- 1623 The Procuring Entity's election to terminate the Contract shall not prejudice any other rights of the Procuring Entity, under the Contractor otherwise.
- 1624 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.
- 1625 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.
- 1626 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.

16.3 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.

16.4 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.

16.5 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].

16.6 Fraud and Corruption

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

16.7 Corrupt gifts and payments of commission

16.7.1 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 for having done 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 there of have been disclosed in writing to the Procuring Entity.

- 16.7.2 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.

17. SUSPENSION AND TERMINATION BY CONTRACTOR

17.1 Contractor's Entitlement to Suspend Work

- 17.1.1 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.
- 17.1.2 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].
- 17.1.3 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.
- 17.1.4 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.
- 17.2 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

17.3 Termination by Contractor

- 17.3.1 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].

1732 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.

1733 The Contractor's election to terminate the Contract shall not prejudice any other rights of the Contractor, under the Contract otherwise.

17.4 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.

17.5 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.

18 RISK AND RESPONSIBILITY

18.1 Indemnities

18.1.1 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 whatsoever 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 act or 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.

- 18.1.2 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.

18.2 Contractor's Care of the Works

- 18.2.1 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.
- 18.2.2 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.
- 18.2.3 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.
- 18.2.4 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.

18.3 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 gradiation 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.

- 184.1 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.
- 184.2 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 subparagraphs (e) and (g) of Sub-Clause 17.3 [Procuring Entity's Risks], Accrued Costs shall be payable.
- 184.3 After receiving this further notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

18.5 Intellectual and Industrial Property Rights

- 185.1 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.
- 185.2 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.
- 185.3 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 ingested 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.
- 185.4 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.
- 185.5 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.
- 185.6 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

18.6 Limitation of Liability

- 18.6.1 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].
- 18.6.2 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.
- 18.6.3 This Sub-Clause shall not limit liability in any case of fraud, deliberate default or reckless misconduct by the defaulting Party.

18.7 Use of Procuring Entity's Accommodation/Facilities

- 18.7.1 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).
- 18.7.2 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.

19. INSURANCE

19.1 General Requirements for Insurances

- 19.1.1 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.
- 19.1.2 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.
- 19.1.3 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.
- 19.1.4 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.

- 19.15 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.
- 19.16 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].
- 19.17 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.
- 19.18 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.
- 19.19 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 at tempts to make) any alteration, the Party first notified by the insurer shall promptly give notice to the other Party.
- 19.1.10 If the insuring Party fails to effect and keep in force any of the insurances it is required to effect and maintain under the Contractor 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.
- 19.1.11 Nothing in this Clause limits the obligations, liabilities or responsibilities of the Contractor or the Procuring Entity, under the other terms of the Contractor otherwise. Any amounts not insured or not recovered from the insurers shall be borne by the Contractor and/or the Procuring Entity.
- 19.1.12 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.
- 19.1.13 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.
- 19.1.14 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.

- 1921 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 sub-paragraph (a) of Sub-Clause 18.1 [General Requirements for Insurances], until the date of issue of the Taking-Over Certificate for the Works.
- 1922 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]).
- 1923 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.
- 1924 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) a part 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) a part 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].
- 1925 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].

- 19.3.1 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.
- 19.3.2 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.
- 19.3.3 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.

19.4 Insurance for Contractor's Personnel

- 19.4.1 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.
- 19.4.2 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.
- 19.4.3 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.

20. FORCE MAJEURE

20.1 Definition of Force Majeure

- 20.1.1 In this Clause, "Force Majeure" means an exceptional event or circumstance:
- a) Which is beyond a Party's control,
 - b) Which such Party could not reasonably have provided against before entering into the Contract,
 - c) which, having arisen, such Party could not reasonably have avoided or overcome, and
 - d) which is not substantially attributable to the other Party.

- 20.1.2 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:
- a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies,
 - b) rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war,
 - c) riot, commotion, disorder, strike or lock out by persons other than the Contractor's Personnel,
 - d) 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
 - e) natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.

20.2 Notice of Force Majeure

- 20.2.1 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.
- 20.2.2 The Party shall, having given notice, be excused performance of its obligations for so long as such Force Majeure prevents it from performing them.
- 20.2.3 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.

20.3 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.

20.4 Consequences of Force Majeure

- 20.4.1 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:
- 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) 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].
- 20.4.2 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

20.5 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.

20.6 Optional Termination, Payment and Release

- 20.6.1 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].
- 20.6.2 Upon such termination, the Architect shall determine the value of the work done and issue a Payment Certificate which shall include:
- a) the amount 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.

20.7 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.

21. SETTLEMENT OF CLAIMS AND DISPUTES

21.1 Contractor's Claims

- 21.1.1 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.
- 21.1.2 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.
- 21.1.3 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.
- 21.1.4 The Contractor shall keep such contemporary records as may be necessary to substantiate any claim, either on the Site or at an other 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.
- 21.1.5 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:
- This fully detailed claim shall be considered as interim;
 - 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
 - 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.
- 21.1.6 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.
- 21.1.7 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.
- 21.1.8 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

- 21.19 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.
- 21.1.10 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.

21.2 Procuring Entity's Claims

- 21.2.1 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.
- 21.2.2 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.
- 21.2.3 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].
- 21.2.4 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.

21.3 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.

21.4 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.

21.5 Arbitration

- 215.1 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.
- 215.2 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.
- 215.3 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.
- 215.4 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.
- 215.5 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.
- 215.6 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.
- 215.7 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.
- 205.7 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.
- 205.8 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.

20.6 Arbitration with National Contractors

- 206.1 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

20.6.2 The institution written to first by the aggrieved party shall take precedence over all other institutions.

20.7 Arbitration with Foreign Contractors

20.7.1 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.

20.7.2 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].

20.8 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.

20.9 Failure to Comply with Arbitrator's Decision

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

20.9.2 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

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
Procuring Entity's name and address	Heading	MAASAI MARA UNIVERSITY P.O. Box 861 – 20500, NAROK
Name and Reference No. of the Contract	Heading and 3.1.1	PROPOSED CONSTRUCTION OF LIBRARY PHASE 1 FOR MAASAI MARA UNIVERSITY, NAROK COUNTY W.P. ITEM NO. D1065 RV/NRK/230, JOB NO. 11217A
Project Managers Name and Address	Heading and 3.1.1	The Works Secretary, State Department for Public Works of P.O. Box 30734-00100 NAIROBI
Contractor's Representative Name	4.3.1	To be agreed with the project Manager
Key Personnel names	16.9.1	To be agreed with the Project Manager
Time for completion	1.1	208 Weeks
Defects Notification Period	1.1	Immediately
Time for parties to enter into a contract agreement	1.6	Within 30 Days
Commencement date	8.1.1	To be agreed with the Project manager
Time for access to the site	2.1	To be agreed with the Project manager
Architect Duties and Responsibilities	3.1.6 (b) (ii)	Variations resulting in an increase of the accepted contract of any amount shall require approval from the procurement entity
Performance Security	4.2.1	The performance security will be in the form of a performance bond in the amount of 5% of the accepted Amount in the same currency(ies) of the accepted contract amount
Normal Working Hours	6.5	To be agreed with the Project Manager
Delay damages for the Works	8.7 & 14.15 (b)	52,500 per week or part thereof
Maximum amount for Delay Damages	8.7	5% of the final contract price

Conditions	Sub Clause	Data
Provisional Sums	13.5. (b)(ii)	As per PP&AD Act 2015
Adjustments for Changes in Cost	13.8	As per PP&AD Act 2015
Total advance payment	14.2.1	Not applicable
Repayment amortization rate of advance payment	14.2.5 (b)	Not applicable
Percentage of Retention	14.3.2 (c)	10%
Limit of Retention Money	14.3.2 (c)	<u>5</u> % of the Accepted Contract Amount
Plant and Materials	14.5(b)(i) 14.5(C)(i)	Applicable Applicable
Minimum Amount of Interim Payment Certificates	14.6	To be agreed by the employer and the winning bidder
Publishing source of commercial interest rates for financial charges in case of delayed payment	14.8	annual rate of 3% above the mean lending rate of the Central Bank in Kenya of the currency of payment
Maximum total liability of the Contractor to the Procuring Entity	17.6	As per applicable laws
Periods for submission of insurance: a. evidence of insurance. b. Relevant policies	18.1	14 days <u>14</u> days
Maximum amount of deductibles for insurance of the Procuring Entity's risks	18.2.4 (d)	<i>As per applicable laws</i>
Minimum amount of third-party insurance	18.3	<i>As per applicable laws</i>
The place of arbitration	20.7.2	<i>Nairobi County, Kenya</i>

FORM No. 1 - NOTIFICATION OF INTENTION TO AWARD

FORM NO. 2 – REQUEST FOR REVIEW

FORM No. 3-LETTEROF 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 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 ofdated the...day of20.....in the matter of Tender No.....Of20..... 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 of20.....

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.

IN WITNESS 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 itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.
4. This guarantee shall expire, no later than the Day of, 20.....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.

¹ *The 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.*

² *Insert 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 in stead 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 Oblige (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. Page 181
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 _____

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 _____, 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.*

¹*The 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.*

²*Insert 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 demands 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 show grounds 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 of², 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.

²*Insert 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]

1) 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---	Directly.....	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.....	1. Exercises significant influence or control over the Company body of the Company (tenderer) Yes ----No---- 2. Is this influence or control exercised
	National identity card number or Passport number		----- % of shares% of voting rights		
	Personal Identification Number (where applicable)		Indirectly----- % of shares	Indirectly----- % of voting rights		
	Nationality					
	Date of birth [dd/mm/yyyy]					

	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)
	Postal address				Indirect.....	directly or indirectly?
	Residential address					Direct.....
	Telephone number					Indirect.....
	Email address					
	Occupation or profession					
2.	Full Name		Directly--- ----- % of shares	Directly.....% 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----	1. Exercises significant influence or control over the Company body of the Company (tenderer) Yes ----No----
	National identity card number or Passport number		Indirectly- ----- % of shares	Indirectly----- ----% of voting rights	2. Is this right held directly or indirectly?: Direct.....	2. Is this influence or control exercised directly or indirectly? Direct.....
	Personal Identification Number (where applicable)				Indirect.....	Indirect.....
	Nationality(ies)					
	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)
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

BILLS OF QUANTITIES

SPECIFICATIONS, PREAMBLES AND PRICING NOTES

Specifications

PART 1 BUILDERS AND CIVIL WORKS

GENERAL SPECIFICATION OF MATERIALS AND WORKMANSHIP

The following apply to all sections hereafter.

A. Generally

All material shall be new unless otherwise directed or permitted by the Architect and, in all cases where the quality of goods or materials is not described or otherwise specified, is to be the best quality obtained in the ordinary meaning of the word 'best' and not merely a trade signification of the word.

All materials and workmanship shall, unless otherwise specified or described, conform to the appropriate British Standard Institution Specification or other authoritative standard ensuring equal or higher quality current at the time of tender and in accordance with the requirements of local statutory authorities.

The Contractor shall order materials to be obtained from overseas immediately after the contract is signed and shall also order materials to be obtained from local sources as early as necessary to ensure that such materials are on Site when required for use in the Works.

The Contractor shall be responsible for and shall replace or make good at his own expense any materials lost or damaged.

The Works throughout shall be executed by skilled workmen well versed in their respective trades.

B. Rejected Workmanship and Materials

Any workmanship or materials not complying with the specific requirements or approved samples or which have been damaged, contaminate or have deteriorated must immediately be removed from the Site and replaced at the Contractor's expense, as required.

C. Proprietary Materials

Where proprietary materials are specified hereinafter the Contractor may propose the use of materials of other manufacture but of equal or higher quality for approval by the Architect.

All materials and goods, where specified to be obtained from a particular manufacturer or supplier are to be used and fixed strictly in accordance with their instruction.

Specification:
Generally

EXCAVATIONS AND EARTHWORKS

A. Examine the Site

The Contractor is assumed to have examined the Site carefully and ascertained for himself its nature and the kind of materials to be excavated.

B. Excavations

Excavations shall be to the width and depths indicated on the drawings or to such lesser or greater depths as the Architect may deem necessary and so instruct the contractor in order to obtain satisfactory foundations.

Any difference in the quantity of work actually executed under such instructions and that provided in the Bills of Quantities shall be measured and valued by the Surveyor as a Variation under the relevant conditions of Contract.

If, however, the Contractor excavates any greater depths or widths than as shown on the Drawings or directed, then the Contractor shall, at his own expense, satisfactorily fill in such extra depths or widths with concrete similar to that described for foundations.

All top soil required for 're-use' in the Works shall be carefully removed and stored without contamination from underlying materials or deleterious matter. Any surplus excavated materials whether suitable or otherwise shall be removed from the Site to a tip provided by the Contractor unless otherwise directed by the Architect. Any suitable excavated materials required for the Works but removed from the Site to suit the Contractor's operational procedure shall be replaced at no extra cost from the Contractor's own resources. Such replacement shall be of suitable and approved materials sanctioned by the Architect.

Excavations shall not be opened up so as to undermine or endanger adjoining structures, or completed work.

In the event that slips, falls or settlement of the adjacent ground occur the Contractor shall at his own cost re-excavate to firm ground and make good the excess excavation by filling up with concrete similar to that described for foundations and make good any damage to adjoining structures, all to the Architect's approval.

C. Bottoms of Excavations to receive foundations

The Contractor shall report to the Architect when secure bottoms to the excavations have been obtained. Any concrete or other work executed before the excavation have been inspected and approved shall, if so directed, be removed and new works substituted after the excavations have been approved, all at the Contractor's expense. No placing of blinding concrete or any other work shall commence without the Architect's written approval of the excavations.

The surface of the bottoms to excavations to receive foundations shall be leveled and graded to fall as required. Any pockets, cavities or fissures becoming evident shall be filled by the Contractor at his expense with concrete class 10/40. After placing of blinding concrete where required, no trimming of sides shall be allowed for the next 24 hours.

D. Sides of Excavations

Sides of excavations shall be maintained vertical by means approved by the Architect. Unless shown otherwise or approved by the Architect the sides of excavations shall not be battered. The Contractor shall take steps to avoid damage to existing structures by shoring the sides of excavations, trenches, pits, etc., and by providing timbering, sheets, piles or other supports.

Specifications

Excavation & Earthworks

A. Rocks

Excavation in rock shall exclude all material which can be removed by hand and does not necessarily require the use of compressors or other mechanical equipment although the Contractor may use such equipment to loosen the material for ease of its removal. All top soils, black cotton and other clay soils, murrum, stone and other fill and all similar materials will NOT be classified as rock.

Rock has been measured hereafter as extra over excavations for excavating in soft or hard rock.

Soft rock shall be deemed to mean any material which cannot reasonably be removed without the use of mechanical plant such as rippers, compressors, traxcavators, but which does not require drilling, wedging or blasting. Local tuffs, magadi highly consolidated laterite, weathered lavas, boulders or outcrops of harder rock not exceeding one cubic meter in volume, Nairobi building stone and similar material shall be classified as soft rock.

Hard rock shall be classified as material which is massive and geologically homogeneous and which requires the use of drilling, wedging or blasting for its removal such as blacktrap and similar material.

The Architect's decision shall be final with regard to the classification of excavated materials.

B. Starting Level

Unless otherwise described the starting level of all excavations has been measured from the level remaining after complete or reduced level excavation. However, the Contractor's prices should include for carrying out the excavation work in any alternative sequence that he may require.

C. Blasting

No blasting will be permitted without the prior approval of Local Authorities and the Architect.

D. Carting away

All surplus excavated materials where so directed and all rubbish are to be removed from the Site and the Contractor is to find his own dump and shall pay all charges.

E. Borrow Pits

No borrow pits will be allowed to be opened on the site.

F. Trenches for Pipes

In areas of filling, trenches for pipes shall be dug after the fill has been fully compacted and approved by the Architect. Any unsuitable materials in trench inverts shall be removed and replaced by approved bedding or filter materials, thoroughly compacted. Sides of excavations shall be so supported that any disturbances to the bedding below shall be to the minimum.

G. Minimum Pipe Trench Widths

Excavation for pipe trenches shall be carried out to give a minimum clear width of 150mm on either side of the pipe or to the extent of bedding and haunching material where specified. Additional excavation for providing working space for making pipe joints shall be carried out.

A. Maximum Pipe Trench Widths

Trench widths shall be as specified above. Should the trench widths exceed the values tabulated below the excess width shall be made up using concrete class 10/40 up to the level of the crown of the pipe at Contractor's expense.

Nominated internal Pipe diameter (mm)	Maximum trench width (mm)
100	550
150	600
225	700
300	800
375	1000
450	1000
525	1200
600	1200

B. Earthworks to be kept Free of water

Any water shed on to earthworks including excavations for pipe trenches, pits, foundations or cutting or complete formation during the construction from any source shall be rapidly dispensed by baling, pumping or by discharging into the permanent outfall.

The Contractor shall provide adequate means of trapping silt on temporary systems discharging into permanent drainage system. The Contractor shall provide all means of keeping the excavations free from water.

C. Filling obtained from the excavations

Filling obtained from surplus excavated materials will only be incorporated if suitable material arises and is to be free from all weeds, roots, vegetable soil or other unstable materials and is to be filled in layers each of not more than 225mm finished thickness. Each layer to be well wetted and consolidated as described hereafter.

D. Hardcore filling

Hardcore for filling under floors, etc., shall be good hard, dry stone, coral, broken concrete blocks or bricks, ballast, quarry waste or other hard materials to the approval of the Architect broken to pass to greater than 150mm ring or to be 75% of the finished thickness of the layers being compacted,

whichever is lesser. Hardcore shall be free from all weeds, roots, vegetable soil, clay, black cotton soil, rubbish, wood, harmful chemical substances and any other deleterious matter.

It shall be well graded with smaller stones and fine materials to give a dense compact mass after consolidation. Sufficient fine materials shall be added to each layer to give gradation of material as necessary to obtain a solid compact mass after rolling. Hardcore filling is to be laid in layers each of a consolidated thickness not exceeding 225mm. Each layer shall be compacted by at least 8 passes of a 10-tonne smooth-wheeled roller or a 2-tonne vibrating roller until all movement ceases. Sufficient water is to be added to obtain maximum compaction to the Architect's approval. To each layer a 25mm thick layer of sand complying with the specification for the aggregate for concrete shall be spread over the surface and forced into the hardcore by the use of a vibrating roller weighing not less than 2 tonnes; this operation should be carried out when the materials are dry and repeated whilst the sand is well watered. Should all the sand be absorbed the Architect may require a further layer to be applied and the process repeated.

Specifications

Excavations & Earthworks

Hardcore filling (cont'd)

The top surface of the hardcore shall be levelled or graded to falls as rolled required, and shall then be blinded with a layer of similar materials broken to 25mm gauge and surface rolled with a 10-tonne smooth-wheeled roller. The surface so obtained shall be to the Architect's approval.

A. Fill near Concrete Structures

Any fill material used within 500mm of Concrete Structure or cement bond materials shall have a soluble sulphate content not exceeding 2.5g per litre when treated in accordance with Test 10 of B.S. 1377, unless special precautions to the approval of the Architect are taken to protect the concrete or cement or bond materials.

B. Materials found in Excavations

No sand, aggregate, murram or other material found in the excavations is to be used in the Works without the written permission of the Architect.

C. Rates for Excavations

The rates for excavation, including excavation in rock, **MUST INCLUDE** for trimming, levelling and preparing bottoms and all faces to receive concrete, etc., and for any extra excavation required for planking and strutting.

Prices shall include for excavating in any material encountered unless specifically otherwise described, handling, etc., of extra bulk after excavating, or before consolidating, any extra excavation required for formwork or planking and strutting, circular work, grubbing up any old drains, roots, etc., that may be encountered for trimming sides and levelling and ramming bottoms, forming steppings and trimming excavations or filling to embankments and batters as required.

In his price for the item "Allow for keeping the whole of the excavations free from water" the Contractor shall allow and make provision for keeping the whole of the Works thoroughly drained and clear of water below the lowest level of any part of them so long as may be required and, if considered necessary by the Architect, continuously day and night by petrol or hand pumps or other mechanical appliances, pipes, chutes, dams, manholes, sumps, diversion or any other means necessary for that purpose. Water pumped from the trenches shall not be allowed to run down the road channels but shall be conveyed to the nearest surface water sewer, ditch or river through troughs, chutes or pipes.

D. Rates for Disposal

Rates for disposal of excavated material are to include for the selection of spoil as it arises and for all double handling and re-excavation from spoil heaps not specifically ordered by the Architect.

E. Polythene Sheeting

Polythene sheeting shall be 1000 gauge. Joints in sheeting shall be folded with 150mm fold and taped at 300mm intervals with 50mm wide black plastic adhesive tape. The sheeting shall not be stretched but shall be laid loose with sufficient wrinkles to permit shrinkage up to 15%.

Specifications

Excavations & Earthworks

A. Cutting Down Trees

The Contractor must consult the Architect before cutting down or pruning any trees or shrubs encountered on the Site.

B. Anti-Termite Treatment

Chemical anti-termite treatment to surfaces of hardcore or excavation shall be executed by Insecta Ltd. or other equal and approved and such treatment shall carry a ten-year written guarantee.

CONCRETE WORK

GENERAL

A. Engineer

For the purpose of the reinforced concrete in building works the Structural Engineer shall be deemed vested with the powers and be the representative of the Architect.

B. Code of practice

All workmanship, materials, tests and performance in connection with the reinforced concrete work shall be in conformity with the latest edition of the British Standard Code of Practice BS 8110, or appropriate Kenya Standard.

C. Supervision

All competent person approved by the Engineer shall be employed by the Contractor whose duty will be to supervise all stages in the preparation and placing of the concrete. All cubes shall be made and site tests carried out under his direct supervision, in consultation with the Engineer.

D. Contractor's plant, equipment and construction procedures

Not less than 30 days prior to the installation of the Contractor's plant and equipment for processing, handling, transporting, storing and proportioning ingredient, and for mixing, transporting and placing concrete, the Contractor shall submit drawings for approval by the Engineer, showing proposed general plant arrangement, together with a general description of the equipment he proposes to use.

After completion of installation, the operation of the plant and equipment shall be subject to the approval of the Engineer.

Where the specification or the drawings require specific procedures to be followed, such requirements are not to be construed as prohibiting use by the Contractor of alternative procedures if it can be demonstrated to the satisfaction of the Engineer that equal results will be obtained by the use of such alternatives.

Approval of plant and equipment or their operation, or of any construction procedure, shall not operate to waive or modify any provision or requirements contained in the specification governing the quality of the materials of the finished work.

E. Levels and foundations

The foundations of the works shall be carried down to depths as may be directed by the Engineer and they must be cut as nearly to the size of the concrete as possible and the vacant spaces between the concrete and temporary timbering shall be removed but should any timber be left in or should any other work be done beyond that specified, it will be the Contractor's own cost.

Specifications
Concrete works

A Tolerances

On all setting out dimension of six meters and over a maximum non-accumulative tolerance of plus or minus 6mm will be allowed. On all setting out dimensions under six meters a maximum non-accumulative tolerance of plus or minus 3mm will be allowed. On the cross sectional dimensions of structural members, unless otherwise required by the drawings, a maximum tolerance of plus or minus 3mm will be permitted. The top surface of concrete floor slabs and beams shall be within 6mm of the normal level and line shown on the Drawings. Columns shall be truly plumb, and not more than 6mm out of plumb in their full height will be permitted. The Contractor shall be responsible for the cost of all corrective measures required by the Engineer to rectify work which is not constructed within the tolerances set out above.

A. Materials generally

All materials which have been damaged, contaminated or have deteriorated or do not comply in any way with the requirements of the specification shall be rejected and shall be removed immediately from the site at the Contractor's own expense. No materials shall be stored or stacked on suspended floors without the Engineer's prior approval.

B. Samples and testing

Every facility shall be provided to enable the Engineer to obtain samples and carry out tests on the materials and construction. If these show that any of materials or construction do not comply with the requirements of these preambles, the Contractor will be responsible for the costs of the tests and the replacement of defective materials and/or construction.

C. Cement

Cement unless otherwise specified shall be Portland cement of a brand approved by the Engineer and shall comply with the requirements of B.S. 12 with the exception that it may contain reactive volcanic ash of not more than 10% of the total weight and the quantity of insoluble residue permitted in B.S. 12 may be exceeded on this account only. Manufacturer's Certificate of Test in accordance with B.S. 12 shall be supplied for each consignment delivered to the site. Should the Contractor require to use cement of the rapid hardening variety, he shall obtain the approval of the Engineer and also obtain any instructions regarding cost modifications to the preambles caused thereby. Any additional cost that may be caused by the use of rapid hardening cement shall be at the Contractor's expense.

Cement may be delivered to the site either in bags or in bulk.

If delivered in bags each bag shall be properly sealed and marked with the manufacturer's name and on the site cement is to be stored in a weatherproof shed of adequate dimensions with a raised floor. An air space shall be allowed between the floor and the bottom layer of bags. Each consignment shall be kept separate and marked so that it may be used in the sequence in which it is received. Any bag found to contain cement which has partly set, shall be completely discarded and not used in the works. Bags shall not be stored more than 1.500m in height.

If delivered in bulk the cement shall be stored in a weather-proof silo either provided by the cement supplier or by the Contractor but in either case the silo shall be to the approval of the Engineer. Each consignment of cement shall be brought to the site in sufficient time to allow tests to be carried out before the cement is to be used in the works.

D. Aggregates

Aggregates shall conform to the requirements of B.S. 882 and the sources and types of all aggregates are to be approved in all respects by the Engineer before work commences.

The grading of aggregates shall be one within the limits set out in B.S. 882 and as later specified and the grading, once approved shall be adhered to throughout the works and not varied without the approval of the Engineer. Fine aggregate shall be clean, coarse, siliceous sand of good, sharp, hard quality and shall be free from lumps or stone, earth, loam, dust, salt, organic matter and any other deleterious substances. It shall be graded within the limits of Zone 1 and 2 of Table of B.S. 882. Coarse aggregates shall be good, hard, clean, approved black trap or similar stone, free from dust, decomposed stone, clay, earthy matter, foreign substances for friable thin, elongated or laminated pieces. It shall be graded within the limits of Table 1 of B.S. 882 for its respective normal size.

Specifications:
Concrete Works

Aggregates (cont'd)

If in the opinion of the Engineer the aggregate meets the above requirements but is dirty or adulterated in any manner it shall be screened and/or washed with clean water at the Contractor's expenses.

Aggregates shall be delivered to the site in their prescribed sizes or grading and shall be stock-piled on paved areas or boarded platforms in separate units to avoid intermixing. On no account shall aggregates be stock-piled on the ground.

A. Testing of aggregates

The Engineer shall be entitled to require a certificate from an approved testing laboratory in connection with each source of fine and coarse aggregates showing that materials comply with the specification. All such testing shall be carried out at the Contractor's expense.

B. Samples

Samples of materials shall be submitted as soon as possible after the contract is let. No deliveries in bulk shall be made until the samples are approved by the Engineer. All condemned materials shall be removed from the site within 24 hours. Every facility shall be provided to enable the Engineer to obtain samples and carry out tests on the materials for construction. If these tests show that any of the materials do not comply with the requirements of this specification, the Contractor will be responsible for the costs or construction of the tests and the replacement of defective materials and/or construction.

C. Water

The water for mixing concrete shall be and from an approved source, clean, fresh and free from harmful matter and comply with the requirements of B.S. 3148.

D. Expansion joint

Expansion joint filler shall be an approved brand laid in accordance with the manufacturer's printed instructions.

E. Joint sealer

Sealant shall be an approved brand applied in accordance with the manufacturer's printed instructions and the price shall include for temporary battens or fillets and afterward withdrawing to form grooves as necessary.

The sealant shall be applied by gun and where more than 12mm deep shall include filling with loose packing yarn to within 2mm from outer face.

Specifications:
Concrete Work

CONCRETE WORKA Concrete strength

Grade '35', '30', '25' and '20' concrete shall have the minimum characteristic strength as given by works cube tests shown below:

Minimum Crushing Strength				
Age	Grade 35	Grade 30	Grade 25	Grade 20
7 days	24.0N/mm ²	20.0N/mm ²	17.0N/mm ²	14.0N/mm ²
28 days	35.0N/mm ²	30.0N/mm ²	25.0N/mm ²	20.0N/mm ²

The average strength obtained from cube tests shall be 10% higher than the minimum strength shown above.

Grades lower than those given shall be of minimal mixes and may be measured by volume or weight. No tests will be required for these grades.

Nominal mix by volume	1:3:6	1:4:8
Cubic metres of fine aggregates per 50kg bag of cement	0.12	0.13
Cubic metres of coarse aggregates per 50kg bag of	0.24	0.32

B. Measured proportions of concretea. Cement

The quantity of cement shall be measured by weight. Where delivered in bags, each batch of concrete is to use one or more whole bags of cement.

b. Aggregates

- i. For grades '35', '30', '25' and '20' concrete, aggregates may be measured by weight or by volume. Where by volume, approved gauge boxes of such size as will give the correct proportions shall be used.
- ii. For lower grade concrete, aggregates may be measured by weight or by volume. Where by volume, approved gauge boxes of such size as will give the correct proportions shall be used.

C. Weigh batching machine

Weigh batching machines shall be of an approved type and shall be properly maintained and checked for accuracy at regular intervals.

Specifications:
Concrete Work

A Concrete designed mixes

The weights of fine and coarse aggregate to be used in concrete grades “35”, “30”, “25”, “20” shall be limited in accordance with the table below. The proportion of fine to coarse aggregates and cement which the Contractor proposes to use for each of the designed mixes specified shall first be approved by the Engineer. The Contractor shall then be required to prepare preliminary test cubes and have these cubes tested as described for works cubes tests. The test results shall be submitted to the Engineer in sufficient time for further tests to be carried out should they prove unsatisfactory. Cube strengths in the preliminary tests must show crushing strengths at least 35% higher than the strengths specified for works cubes tests. If the Contractor is unable to produce specified cube strengths, he will be required at his own cost to increase the cement content of designed mix until satisfactory results are produced.

The Engineer may require at any time during the contract the proportions of fine to coarse aggregates to be altered in order to produce a mix of greater strength or improve workability and providing that the total proportions of aggregate to cement remain unchanged, no claim for additional cost will be considered.

<u>Mix</u>	<u>Grade 35</u>	<u>Grade 30</u>	<u>Grade 25</u>	<u>Grade 20</u>
Minimum cement content by weight to combined total weight of aggregates	1 to 5	1 to 6	1 to 7	1 to 8

B Waterproof concrete

Where water proof concrete is specified, an approved compound is to be added to the mixing water strictly in accordance with the manufacturer’s instructions and at the rate of 500cc and 125cc respectively to each 50kg bag of cement to which the aggregates have already been added and mixed. Not more than 22 to 25 litres of water per 50kg bag of cement are to be used unless otherwise approved by the Engineer.

C. Materials

Waterbar shall be PVC as manufactured by an approved manufacturer and shall be provided in the positions indicated on the drawings.

Joints shall be heat welded in accordance with the manufacturer’s instructions and where the waterbar is to be fixed vertically, metal clips as manufactured by the supplier of the waterbar or of other approved design shall be provided to suspend the waterbar from the reinforcement.

Where waterproof concrete is used the Contractor shall adhere strictly to the position and type of construction joints as detailed on the drawings. Any deviation from this procedure or the provision of additional construction joints will require the prior approval of the Engineer and any additional waterbar so required will be at the Contractor’s expense.

Specifications:
Concrete Work

Materials (cont'd)

Formwork shall be designed with sufficient timber formers and blocking pieces to support the waterbar and to ensure that it is not displaced during concreting. In the case of horizontal joints in vertical walling and similar members the formwork shall be so constructed as to permit the starter or upstand of concrete surrounding the lower half of the waterbar to be poured in the same operation as the slab or other concrete from which it springs. Formwork to walls or similar members where waterbar is positioned at the base of the lift shall be sufficient openings not less than 300mm square at approximately 150mm to 300mm above the level of the waterbar to permit checking that the waterbar is correctly positioned and not displaced during concreting.

A. Sealocrete supercoat waterproofer

Where specified "Sealocrete Supercoat Waterproof" shall be applied to concrete or blockwork surface strictly in accordance with the manufacturer's instructions. The surface must be well wire-brushed to remove dirt, efflorescent, adhering mortar and all foreign matter. It shall then be cleaned with fresh water. When absolutely dry generous coat of Sealocrete Supercoat Waterproof shall be applied by brush or spray gun. Surfaces so treated shall be protected from damage or staining as described elsewhere.

B. Works cube tests

Works cubes are to be made at intervals as required by the Engineer and the Contractor shall provide a continuous record of the concrete work. The cubes shall be made in an approved 150mm moulds in strict accordance with the Code of Practice.

Three cubes shall be made on each occasion, from different batches, the concrete being taken from the point of deposit.

Each cube shall be marked with a distinguishing number and date, and a record shall be kept on site giving the following:

- | | | |
|----------------------|-------|-----------|
| a. Cube number. | | |
| b. Date made | | |
| c. Location in work. | | |
| d. 7-day Test- | Date: | Strength: |
| e. 28-days Test | Date: | Strength: |

Cubes shall be forwarded, carriage paid, to an approved testing authority, in time to be tested; two at 7 days and one at 28 days. No cube shall be dispatched within 3 days of casting. Copies of all Works Cube Test results shall be forwarded to the Engineer and one shall be retained on the site.

If the strengths required above are not attained and maintained throughout the carrying out of the contract, the Contractor will be required to increase the proportion of cement and/or substitute better aggregates so as to give concrete which does comply with the requirements of the contract. The Contractor may be required to remove and replace at his own cost any concrete which fails to attain the required strength as ascertained by Works Cube Tests.

The Contractor must allow in his rates for concrete test cubes for all expenses in connection with the preparation and conveyance to the testing laboratory and testing of test cubes and no claim in respect of his failure to do so will be entertained.

Specifications:

Concrete Works

SPEC/13

A. Mixing and placing of concrete

The concrete shall be mixed only in approved power driven mixers of a type and capacity suitable for the work, and in any event not smaller than 0.5/0.33m³ capacity.

The mixer shall be equipped with an accurate water measuring device. All materials shall be thoroughly mixed dry before the water is added and the mixing of each batch shall continue for a period of not less than two minutes after the water has been added and until there is a uniform distribution of the materials and the mass is uniform in colour.

The entire contents of the mixed drum shall be discharged before recharging. The volume of mixed materials shall not exceed the rated capacity of the mixer. Whenever the mixer is started, 10% extra cement shall be added to the first batch and no extra payment will be made on this account. As a check on concrete consistency, slump tests may be carried out and shall be in accordance with B.S. 1881.

The Contractor shall provide the necessary apparatus and allow for the costs of such tests. The slump of the concrete made with the specified water content, using dry materials, shall be determined and the water to be added under wet conditions shall be so reduced as to give approximately the same slump.

All concrete shall be mixed as near to the place where it is required as practicable, and only as much as is required for a specified section of the work shall be mixed at one time, such section being commenced and finished in one operation without delay.

All concrete must be efficiently handled and used in the works within twenty (20) minutes of mixing. It shall be discharged from the mixer directly either into receptacles or barrows and shall be distributed by approved means which do not cause separation or otherwise impair the quality of the concrete. Approved mechanical means of handling will be encouraged, but the use of chutes for placing concrete is subject to the prior approval of the Engineer.

Concrete shall be placed from a height not exceeding 1.35m directly into its permanent position and shall not be worked along the shutters to that position. Unless otherwise approved, concrete shall be placed in a single operation to the full thickness of slabs, beams and similar members, and shall be placed uniformly in horizontal layers not exceeding 1350mm deep in walls and similar members and not exceeding 300mm deep in other members. The surface of the work shall be kept generally horizontal.

When the cement content of a mix exceeds 400kg/m³ the minimum dimension of concrete to be placed in a single pour shall not exceed 600mm.

Should the Contractor wish to place concrete by pumping or pneumatic means he shall submit his proposal for the Engineer's approval. He shall not commence operations until such approval has been obtained.

No fresh concrete shall be placed against previously placed concrete which has been in position of more than 30 minutes or where the initial set has taken place.

Mixing and placing of concrete (cont'd)

Concrete in columns may be placed to a height of 4.00m with careful placing and vibration and satisfactory results. Where the height of the column exceeds 4.00m suitable openings must be left in the shutters so that this maximum lift is not exceeded. Concrete shall be placed continuously until completion of the part of the work between construction joints as specified hereinafter or of a part approved extent. At the completion of a specified or approved part, a construction joint in the form and in the position hereinafter specified shall be made. If stopping of concreting be unavoidable elsewhere, a construction joint shall be made where the work is stopped. A record of all such joints must be made by the Contractor and a copy supplied to the Engineer.

Any accumulation of set concrete on the reinforcement shall be removed by wire brushing before further concrete is placed.

The Contractor shall provide runways for concreting to the satisfaction of the Engineer. Under no circumstances will the runways be allowed to rest on the reinforcement.

Care shall be taken that the concrete is not disturbed or subjected to vibrations and shocks during the setting period.

Mixing machines, platforms and barrows shall be cleansed before commencing mixing and to be cleansed on every cessation of work.

Where concrete is laid on hardcore or other absorbent materials the base shall be suitable and sufficiently wetted before the concrete is deposited.

A. Compaction

At all times during which concrete is being placed, the Contractor shall provide adequate, trained and experienced labour to ensure that the concrete is compacted in the forms to the satisfaction of the Engineer. Concrete shall not be placed at a rate greater than will permit satisfactory compaction or to a depth greater than 450mm before it is compacted.

During and immediately after placing, the concrete shall be thoroughly compacted by means of continuous tamping, spading, slicing and vibration. Vibration is required for concrete of grades 35, 30, 25 and 20.

Care shall be taken to fill every part of the forms to work the concrete under and around the reinforcement without displacing it and to avoid disturbing recently placed concrete which has begun to set.

Any water accumulating on the surface of newly placed concrete shall be removed and no further concrete shall be placed thereon until such water is removed.

Internal vibrators shall be inserted vertically into the concrete whenever possible at not more than 500mm centres and shall constantly be moved from place to place. No internal vibrator shall be permitted to remain in any one position for more than ten seconds and it shall be withdrawn very slowly from the concrete.

Specifications:
Concrete Works

Compaction (cont'd)

In consolidating each layer of concrete the vibrating head shall be allowed to penetrate and re-vibrate the concrete in the upper portion of the underlying layer. In the area where newly placed concrete in each layer joins previously placed concrete, more than usual vibration shall be performed, the vibrator penetrating deeply at close intervals along these contacts. Layers of concrete shall not be placed until layers previously placed have been vibrated thoroughly as specified.

Vibrators shall not be used to move concrete from place to place in the formwork.

At least one internal vibrator shall be operated for every two cubic metres of concrete placed per hour and at least one spare vibrator shall be maintained on site in case of breakdown during concreting operations.

External vibrators shall be of a frequency not less than 7,000 cycles per minute and shall have a rotating eccentric weight of at least 0.75kg. Such vibrators shall visibly affect the concrete within a radius of 350mm.

External formwork vibrators shall be of the high frequency low amplitude type applied with the principal direction of vibration in the horizontal plane. They shall be attached directly to the forms at not more than 1.20m centres.

In addition to internal and external vibration the upper surface of suspended floor slabs shall be leveled with a tamping or vibrating screen prior to finishing. Vibrating elements shall be of the low frequency high amplitude type operating at a speed of not less than 3,000 r.p.m.

A. Construction joints

Construction joints shall be permitted only at the positions predetermined on the drawings or as instructed on the site by the Engineer. In general they shall be perpendicular to the line of principal stresses and shall be located at points of minimum shear, namely vertically at, or near, mid-spans of slabs, ribs and beams. Suspended concrete slabs are generally to be cast using alternate bay method. Bays are to be cast within a minimum period of 48 hours of each other. The joints between adjacent bays are to be in positions agreed with the Engineer.

Under no circumstances shall concrete be allowed to tail-off, but it shall be deposited against stopping-off boards.

Before placing new concrete against concrete already hardened, the face of the old concrete shall be thoroughly hacked, roughened and cleansed, and laitance and loose materials removed therefrom, and immediately before placing the new concrete the surface shall be saturated with water and covered with a coat of mortar at least 25mm in thickness composed of cement and fine aggregate in the proportions used in the concrete.

B. Curing and protection

Care must be taken that no concrete is allowed to become prematurely dry and the fresh concrete must be carefully protected within two hours of placing from rain, sun and wind by means of hessian sacking, polythene sheeting, or other approved means. This protective layer and the concrete itself must be kept continuously wet for at least seven days after the concrete has been placed. The Contractor must allow for the complete coverage of all fresh concrete for a period of 7 days. hessian or polythene sheeting shall be in the maximum widths obtained and shall be secured against wind. The Contractor will not be permitted to use old cement bags, hessian or other materials in small pieces.

Specifications:

Concrete Works

Curing and protection

Concrete in foundations and other underground work shall be protected from admixture with falling earth during and after placing. Traffic or loading must not be allowed on the concrete until the concrete is sufficiently matured, and in no case shall traffic or loading be of such magnitude as to cause deflection or other movement in the formwork or damage to the concrete members. Where directed by the Engineer props may be required to be left in position under slabs and other members for greater periods than those specified hereafter.

A. Faulty concrete

Any concrete which fails to comply with these preambles, or which shows signs of setting before it is placed shall be taken out and removed from the site. Where concrete is found to be defective after it has set, the concrete shall be cut out and replaced in accordance with the Engineer's instructions. On no account shall any faulty, honeycombed, or otherwise defective concrete be repaired or patched until the Engineer has made an inspection and issued instructions for the repair. The whole of the cost, whatsoever, which may be occasioned by the end need to remove faulty concrete, shall be borne by the Contractor.

B. Rod reinforcement

The steel reinforcement shall comply with the latest requirements of the following British Standards:

Hot rolled mild steel for the reinforcement of concrete	BS 4449
Hot rolled high yield steel for the reinforcement of concrete	BS 4449
Cold worked high yield steel for the reinforcement of concrete	BS 4461
Hard drawn steel wire	BS 4482

The Contractor shall submit a test certificate of the rollings. Reinforcement shall be stored on racks above ground level. All reinforcement shall be free from loose mill scale, rust, grease, paint or other substances likely to reduce the bond between the steel and concrete.

C. Fabric reinforcement

Fabric reinforcement shall be electrically cross welded steel wire mesh to BS 4483, and of the size and weight specified.

D. Fixing reinforcement

Reinforcement shall be accurately bent to the shapes and dimensions shown on the drawings and schedules and in accordance with BS 4466. Reinforcement must be cut and bent cold and no welded joints will be permitted unless so detailed.

Reinforcement shall be accurately placed in position as shown on the drawings, and, before and during concreting, shall be secured against displacement by using No. 18.S.W.G. annealed binding wire or suitable clips at intersections, and shall be supported by concrete or metal supports, spacers or metal hangers to ensure the correct position and cover.

No concreting shall be commenced until the Engineer has inspected the reinforcement in position and until his approval has been obtained. The Contractor shall give two clear day's notice of his intention to concrete to the Engineer.

Specifications:
Concrete Works

Fixing reinforcement (cont'd.)

The Contractor is responsible for maintaining the reinforcement in its correct position, according to the drawings, before and during concreting. During concreting a competent steel fixer must be in attendance on the concreters to adjust and correct the positions of any reinforcement which may be displaced. The vibrators are not to come into contact with the reinforcement. Irrespective of whether any inspection and/or approval of the fixing of the reinforcement has been carried out as above, it shall be the Contractor's sole responsibility to ensure that the reinforcement complies with the details on the drawings or bending schedules and is fixed exactly in the positions shown therein and, in the positions, to give the prescribed cover.

The Contractor will be held entirely responsible for any failing or defect in any portion of the reinforced concrete structure and including any consequent delay, claims, or third-party claims, where it is shown that the reinforcement has been incorrectly positioned or is incorrect in size or quantity with respect to the detailed drawings or bending schedules.

Spacer blocks of approved size and shape made of concrete similar to that used in the surrounding construction and fixed to the reinforcement or formwork by No. 18.S.W.G. wires set into the spacer blocks or other approved means shall be provided where necessary to ensure that the requisite cover is obtained. The Contractor is to include for providing sufficient such spacer blocks in his prices for steel reinforcement. where such supplier has been nominated. Where composite blocks or other forms of rib construction are used, spacer blocks are be provided as shown on the drawings. These will generally consist of concrete blocks as described above made to fit the width of the rib less 3mm tolerance and with single or double grooves depending on the number of reinforcement bars used per rib in the top surface with wire ties at each groove. Unless otherwise directed the concrete cover to rod reinforcement over main bars in any face shall be:

Foundations against earth face	75mm
Foundations against blinding	50mm
Columns	40mm
Beams	25mm
Slabs	15mm
Walls	25mm

A. Fixing fabric reinforcement

The fabric shall be free from mill scale, rust, grease or other substance likely to reduce the bond between the steel and the concrete and shall be laid with minimum 300mm laps and bound with No. 18 S.W.G. annealed iron wire.

Where reinforcement projects from a concrete section of the structure and this reinforcement is expected to remain exposed for sometime, it is to be coated with a cement grout to prevent rust staining on the finished concrete. This grout is to be brushed off the reinforcement prior to the continuation of concreting finished concrete

Specifications:
Concrete Works

A. Fixtures and indentations in concrete

No openings, chase, holes or other voids shall be formed in the concrete without the prior approval of the Engineer. Details of any fixtures to be permanently built into the concrete including the positions of all conduits 25mm and over in diameter shall be submitted to the Engineer for his approval before being placed.

B. Chases, holes in concrete

The Contractor shall be responsible for the co-ordination with the electrical and other sub-contractors for incorporating electrical conduits, pipes, fixing blocks, chases, holes and the like in concrete members as required and must ensure that adequate notice is given to such Sub-Contractors informing them when concrete members incorporating the above are to be poured. The Contractor shall submit full details of these items to the Engineer for approval before the work is put in hand. All fixing in blocks, chases or holes to be left in the concrete shall be accurately set out and cast with the concrete.

C. Formwork

The method and system of formwork which the Contractor proposes to use shall be approved by the Engineer before construction commences. Formwork shall be substantially and rigidly constructed of timber or steel or precast concrete or other approved material.

All timber for formwork shall be good, sound, clean, sawn, well-seasoned timber, free from warps and loose knots and of scantling sufficiently strong for their purpose.

D. Construction of formwork

All formwork shall be of sufficient thickness and with joints close enough to prevent undue leakage of liquid from the concrete and fixed to proper alignment, level and plump and supported on sufficiently strong bearers, shores, braces, or plates, properly held together by bolts or other fastening to prevent displacement vibration or movement by the weight of materials, men and plant on the same and must be so wedged and clamped as to permit easy removal of the formwork without jarring the concrete. Where formwork is supported on previously constructed portion of the reinforced concrete structural frame, the Contractor shall by consultation with the Engineer ensure that the supporting concrete structure is capable of carrying the load and/or sufficiently propped from lower floors or portions of the frame to permit the load to be temporarily carried during construction.

Soffits shall be erected with an upward camber of 10mm for each 4.000m of horizontal span or as directed by the Engineer.

Great care shall be taken to make and maintain all joints in the formwork as tight as possible, to prevent the leakage of grout during vibration. All faulty joints shall be caulked to the Engineer's approval before concreting.

The formwork shall be sufficiently rigid to ensure that no distortion or bulging occurs under the effects of vibration. If at any time the formwork is insufficiently rigid or defective the Contractor shall strengthen or improve such formwork as the Engineer may direct.

Specifications:
Concrete Works

Construction of formwork (cont'd)

The Contractor's attention is drawn to the various surface textures and applied finishes required and the faces of formwork next to the concrete must be of such material and construction and be sufficiently true to provide a concrete surface which will in each particular case permit the specified surface treatment or applied finish. All surfaces which will be in contact with concrete shall be oiled or greased to prevent adhesion of mortar. Oil or grease shall be of a non-staining mineral type applied as a thin film before the reinforcement is placed. Surplus moisture shall be removed from the forms prior to placing concrete.

Temporary openings shall be provided at the base of columns, wall and beam forms and at any other points where necessary to facilitate cleaning and inspection immediately before the pouring of concrete. Before the concrete is placed the shuttering shall be true-up and any water accumulated therein shall be removed. All sawdust, chips, nails and other debris shall be washed out or otherwise removed from within the formwork. The reinforcement shall then be inspected for accuracy of fixing. Immediately before placing the concrete the formwork shall be well wetted and inspection openings shall be closed. The erection, easing, striking and removing of all formwork must be done under the personal supervision of a competent foreman, and any damage occurring through faulty formwork or its incorrect removal shall be made good by the Contractor at his own expenses.

After removal of formwork, all projections, fins, etc., on the concrete surface shall be chipped off, and made good to the requirements of the Engineer. Any voids or honeycombing shall be treated as described under "Faulty Concrete".

A. Stripping formwork

All formwork shall be removed without undue vibration or shock and without damage to the concrete. No formwork shall be removed without the prior consent of the Engineer and the minimum period that shall elapse between the placing of the concrete and the striking of the formwork will be as follows: -

Beam sides, walls and columns	(unloaded)	2 days
Slab soffits	(props left under)	3 days
Beam soffits	(props left under)	7 days
Removal of props:	(subject to 7 days concrete cube strength being satisfactory)	
	Slabs	10 days
	Beams	14 days

If the Contractor wishes to take advantages of the shorter stripping times permitted for beam and slab soffits when props are left in place, he must so design his formwork that sufficient props as agreed with the Engineer can remain in their original position without being moved in any way until expiry of the minimum time for removal of props. Stripping and re-propping will not be permitted.

The above times may be reduced in certain circumstances, at the discretion of the Engineer provided an approved method is adopted at the Contractor's expenses to ensure that the required concrete strength is attained before the forms are stripped.

Solid strips in composite floors shall be considered as beams. The tops of retaining walls shall be adequately supported with stout raking props at intervals required by the Engineer. These props are not to be removed earlier than 7 days after casting of the floor slab.

Specifications:
Concrete Works

SURFACE FINISHES

A. Fair face finish

Where fair face finished is specified the concrete shall be brought to a perfectly true smooth and even surface by rubbing with carborundum stone dipped in cement grout. Such work must be commenced within one hour of removing the formwork and be actively and rapidly pursued until completed, the object being to complete the finish as soon as possible after the removal of the shuttering. On no account may such work be postponed to a later stage in the contract. Fair face surfaces shall be clean, smooth, even, true to form and free from all board marks, joint marks, honeycombing, pitting, etc. The Contractor is permitted at his own expense to provide smooth lining to the forms which will achieve the required finish without rubbing down. All rubbed down work must be lightly washed with plain cold water at the completion of the contract, and not before the cement grout used in the finish is at least four weeks old after initial mixing.

B. Wrought lined formwork

The shuttering shall be constructed of wrought tongued and grooved boarding, plywood or blackboard lined with approved laminated plastic sheeting to produce a concrete surface with truly flat surface completely free from all air bubbles, joint marks, honeycomb and other pitting and blemishes to the approval of the Engineer.

Should the Contractor desire to use alternative materials, he should submit his proposals to the Engineer for approval.

Should the Contractor fail to obtain approval and the work is subsequently rejected, the Contractor will at his own expenses carry out all remedies necessary to attain the approval of the same.

C. Tamped finish

Areas so specified shall be finished at the time of casting with a tamped finish to the Engineer's approval produced by an edge board. Board marks are to be made to a true pattern and will generally be at right angles to the traffic flow. Haphazard or diagonal tamping will not be accepted.

D. Board marked finish

Where so directed or measured the finish shall be that of a board marked pattern in panels, the boards shall be arranged vertically or horizontally and of widths and sizes all as detailed on the drawings. All exposed concrete will be left unpainted and therefore every care and attention shall be paid to obtain a satisfactory visual appearance and the maintenance of the same throughout the building operation. The finished surfaces shall be free from blow holes, hungry patches and other blemishes, and a sample panel is to be provided and approved by the Engineer before work commences. Unless otherwise specified, the formwork shall be rip sawn softwood to the Engineer's approval and shall have a sufficiently strong grain to impart a corresponding pattern to the concrete surface. Unless otherwise approved it shall have four uses only and shall be carefully cleansed from adhering grout after each use. It shall be lightly oiled with an approved non-staining oil.

Specifications:

Concrete Works

Surface finishes (cont'd)

A Chisel dressed finish

Where specified a chisel dressed finish is to be carried out on any grade of concrete but not until it is 30 days old. The surfaces are to be fully chisel dressed to remove a maximum of 12mm of the surface to expose the aggregate without excessive cracking or breaking thereon. Where the drawings show details of arises of columns, beams, etc., these are to be pre-formed with timber fillets set in the formwork and care must be taken in working up to those to preserve a clean line. For vertical surfaces of walls and columns, particular care must be taken to remove all sharp projects. For beam soffits this requirement is not necessary.

All chisel dressed surfaces are to have the margin chisel dressed by hand for a minimum width of 75mm commencing from the fillet edge. Thereafter mechanical chisel dressing may be used but the Contractor must ensure that a uniform texture and even plane surface is achieved. The use of pointed steel tools for both hand and mechanical chisel dressing is essential. Upon completion the surfaces are to be thoroughly wire brushed and washed down and protected during the course of construction from damage, dirt, cement grout, etc.

B. Precast Concrete

Unless otherwise approved by the Engineer, all precast concrete construction shall be carried out on the site and shall conform to requirements given elsewhere in these preambles.

The compacting of precast concrete shall conform with requirements given elsewhere in these preambles except for thin slabs where use of immersion type vibrators is not practicable. The concrete in these slabs may be consolidated on a vibrating table or by any other methods approved by the Engineer.

Steam curing of precast concrete will be permitted. The procedure for steam curing shall be subject to the approval of the Engineer. The precast work shall be made under cover and shall remain under the same for seven days. During this period and for a further seven days the concrete shall be shielded by sacking or other approved material and kept constantly wet. It shall then be stacked in the open for at least a further seven days to season before being set in position. Where steam curing is used these times may be reduced subject to the approval of the Engineer.

Precast concrete units shall be constructed in individual forms. The method of handling the precast concrete units after casting during curing and during transport and erection shall be subject to the approval of the Engineer, providing that such approval shall not relieve the Contractor of responsibility for damage to precast concrete units resulting from careless handling.

Repair of damage to the precast concrete units, except for minor abrasions of the edges which will not impair the installation and/or appearance of the units will not be permitted and the damage units shall be replaced by the Contractor at his own expense.

Except where precast work is described as "fair face" or as having an "exposed aggregate" or terrazzo finish the moulds shall be made of suitable strong sawn timber true in form to the shapes required. Unless otherwise described faces are to be rough from the sawn moulds.

Specifications:
Concrete Works

Precast concrete (cont'd)

Where precast work is described as “fair face” the moulds are to be made of metal or are to have metal or plywood linings or are to be other approved moulds which will produce a smooth dense fair face to the finished concrete suitable to receive a painted finish directly and free from all shutter marks, holes pitting, etc. In his prices for such precast work the Contractor shall include for all rubbing down to produce the finish required, to the satisfaction and approval of the Engineer. Where precast work is to have an “exposed aggregate” or terrazzo finish the moulds shall be constructed to the requirements given for moulds for “finished fair” work. The method of achieving the exposed aggregate finish shall be the “aggregate transfer” or other approved methods.

The precast units shall be installed true to the lines, grades and dimensions shown on the drawings or as directed by the Engineer.

A. Composite floor slabs

Concrete hollow blocks for use in the composite floor slabs are to be of the sizes required as shown on the drawings and with 25mm wall thickness and are to be of adequate strength to support the concrete during placing and consolidation by vibration. Blocks are to be manufactured in accordance with the procedures specified in B.S. 2028 and to be of a mix not weaker than 1:4:8 cement: stone using maximum 10mm size aggregate.

Concrete blocks are to be cured for at least 28 days before use on the site. During the first seven days of curing, blocks are to be kept permanently damp and protected from exposure to sun and wind.

Concrete blocks are to be well wetted before the pouring of concrete.

Hollow clay filler blocks for use in the composite floor slabs are to be of the sizes shown on the drawings and to be of adequate strength to support the concrete during placing and consolidation by vibration. They shall be obtained from an approved manufacturer. Any clay blocks subsequently delivered to site which in the opinion of the Engineer are not of equal standard to the approved samples shall be rejected. Rejected block shall immediately be removed from the site and shall not be used in the works. Clay blocks are to be fully cured before delivery or use on site.

Clay blocks are to be well wetted before the pouring of concrete.

B Composite floor construction

The hollow block floor construction is generally to be as shown on the Engineer's drawings.

Care shall be taken in placing blocks to ensure that they are set out in accordance with the details shown on the drawing and that they run truly in line without encroaching on the width of the insitu ribs.

The open ends of hollow blocks, if adjacent to concrete to be placed insitu, are to be plugged or stopped to prevent the concrete from flowing into the void and the Contractor is to include for this in his prices. The Contractor should note that tiles are not to be used in the soffit of ribs and he is to take this into consideration in pricing the items of formwork to the soffit of hollow block floor construction.

Specifications:
Concrete Works

Composite floor construction (cont'd)

Before concreting is carried out the blocks are to be thoroughly wetted.

Care should be taken during concreting that the width of ribs between the rows of blocks and the solid insitu concrete shown on the drawings adjacent to supporting beams is not encroached upon by the blocks.

It is essential that the concrete toppings be poured at the same time as the ribs between hollow blocks. Reinforcement shall be positioned accurately with required cover in accordance with the drawings and using the particular spacing blocks with wire ties as previously described. Spacer blocks shall be provided in ribs at not more than 1.20m centres.

Care must be taken during concreting that the reinforcement is not displaced.

Where holes for services occur the necessary holes or pockets shall be accommodated by the replacing of a hollow block by insitu concrete or the widening of a rib all in accordance with the Engineer's instructions.

Prices for such holes through hollow blocks construction are to include for the re-arrangement or substitution of the hollow blocks with solid concrete in addition to the actual formation of the holes.

A. Concrete surface beds

Concrete for surface beds shall be grade 20 or higher.

Before placing concrete and where specified or shown on the drawings a layer of 1000-gauge polythene or diothern sheeting shall be laid on the base course. Minimum 300mm laps shall be provided at all joints.

The concrete shall be placed as soon as possible after being mixed. In transporting the concrete, adequate precautions shall be taken to avoid damage to the prepared base. The concrete shall be spread to such a thickness that when compacted it shall have the finished thickness as specified or shown on the drawings. A layer of concrete 50mm less than the finished thickness shall first be spread and struck off at the correct level to receive the top fabric reinforcement. The top layer shall then be added. Not more than 30 minutes shall elapse between spreading the bottom and the top layer. The Contractor shall be responsible for maintaining the reinforcement in its correct position during the placing and compaction of the concrete.

The compaction and finishing of the concrete shall be effected by immersion vibrators and a hand or mechanical tamper weighing not less than 10kg per metre run and having a tamping edge shod with a steel strip 75mm. wide fixed to the temper by countersunk screws. Immersion vibrator with "spade" attachments will be permitted. Compaction shall be continued until a dense scaled surface finish is achieved. Over-compaction causing an excessive amount of fines to be brought to the surface shall be avoided.

Specifications:
Concrete Works

Concrete surface beds (cont'd)

The surface of the concrete shall be finished to the surface texture specified true to the levels, falls and crossfalls as directed or shown on the drawings and shall be subject to the following tolerance:

The level shall be within + or – 6mm of the levels specified

The falls shall be within 10% of the falls specified.

The smoothness shall be such that departures from a 3.00m straight edge laid in any direction shall not exceed 3mm.

Minor irregularities shall be made good by the use of a steel float but in no circumstances shall mortar be used to make good surface. As soon as the surface has finished, it shall be protected against rapid drying by means of damp hessian polythene sheeting or other approved means placed carefully on the surface and kept damp and in position for 7 days and the concrete shall be kept wet for further 21 days. The Contractor is to obtain the Engineer's approval for the material and method he proposes to use for curing and no concreting will be permitted until sufficient such material is on site.

Form shall not be removed from freshly placed concrete until it is at least 24 hours old. Care shall be taken that in their removal no damage is done to the concrete, but should any damage occur, the Contractor shall be responsible for making it good.

A. Expansion joints in concrete surface beds

Expansion joints shall be positioned and constructed as shown on the drawings. The joints in the surface beds shall be absolutely square and true to line and position.

All joints in surface beds shall be formed to the patterns and shapes to coincide exactly with the joints in the surface finish or as otherwise indicated on the drawings. Formwork shall be manufactured from steel of heavy angle sections and be to the Engineer's approval. The Contractor shall submit drawings of the forms he intends to use and obtain the Engineer's approval before fabrication. Panels shall be poured in alternate bays or as agreed with the Engineer. No construction joints other than those indicated on the drawings shall be permitted.

B. Notes concerning measurement and pricing

The Contractor shall allow for all costs incurred during the progress of the contract for complying with the provisions concerning the preparation and use of the specified grade mixes.

Prices for concrete shall include for mixing and depositing as described or indicated and for hoisting and depositing at the various levels required throughout the building, and shall also include for forming or hacking a satisfactory key for all faces receiving asphalt and plaster work. Prices for slabs shall also include for levelling off the surface as described under "Compaction," and all temporary formwork to form construction joints at bay edges.

Prices for reinforced concrete shall, in addition, include for filling into, between or on formwork, and thoroughly compacting between and around rods or fabric reinforcement and for forming all additional construction joints between varying mixes. Where described as vibrated, prices must include for fully vibrating as described.

Specifications:

Concrete Works

Notes concerning measurement and pricing (cont'd)

Prices for formwork shall include for extra material at joints, extra labour and waste for narrow widths, small quantities, overlaps, passing at angles, straight cutting and waste, splayed edges, notching, etc., and for fixing at the various levels including battens, struts, and supports and for bolting, welding, easing, striking and removal. Prices for linear items such as boxing shall include for angles and ends.

Prices for steel rod reinforcement shall include for cutting to lengths and all labour in bending and cranking, forming hooked ends, handling, hoisting and fixing in position and for providing all necessary tying wire and supports. Prices for fabric reinforcement shall include for all straight cutting and waste, handling, hoisting and fixing in position, providing all necessary tying wire and supports and all extra material in laps. Prices of all precast concrete shall include for all moulds, finishing as described, handling reinforcement, cement, hoisting and fixing to required levels, bedding, jointing and pointing in cement and sand, also for casting or cutting to the exact lengths required and any waste resulting from such cutting.

Prices for expansion joints shall include for cutting to size and all temporary supports, and prices for expansion joint sealers shall include for all temporary battens or fillets required to form the necessary grooves.

A. Composite slabs

Prices for suspended hollow tile composite floor and roof slabs must be “all inclusive” to include for concrete hollow tiles insitu concrete ribs, concrete topping, and concrete filling to open ends of hollow concrete tiles.

Concrete in main beams shall be separately measured to the full width thereof and for full depth to top of slab level, and in composite slabs it shall be measured as net area between same. No adjustment will be made in these measurements for any projection of ribs reinforcement, etc., into main beams or flanges, to obtain bearings, which are deemed to be covered in the Contractor's rates.

Specifications:

Concrete Works

CONCRETE BLOCK WALLING

A. Generally

Concrete block shall be solid or hollow complying with B.S.2028 Type A, but sizes will be manufactured locally. Blocks must either be obtained from an approved manufacturer or manufactured by the Contractor on Site. In either case samples must be deposited with the Architect, tested and approved but in neither case must any block less than 28 days old be used in construction.

Load-bearing blocks must have a minimum crushing strength of 7 Newtons per square millimeter.

Blocks shall be free from cracks or blemishes, and shall be true to shape and size with clean sharp edges and corners, which shall be truly square. The thickness shown on the drawings for blocks shall not deviate more than 3mm.

B. Wall reinforcement

Wall reinforcement, where so specified, shall consist of 16 gauge (1.64mm) mild steel strip, 10mm diameter round mild steel bar to B.S. 4449 (two laid 75mm apart in a joint) or a proprietary product approved by the Architect. Reinforcement shall be laid in every other horizontal joint for the full length of the walls, lapped and crimped 300mm at running joints and full width of the wall at angles and intersections.

C. Chasing

Chasing in load-bearing walling for electrical conduits, pipes, etc., is to be kept to a minimum size of cut and positions and runs of chases are to be approved by the Architect before any cutting is commenced. Horizontal runs will not be permitted.

D. Cement.

The cement shall be as described in "Concrete Works".

E. Sand

The sand for mortars shall be as described in "Concrete Work", except that it shall be fine sand.

F. Lime

The lime shall be as described in "Plasterwork".

G. Mortars

The cement mortar shall consist of one part of Portland cement to four parts of sand by volume.

The cement/lime mortar shall consist of one part of Portland cement, one part of lime and six parts of sand by volume.

The ingredients of mortar shall be measured in proper gauge boxes on a boarded platform, the ingredients being thoroughly mixed dry, and again whilst adding water. In the case of cement/ lime mortar the sand and lime shall be mixed first and then the cement added. All mortar is to be thoroughly mixed to a uniform consistency with only sufficient water to obtain a plastic condition suitable for troweling. No mortar that has commenced to set or has been mixed for a period of more than 30 minutes is to be used or remixed for use.

Specifications:

Concrete Block Walling

A. Bonding walling

All blocks shall be properly bonded together and in such a manner that no vertical joint in any one course shall be within 175mm of a similar joint in the courses immediately above and below. Alternate courses of walling at all angles and intersections shall be carried through the full thickness of the adjoining walls.

All perpend, reveals, quoins and other angles and joints of the walls, etc., shall be built strictly true and square.

B. Laying and joining

All blocks are to be well wetted before laying and tops of walls where left off shall be well wetted before commencing building. All joints are to be of an average 10mm thickness and flushed up and grouted in solid as the work proceeds. The mortar shall be laid over the whole of the bedding faces both horizontal and vertical except the mortar shall be kept at least 8mm back from the exposed faces so that it is not squeezed out onto the face of the block.

All exposed faces of walls for plastering are to be left rough and the joints raked out while mortar is green to form adequate key.

All other faces shall be cleaned down on completion with a wire brush or as necessary and mortar droppings, smear marks, etc., removed and rates must include for this.

C. Setting out and courses

The Contractor shall provide proper setting out rods and set out on the same all works showing openings, heights, sills and lintels and shall build the various walls and piers to the thickness, widths and heights shown on the drawings. This will commence from the first course above the foundation until the completion of walling. All the courses shall be level and regular and all walls truly vertical and corners square as shown on the drawings.

Blockwork shall be laid in courses of full height of blocks and cutting down of blocks will not be allowed. All blockwork shall be brought up regularly along the full length of the wall and in no place shall the wall differ in height by more than four courses.

At angles, corners and intersections of walls, alternate courses of blocks from each wall shall be carried through the full thickness of wall.

Where walls are to be plastered or rendered, vertical and horizontal joints must be raked out or formed in vee shape to form a key for the plaster.

D. Damp proof courses

Damp proof courses (D.P.C.) shall be three-ply hessian based bituminous roofing felt to comply with B.S. 747 cut into strips of appropriate widths or other approved damp proof course material of equal or superior quality lapped not less than 300mm (the lapping surfaces being painted with bitumen) and shall project a minimum 12mm from the face of the finished wall.

Specifications:

Concrete Block Walling

SPEC/28

A. Openings in block-work

Where timber door or windows frames are to be inserted in the walls these shall be built in as the work proceeds. Metal lugs attached to frames are to be built into the courses and well bedded in mortar.

Openings shall be left in the blockwork where metal doors or window frames are to be inserted, of overall frame size plus 5mm maximum or such size as shown on the Drawings to suit the door or window detailing and sealing requirements. Openings shall be finished with an even, regular face, with cut blocks laid with uncut ends to the opening.

B. Lintels and sills

Precast lintels and sills shall be firmly bedded in the same quality mortar as generally used in walling, shall be level and true to line. Bearings at the ends for the lintels shall be equal and in no case less than 200mm, or as shown on the Drawings.

C. Putlog holes

All putlog holes shall be carefully, properly and completely filled up on completion of walling and before plastering is commenced.

D. Fair face

Walling described as “fair faced” shall be built with selected blocks and pointed with a neat flush joint as the work proceeds. The whole shall be bagged with a complete covering of 1:4 liquid cement and sand wash, thoroughly rubbed into cavities with a sack including making good bagging to door and window frames.

E. Prices to include

The prices for walling shall include for all straight cutting, bonding, plumbing angles, forming reveals, pinning up to underside of concrete soffits and cutting up to sides of columns and cutting and pinning ends of lintels and sills.

Specifications:
Concrete Block Walling

ROOFING AND RAINWATER GOODS

A. Mastic asphalt roofing

Mastic asphalt roofing shall be executed by an approved Specialist Roofing Sub- contractor. The asphalt shall be laid to a total thickness of 30mm in not less than two coats, on and including layer of asbestos based sheeting felt to B.S. 747 and finished with two coats of bituminous aluminium paint on both horizontal and vertical surfaces, all to comply with B.S. 988, table3, column III Tropical mastic asphalt.

Rates for asphalt roofing shall include for sheeting felt, but the bituminous aluminium paint shall be measured separately.

Before any application of roofing the Contractor is required to ensure that all surfaces to be covered are thoroughly cleaned and free from particles harmful to the roof covering.

B. Asbestos cement roofing and accessories

Asbestos cement roofing sheets and accessories shall be from an approved manufacturer and shall be stored and fixed in strict accordance with their printed instructions.

C. Key terrain rainwater pipes and fittings

Rainwater pipes and fittings shall be from an approved manufacturer and shall be jointed and fixed in strict accordance with their printed instructions.

D. Lightweight roof screeds

Lightweight roof screeds shall consist of cement, sand and pumice (1:3:7) and finished with a 6mm topping of cement and sand (1:4). Screeds shall not be laid in areas exceeding ten square metres during any period of 24 hours. As bays are formed, batten strips must be used to retain exposed edge of screed. Screeds shall be finished to falls, crossfalls and currents to receive roofing.

E. All timber

All timber shall be in accordance with the latest approved Grading Rules issued by the Government of Kenya. Timber for Carpentry shall be SECOND (OR SELECT) GRADE and timber for joinery shall be FIRST (OR PRIME) GRADE.

Specifications:

Roofing and Rainwater goods

CARPENTRY

A. Generally

All timber as it arrives on the Site shall be inspected by the Contractor, and any timber brought on the Site and not complying with the Specifications or not approved, must be removed forthwith from the Site and only timber as approved shall be used in the Works.

The Contractor shall upon signing the Contract, purchase sufficient supplies of specified hardwoods to avoid possible shortage at a later date.

B. Species of timber

The following timber shall be used:

<u>Standard Common Name</u>	<u>Botanical Name</u>
Cypress	Cypressus Spp.
Podo carpus	Podocarpus Spp.
Cedar	Juniperus precera
E. A. Camphor wood	Ocotea Usambarensis
African Mahogan (Munyuma)	Khaya Antotheca
Mininga	Pterpcarpus Angloenis
Mvule	Clorophora excelsa
Meru Oak	Vitex Keniensis

C. Tolerance in thickness

Tolerances in thickness shall conform with the following extracts from the Government of Kenya Grading Rules:

1. Hardwood Grading (First and second Grades)

The following tolerances in thickness will be admitted:

- (a) 1.5mm oversize on pieces up to 25mm in thickness
- (b) 3mm oversize on pieces up to 25mm and up to 50mm in thickness
- (c) 6mm oversize on pieces over 50mm in thickness.

Undersize will not be permitted.

2. Softwood Grading: Strength Grades (for Carpentry)

Undersize not allowed.

Oversize. All timber to be sawn oversize by 1.5mm per 25mm of thickness and width. Not more than 3mm in thickness and not more than 6mm in width.

3. Softwood Grading: Appearance Grades (for Joinery) First and Second Grade

All as for strength Grades Above

D. Insect damage

All timber shall be free of live borer beetle other insect attack when brought upon the Site. The Contractor shall be responsible up to the end of the maintenance period for executing at his own cost all work necessary to eradicate insect attack of timber which becomes evident including the replacement of timber attacked or suspected of being attacked, notwithstanding that the timber concerned may have already been inspected and passed as fit for use.

Specifications:

Carpentry

A. Seasoning of timber

All timber shall be seasoned to a moisture content of not more than 22% for Carpentry and 15% for Joinery.

B. Pressure impregnation treatment

All carpentry timbers, sawn joinery, timber grounds for fixing Joinery and all timber described as "Treated" shall be treated with pressure impregnated "Celcure" or "Tanalith" solution with a minimum net retention of 0.35lbs of dry salt per cubic foot. If so required "charge sheets" shall be submitted by the Contractor to the Architect for his retention. All cut ends and any other cut faces of timbers sawn after treatment shall be treated before fixing with "Celcure B" or "Wolmanol" solution brushed on.

The Contractor's prices for such timber hereinafter must allow for the above treatment.

C. Inspection and testing

The Architect shall be given facilities for inspection of all works in progress whether in workshop or on Site. The Contractor is to allow for testing of prototypes of special construction units and the Architect shall be at liberty to select any samples he may require for the purpose of testing, i.e. for moisture content, or identification, species, strength, etc., such testing will be carried out by the Forestry Department.

D. Clearing up

The Contractor is to clear out and destroy or remove all cut ends, shavings and other wood waste from all parts of the building and the Site generally, as the work progresses and at the conclusion of the work.

This is to prevent accidental borer in infestation and to discourage termites and decay.

E. Workmanship

All Carpenter's work shall be accurately set out in strict accordance with the Drawings and shall be framed together and securely fixed in the best possible manner with properly made joints, all brads, nails and screws, etc., shall be provided as necessary, directed, and approved and the Contractor's prices shall allow for all the foregoing.

All workmanship shall be of the best quality.

All Carpenter's work shall be left with sawn surfaces except where particularly specified to be wrought.

F. Dimensions

Dimensions of timber for Carpentry left with sawn faces shall comply with the previous Clause specifying tolerances in thickness. Dimensions for wrought members shall be as described in "Joinery".

Specifications:
Carpentry

A. Jointing

All timber shall be as long as possible and practicable to eliminate joints. Where joints are unavoidable surfaces shall be in contact over the whole area of the joint before fastenings are applied.

No nails, screws or bolts are to be fixed in any split end. If splitting is likely, or is encountered in the course of the work, holes for nails are to be prebored at diameter not exceeding $4/5^{\text{th}}$ of the diameter of the bolt. Nuts must be brought up tight but care is to be taken to avoid crushing of the timber under the washers.

Leas holes are to be bored for all screws. When the use of bolts is specified, the holes are to be bored from sides of the timber and are to be of the diameter $D + D/16$, where D is the diameter of the bolt. Nuts must be brought up tight but care is to be taken to avoid crushing of the timber under the washers.

Specifications:
Carpentry

JOINERY

A. All timber

All timber shall be FIRST (OR PRIME) GRADE. Species of timber and tolerances shall be as defined under "CARPENTRY".

B. General

All joiner's work shall be accurately set out on boards to full size for the information and guidance of the artisan before commencing the respective works, with all joints, iron work and other works connected therewith fully delineated. Such setting out must be submitted to the Architect and approved before such respective works are commenced.

All joiner's work shall be cut out and framed together as soon after the commencement of the building as is practicable, but not to be wedged up or glued until the building is ready for fixing same. Any portions that warp, wind or develop shakes or other defects within six months after completion of the Works shall be removed and new fixed in their place together with all other work which may be affected thereby, all at the Contractor's own expense.

All work shall be properly mortised, tenoned, housed, shouldered, dovetailed, notched, pinned, bradded, etc., as directed and to the satisfaction of the Architect and all properly glued up with the best quality glue.

Joints in joinery must be as specified or detailed, and so deigned and secured as to resist or compensate for any stresses to which they may be subjected. All nails, springs, etc., are to be punched and puttied. Loose joints are to be made for shrinkage, glued joints where shrinkage need not be considered and where sealed joints are required. Glued for loading-bearing joints or where conditions may be damp must be of the resin type. For non-load bearing joints or where dry conditions may be guaranteed case in or organic glues may be used.

All exposed surfaces of joinery work shall be wrought and all arises "Eased off" by planning and sand papering to an approved finish suitable to the specified treatment.

C. Dimensions

3mm Reduction off specified sized will be allowed to each wrought face except in members 25mm thick or less or where described as finished sizes in which case joinery shall hold up full dimensions.

D. Fixing joinery

All beads, fillets and small members shall be fixed with round or oval brads or nails well punched in and stopped. All larger members shall be fixed with screws. Brass screws shall be used for fixing of all hardwood, the heads let in and pelleted over with wood pellets to match the grain.

E. Bedding frames, etc.

The Contractor's rate must include for bedding frames, sills, etc., in mortar or dressing surfaces of walls, etc., in lieu.

Specifications:

*Joinery***A Plugging concrete and walls**

Round wood plugs shall not be used. All work described as plugged shall be fixed with screws to plugs formed by drilling concrete, walls, etc., with a proper tool of suitable size at 750mm spacing and filling the holes completely with “Philplug” rawl plastic “Rawlplugs” in accordance with the manufacturer’s instructions. Alternatively, and where so agreed by the Architect, hardwood dovetailed fixing slips, dipped in “Wolmanol” or “Celcure B” solution and cut and pinned or bedded in cement mortar (1:3) may be used.

B Fiberboard

Fiberboard shall be 12mm “Celotex” or other approved termite-proofed softboard cut to panels with V-edges.

C Plywood

Plywood shall comply with B.S. 1455 (Grades 1 or “interior type”).

D Blockboard

Blockboard shall be laminated board faced both sides with 4mm plywood to approval. Exposed edges shall be lipped with 19mm hardwood and rates shall include for lipping.

E Plastic sheeting

Plastic sheeting shall be “Formica” sheeting, 1.6mm thick and securely fixed with approved type waterproof adhesive, and in the colours approved by the Architect.

F Protect joinery

Any fixed joinery which in the opinion of the Architect is liable to become bruised or damaged in any way, shall be completely cased and protected by the Contractor until the completion of the Works.

G Prices to include

Prices of items, hereafter shall include for the foregoing labours, etc., and in addition the prices for linear notched or returned ends, all similar incidental labours and all short lengths.

H Bottom edges

Bottom edges of doors shall be painted with one coat of approved primer before fixing.

I Ironmongery

All locks and ironmongery shall be fixed with screws, etc., to match. Before the woodwork is painted, handles shall be removed, carefully stored and refixed after completion of painting and locks oiled and left in perfect working order. All keys shall be labeled with the door reference marked on labels before handing to the Architect on completion.

Specifications:

Joinery

PLASTERWORK AND OTHER FINISHINGS

A. Cement

The cement shall be as previously described in “Concrete Work”

B. Sand

The sand shall be as described for fine aggregate but for plastering shall be light in colour and well graded to a suitable fineness in accordance with the nature of the work in order to obtain the finish directed.

C. Lime

The lime for plastering shall comply with B.S. 890 Class “A” for non-hydraulic lime and shall be as rich as obtainable and to approval. It must be freshly burnt and shall be slaked at least one month before being used by drenching with water, well broken up and mixed and the wet mixture shall be passed through a sieve of sixty-four meshes to the square inch. Lime putty shall consist of freshly slaked lime as above described saturated with water until semifluid and passed through a fine sieve, it shall then be allowed to stand until superfluous water has evaporated and it has become of the consistency of thick paste, in no case for a shorter period than one month before being used, during which it must be kept damp and clean and no portion of it allowed to become dry.

Alternatively, hydrated lime with 70% average calcium oxide content may be used and it must be protected from damp until required for use. It shall be soaked to putty at least 24 hours before use.

D. Gypsum plasters

Gypsum plasters shall be low-expansion retarted hemilydrate to B.S. 1191, Class “B”. Gladstone finishing plaster and “Crestone” plaster from an approved manufacturer and shall be applied neat (and with only water added) in strict accordance with the manufacturer’s instructions.

E. Composition of plaster, etc.

A mix referred to as (1:4) shall mean 41kg. (90lbs.) of cement and 0.028m³ (4cu.ft) of sand. All other mixers shall be construed with the manufacturer’s instructions.

F. Hacking, etc.

The prices for all paving and plastering, etc., shall include for hacking concrete surfaces and for raking out joints of walls 12mm deep and for cross-scoring undercoats to form a proper key.

Plastering on walls generally shall be taken to include flush faces of lintels, beams, etc., in same.

Specifications:
Plasterwork and other Finishes

A. Surfaces

All surfaces to be paved or plastered must be brushed, cleaned and well wetted before each coat is applied. All cement paving's and plaster shall be kept continually damp in the interval between application of coats and for seven days after the application of the final coat.

B. Dubbing out

Dubbing out where required shall be composed of one part cement to six parts of sand.

C. Partially set materials

Partially or wholly set materials will not be allowed to be used or re-mixed. The plaster, etc., mixes must be used within two hours of being combines with water.

D. Samples

The Contractor shall prepare sample square metres of the screeds, pavings and plastering as directed until the quality, texture and finish required is obtained and approved by the Architect, after which all work executed shall conform with the respective approved samples.

E. Finish generally

All screeds and pavings shall be finished smooth, even and truly level unless otherwise specified and paving shall be steel troweled.

Rendering and plastering shall be finished plump, square, smooth, hard and even, and junctions between surfaces shall be perfectly true, straight and square.

All work shall be to approval and any not complying with the above shall be hacked away and replaced at the Contractor's expenses.

F. Arrises and angles

All arrises and angles shall be clean and sharp or slightly rounded or thumb coved as directed, including neatly forming mitres.

G. Making good

All making good shall be cut out to a rectangular shape, the edges undercut to form dovetail key and finished flush with face of surrounding paving or plaster. Cut out and make good all cracks, blister and other defects and leave the whole of the work perfect on completion.

Specifications:

Plasterwork and other Finishes

A Prices to include

In addition to the foregoing, prices of superficial items are to include for work in narrow widths, all linear labours, angles and arrises, all fair edges, for making good up to or stopping to a one at the required level at top of skirting or dodoes where directed and for making good up to windows, door frames and similar.

The prices for all linear items unless otherwise measured are to include for all short lengths, angles and arrises, mitres and ends of every description.

B Prices for paving

Prices for paving are to include for adequate covering and protection during the progress of the works to ensure that the floors are handed over in perfect conditions on completion.

C Floor screeds

Floor screeds shall be composed of cement and sand and shall not be laid in areas exceeding ten square metres during any period of 24 hours. As bays are formed batten strips must be used to retain the exposed edge of the screed.

Thickness and mixes of screeds are adjusted to suit the various top dressing and the Contractor must first ascertain what finish is intended to each specific area before the work of laying screeds is put into hand.

Screeds shall be finished with a wood float for wood blocks and a steel trowel for thermoplastic or similar tiles.

D. Vinylex floor tiles

The vinyl co-polymerised floor tiles shall be 300 x 300 x 2.0mm thick and shall comply with B.S. 3260. The tiles shall be of selected pattern and colour and fixed with approved adhesive.

E. Ceramic floor tiles

Ceramic floor tiles shall be non-slip type.

Specific sample and colour have been approved by the client and the tiles shall be 8mm thick and of size 300 x 300mm. The tiles shall be laid in wet areas, the kitchen and recreation rooms.

F. Granito floor tiles

First quality cream granito floor tiles shall be as approved.

They shall be 10mm thick and either 500 x 500mm or 600 x 600mm in size, laid on a prepared screeded bed.

Specifications:

Plasterwork and other Finishes

A White Glazed wall tiles

White glazed wall tiles shall be of British manufacturer size 150mm x 150mm x 6mm thick, with associated fittings all to B.S. 1281. Tiles shall be well soaked in water, laid with straight horizontal and vertical joints on and including 10mm (minimum) cement and sand (1:3) backing, bedded in cement and sand (1:3), pointed in white cement and cleaned down on completion, all to approval.

Rates for linear items shall include for all special fittings and cutting at angles and intersections.

B. Ceramic wall tiles

These shall be 6.0mm thick white glazed ceramic wall tiles size 200 x 250mm and obtained at a specially negotiated price from Messrs. Saj Ceramics Ltd., P.O. Box 84498 Athi River, or other equal and approved. An approved sample has been selected for this purpose.

These tiles shall be laid on walls in wet areas and in the kitchen.

C. Terrazzo and granolithic work

The whole of the terrazzo and granolithic work is to be carried out by a specialist Sub-Contractor who is to be specifically approved by the Architect and the Contractor will be required to make arrangements for the execution of this work and bear all expenses incurred. No change in the rates for this work inserted by the Contractor in these Bills of Quantities will be allowed.

The materials used and method of construction for terrazzo work are to be in accordance with the B.S. Code of Practice C.P. 204/1951.

The surface finish to terrazzo or granolithic is to be brushed, ground or polished as specified. These textures are to comply with samples approved by the Architect

The terrazzo topping is to be 20mm thick with coloured cement and 12mm marble aggregate, rolled and trowelled to a dense even surface and rubbed down at completion to a grit finished surface free from holes and blemishes. Colours shall be as selected by the Architect. The paving is to be laid in squares divided by plastic strips anchored securely in the screed and having their top edges truly level with the finished floor surface. The terrazzo work is to be laid and finished complete to the approval of the Architect. The screed between the terrazzo work is to be laid and finished complete to the approval of the Architect. The screed between the terrazzo topping and the concrete floor is to be cement and sand (1:3) laid by the Sub-Contractor.

Heat resisting terrazzo shall be as above but with Cement Fondu used instead of coloured cement.

Specifications:
Plasterwork and other Finishes

Terrazzo and granolithic work (cont'd)

The granolithic topping is to be 15mm thick and shall consist of one part coloured cement to two parts aggregate to 6mm gauge mixed with 15% fine dust. Aggregate is to be 70% black trap and remainder approved local coloured stone. Coloured shall be as selected by the Architect. Paving is to be rolled and trowelled to a dense even surface and rubbed down at completion to a grit finished surface free from holes blemishes. The paving is to be laid in squares divided by plastics strips anchored securely in the screeds having their top edge truly level with the finishes floor surface. The granolithic work is to be laid and polished complete to the approval of the Architect. The screed between the topping and the concrete floor is to be cement and sand (1:3), laid by the Sub- Contractor.

The Contractor is to twice scrub the terrazzo with soap and water before handing over.

A. Dividing strips

Dividing strips shall be 3mm thick and of a similar height as the paving in which they are embedded. Strips shall be cut to lengths and embed in the pavings to form margins or bays to a detailed pattern or between differing floor finishes.

B. Marble counter top finishes

Marble finishes to counter and writing tops shall be in selected, polished marble 18-20mm thick and shall be fixed in strict accordance with the manufacturer's instructions using a proprietary fixing adhesive.

B. Non-slip pavings

Where pavings are described as non-slip they shall have carborundum dust sprinkled evenly over the surface at the rate of one kilogramme per square metre lightly trowelled in whilst still green.

C. Dust-proofing compound

Concrete surfaces to be dust proofed shall have two coats of Sealocreate Concrete Surfaces Dressing applied in accordance with the manufacturer's instructions.

D Plastering and rendering

Generally, all surfaces to be plastered or rendered shall be brushed clean and be well wetted before plaster is applied. All plaster and rendering shall be kept continuously damp for seven days after application. All arrises shall be finished true and slightly rounded except where otherwise stated, and shall be run at the same time as the adjoining plaster. No partially or wholly set plaster or rendering will be allowed to be used re-mixed.

Specifications:

Plasterwork and other Finishes

SPEC/40

Plastering and rendering (cont'd)

The Contractor shall prepare samples of the plastering and rendering as directed until the quality, texture and finish required is obtained and approved by the Architect after which all plastering executed in the work shall conform to the respective approved samples.

The Contractor shall cut out and make good all cracks, blisters and other defects and leave the whole of the work perfect on completion. When making good defects, the plaster or rendering shall be cut out to a rectangular shape with edges undercut to form dovetailed key, and all finished flush with face of surrounding plaster or rendering.

Rates for plastering and rendering are to include for raking out joints of walling or hacking concrete to form a key. Instead of hacking, the Contractor will be permitted to treat concrete surfaces, at his own expense, with bonding fluid from an approved manufacturer applied in strict accordance with the manufacturer's printed instructions.

Internal plaster shall be applied in two coats as follows, overall 12mm thick unless otherwise described:

- (a) First coat consisting of cement, lime putty and sand (1:2:6), well scratched, wetted and keyed to receive finishing coat.
- (b) Finishing coat consisting of cement and lime putty (1:10) skim coat, finished with a steel trowel to a smooth and even surface. Adequate time intervals must be left between successive coats in order that the drying shrinkage of the under coat may be substantially complete. All internal and external angles shall be pencil rounded.

External Rendering shall consist of cement and sand (1:5) applied in one coat and finished with a wood float as specified. Unless otherwise described rendering is to be 12mm thick applied in one coat. Rendering described as 20mm thick or over shall be applied two coats.

A Tyrolelean render

Tyrolelean Render shall be composed of Colocrete or Snowcrete coloured or white cement and a special aggregate supplied as Cullamix and mixed in the proportion of two and a quarter to two and a half parts Cullamix to one part water applied with an approved hand operated machine. A finished thickness of 6mm should be obtained in stages until the crisp texture is obtained completely obliterating the background surface and as approved by the Architect. An equivalent made-up mixture with an approved aggregate similar to Cullamix may be used with the Architect's approval.

B. Joints

At junctions of structure, frame and panel walling, form a neat V-joint as indicated on drawings.

Specifications:

Plasterwork and other Finishes

A Cracks and defects

The Contractor shall cut out and make good all cracks, blisters and other defects and leave the whole of plastering and rendering perfect at completion. When making good defects the plaster shall be cut out to a rectangular shape with edges undercut, to form dovetailed key, and all finished flush with the face of the surrounding plaster.

B. Bagging

All internal and/or external surfaces specified as bagged are to be treated with a complete covering of 1:5 liquids cement/sand washed thoroughly rubbed in with an old sack to fill all cavities.

C. Samples

The Contractor shall without charge prepare samples of work as directed until the quality, texture and finish required are obtained and approved by the Architect, after which all work executed shall conform to respective approved samples.

D. Pricing information

Prices for paving, beds and screeds shall include for the preparation of the concrete floor and pointing with cement grout, as described, for any extra thickness consequent upon the concrete floor not finished to true levels: and for laying over electrical conduits including reinforcing as necessary to the approval of the Architect.

Prices for plastering and rendering shall include for the preparation of the surfaces including raking out joints of brickwork or blockwork and hacking surfaces of concrete to form key, and for extra thickness or dubbing out consequent upon any irregularities or inaccuracies in the surface to be covered.

Prices for terrazzo and granolithic work shall include for beds and backings, executing in the colours selected by the Architect, laying to panels and designs as may be directed, and for polishing on completion. Dividing strips forming panels and designs will be measured and paid for separately.

Prices for external finishes shall include for executing work at any height above ground and for any necessary additional scaffolding, ladders, cradles, etc.

If required by the Architect or if indicated on the drawings prices for internal plastering and external rendering shall include for forming a fair splayed edge at all junctions with fair faced concrete surfaces and for forming 12mm V-grooved with fair splayed edges at junctions of walls with structural members and at soffits of slabs etc. Prices shall also include for V-grooved or rounded-grooves not exceeding 12mm wide, in external rendering to formed decorative panels.

Prices for beds and backings are to allow for a true and even finish with a steel float, which is to be scrapped clean by the general Contractor before receiving the finish, to the satisfaction of the finishing Sub-Contractor.

Specifications:

*Plasterwork and other Finishes*A. Protection floor finishing

The Contractor is to allow for protecting all floor and staircase finishing after laying, whether executed by himself or a Sub-Contractor and will be held responsible for any damages to the finishing after laying. All floors are to be cleaned on completion of the building before handing over.

B. Generally

Protect all fittings, joinery and finishing from plaster and other finishing and clean up all marks on completion.

Specifications:

Plasterwork and other Finishes

SPEC/43

GLAZING

A. Glass

All glass shall be of British manufacture or other equal and approved, complying with B.S. 952, free from flaws, bubbles, specks, and other imperfections.

Glass panes shall be cut to sizes to fit the openings with not more than 1.5mm play all round and where puttied shall be sprigged to wood or clipped to metal frames.

Clear sheet glass shall be ordinary glazing (O.Q) quality. Polished plate glass shall be G.G. quality. Bullet proof glass shall be 27mm thick laminated glass and all exposed edges shall be thoroughly polished.

B. Glass louvres

Louvres shall be of the type specified, cut to correct sizes with edges rounded and polished.

C. Putty

Putty for glazing in wood frames shall be composed of pure linseed oil and powdered whiting free from grittiness in accordance with B.S. 544 Type 1 putty.

Putty for glazing in metal frames shall be quick hard setting tropical putty especially manufactured for use with steel windows.

Rebates of metal frames receiving glass shall be prepared and treated with primer for putty prior to glazing and putty shall be primed ten days after glazing.

D. Bedding strips

Bedding strips shall be of plastic or wash-leather approved by the Architect and shall be cut to fit exactly the line of frame and beads.

E. On completion

On completion remove all broken, scratched or cracked panes and replace with new to the satisfaction of the Architect. Clean inside and out with an approved cleaner. On no account

Specifications:

Glazing

BILL NO.1
PARTICULAR PRELIMINARIES

ITEM	DESCRIPTION	AMOUNT (KSHS)														
A	<p><u>EMPLOYER</u></p> <p>The “Employer” is</p> <p>MAASAI MARA UNIVERSITY P.O. Box 861 - 20500 NAROK</p> <p>The term "Employer" and "Government" wherever used in the contract document shall be synonymous</p>															
B	<p><u>DESCRIPTION OF THE WORKS</u></p> <p>The works to be carried out under this contract comprise CONSTRUCTION OF UNIVERSITY LIBRARY, ASSOCIATED CIVIL WORKS, LANDSCAPING WORKS, ELECTRICAL AND MECHANICAL INSTALLATION WORKS</p> <p>The building shall consist of the following</p> <table><tr><td>Lower ground floor</td><td>2800 SM</td></tr><tr><td>Ground floor</td><td>2000 SM</td></tr><tr><td>First floor</td><td>2000 SM</td></tr><tr><td>Second floor</td><td>2000 SM</td></tr><tr><td>Third floor</td><td>2000 SM</td></tr><tr><td>Fourth floor</td><td>650 SM</td></tr><tr><td>Fifth/Roof Covering and Finishes</td><td></td></tr></table> <p>TOTAL AREA=11450 SM</p> <p><i>Note : The above areas are given as a guide an no warranty is given for their accuracy.</i></p>	Lower ground floor	2800 SM	Ground floor	2000 SM	First floor	2000 SM	Second floor	2000 SM	Third floor	2000 SM	Fourth floor	650 SM	Fifth/Roof Covering and Finishes		
Lower ground floor	2800 SM															
Ground floor	2000 SM															
First floor	2000 SM															
Second floor	2000 SM															
Third floor	2000 SM															
Fourth floor	650 SM															
Fifth/Roof Covering and Finishes																
C	<p><u>LOCATION OF SITE</u></p> <p>The site of the proposed works is at MAASAI MARA UNIVERSITY, NAROK COUNTY</p> <p>The Contractor is advised to visit the site, to familiarize with the nature and position of the site. No claims arising from the Contractor's failure to do so will be entertained.</p>															
	Total carried to collections															

ITEM	DESCRIPTION	AMOUNT (KSHS)
A	<p><u>CLEARING AWAY</u></p> <p>The Contractor shall remove all temporary works, rubbish, debris and surplus materials from the site as they accumulate and upon completion of the works, remove and clear away all plant, equipment, rubbish, unused materials and stains and leave in a clean and tidy state to the reasonable satisfaction of the Project Manager.</p> <p>The whole of the works shall be delivered up clean, complete and in perfect condition in every respect to the satisfaction of the Project Manager.</p>	
B	<p><u>WORKING CONDITIONS</u></p> <p>These offices are currently occupied and the contractor shall allow for disruption of works and pollution control The contractor must allow for compliance with all County & Civic Authority laws & regulations</p>	
C	<p><u>CLAIMS</u></p> <p>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 claims shall be entertained upon the expiry of the said contract period.</p>	
D	<p><u>LABOUR CAMPS</u></p> <p>The Contractor shall not be allowed to house labour on site. Allow for transporting workers to and from the site during the tenure of the contract.</p>	
	Total carried to collections	

ITEM	DESCRIPTION	AMOUNT (KSHS)
A	<p><u>PRICING RATES</u></p> <p>The tenderer shall fill in rates and prices for all items of the Works described in the Bill of Quantities.</p> <p>Items for which no rate or price is entered by the tenderer shall be deemed to be covered in the rates and prices of the priced items in the Bill of Quantities.</p> <p>The tenderer shall include for all costs in executing the whole of the works, including transport, replacing damaged items, fixing, all to comply with the said Conditions of Contract.</p> <p>Prices quoted should be in Kenya shillings inclusive of all taxes except V.A.T which will be inserted at the grand summary.</p> <p>Prices shall remain valid for One Hundred and Twenty (120) days from closing date of tender.</p>	
B	<p><u>MATERIALS FROM DEMOLITIONS</u></p> <p>Any materials arising from demolitions SHALL NOT BE re-used and shall become the property of the client unless otherwise advised.</p>	
C	<p><u>URGENCY OF THE WORKS</u></p> <p>The Contractor is notified that these "works are urgent" and should be completed within the period stated in Particular Preliminaries. The Contractor shall allow in his rates for any costs he may incur by having to complete the works within the stipulated contract period.</p>	
D	<p><u>PAYMENT FOR MATERIALS ON SITE</u></p> <p>All materials for incorporation in the works must be stored on site before payment is effected, unless specifically exempted by the Project Manager. This is to include materials of the Contractor, nominated sub-Contractors .</p>	
	Total carried to collections	

ITEM	DESCRIPTION	AMOUNT (KSHS)
A	<p><u>ADVANCE PAYMENTS</u></p> <p>The tenderer's attention is drawn to the fact that the Government does not make advance payments.</p>	
B	<p><u>EXISTING SERVICES</u></p> <p>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 area and shall make whatever provisions may be required by the authorities concerned for the support, maintenance and protection of such services.</p>	
C	<p><u>MEASUREMENTS</u></p> <p>In the event of any discrepancies arising between the Bills of Quantities and the actual works, the site measurements shall take precedence. However, such discrepancies between any contract documents shall immediately be referred 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.</p>	
D	<p><u>VALUE ADDED TAX</u></p> <p>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.</p> <p>In accordance with Government public notice No. 35 & 36 Dated 11th September 2003 operational from 1st October 2003, withholding VAT was to be levied against the contract sum by the Employer and remitted to the Commissioner of VAT through all interim certificates.</p> <p>THE CURRENT LAWS ON THIS SUBJECT SHALL APPLY</p> <p>The contractor should include his taxes in the rates and NOT in the Grand Summary page.</p>	
	Total carried to collections	

ITEM	DESCRIPTION	AMOUNT (KSHS)
	<u>SPECIAL PRELIMINARIES</u>	
	<u>TRANSPORT AND SUBSISTENCE</u>	
A	Allow PROVISIONAL SUM of Kenya Shillings Fifteen Million (KShs. 15,000,000.00) only for transport charges and subsistence allowances to be expended as directed by the PROJECT MANAGER.	15,000,000.00
B	Allow for profits and attendance	
	<u>PROJECT MANAGER'S STATIONERY</u>	
C	Allow PROVISIONAL SUM of Kenya Shillings Two Million (Kshs. 2,000,000.00) only for Project Manager's stationery (printing papers, printers, laptops and any other item to help consultants to effectively run the project)	2,000,000.00
D	Allow for profits and attendance	
	<u>SITE MEETINGS EXPENSES</u>	
E	Allow PROVISIONAL SUM of Kenya Shillings One Million, Five Hundred Thousand, (Kshs. 1,500,000.00) only to cater for expenses relating to site meetings i.e tea, snacks, lunch	1,500,000.00
F	Allow for profits and attendance	
	<u>PROJECT AIRTIME</u>	
G	Allow PROVISIONAL SUM of Kenya Shillings Two Million, Five Hundred Thousand (Kshs. 2,500,000.00) only to cater for airtime expenses during running the project by the relevant parties	2,500,000.00
H	Allow for profits and attendance	
	<u>PROJECT OFFICE ADMINISTRATOR</u>	
J	Allow PROVISIONAL SUM of Kenya Shillings One Million, Six Hundred Thousand (Kshs. 1,600,000.00) only for office administrator on matters relating to the project.	1,600,000.00
K	Allow for profits and attendance	
	<u>Clerk of Works Expenses</u>	
J	Allow PROVISIONAL SUM of Kenya Shillings One Million (Kshs. 1,000,000.00) only for Clerk of Works Expenses	1,000,000.00
K	Allow for profits and attendance	
	Total carried to collections	

ITEM	DESCRIPTION	AMOUNT (KSHS)
	<p align="center"><u>PARTICULARS OF INSERTIONS TO BE MADE IN APPENDIX TO CONTRACT AGREEMENT</u></p> <p>The following are the insertions to be made in the appendix to the contract Agreement:-</p> <p>A Period of Final Measurement 3 Months from Practical Completion</p> <p>B Defects Liability Period 6 Months from Practical Completion</p> <p>C Date for Possession To be agreed with the Project Manager</p> <p>D Date for Completion 208 Weeks from the Date of possession</p> <p>E Liquidated and Ascertained Damages At a rate of 52,500 per week or part thereof</p> <p>F Period of Interim Certificates Monthly</p> <p>G Period of Honouring Certificates 30Days</p> <p>H Percentage of Certified Value Retained 10%</p> <p>J Limit of retention fund 5%</p>	
	Total carried to collections	

ITEM	DESCRIPTION	AMOUNT (KSHS)
	<p style="text-align: center;"><u>COLLECTION</u></p> <p>Brought forward from page PP/1</p> <p>Brought forward from page PP/2</p> <p>Brought forward from page PP/3</p> <p>Brought forward from page PP/4</p> <p>Brought forward from page PP/5</p> <p>Brought forward from page PP/6</p>	
TOTAL: PARTICULAR PRELIMINARIES CARRIED TO GRAND SUMMARY		

BILL NO.2
GENERAL PRELIMINARIES

ITEM	DESCRIPTION	
A	<p><u>PRICING OF ITEMS OF PRELIMINARIES AND PREAMBLES</u></p> <p>Prices will be inserted against items of Preliminaries in the Contractor's priced Bills of Quantities and Specification.</p> <p>The Contractor shall be deemed to have included in his prices or rates for the various items in the Bills of Quantities or Specification for all costs involved in complying with all the requirements for the proper execution of the whole of the works in the Contract.</p> <p>Failure to price an item shall not exempt the contractor from carrying out works described therein.</p> <p>Should the contractor fail to carry out works which he/she did not price and after having received a written instruction from the PM, then the value of such works shall be deducted from the very immediate certificate issued to the contractor.</p> <p>MoPW current rates, JBCC prices/rates, IQSK Handbook, manufacturers or fair rates shall be used by the PM in valuation of unpriced items which the contractor shall fail to execute.</p> <p>The contractor is advised to read and understand all preliminary items.</p> <p>The Contractor is advised to visit the site, to familiarize with the nature and position of the site. No claims arising from the Contractor's failure to do so will be entertained.</p>	
B	<p><u>FORM OF CONTRACT</u></p> <p>The Form of Contract shall be as stipulated in the Republic of Kenya's Standard Tender Document for Procurement of Building Works(2006 Edition) included herein The Conditions of Contract are also included herein Conditions of Contract These are numbered from 1 to 37 as set out in pages 20 to 48 of these tender documents. Particulars of insertions to be made in the Appendix to the Contract Agreement will be found in the Particular Preliminaries part of these Bills of Quantities</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
A	<p><u>FIRM PRICE CONTRACT</u></p> <p>Unless otherwise specifically stated in the Contract Data and/or Particular preliminaries this is a firm price contract and the contractor must allow in his tender rates for any increase in the cost of labour and/or materials during the currency of the contract.</p>	
B	<p><u>VISIT SITE AND EXAMINE DRAWINGS</u></p> <p>The Contractor is recommended to examine the drawings and visit the site the location of which is described in the Particular Preliminaries hereof. He shall be deemed to have acquainted himself 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 recommendation will be considered.</p>	
C	<p><u>PERFORMANCE BOND</u></p> <p>5% bond shall be required from the specified institution</p> <p>The period for supplying the bond shall be 14 days.</p> <p>No contract shall be signed, NOR shall any payment be made before the bidder has complied with the bond requirements</p> <p>Failure to deliver the bond within the specified period shall automatically disqualify the bidder and the tender shall be awarded to next most responsive bidder without reference to the defaulting bidder.</p> <p>Should the bidder commence works and subsequently fail to provide the bond, he shall be evicted from site without any reimbursement notwithstanding the site having been handed over by the PM and client. The handing over only kickstarts the process and is not a waiver to bond conditions.</p> <p>The bond for the due performances of the Contract shall be valid up to the date of completion as certified by the PROJECT MANAGER</p> <p>Any bond which provides otherwise or attempts to vary the duration of validity shall be invalid</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
A	<p>PERFORMANCE BOND (CONTINUED...)</p> <p>The bond shall comply in all respects with the PPRA copy enclosed in the instructions to tender. A bond that does not match the PPRA copy shall be treated as NO BOND!</p> <p>The contractor shall provide a bid security duly signed, sealed and stamped from an approved Bank of required amount in the particular preliminaries</p>	
B	<p><u>BID BOND</u></p> <p>A bid bond shall be required in the amount stated here or in the invitation to tender or advertisement</p>	
C	<p><u>EXCEPTION TO THE STANDARD METHOD OF MEASUREMENT</u></p> <p>Attendance ; Clause B19(a) of the Standard Method of Measurement is deleted and the following clause is substituted:-</p> <p>Attendance on nominated Sub-Contractors shall be given as an item in each case shall be deemed to include: allowing use of standing scaffolding, mess 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 their work: clearing away rubbish; unloading checking and hoisting: providing electric power and removing and replacing duct covers, pipe casings and the like necessary for the execution and testing of Sub-Contractors' work and being responsible for the accuracy of the same.</p> <p>Fix Only:-</p> <p>"Fix Only" shall mean take delivery at nearest railway station (Unless otherwise stated), pay all demurrage charges, load and transport to site where necessary, unload, store, unpack, assemble as necessary, distribute to position, hoist and fix only.</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
A	<p><u>ABBREVIATIONS</u></p> <p>Throughout these Bills units of measurement and terms are abbreviated and shall be interpreted as follows:-</p> <p>CM or Cm Shall mean cubic meter</p> <p>SM or Sm Shall mean square meter</p> <p>LM or Lm Shall mean linear meter</p> <p>MM or mm Shall mean Millimeter</p> <p>KG or Kg. Shall mean Kilogramme</p> <p>No or Nr Shall mean Number</p> <p>PRS or Prs. Shall mean Pairs</p> <p>B.S. Shall mean the British Standard Specification Published by the British Standards Institution, 2 Park Street, London W.1 England</p> <p>M.S. Shall mean measured separately</p> <p>Ditto shall mean the whole of the preceding description except as qualified in the description in which it occurs.</p> <p>Do shall mean the whole of the preceding description except as qualified in the description in which it occurs.</p> <p>a.b.d. Shall mean as before described</p> <p>@ Shall mean at</p> <p><u>EMPLOYER</u></p> <p>The "Employer" is</p> <p>AS DEFINED UNDER PARTICULARS PRELIMINARIES</p> <p>The term "Employer" and "Government" wherever used in the contract document shall be synonymous</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
A	<p><u>PROJECT MANAGER shall be -:</u></p> <p>The term "P.M." wherever used in these Bills of Quantities shall be deemed to imply the Project Manager as defined in Condition 1 of the Conditions of Contract or such person Or persons as may be duly authorised to represent him on behalf of the Government.</p> <p>In this Project, the PM shall be -:</p> <p>WORKS SECRETARY MINISTRY OF LANDS, PUBLIC WORKS, HOUSING AND URBAN DEVELOPMENT (STATE DEPARTMENT FOR PUBLIC WORKS) P.O. BOX 30743 - 00100 NAIROBI</p>	
B	<p><u>ARCHITECT</u></p>	
	<p>The term "Architect" shall be deemed to mean "The P.M." as defined above whose address unless otherwise notified is as above</p>	
C	<p><u>QUANTITY SURVEYOR</u></p>	
	<p>The term "Quantity Surveyor" shall be deemed to mean "The P.M." as defined above whose address unless otherwise notified is as above</p>	
D	<p><u>ELECTRICAL ENGINEER</u></p>	
	<p>The term "Electrical Engineer" shall be deemed to mean "The P.M." as defined above whose address unless otherwise notified is as above</p>	
E	<p><u>MECHANICAL ENGINEER</u></p>	
	<p>The term "Mechanical Engineer" shall be deemed to mean "The P.M." as defined above whose address unless otherwise notified is as above</p>	
F	<p><u>STRUCTURAL ENGINEER</u></p>	
	<p>The term "Structural Engineer" shall be deemed to mean "The P.M." as defined above whose address unless otherwise notified is as above</p>	
	<p>Total carried to collections</p>	

ITEM	DESCRIPTION	
A	<p><u>PLANT, TOOLS AND VEHICLES</u></p> <p>Allow for providing all scaffolding, plant, tools and vehicles required for the work except in so far as may be stated otherwise herein and except for such items specifically and only required for the use of nominated Sub-Contractors as described herein. No timber used for scaffolding, formwork or temporary works of any kind shall be used afterwards in the permanent work.</p>	
B	<p><u>TRANSPORT.</u></p> <p>Allow for transport of workmen, materials, etc., to and from the site at such hours and by such routes as may be permitted by the competent authorities.</p>	
C	<p><u>MATERIALS AND WORKMANSHIP.</u></p> <p>All materials and workmanship used in the execution of the work 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 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 purpose of ordering materials.</p>	
D	<p><u>SIGN FOR MATERIALS SUPPLIED.</u></p> <p>The Contractor will be required to sign a receipt for all articles and materials supplied by the PROJECT MANAGER at the time of taking deliver thereof, as having received them in good order and condition, and will thereafter be responsible for any loss or damage and for replacements of any such loss or damage with articles and/or materials which will be supplied by the PROJECT MANAGER at the current market prices including Customs Duty and V.A.T., all at the Contractor's own cost and expense, to the satisfaction of the PROJECT MANAGER</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
A	<p><u>STORAGE OF MATERIALS</u></p> <p>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 especially for their use.</p>	
B	<p><u>SAMPLES</u></p> <p>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 until such samples are approved by the PROJECT MANAGER and the PROJECT MANAGER, may reject any materials or workmanship not in his opinion to be up to approved samples. The PROJECT MANAGER shall arrange for the testing of such materials as he may at his discretion deem desirable, but the testing shall be made at the expense of the Contractor and not at the expense of the PROJECT MANAGER PROVIDED THEY PASS THE TEST. The Contractor shall pay for the testing in accordance with the current scale of testing charges laid down by the Ministry of Public Works.</p> <p>The procedure for submitting samples of materials for testing and the method of marking for identification shall be as laid down by the PROJECT MANAGER The Contractor shall allow in his tender for such samples and tests except those in connection with nominated sub-contractors' work.</p> <p>Samples of paint, carpets, curtains & covers, tiles & timber shall be required for approval by the PM together with the employer.</p> <p>No alternate rate shall be offered on account that the employer has chosen a superior finish unless the bidder had attached the sample he priced.</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
A	<p><u>PUBLIC AND PRIVATE ROADS.</u></p> <p>Maintain as required throughout the execution of the works and make good any damage to public or private roads arising from or consequent upon the execution of the works to the satisfaction of the local and other competent authority and the PROJECT MANAGER</p>	
B	<p><u>EXISTING PROPERTY.</u></p> <p>The Contractor shall take every precaution to avoid damage to all existing property including roads, cables, drains and other services and he will be held responsible for and shall make good all such damage arising from the execution of this contract at his own expense to the satisfaction of the PROJECT MANAGER</p>	
C	<p><u>ACCESS TO SITE AND TEMPORARY ROADS.</u></p> <p>Means of access to the Site shall be agreed with the PROJECT MANAGER prior to commencement of the work and Contractor must allow for building any necessary temporary access roads for the transport of the materials, plant and workmen as may be required for the complete execution of the works including the provision of temporary culverts, crossings, bridges, or any other means of gaining access to the Site. Upon completion of the works, the Contractor shall remove such temporary access roads; temporary culverts, bridges, etc., and make good and reinstate all works and surfaces disturbed to the satisfaction of the PROJECT MANAGER</p>	
D	<p><u>AREA TO BE OCCUPIED BY THE CONTRACTOR</u></p> <p>The area of the site which may be occupied by the Contractor for use of storage and for the purpose of erecting workshops, etc., shall be defined on site by the PROJECT MANAGER</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
A	<p><u>SECURITY OF WORKS ETC.</u></p> <p>The Contractor shall be entirely responsible for the security of all the works stores, materials, plant, personnel, etc., both his own and sub-contractors' and must provide all necessary watching, lighting and other precautions as necessary to ensure security against theft, loss or damage and the protection of the public.</p> <p><u>PROGRESS CHART.</u></p> <p>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 Sub-Contractors ; 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.</p> <p><u>INSURANCE</u></p> <p>The Contractor shall insure as required in Conditions No. 30 of the Conditions of Contract. No payment on account of the work executed will be made to the Contractor until he has satisfied the PROJECT MANAGER either by production of an Insurance Policy or and Insurance Certificate that the provision of the foregoing Insurance Clauses have been complied with in 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 the receipted premium renewals for the PROJECT MANAGER's inspection.</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
A	<p><u>CONTRACTOR'S SUPERINTENDENCE/SITE AGENT</u></p> <p>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 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.</p> <p><u>PROVISIONAL WORK</u></p> <p>All work described as "Provisional" in these Bills of Quantities is subject to remeasurement 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 shall left uncovered for a reasonable time to allow all measurements needed for such adjustment 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 shall if the PROJECT MANAGER so directs uncover the work to enable all measurements to be taken and afterwards reinstate at his own expense.</p> <p><u>PROVISIONAL SUMS.</u></p> <p>The term "Provisional Sum" wherever used in these Bills of Quantities shall have the meaning stated in Section A item A7(i) of the Standard Method of Measurement. Such sums are net and no addition shall be made to them for profit.</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
A	<p><u>ADJUSTMENT OF PROVISIONAL SUMS.</u></p> <p>In the final account all Provisional Sums shall be deducted and the value of the work properly executed in respect of them upon the PROJECT MANAGER's order added to the Contract Sum. Such work shall be valued , but should any part of the work be executed by a Nominated Sub-Contractor, the value of such work or articles for the work to be supplied by a Nominated Supplier, the value of such work or articles 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.</p>	
B	<p><u>PRIME COST (OR P.C.) SUMS.</u></p> <p>The term "Prime Cost Sum" or "P.C. Sum" wherever used in these Bills of Quantities shall have the meaning stated in Section A item A7 (ii) of the Standard Method of Measurement . Persons or firms nominated by the PROJECT MANAGER to execute work or to provide and fix materials or goods are described herein as Nominated Sub-Contractors. Persons or firms so nominated to supply goods or materials are described herein as Nominated Suppliers.</p>	
C	<p><u>NOMINATED SUB-CONTRACTORS</u></p> <p>When any work is ordered by the PROJECT MANAGER to be executed by nominated sub-contractors, the Contractor shall enter into sub-contracts 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 of the facilities described in these Preliminaries. The Contractor should price for these with the nominated Sub-contract Contractor's work concerned in the P.C. Sums under the description "add for Attendance".</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
A	<p><u>ADJUSTMENT OF P.C. SUMS.</u></p> <p>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 pro-rata to the physical extent of the work executed (not pro-rata to the amount paid) and this shall apply even though the Contractor's priced Bill 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 these Bill of Quantities profit and attendance will be allowed at the same rate as it would be if the work were executed by a Nominated Sub-Contractor.</p>	
B	<p><u>DIRECT CONTRACTS</u></p> <p>Notwithstanding the foregoing conditions, the Government reserves the right to place a "Direct Contract" for any goods or services required in the works which are covered by a P.C. Sum in the Bills of Quantities and to pay for the same direct. In any such instances, profit relative to the P.C. Sum the priced Bills of Quantities will be adjusted as described for P.C. Sums and allowed.</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
A	<p><u>ATTENDANCE UPON OTHER TRADESMEN, ETC.</u></p> <p>The Contractor shall allow for the attendance of trade upon trade and shall afford any tradesmen or other persons employed for the execution of any work not included in this Contract every facility for carrying out their work and also for use of his ordinary scaffolding. The Contractor, however, shall not be required to erect any special scaffolding for them. The Contractor shall perform such cutting 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.</p>	
B	<p><u>OFFICE ETC. FOR THE PROJECT MANAGER</u></p> <p>The Contractor shall provide, erect and maintain where directed on site and afterwards dismantle the site office of the type noted in the Particular Preliminaries, complete with Furniture. He shall also provide a strong metal trunk complete with strong hasp and staple fastening and two keys. He shall provide, erect and maintain a lock-up type water or bucket closet for the sole use of the PROJECT MANAGER including making temporary connections to the drain where applicable to the satisfaction of Government and Medical Officer of Health and shall provide services of cleaner and pay all conservancy charges and keep both office and closet in a clean and sanitary condition from commencement to the completion of the works and dismantle and make good disturbed surfaces. The office and closet shall be completed before the Contractor is permitted to commence the works. The Contractor shall make available on the Site as and when required by the "PROJECT MANAGER" a modern and accurate level together with levelling staff ranging rods and 50 metre metallic or linen tape</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
A	<p><u>WATER AND ELECTRICITY SUPPLY FOR THE WORKS</u></p> <p>The Contractor shall provide at his own risk and cost all necessary water, electric light and power required for use in the works. The Contractor must make his own arrangements for connection to the nearest suitable water main and for metering the water used. He must also provide temporary tanks 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 arrangements for augmenting this supply at his own cost. Nominated Sub--contractors are to be made liable for the cost of any water or electric current used and for any installation provided especially for their own use.</p>	
B	<p><u>SANITATION OF THE WORKS</u></p> <p>The Sanitation of the works shall be arranged and maintained by the Contractor to the satisfaction of the Government and/or Local Authorities, Labour Department and the PROJECT MANAGER</p>	
C	<p><u>SUPERVISION AND WORKING HOURS</u></p> <p>The works shall be executed under the direction and to the entire satisfaction in all respects of the PROJECT MANAGER who shall at all times during normal working hours have access to the works and to the yards and workshops of the Contractor and sub-Contractors or other places where work is being prepared for the contract.</p>	
D	<p><u>SIGNBOARD</u></p> <p>Allow for providing, erecting, maintaining throughout the course of the Contract and afterwards clearing away a signboard as designed, specified and approved by the Project Manager.</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
A	<p><u>PROTECTION OF THE WORKS.</u></p> <p>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 may nevertheless have been done at completion free of cost to the Government.</p>	
B	<p><u>WORKS TO BE DELIVERED UP CLEAN</u></p> <p>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 metalwork and leave the whole of the buildings watertight, clean, perfect and fit for occupation to the approval of the PROJECT MANAGER</p>	
C	<p><u>GENERAL SPECIFICATION.</u></p> <p>For the full description of materials and workmanship, method of execution of the work and notes for pricing, the Contractor is referred to the Ministry of Roads and Public Works and Housing General Specification dated 1976 or any subsequent revision thereof which is issued as a separate document, and which shall be allowed in all respects unless it conflicts with the General Preliminaries, Trade Preambles or other items in these Bills of Quantities.</p>	
D	<p><u>TRAINING LEVY</u></p> <p>The Contractor's attention is drawn to legal notice No. 237 of October, 1971, which requires payment by the Contractor of a Training Levy at the rate of 1/4 % of the Contract sum on all contracts of more than Kshs. 50,000.00 in value.</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
A	<p><u>MATERIALS ON SITE</u></p> <p>All materials for incorporation in 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 Sub-Contractors and Nominated Suppliers.</p>	
B	<p><u>HOARDING</u></p> <p>The Contractor shall enclose the site of the works under construction with a hoarding 2400 mm high consisting of iron sheets on 100 x 50 mm timber posts firmly secured at 1800 mm centres with 2No. 75 x 50 mm timber rails for a total length of approximately 400M. The Contractor is in addition required to take all precautions necessary for the safe custody of the works, materials, plant, public and Employer's property on the site.</p>	
C	<p><u>ALTERATIONS TO BILLS, PRICING, ETC.</u></p> <p>Any unauthorised alteration or qualification made to the text of the Bills of Quantities may cause the Tender to be disqualified and will in any case be ignored. The Contractor shall be deemed to have made allowance in his 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 price of each item before they will be accepted.</p>	
D	<p><u>MATERIALS ARISING FROM EXCAVATIONS</u></p> <p>Materials of any kind obtained from the excavations shall be the property of the Government. Unless otherwise provided for in the particular preliminaries. Such materials shall only be used in the works, in substitution of materials which the Contractor would 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 the value of the materials so used at a price to be agreed.</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
A	<p><u>PREVENTION OF ACCIDENT, DAMAGE OR LOSS</u></p> <p>The Contractor is notified that these works are to be carried out on a restricted site where the client is going on with other normal activities. The Contractor is instructed to take reasonable care in the execution of the works 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 expense he deems necessary by taking such care within the site.</p>	
B	<p><u>GOVERNMENT ACTS REGARDING WORKPEOPLE ETC.</u></p> <p>Allow for complying with all Government Acts, Orders and Regulations in connection with the employment of Labour 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 1950 and his tender must include for all costs arising or resulting from compliance with any Act, Order or Regulation relating to Insurances, pensions and holidays for workpeople or so the safety, health and welfare of the workpeople. The Contractor must make himself fully acquainted with current Acts and Regulations, including Police Regulations regarding the movement, housing, security and control of labour, labour camps, passes for transport, etc. It is most important that the Contractor, before tendering, shall obtain from the relevant Authority the fullest information regarding all such regulations and/or restrictions which may affect the information regarding all such regulations and/or restrictions which may affect the organisation of the works, supply and control of labour, etc., and allow accordingly in his tender.</p> <p>No claim in respect of want of knowledge in this connection will be entertained.</p>	
C	<p><u>REMOVAL OF RUBBISH ETC.</u></p> <p>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.</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
A	<p><u>BLASTING OPERATIONS</u></p> <p>Blasting will 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.</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
	<p style="text-align: center;"><u>COLLECTION</u></p> <p>Brought Forward From Page GP/1</p> <p>Brought Forward From Page GP/2</p> <p>Brought Forward From Page GP/3</p> <p>Brought Forward From Page GP/4</p> <p>Brought Forward From Page GP/5</p> <p>Brought Forward From Page GP/6</p> <p>Brought Forward From Page GP/7</p> <p>Brought Forward From Page GP/8</p> <p>Brought Forward From Page GP/9</p> <p>Brought Forward From Page GP/10</p> <p>Brought Forward From Page GP/11</p> <p>Brought Forward From Page GP/12</p> <p>Brought Forward From Page GP/13</p> <p>Brought Forward From Page GP/14</p> <p>Brought Forward From Page GP/15</p> <p>Brought Forward From Page GP/16</p> <p>Brought Forward From Page GP/17</p> <p>Brought Forward From Page GP/18</p>	
	TOTAL: GENERAL PRELIMINARIES CARRIED TO GRAND SUMMARY	

BILL NO.3
BUILDERS' WORKS

SUBSTRUCTURES

Subs/1

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	Excavate for retaining wall starting from reduced level not exceeding 1.50 meters deep	165	CM		
B	Ditto for column bases.	2,550	CM		
C	Extra over all descriptions of excavations and removal from site for excavating in all types of rock	350	CM		
D	Chamfered cutting to edges of excavation: sloping 45 degrees from horizontal: 1000mm girth	200	LM		
	<u>Disposal of excavated material</u>				
C	Approved Imported murram fillings to make up levels : compacted in layers not exceeding 150mm Thick : to the satisfaction of the Structural Engineer.	5200	CM		
E	Fillings around basements: backfill and compact in 150mm layers: selected excavated materials	1400	CM		
F	Remove surplus spoil from site to an authorized dumping site	15,415	CM		
	<u>Planking and strutting</u>				
G	Planking and strutting to sides of all excavations: keep excavations free from all falling materials		ITEM		
	<u>Disposal of Water</u>				
H	Keep excavations free from all water including spring, underground and running water.		ITEM		
	<u>Hardcore Filling</u>				
J	Approved hand packed hardcore: compacted in layers not exceeding 150mm Thick : to the satisfaction of the Structural Engineer.	3400	CM		
K	50mm (average) thick quarry dust/murram blinding to surfaces of hardcore	2800	SM		
	<u>Insecticide treatment</u>				
	<u>'Premise 200CC" insecticide treatment on top of hardcore filling and over foundation walls applied as per manufacturer's instruction with a 10 year guarantee</u>				
L	To murram surface	2800	SM		
	<u>Damp proofing</u>				
M	Polythene sheet; 1000 gauge, 200mm weltd laps (no allowance made to laps), horizontal; 1 no. layer laid on compacted quarry dust blinding	2,800	SM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Concrete Work</u>				
	<u>In situ mass concrete mix (1:4:8): in</u>				
A	50mm thick blinding under walls foundations	400	SM		
B	Ditto to column bases	1650	SM		
C	Ditto under lift shaft base	25	SM		
D	Retaining wall footing	100	SM		
	<u>In situ reinforced concrete: grade 30 : vibrated in:-</u>				
E	Strip footing	159	CM		
F	Column bases	1307	CM		
G	Columns	32	CM		
H	150mm thick floor bed	2,800	SM		
J	Lift shaft base	40	CM		
K	200mm thick lift shaft walls	45	SM		
L	Entrance stairs	25	CM		
M	Entrance ramp	11	CM		
N	300mm thick retaining wall footing	441	SM		
P	300mm thick retaining wall	353	SM		
	<u>Reinforcement</u>				
	<u>Bars; high yield steel; cold worked to B.S. 4461 including bends, hooks, tying wire and distance blocks</u>				
Q	25mm diameter	46,416	KG		
R	20mm diameter	32,491	KG		
S	16mm diameter	34,812	KG		
T	12mm diameter	44,095	KG		
V	10mm diameter	34,812	KG		
W	8mm diameter	39,453	KG		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	BRC Fabric mesh reinforcement Ref. A193 with 200 mm laps (measured net ; no allowances made for laps) to basement floor bed	2800	SM		
	<u>Formwork as approved to</u>				
B	Vertical: sides of columns	196	SM		
C	Vertical: sides of columns bases	1560	SM		
D	Edges: slab not exceeding 150mm girth	293	LM		
E	Sides of lift walls	76	SM		
F	sides of retaining wall	1588	SM		
	<u>Water Proofing</u>				
	<u>Damp proofing and tanking; Penetron waterproofing or other equal and approved laid onto screed (m/s) according to the manufacturer's instructions with 10 years guarantee</u>				
G	Vertical: to concrete walls	870	SM		
	<u>Water bar</u>				
	<u>Standard PVC bulb edged strip; as "sika" or other equal and approved</u>				
H	200mm to basement retaining walls.	165	LM		
J	Ditto to basement slab (along line of phasing)	25	LM		
	<u>French drains</u>				
	<u>Open ended heavy duty uPVC pipe work complete with fittings and laying in to falls in trench</u>				
K	200 mm diameter heavy duty perforated pipe wrapped with geotextile cloth to approval	165	LM		
L	20 mm single size loose approved filling and surrounds to pipes.	40	CM		
	<u>Cement and sand (1:3) protective screed</u>				
M	50mm thick protective plaster to masonry wall surfaces : wood float finish (basements)	198	SM		
	CARRIED TO COLLECTION				

Substructures

Subs/6

LOWER GROUND FLOOR

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>LOWER GROUND FLOOR</u>				
	<u>ELEMENT NO. 1</u>				
	<u>REINFORCED CONCRETE SUPERSTRUCTURES</u>				
	<u>In situ reinforced concrete: grade 25 : vibrated in:-</u>				
A	Beams	301	CM		
B	Columns	299	CM		
C	175mm thick suspended slab	2000	SM		
D	Staircase: steps and waist/string	8	CM		
E	150mm suspended landings	20	SM		
F	200mm thick ramp	140	SM		
G	200mm thick lift shaft walls	65	SM		
H	300mm thick retaining wall	745	SM		
J	Ducts	12	CM		
	<u>Reinforcement</u>				
	<u>Bars: high yield steel; cold worked to B.S. 4461 including bends, hooks, tying wire and distance blocks</u>				
K	25 mm diameter	85,195	KG		
L	20mm diameter	15,121	KG		
M	16mm diameter	13,516	KG		
N	12mm diameter	2,569	KG		
P	10mm diameter	7,656	KG		
Q	8mm diameter	8,445	KG		
	<u>Sawn timber formwork: to</u>				
R	Sides and soffits of beams	1123	SM		
S	Sides of columns	1430	SM		
T	Extra over for moulded circular formwork	130	SM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Sawn formwork...continued...</u>				
A	Soffits of suspended slab	2000	SM		
B	Risers 0-150 mm girth	130	LM		
C	To strings of staircases 300 mm extreme girth	130	LM		
D	Sloping soffits of ramp	140	SM		
E	Sides of retaining walls	1490	SM		
F	Sloping soffits of staircases	300	SM		
G	Landings	20	SM		
H	Sides and soffits of ducts	46	SM		
J	To strings of staircases 300 mm extreme girth	120	LM		
K	Edges of slab 150 - 300mm girth	840	LM		
L	Edges of ramp 150 - 300 mm girth	110	LM		
M	Boxing in formwork to form lift door opening ; size 1000 x 2000 mm high : 200mm thick reinforced concrete walls	2	NO		
	<u>Flexcell expansion joint.</u>				
N	25mm thick in foundation	46	SM		
P	25mm thick in reinforced concrete walls	33	SM		
Q	25mm thick in columns	21	SM		
	<u>Expansion joint sealant</u>				
R	Mastic expansion joint sealant	100	LM		
	<u>Precast concrete grade 20(12mm aggregate) including formwork, finishing fair on all exposed surfaces and hoisting and placing in position, bedding, jointing and pointing in cement and sand (1:3) mortar</u>				
S	275 x 75mm coping twice weathered and throated	212	LM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>COLLECTION</u> Brought forward from page LGF/1 Brought forward from page LGF/2				
	TOTAL REINFORCED CONCRETE SUPERSTRUCTURES CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	ELEMENT NO. 2 EXTERNAL WALLING <u>Approved natural/local masonry stone, squared; hand dressed on one side to zero joint; including bedding and jointing in cement and sand (1:4) mortar;</u>				
A	Walls 200 mm thick <u>Damp Proof Course</u> <u>Damp proof course : bituminous felt : bedded in cement and sand mortar (1:3) : 300 mm laps (measured net-no allowance for laps)</u>	654	SM		
C	Horizontal: 200 mm wide	218	LM		
	TOTAL EXTERNAL WALLING CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	ELEMENT NO. 3 INTERNAL WALLING <u>Approved local stone; squared ; machine dressed one side; bedding, jointing in cement and sand mortar (1:4);including reinforcing with hoop iron in every alternative course</u>				
A	Walls 200 mm thick	487	SM		
B	Walls 100mm thick with and including hoop iron in every alternate course	186	SM		
	Damp Proof Course <u>Damp proof course : bituminous felt : bedded in cement and sand mortar (1:3): 300mm laps (measured net-no allowance for laps)</u>				
C	Horizontal: 200 mm wide	218	LM		
	TOTAL INTERNAL WALLING CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 4</u>				
	<u>DOORS</u>				
	<u>Purposes made units</u>				
	<u>Aluminium Glazed Doors</u>				
	<u>Aluminium standard section framed doors and accessories by an approved specialist subcontractor : powder coated to Architect's approval ; including 12 mm thick toughened glass infill to panels in 100 x 50 mm aluminium edge plates: glazing beads bedded in mastic : to concrete or blockwall surfaces with screws plugged : bedded and pointed all round in mastic</u>				
A	Composite door overall size 1500 x 2700mm high, comprising of 2No. openable leaves; 2No. 450 x 2100mm high fixed side lights; 1800 x 600mm high fanlight with 2No. mullions and infilled with glass: complete with all necessary ironmongery as described	2	NO		
B	Ditto but single door 900 x 2700 high	2	NO		
	<u>Mild Steel Doors</u>				
	<u>Galvanized mild steel grilled door, framed with 40 x 25 x 3 mm RHS sections including assembly and fixing to opening cutting and pinning lugs to concrete or blockwork and bedding frame in cement and sand (1.4) mortar</u>				
C	Single door overall size 900 x 2400mm high	2	NO		
	<u>Timber Doors</u>				
	<u>50mm thick wrot mahogany panelled doors comprising of 150 x 50mm thick stiles and top rail; 150 x 50mm thick middle and bottom rail</u>				
D	Double door overall size 1500 x 2700mm high	7	NO		
E	Double door overall size 1800 x 2700mm high	3	NO		
F	Double door overall size 2500 x 2700mm high	3	NO		
G	Double swing door overall size 2500 x 2700mm high	2	NO		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	<u>Flush Doors</u> <u>50mm thick solid core standard flush door faced both sides with mahogany veneer and hardwood lipped all round in:</u> Door overall size 900 x 2700mm high : comprising of 900 x 2100 mm high openable leaf and 900 x 400 mm high fanlight infilled with 6 mm thick clear sheet glass (m/s) : decorative beading all round the panel . <u>Duct doors comprising 100 x 50 mm top , middle rails and stiles and 200 mm wide bottom rails; 25 x25 mm decorative beading around panels ; hardwood lipped to all edges</u>	15	NO		
B	50 mm thick door overall size 1200 x 2400 mm high ; with 350 x 400 mm high 6 mm thick clear fire resistant glass panel :350 x 300 mm high 25 x 25 mm hard wood timber louvre vents spaced at 30 mm centres .	2	NO		
C	Ditto single leaf door size 700 x 2400mm high	2	NO		
	<u>Frames & Finishings</u> <u>Wrot mahogany as described in:</u>				
D	200 x 50mm frame with three labours : moulded screwed and pelleted	124	LM		
E	Ditto 150 x 50 mm frame	88	LM		
F	200 x 50mm Transome with four labours : moulded	124	LM		
G	Ditto 150 x 50 mm	88	LM		
H	75 x 25mm moulded architrave.	212	LM		
J	20 x 25 mm quadrant beading	212	LM		
K	20 x 25 mm glazing beading	212	LM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Ironmongery</u>				
	<u>Supply and fix the following ironmongery from 'ASSA ABLOY' or other equal & approved manufacturer including all necessary matching screws.</u>				
A	Double action floor springs; hold open:	15	NO		
B	Stainless steel pull handle "S" shape - 600 x 32 mm	6	NO		
C	Roller catch - 70mm - Satin steel:	15	NO		
D	Stainless steel signage plate	20	NO		
E	Ball bearing stainless steel hinges:	15	PRS		
F	Stainless steel pull handle, 150 x 19mm:	15	NO		
G	Coat & hat hook - rubber tipped:	15	NO		
	<u>Duct doors</u>				
H	Stainless steel double washered hinges:	6	PRS		
J	Security bolts, stainless steel:	4	NO		
	<u>Glazing</u>				
	<u>Supply and fix 6mm thick clear sheet glass to wood with beads (m/s)</u>				
K	In panes of various sizes (fanlight)	64	SM		
	<u>Painting and Decoration</u>				
	<u>Prepare and apply one coat of aluminium primer as "Basco Paints - Duracoat" or "Crown Paints" before fixing: to back of wood</u>				
L	Surfaces over 200 but not exceeding 300mm	124	LM		
M	Surfaces over 100 but not exceeding 200mm	88	LM		
N	Ditto: not exceeding 100mm	636	LM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Prepare and apply three coats of premium quality clear varnish as "Basco Paints - Duracoat" or "Crown Paints" to</u>				
A	Timber surfaces ; externally	123	SM		
B	Timber surfaces ; internally	123	SM		
C	Surfaces over 200 but not exceeding 300mm	124	LM		
D	Surfaces over 100 but not exceeding 200mm	88	LM		
E	Ditto: not exceeding 100mm	636	LM		
	<u>Prepare touch up primer and apply two undercoats and one finishing coat gloss oil paint as "Basco Paints - Duracoat" or "Crown Paints" on metal;</u>				
F	General surfaces :	15	SM		
G	Frames ; 100 - 200 mm girth	18	LM		
	CARRIED TO COLLECTION				
	<u>COLLECTION</u>				
	<u>DOORS</u>				
	Brought forward from page LGF/6				
	Brought forward from page LGF/7				
	Brought forward from page LGF/8				
	Brought forward from page LGF/9 Above				
	TOTAL DOORS CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	ELEMENT NO. 5 PARTITIONS AND SCREENS <u>Aluminium partitions</u> 100mm thick x 2400mm high glazed partition comprising 50 x 25mm heavy duty powder coated aluminium framework of approved colour and beadings to BS10 B15 spaced approximately 1200mm; comprising 25mm thick MDF board 2400mm high panel;	342	SM		
B	50 x 25 x 3mm thick aluminium angle glazing channels screwed to aluminium frame (m/s)	420	LM		
C	50 x 25 x 3mm thick square hollow section aluminium glazing bead ditto	315	LM		
	TOTAL ALUMINIUM PARTIONING CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 6</u>				
	<u>WINDOWS</u>				
	<u>Mild steel framed casement windows and accessories fabricated on site to Architect's approval: including 8mm thick tinted one way glass : to concrete or blockwork surfaces with plugs and screws: with permanent aluminium louvre vents at top edge and jointed all round in mastic</u>				
A	Window overall size 1000 x 2000mm high	3	NO		
B	Window overall size 3600 x 2000mm high	3	NO		
C	Window overall size 6000 x 3000mm high	2	NO		
D	Window overall size 5500 x 1500mm high	1	NO		
E	Window overall size 4000 x 1200mm high	2	NO		
F	Window overall size 5000 x 1200mm high	4	NO		
G	Window overall size 2500 x 3000mm high	15	NO		
H	Window overall size 4000 x 3000mm high	3	NO		
J	Window overall size 1400 x 3000mm high	8	NO		
K	Window overall size 1500 x 3000mm high	2	NO		
L	Window overall size 5000 x 1200mm high	9	NO		
M	Window overall size 3600 x 800mm high	4	NO		
	<u>Window Cills</u>				
N	200 x 150 x 30 mm thick concrete window cill with one curved edge including bedding and pointing in cement and sand mortar (1:3) mortar	215	LM		
	<u>Window Board</u>				
	<u>Mahogany: selected and kept clean</u>				
P	200 x 25 mm Window board; plugged	215	LM		
Q	35 x 35 mm decorated beading	215	LM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	<u>Blinds</u> 25mm x 0.25mm thick Aluminium shutter/blinds manual controlled of customized colour to match or to Architects requirement.	382	Sm		
	CARRIED TO COLLECTION				
	<u>COLLECTION</u> <u>WINDOWS</u> Brought forward from page LGF/11 Brought forward from page LGF/12 Above				
	TOTAL WINDOWS CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 7</u>				
	<u>FINISHES</u>				
	<u>Floor Finishes</u>				
	<u>Screed; cement and sand (1:4) with approved integral dust proofing additive wood floated.</u>				
A	30 mm thick to floors to receive Ceramic Tiles	1180	SM		
B	Ditto to ramp to receive interlocking tiles	140	SM		
C	Ditto to ramp and entrance steps to receive granite tiles	275	SM		
D	Ditto to risers 100-200 mm girth to receive Ceramic Tiles	130	LM		
E	Ditto to treads 200-300 mm girth to receive Ceramic Tiles	130	LM		
F	Ditto to receive ceramic tiles	165	SM		
	<u>Ceramic Tiles</u>				
	<u>Polished Ceramic Tiles to regular pattern laid onto cement sand backing mix 1:3 (m/s) including grouting joints with matching colour cement</u>				
G	400 x 400 x 10 mm thick granitto tiles	1180	SM		
H	Ditto to risers 100-200 mm girth	130	LM		
J	Ditto to treads 200-300 mm girth : with non slip grooves and rounded nose	130	LM		
K	Ditto 150 x 8 mm thick skirting	1950	LM		
	<u>Granite tiles</u>				
	<u>Polished well selected granite tiles to regular pattern laid onto cement sand backing mix 1:3 (m/s) including grouting joints with matching colour cement</u>				
L	10mm thick tiles	275	SM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Ceramic Tiles</u>				
	<u>Non-slip floor tiles, local approved colour; glazed; to regular pattern bedding and jointing in cement mortar (1:4). Grouting joints with matching colour cement</u>				
A	300 x 300 x 8 mm coloured ceramic tiles	165	SM		
B	100 x 8mm Skirting	80	LM		
	<u>Interlocking Concrete Tiles</u>				
	<u>250 x 250 x 10 mm thick interlocking concrete tiles : fixed with coals or equal and approved : on and including cement and sand screed (1:3) beds : jointed and pointed in coloured proprietary grout :</u>				
C	Horizontal surfaces: terraces and ramp	140	SM		
	<u>Wall & Ceiling Finishes</u>				
	<u>Plaster: 9mm first coat of cement, lime putty and sand (1:2:9); 4mm second coat of cement lime putty and sand (1:1:6); Steel trowelled</u>				
D	13 mm thick 2No. Coatwork to walls; internal	2000	SM		
E	Ditto to beams	1144	SM		
F	13 mm thick 2No. Coatwork to columns	1560	SM		
G	Ditto to soffites of ramp	140	SM		
H	Ditto to sloping soffites of staircases	300	SM		
J	Ditto to landings	20	SM		
K	Ditto to edges of ramp 100-200 mm girth	110	LM		
	<u>Suspended acoustic ceiling as "Hunter Douglas" or other equally approved : taped and filled joints : on and including metal grid system :</u>				
L	Horizontal ceiling lining	1345	SM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Suspended moulded gypsum plasterboard ceiling: taped and filled joints : on and including metal grid system: including all cutting and trimming to light fittings:</u>				
A	Horizontal ceiling lining (lobby)	1000	SM		
B	100 x 100 mm decorative polystyrene cornice	150	LM		
	<u>Backing: cement and sand (1:4) with approved integral dust proofing additive wood floated</u>				
C	15mm thick to receive ceramic tiles	345	SM		
	<u>Glazed wall tiles, local approved colour; glazed; to regular pattern bedding and jointing in cement mortar (1:4), including grouting joints with matching colour</u>				
D	200 x 200 x 6mm coloured ceramic tiles	345	SM		
E	Border tile to Architect's detail	125	LM		
	<u>Painting & Decoration</u>				
	<u>Prepare and apply three coats of approved premium quality silk vinyl paint to:-</u>				
F	13 mm thick 2No. Coatwork to walls; internal	2000	SM		
G	Ditto to beams	1144	SM		
H	Ditto to columns	1560	SM		
J	Ditto to soffites of ramp	140	SM		
K	Ditto to sloping soffites of staircases	300	SM		
L	Ditto to landings	20	SM		
M	Ditto to edges of ramp 100-200 mm girth	110	LM		
	<u>Prepare and apply three coats approved emulsion paint as to:-</u>				
N	Ceiling surfaces; gypsum; internally	1000	SM		
P	Cornice; 200 - 300 mm girth; internally	150	LM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	<u>External Wall Finishes</u> 20mm thick gauged lime render (1:2:9) in two coats finished with steel trowel	142	SM		
B	<u>Painting and decoration</u> Apply undercoat and final coat wall master paint applied as per manufacturer's instructions to plastered surfaces externally	142	SM		
	CARRIED TO COLLECTION				
	<u>COLLECTION</u> <u>FINISHES</u> Brought forward from page LGF/13 Brought forward from page LGF/14 Brought forward from page LGF/15 Brought forward from page LGF/16 Above				
	TOTAL FINISHES CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 8</u> <u>BALUSTRADING</u> <u>Main Staircase 2No</u> <u>The following in mild steel sections; included smooth welded joints and all necessary connections, plates and bolts to approval</u> <u>Balustrades and railings : all joints ground smooth: one shop coat primer undercoat and spray paint with automotive metallic and gloss paint as "Basco Paints - Duracoat" or "Crown Paints" as directed : to Architect's detail</u>				
A	1050mm high 50mm diameter mild steel balusters, including welding one end onto mild steel handrail (m/s), and other end fish tailed and built into concrete work; all to Architect's detailed drawing	24	NO		
B	Horizontal handrail 50mm diameter x 3 mm thick mild steel CHS; fixed onto 50mm long lugs at 1000mm centres, one end fish tailed and built into concrete / blockwork	20	LM		
C	25mm diameter x 3mm thick mild steel rods/railing including welding to balusters/standards (m/s)	80	LM		
	<u>Entrance railing</u> <u>Mild Steel ; with smooth welded joints and all necessary connection plates and bolts</u> <u>Balustrading and railing : all joints ground smooth : one shop coat primer undercoat and spray paint with automotive metallic and gloss oil paint as "Basco Paints - Duracoat" or "Crown Paints" as directed : to Architect's detail</u>				
D	1050 mm high raking balustrading comprising of 40 x 25 x 3 mm thick stainless steel RHS balusters at 1000 mm centres : 2No. 25 mm x 2 mm CHS mid rails welded to balusters : balusters cast into concrete at bottom end and fixed to handrail (m/s)	24	NO		
E	Horizontal handrail 50mm diameter x 3 mm thick mild steel CHS; fixed onto 50mm long lugs at 1000mm centres, one end fish tailed and built into concrete / blockwork	30	LM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	25mm diameter x 3mm thick mild steel rods/railing including welding to balusters/standards (m/s)	120	LM		
B	40 x 25 x 6 mm thick mild steel plate welded to RHS balusters (m/s)	150	LM		
C	40 x 75 x 6 mm thick mild steel plate welded to RHS balusters (m/s)	100	LM		
	CARRIED TO COLLECTION				
	<u>COLLECTION</u> <u>BALUSTRADING</u> Brought forward from page LGF/17 Brought forward from page LGF/18 Above				
	TOTAL BALUSTRADING CARRIED TO SUMMARY				

[illegible]

GROUND FLOOR

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>GROUND FLOOR</u>				
	<u>ELEMENT NO. 1</u>				
	<u>REINFORCED CONCRETE SUPERSTRUCTURES</u>				
	<u>In situ reinforced concrete: grade 25 : vibrated in:-</u>				
A	Beams	265	CM		
B	Columns	225	CM		
C	175mm thick suspended slab	2000	SM		
D	Staircase: steps and waist/string	6	CM		
E	150mm suspended landings	20	SM		
F	200mm thick ramp	140	SM		
G	200mm thick lift shaft walls	65	SM		
H	Ducts	12	CM		
	<u>Reinforcement</u>				
	<u>Bars: high yield steel; cold worked to B.S. 4461 including bends, hooks, tying wire and distance blocks</u>				
J	25 mm diameter	75,195	KG		
K	20mm diameter	14,194	KG		
L	16mm diameter	3,516	KG		
M	12mm diameter	1,968	KG		
N	10mm diameter	7,096	KG		
P	8mm diameter	13,548	KG		
	<u>Sawn timber formwork: to</u>				
Q	Sides and sides of beams	2124	SM		
R	Sides of columns	1125	SM		
S	Extra over for moulded circular formwork	105	SM		
T	Soffits of suspended slab	2000	SM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Sawn formwork...continued...</u>				
A	Edges of risers 0 -150mm girth	130	LM		
B	To strings of staircases 300mm extreme girth	130	LM		
C	Sloping soffites of ramp	140	SM		
D	Sides of lift shaft walls	130	SM		
E	Sloping soffits of staircases	64	SM		
F	Soffits of landings	20	SM		
G	Sides and soffits of ducts	46	SM		
H	Edges of suspended slab 150 - 225mm girth	840	LM		
J	Edges of ramp 150 - 225mm girth	110	LM		
K	Boxing in formwork to form lift door opening ; size 900 x 2000mm high : 200mm thick reinforced concrete walls	2	NO		
	<u>Flexcell expansion joint.</u>				
L	25mm thick in masonry walls	46	SM		
M	25mm thick in columns	24	SM		
	<u>Expansion joint sealant</u>				
N	Mastic expansion joint sealant	100	LM		
	CARRIED TO COLLECTION				
	<u>COLLECTION</u>				
	Brought forward from page GF/1				
	Brought down from page GF/2 above				
	TOTAL REINFORCED CONCRETE SUPERSTRUCTURES CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	ELEMENT NO. 2 EXTERNAL WALLING <u>Approved natural/local masonry stone, squared; hand dressed one side to zero joint; including bedding and jointing in cement and sand (1:4) mortar;</u>				
A	Walls 200mm thick	450	SM		
B	Ditto, curved to varying radii <u>Precast concrete grade 20(12mm aggregate) including formwork, finishing fair on all exposed surfaces and hoisting and placing in position, bedding, jointing and pointing in cement and sand (1:3) mortar</u>	150	SM		
C	300 x 150mm concrete features, 4.5meters long including hanging/building on RC beams/columns to form prescribed pattern; all to detail	75	NO		
	TOTAL EXTERNAL WALLING CARRIED TO SUMMARY				

GF/4

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 4</u>				
	<u>DOORS</u>				
	<u>Mild Steel Doors</u>				
	<u>Galvanized mild steel grilled door, framed with 40 x 25 x 3mm RHS sections including assembly and fixing to opening cutting and pinning lugs to concrete or blockwork and bedding frame in cement and sand (1.4) mortar</u>				
A	Single door overall size 900 x 2400mm high	2	NO		
	<u>Timber Doors</u>				
	<u>50mm thick wrot mahogany panelled doors comprising of 150 x 50mm thick stiles and top rail; 150 x 50mm thick middle and bottom rail</u>				
B	Double door overall size 1500 x 2700mm high	6	NO		
C	Double door overall size 2500 x 2700mm high	3	NO		
D	Single door overall size 900 x 2700mm high	2	NO		
	<u>Flush Doors</u>				
	<u>50mm thick solid core standard flush door faced both sides with mahogany veneer and hardwood lipped all round in:</u>				
E	Door overall size 900 x 2700mm high : comprising of 900 x 2100 mm high openable leaf and 900 x 400 mm high fanlight infilled with 6 mm thick clear sheet glass (m/s) : decorative beading all round the panel .	8	NO		
F	Door overall size 800 x 2400mm high, including decorative beading all round the panel .	12	NO		
	<u>Duct doors comprising 100 x 50mm top, middle rails and stiles and 200mm wide bottom rails; 25 x25mm decorative beading around panels ; hardwood lipped to all edges</u>				
G	50mm thick door overall size 1200 x 2400mm high; with 350 x 400mm high 6mm thick clear fire resistant glass panel: 350 x 300mm high 25 x 25mm hard wood timber louvre vents spaced at 30mm centres .	4	NO		
H	Ditto single leaf door size 700 x 2400mm high	2	NO		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Frames & Finishings</u>				
	<u>Wrot mahogany as described in:</u>				
A	200 x 50mm frame with three labours : moulded screwed and pelleted	85	LM		
B	Ditto 150 x 50 mm frame	124	LM		
C	200 x 50mm Transome with four labours : moulded	85	LM		
D	Ditto 150 x 50 mm	124	LM		
E	75 x 25mm moulded architrave.	209	LM		
F	20 x 25 mm quadrant beading	209	LM		
G	20 x 25 mm glazing beading	209	LM		
	<u>Ironmongery</u>				
	<u>Supply and fix the following ironmongery from 'ASSA ABLOY' or other equal & approved manufacturer including all necessary matching screws.</u>				
H	Double action floor springs; hold open:	11	NO		
J	Stainless steel pull handle "S" shape - 600 x 32 mm	6	NO		
K	Roller catch - 70mm - Satin steel:	11	NO		
L	Stainless steel signage plate	37	NO		
M	Ball bearing stainless steel hinges:	20	PRS		
N	Stainless steel pull handle, 150 x 19mm:	12	NO		
P	Coat & hat hook - rubber tipped:	11	NO		
	<u>Duct doors</u>				
Q	Stainless steel double washered hinges:	10	PRS		
R	Security bolts, stainless steel:	6	NO		
S	Push plate.	12	NO		
T	Pull plate.	12	NO		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	<u>Glazing</u> Supply and fix 6mm thick clear sheet glass to wood with beads (m/s) In panes of various sizes (fanlight)	46	SM		
B	<u>Painting and Decoration</u> Prepare and apply one coat of aluminium primer as "Basco Paints - Duracoat" or "Crown Paints" before fixing; to back of wood Surfaces over 200 but not exceeding 300mm	170	LM		
C	Surfaces over 100 but not exceeding 200mm	248	LM		
D	Ditto: not exceeding 100mm	627	LM		
E	<u>Prepare and apply three coats of premium quality clear varnish as "Basco Paints - Duracoat" or "Crown Paints" to</u> Timber surfaces ; externally	329	SM		
F	Timber surfaces ; internally	329	SM		
G	Surfaces over 200 but not exceeding 300mm	170	LM		
H	Surfaces over 100 but not exceeding 200mm	248	LM		
J	Ditto: not exceeding 100mm	627	LM		
K	<u>Prepare touch up primer and apply two undercoats and one finishing coat gloss oil paint as "Basco Paints - Duracoat" or "Crown Paints" on metal;</u> General surfaces :	44	SM		
L	Frames ; 100 - 200 mm girth	33	LM		
	CARRIED TO COLLECTION				

GF/8

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 5</u>				
	<u>WINDOWS</u>				
	<u>Mild steel framed casement windows and accessories fabricated on site to Architect's approval: including 8mm thick tinted one way glass : to concrete or blockwork surfaces with plugs and screws: with permanent aluminium louvre vents at top edge and jointed all round in mastic</u>				
A	Window overall size 1000 x 2000mm high	10	NO		
B	Window overall size 3600 x 2000mm high	3	NO		
C	Window overall size 3500 x 3000mm high	2	NO		
D	Window overall size 5600 x 3000mm high	2	NO		
E	Window overall size 1200 x 3500mm high	2	NO		
F	Window overall size 6000 x 3000mm high	3	NO		
G	Window overall size 3000 x 3000mm high	1	NO		
H	Window overall size 4000 x 3000mm high	5	NO		
J	Window overall size 2500 x 3000mm high	4	NO		
K	Window overall size 1500 x 3000mm high	2	NO		
L	Window overall size 2000 x 3000mm high	3	NO		
M	Window overall size 6600 x 3000mm high	4	NO		
	<u>Window Cills</u>				
N	200 x 150 x 30 mm thick concrete window cill with one curved edge including bedding and pointing in cement and sand mortar (1:3) mortar	146	LM		
	<u>Window Board</u>				
	<u>Mahogany: selected and kept clean</u>				
P	200 x 25 mm Window board; plugged	146	LM		
Q	35 x 35 mm decorated beading	146	LM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	<u>Blinds</u> 25mm x 0.25mm thick Aluminium shutter/blinds manual controlled of customized colour to match or to Architects requirement.	378	Sm		
	CARRIED TO COLLECTION BELOW				
	<u>COLLECTION</u> <u>WINDOWS</u> Brought forward from page GF/9 Brought down from page GF/110 Above				
	TOTAL WINDOWS CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	ELEMENT NO. 6				
	FINISHES				
	Floor Finishes				
	Screed; cement and sand (1:4) with approved integral dust proofing additive wood floated.				
A	30mm thick to floors to receive Ceramic Tiles	1180	SM		
C	Ditto to ramp to receive granite tiles	140	SM		
D	Ditto to risers 100-200 mm girth to receive Ceramic Tiles	130	LM		
E	Ditto to treads 200-300 mm girth to receive Ceramic Tiles	130	LM		
F	Ditto to receive ceramic tiles	165	SM		
	Ceramic Tiles				
	Polished Ceramic Tiles to regular pattern laid onto cement sand backing mix 1:3 (m/s) including grouting joints with matching colour cement				
E	400 x 400 x 10mm thick Ceramic Tiles	1180	SM		
F	Ditto to risers 100 - 200 mm girth	130	LM		
G	Ditto to treads 200 - 300 mm girth : with non slip grooves and rounded nose	130	LM		
H	Ditto 400 x 100 x 8mm thick skirting	450	LM		
	Ceramic Tiles				
	Non-slip floor tiles, local approved colour; glazed; to regular pattern bedding and jointing in cement mortar (1:4). Grouting joints with matching colour cement				
M	300 x 300 x 8 mm coloured ceramic tiles	165	SM		
N	100 x 8mm Skirting	86	LM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Wall & Ceiling Finishes</u>				
	<u>Plaster; 9mm first coat of cement, lime putty and sand (1:2:9); 4mm second coat of cement lime putty and sand (1:1:6); Steel trowelled</u>				
B	13 mm thick 2No. Coatwork to walls; internal	1728	SM		
C	Ditto to beams	2124	SM		
D	13 mm thick 2No. Coatwork to columns	1230	SM		
F	Ditto to soffites of ramp	140	SM		
G	Ditto to sloping soffites of staircases	64	SM		
H	Ditto to landings	20	SM		
J	Ditto to edges of ramp 100-200 mm girth	162	LM		
	<u>Suspended acoustic ceiling as "Hunter Douglas" or other equally approved : taped and filled joints : on and including metal grid system :</u>				
K	Horizontal ceiling lining	1345	SM		
	<u>Suspended moulded gypsum plasterboard ceiling: taped and filled joints : on and including metal grid system: including all cutting and trimming to light fittings:</u>				
M	Horizontal ceiling lining (lobby)	1000	SM		
N	100 x 100 mm decorative polystyrene cornice	150	LM		
	<u>Backing; cement and sand (1:4) with approved integral dust proofing additive wood floated</u>				
P	15 mm thick to receive ceramic tiles	2385	SM		
	<u>Granite</u>				
	Supply and fix 20mm thick black galaxy granite to worktop	95	SM		
	<u>Glazed wall tiles, local approved colour; glazed; to regular pattern bedding and jointing in cement mortar (1:4). Grouting joints with matching colour cement</u>				
	200 x 200 x 6 mm coloured ceramic tiles to wall surfaces	2816	SM		
	Border tile to Architect's detail	425	LM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Painting & Decoration</u>				
	<u>Prepare and apply three coats of premium quality silk vinyl paint as "Basco Paints - Duracoat" or "Crown Paints" or equal and approved to:-</u>				
D	13 mm thick 2No. Coatwork to walls; internal	1728	SM		
E	Ditto to beams	2124	SM		
F	Ditto to columns	1230	SM		
G	Ditto to soffites of ramp	140	SM		
H	Ditto to sloping soffites of staircases	64	SM		
K	Ditto to landings	20	SM		
L	Ditto to edges of ramp 100-200 mm girth	162	LM		
	<u>Prepare and apply three coats PVA based Emulsion Paint as "Basco Paints - Duracoat" or "Crown Paints" to:-</u>				
M	Ceiling surfaces; gypsum; internally	1000	SM		
N	Cornice; 200 - 300 mm girth; internally	150	LM		
	<u>External Wall Finishes</u>				
P	20mm thick gauged lime render (1:2:9) in two coats finished with steel trowel	142	SM		
	<u>Painting and decoration</u>				
Q	Apply undercoat and final coat wall master paint applied as per manufacturer's instructions to plastered surfaces externally	142	SM		
	Polished Terrazzo				
	<u>Supply and pave Polished terrazzo consisting of cement and sand (1:3) screed (m.s) or backing finished with a layer of white cement with approved colour additive, sand and approved marble/granite chippings (1:4:2), 20 mm Thick horizontally and minimum 10mm Thick vertically, trowelled to a smooth and even finish and machine polished and waxed to approval</u>				
A	20 mm Thick paving to floor	34	SM		
B	100mm High skirting	12	LM		
	CARRIED TO COLLECTION				

GF/14

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 7</u> <u>BALUSTRADING</u> <u>Main Staircase 3No</u> <u>The following in mild steel sections; included smooth welded joints and all necessary connections, plates and bolts to approval</u> <u>Balustrades and railings : all joints ground smooth; one shop coat primer undercoat and spray paint with automotive metallic and gloss paint as "Basco Paints - Duracoat" or "Crown Paints" as directed : to Architect's detail</u>				
A	1050mm high 50mm diameter mild steel balusters, including welding one end onto mild steel handrail (m/s), and other end fish tailed and built into concrete work; all to Architect's detailed drawing	48	NO		
B	Horizontal handrail 50mm diameter x 3 mm thick mild steel CHS; fixed onto 50mm long lugs at 1000mm centres, one end fish tailed and built into concrete / blockwork	30	LM		
C	25mm diameter x 3mm thick mild steel rods/railing including welding to balusters/standards (m/s)	120	LM		
D	40 x 75 x 6 mm thick mild steel plate welded to RHS balusters (m/s)	96	LM		
E	40 x 25 x 6 mm thick mild steel plate welded to RHS balusters (m/s)	150	LM		
F	40 x 75 x 6 mm thick mild steel plate welded to RHS balusters (m/s)	100	LM		
	TOTAL BALUSTRADING CARRIED TO SUMMARY				

GF/16

FIRST FLOOR

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>GROUND FLOOR</u>				
	<u>ELEMENT NO. 1</u>				
	<u>REINFORCED CONCRETE SUPERSTRUCTURES</u>				
	<u>In situ reinforced concrete: grade 25 : vibrated in:-</u>				
A	Beams	265	CM		
B	Columns	225	CM		
C	175mm thick suspended slab	2000	SM		
D	Staircase: steps and waist/string	6	CM		
E	150mm suspended landings	20	SM		
F	200mm thick ramp	140	SM		
G	200mm thick lift shaft walls	65	SM		
H	Ducts	12	CM		
	<u>Reinforcement</u>				
	<u>Bars: high yield steel; cold worked to B.S. 4461 including bends, hooks, tying wire and distance blocks</u>				
J	25mm diameter	75,195	KG		
K	20mm diameter	14,194	KG		
L	16mm diameter	3,516	KG		
M	12mm diameter	1,968	KG		
N	10mm diameter	7,096	KG		
P	8mm diameter	13,548	KG		
	<u>Sawn timber formwork: to</u>				
Q	Sides and sides of beams	2124	SM		
R	Sides of columns	1125	SM		
S	Extra over for moulded circular formwork	105	SM		
T	Soffits of suspended slab	2000	SM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Sawn formwork...continued...</u>				
A	Edges of risers 0 -150mm girth	130	LM		
B	To strings of staircases 300mm extreme girth	130	LM		
C	Sloping soffites of ramp	140	SM		
D	Sides of lift shaft walls	130	SM		
E	Sloping soffits of staircases	64	SM		
F	Soffits of landings	20	SM		
G	Sides and soffits of ducts	46	SM		
H	Edges of suspended slab 150 - 225mm girth	840	LM		
J	Edges of ramp 150 - 225mm girth	110	LM		
K	Boxing in formwork to form lift door opening ; size 900 x 2000mm high : 200mm thick reinforced concrete walls	2	NO		
	<u>Flexcell expansion joint.</u>				
L	25mm thick in masonry walls	46	SM		
M	25mm thick in columns	24	SM		
	<u>Expansion joint sealant</u>				
N	Mastic expansion joint sealant	100	LM		
	CARRIED TO COLLECTION				
	<u>COLLECTION</u>				
	Brought forward from page FF/1				
	Brought down from page FF/2 above				
	TOTAL REINFORCED CONCRETE SUPERSTRUCTURES CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	<p>ELEMENT NO. 2</p> <p>EXTERNAL WALLING</p> <p><u>Approved natural/local masonry stone, squared; hand dressed one side to zero joint; including bedding and jointing in cement and sand (1:4) mortar;</u></p> <p>Walls 200mm thick</p> <p><u>Precast concrete grade 20(12mm aggregate) including formwork, finishing fair on all exposed surfaces and hoisting and placing in position, bedding, jointing and pointing in cement and sand (1:3) mortar</u></p>	450	SM		
B	<p>300 x 150mm concrete features, 4.5meters long including hanging/building on RC beams/columns to form prescribed pattern; all to detail</p>	75	NO		
	TOTAL EXTERNAL WALLING CARRIED TO SUMMARY				

FF/4

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 4</u>				
	<u>DOORS</u>				
	<u>Mild Steel Doors</u>				
	<u>Galvanized mild steel grilled door, framed with 40 x 25 x 3mm RHS sections including assembly and fixing to opening cutting and pinning lugs to concrete or blockwork and bedding frame in cement and sand (1.4) mortar</u>				
A	Single door overall size 900 x 2400mm high	2	NO		
	<u>Timber Doors</u>				
	<u>50mm thick wrot mahogany panelled doors comprising of 150 x 50mm thick stiles and top rail; 150 x 50mm thick middle and bottom rail</u>				
B	Double door overall size 1500 x 2700mm high	6	NO		
C	Double door overall size 2500 x 2700mm high	3	NO		
D	Single door overall size 900 x 2700mm high	2	NO		
	<u>Flush Doors</u>				
	<u>50mm thick solid core standard flush door faced both sides with mahogany veneer and hardwood lipped all round in:</u>				
E	Door overall size 900 x 2700mm high : comprising of 900 x 2100 mm high openable leaf and 900 x 400 mm high fanlight infilled with 6 mm thick clear sheet glass (m/s) : decorative beading all round the panel .	8	NO		
F	Door overall size 800 x 2400mm high, including decorative beading all round the panel .	12	NO		
	<u>Duct doors comprising 100 x 50mm top, middle rails and stiles and 200mm wide bottom rails; 25 x25mm decorative beading around panels ; hardwood lipped to all edges</u>				
G	50mm thick door overall size 1200 x 2400mm high; with 350 x 400mm high 6mm thick clear fire resistant glass panel: 350 x 300mm high 25 x 25mm hard wood timber louvre vents spaced at 30mm centres .	4	NO		
H	Ditto single leaf door size 700 x 2400mm high	2	NO		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Frames & Finishings</u>				
	<u>Wrot mahogany as described in:</u>				
A	200 x 50mm frame with three labours : moulded screwed and pelleted	85	LM		
B	Ditto 150 x 50 mm frame	124	LM		
C	200 x 50mm Transome with four labours : moulded	85	LM		
D	Ditto 150 x 50 mm	124	LM		
E	75 x 25mm moulded architrave.	209	LM		
F	20 x 25 mm quadrant beading	209	LM		
G	20 x 25 mm glazing beading	209	LM		
	<u>Ironmongery</u>				
	<u>Supply and fix the following ironmongery from 'ASSA ABLOY' or other equal & approved manufacturer including all necessary matching screws.</u>				
H	Double action floor springs; hold open:	11	NO		
J	Stainless steel pull handle "S" shape - 600 x 32 mm	6	NO		
K	Roller catch - 70mm - Satin steel:	11	NO		
L	Stainless steel signage plate	37	NO		
M	Ball bearing stainless steel hinges:	20	PRS		
N	Stainless steel pull handle, 150 x 19mm:	12	NO		
P	Coat & hat hook - rubber tipped:	11	NO		
	<u>Duct doors</u>				
Q	Stainless steel double washered hinges:	10	PRS		
R	Security bolts, stainless steel:	6	NO		
S	Push plate.	12	NO		
T	Pull plate.	12	NO		
	CARRIED TO COLLECTION				

FF/7

FF/8

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 5</u>				
	<u>WINDOWS</u>				
	<u>Mild steel framed casement windows and accessories fabricated on site to Architect's approval: including 8mm thick tinted one way glass : to concrete or blockwork surfaces with plugs and screws: with permanent aluminium louvre vents at top edge and jointed all round in mastic</u>				
A	Window overall size 1000 x 2000mm high	9	NO		
B	Window overall size 3600 x 2000mm high	5	NO		
C	Window overall size 3500 x 3000mm high	2	NO		
D	Window overall size 5000 x 3000mm high	9	NO		
E	Window overall size 1200 x 3000mm high	3	NO		
F	Window overall size 6000 x 3000mm high	3	NO		
G	Window overall size 3000 x 3000mm high	1	NO		
H	Window overall size 4000 x 3000mm high	1	NO		
J	Window overall size 2500 x 2000mm high	2	NO		
K	Window overall size 1500 x 3000mm high	3	NO		
L	Window overall size 2000 x 3000mm high	3	NO		
M	Window overall size 5600 x 3000mm high	2	NO		
N	Window overall size 1200 x 3500mm high	4	NO		
P	Window overall size 3000 x 2000mm high	1	NO		
Q	Window overall size 1000 x 3000mm high	1	NO		
R	Window overall size 2500 x 3000mm high	7	NO		
S	Window overall size 2000 x 3500mm high	2	NO		
T	Window overall size 1500 x 3500mm high	1	NO		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	<u>Window Cills</u> 200 x 150 x 30mm thick concrete window cill with one curved edge including bedding and pointing in cement and sand mortar (1:3) mortar	181	LM		
B	<u>Window Board</u> <u>Mahogany: selected and kept clean</u> 200 x 25 mm Window board; plugged	181	LM		
C	35 x 35 mm decorated beading	181	LM		
D	<u>Blinds</u> 25mm x 0.25mm thick Aluminium shutter/blinds manual controlled of customized colour to match or to Architects requirement.	498	Sm		
	CARRIED TO COLLECTION BELOW				
	<u>COLLECTION</u> <u>WINDOWS</u> Brought forward from page FF/9 Brought down from page FF/10 Above				
	TOTAL WINDOWS CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	ELEMENT NO. 6 FINISHES Floor Finishes <u>Screed; cement and sand (1:4) with approved integral dust proofing additive wood floated.</u> 30mm thick to floors to receive Ceramic Tiles	1180	SM		
B	Ditto to ramp to receive granite tiles	140	SM		
C	Ditto to risers 100-200 mm girth to receive Ceramic Tiles	130	LM		
D	Ditto to treads 200-300 mm girth to receive Ceramic Tiles	130	LM		
E	Ditto to receive ceramic tiles <u>Ceramic Tiles</u> <u>Polished Ceramic Tiles to regular pattern laid onto cement sand backing mix 1:3 (m/s) including grouting joints with matching colour cement</u>	165	SM		
F	400 x 400 x 10mm thick Ceramic Tiles	1180	SM		
G	Ditto to risers 100 - 200 mm girth	130	LM		
H	Ditto to treads 200 - 300 mm girth : with non slip grooves and rounded nose	130	LM		
J	Ditto 400 x 100 x 8mm thick skirting <u>Ceramic Tiles</u> <u>Non-slip floor tiles, local approved colour; glazed; to regular pattern bedding and jointing in cement mortar (1:4). Grouting joints with matching colour cement</u>	450	LM		
K	300 x 300 x 8 mm coloured ceramic tiles	165	SM		
L	100 x 8mm Skirting	86	LM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Wall & Ceiling Finishes</u>				
	<u>Plaster; 9mm first coat of cement, lime putty and sand (1:2:9); 4mm second coat of cement lime putty and sand (1:1:6); Steel trowelled</u>				
A	13 mm thick 2No. Coatwork to walls; internal	1578	SM		
B	Ditto to beams	1062	SM		
C	13 mm thick 2No. Coatwork to columns	1230	SM		
D	Ditto to soffites of ramp	140	SM		
E	Ditto to sloping soffites of staircases	64	SM		
F	Ditto to landings	20	SM		
G	Ditto to edges of ramp 100-200 mm girth	162	LM		
	<u>Suspended acoustic ceiling as "Hunter Douglas" or other equally approved : taped and filled joints : on and including metal grid system :</u>				
H	Horizontal ceiling lining	1345	SM		
	<u>Suspended moulded gypsum plasterboard ceiling: taped and filled joints : on and including metal grid system: including all cutting and trimming to light fittings:</u>				
J	Horizontal ceiling lining (lobby)	1000	SM		
K	100 x 100 mm decorative polystyrene cornice	150	LM		
	<u>Backing; cement and sand (1:4) with approved integral dust proofing additive wood floated</u>				
L	15 mm thick to receive ceramic tiles	184	SM		
	<u>Glazed wall tiles, local approved colour; glazed; to regular pattern bedding and jointing in cement mortar (1:4). Grouting joints with matching colour cement</u>				
M	200 x 200 x 6 mm coloured ceramic tiles to wall surfaces	184	SM		
N	Border tile to Architect's detail	66	LM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	<u>Painting & Decoration</u> Prepare and apply three coats of premium quality silk vinyl paint as "Basco Paints - Duracoat" or "Crown Paints" or equal and approved to:- 13 mm thick 2No. Coatwork to walls; internal	1578	SM		
B	Ditto to beams	1062	SM		
C	Ditto to columns	1230	SM		
D	Ditto to soffites of ramp	140	SM		
E	Ditto to sloping soffites of staircases	64	SM		
F	Ditto to landings	20	SM		
G	Ditto to edges of ramp 100-200 mm girth <u>Prepare and apply three coats PVA based Emulsion Paint as "Basco Paints - Duracoat" or "Crown Paints" to:-</u>	162	LM		
H	Ceiling surfaces; gypsum; internally	1000	SM		
J	Cornice; 200 - 300 mm girth; internally	150	LM		
K	<u>External Wall Finishes</u> 20mm thick gauged lime render (1:2:9) in two coats finished with steel trowel	142	SM		
L	<u>Painting and decoration</u> Apply undercoat and final coat wall master paint applied as per manufacturer's instructions to plastered surfaces externally	142	SM		
	CARRIED TO COLLECTION				

FF/14

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	<u>ELEMENT NO. 7</u> <u>BALUSTRADING</u> <u>Main Staircase 3No</u> <u>The following in mild steel sections; included smooth welded joints and all necessary connections, plates and bolts to approval</u> <u>Balustrades and railings : all joints ground smooth: one shop coat primer undercoat and spray paint with automotive metallic and gloss paint as "Basco Paints - Duracoat" or "Crown Paints" as directed : to Architect's detail</u> 1050mm high 50mm diameter mild steel balusters, including welding one end onto mild steel handrail (m/s), and other end fish tailed and built into concrete work; all to Architect's detailed drawing	48	NO		
B	Horizontal handrail 50mm diameter x 3 mm thick mild steel CHS; fixed onto 50mm long lugs at 1000mm centres, one end fish tailed and built into concrete / blockwork	30	LM		
C	25mm diameter x 3mm thick mild steel rods/railing including welding to balusters/standards (m/s)	120	LM		
D	40 x 75 x 6 mm thick mild steel plate welded to RHS balusters (m/s)	96	LM		
E	40 x 25 x 6 mm thick mild steel plate welded to RHS balusters (m/s)	150	LM		
F	40 x 75 x 6 mm thick mild steel plate welded to RHS balusters (m/s)	100	LM		
	TOTAL BALUSTRADING CARRIED TO SUMMARY				

FF/16

SECOND FLOOR

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>GROUND FLOOR</u>				
	<u>ELEMENT NO. 1</u>				
	<u>REINFORCED CONCRETE SUPERSTRUCTURES</u>				
	<u>Insitu reinforced concrete: grade 25 : vibrated in:-</u>				
A	Beams	265	CM		
B	Columns	225	CM		
C	175mm thick suspended slab	2000	SM		
D	Staircase: steps and waist/string	6	CM		
E	150mm suspended landings	20	SM		
F	200mm thick ramp	140	SM		
G	200mm thick lift shaft walls	65	SM		
H	Ducts	12	CM		
	<u>Reinforcement</u>				
	<u>Bars: high yield steel; cold worked to B.S. 4461 including bends, hooks, tying wire and distance blocks</u>				
J	25 mm diameter	75,195	KG		
K	20mm diameter	14,194	KG		
L	16mm diameter	3,516	KG		
M	12mm diameter	1,968	KG		
N	10mm diameter	7,096	KG		
P	8mm diameter	13,548	KG		
	<u>Sawn timber formwork: to</u>				
Q	Sides and sides of beams	2124	SM		
R	Sides of columns	1125	SM		
S	Extra over for moulded circular formwork	105	SM		
T	Soffits of suspended slab	2000	SM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Sawn formwork...continued...</u>				
A	Edges of risers 0 -150mm girth	130	LM		
B	To strings of staircases 300mm extreme girth	130	LM		
C	Sloping soffites of ramp	140	SM		
D	Sides of lift shaft walls	130	SM		
E	Sloping soffits of staircases	64	SM		
F	Soffits of landings	20	SM		
G	Sides and soffits of ducts	46	SM		
H	Edges of suspended slab 150 - 225mm girth	840	LM		
J	Edges of ramp 150 - 225mm girth	110	LM		
K	Boxing in formwork to form lift door opening ; size 900 x 2000mm high : 200mm thick reinforced concrete walls	2	NO		
	<u>Flexcell expansion joint.</u>				
L	25mm thick in masonry walls	46	SM		
M	25mm thick in columns	24	SM		
	<u>Expansion joint sealant</u>				
N	Mastic expansion joint sealant	100	LM		
	CARRIED TO COLLECTION				
	<u>COLLECTION</u>				
	Brought forward from page GF/1				
	Brought down from page GF/2 above				
	TOTAL REINFORCED CONCRETE SUPERSTRUCTURES CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	ELEMENT NO. 2 EXTERNAL WALLING <u>Approved natural/local masonry stone, squared; hand dressed one side to zero joint; including bedding and jointing in cement and sand (1:4) mortar;</u>				
A	Walls 200mm thick	450	SM		
B	Ditto, curved to varying radii <u>Precast concrete grade 20(12mm aggregate) including formwork, finishing fair on all exposed surfaces and hoisting and placing in position, bedding, jointing and pointing in cement and sand (1:3) mortar</u>	150	SM		
C	300 x 150mm concrete features, 4.5meters long including hanging/building on RC beams/columns to form prescribed pattern; all to detail	75	NO		
	TOTAL EXTERNAL WALLING CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 3</u> <u>INTERNAL WALLING</u> <u>Approved local stone; squared ; machine dressed one side; bedding, jointing in cement and sand mortar (1:4);including reinforcing with hoop iron in every alternative course</u>				
A	Walls 200 mm thick	402	SM		
B	Walls 100mm thick	162	SM		
TOTAL INTERNAL WALLING CARRIED TO SUMMARY					

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 4</u>				
	<u>DOORS</u>				
	<u>Mild Steel Doors</u>				
	<u>Galvanized mild steel grilled door, framed with 40 x 25 x 3mm RHS sections including assembly and fixing to opening cutting and pinning lugs to concrete or blockwork and bedding frame in cement and sand (1.4) mortar</u>				
A	Single door overall size 900 x 2400mm high	2	NO		
	<u>Timber Doors</u>				
	<u>50mm thick wrot mahogany panelled doors comprising of 150 x 50mm thick stiles and top rail; 150 x 50mm thick middle and bottom rail</u>				
B	Double door overall size 1500 x 2700mm high	6	NO		
C	Double door overall size 2500 x 2700mm high	3	NO		
D	Single door overall size 900 x 2700mm high	2	NO		
	<u>Flush Doors</u>				
	<u>50mm thick solid core standard flush door faced both sides with mahogany veneer and hardwood lipped all round in:</u>				
E	Door overall size 900 x 2700mm high : comprising of 900 x 2100 mm high openable leaf and 900 x 400 mm high fanlight infilled with 6 mm thick clear sheet glass (m/s) : decorative beading all round the panel .	8	NO		
F	Door overall size 800 x 2400mm high, including decorative beading all round the panel .	12	NO		
	<u>Duct doors comprising 100 x 50mm top, middle rails and stiles and 200mm wide bottom rails; 25 x25mm decorative beading around panels ; hardwood lipped to all edges</u>				
G	50mm thick door overall size 1200 x 2400mm high; with 350 x 400mm high 6mm thick clear fire resistant glass panel: 350 x 300mm high 25 x 25mm hard wood timber louvre vents spaced at 30mm centres .	4	NO		
H	Ditto single leaf door size 700 x 2400mm high	2	NO		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Frames & Finishings</u>				
	<u>Wrot mahogany as described in:</u>				
A	200 x 50mm frame with three labours : moulded screwed and pelleted	85	LM		
B	Ditto 150 x 50 mm frame	124	LM		
C	200 x 50mm Transome with four labours : moulded	85	LM		
D	Ditto 150 x 50 mm	124	LM		
E	75 x 25mm moulded architrave.	209	LM		
F	20 x 25 mm quadrant beading	209	LM		
G	20 x 25 mm glazing beading	209	LM		
	<u>Ironmongery</u>				
	<u>Supply and fix the following ironmongery from 'ASSA ABLOY' or other equal & approved manufacturer including all necessary matching screws.</u>				
H	Double action floor springs; hold open:	11	NO		
J	Stainless steel pull handle "S" shape - 600 x 32 mm	6	NO		
K	Roller catch - 70mm - Satin steel:	11	NO		
L	Stainless steel signage plate	37	NO		
M	Ball bearing stainless steel hinges:	20	PRS		
N	Stainless steel pull handle, 150 x 19mm:	12	NO		
P	Coat & hat hook - rubber tipped:	11	NO		
	<u>Duct doors</u>				
Q	Stainless steel double washered hinges:	10	PRS		
R	Security bolts, stainless steel:	6	NO		
S	Push plate.	12	NO		
T	Pull plate.	12	NO		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	<u>Glazing</u> Supply and fix 6mm thick clear sheet glass to wood with beads (m/s) In panes of various sizes (fanlight)	46	SM		
B	<u>Painting and Decoration</u> Prepare and apply one coat of aluminium primer as "Basco Paints - Duracoat" or "Crown Paints" before fixing: to back of wood Surfaces over 200 but not exceeding 300mm	170	LM		
C	Surfaces over 100 but not exceeding 200mm	248	LM		
D	Ditto: not exceeding 100mm	627	LM		
E	<u>Prepare and apply three coats of premium quality clear varnish as "Basco Paints - Duracoat" or "Crown Paints" to</u> Timber surfaces ; externally	329	SM		
F	Timber surfaces ; internally	329	SM		
G	Surfaces over 200 but not exceeding 300mm	170	LM		
H	Surfaces over 100 but not exceeding 200mm	248	LM		
J	Ditto: not exceeding 100mm	627	LM		
K	<u>Prepare touch up primer and apply two undercoats and one finishing coat gloss oil paint as "Basco Paints - Duracoat" or "Crown Paints" on metal:</u> General surfaces :	44	SM		
L	Frames ; 100 - 200 mm girth	33	LM		
	CARRIED TO COLLECTION				

SF/8

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 5</u>				
	<u>WINDOWS</u>				
	<u>Mild steel framed casement windows and accessories fabricated on site to Architect's approval: including 8mm thick tinted one way glass : to concrete or blockwork surfaces with plugs and screws: with permanent aluminium louvre vents at top edge and jointed all round in mastic</u>				
A	Window overall size 1000 x 2000mm high	9	NO		
B	Window overall size 3600 x 2000mm high	2	NO		
C	Window overall size 3500 x 3000mm high	3	NO		
D	Window overall size 5600 x 3000mm high	1	NO		
E	Window overall size 1200 x 3500mm high	2	NO		
F	Window overall size 6000 x 3000mm high	3	NO		
G	Window overall size 3000 x 3000mm high	1	NO		
H	Window overall size 4000 x 3000mm high	5	NO		
J	Window overall size 2500 x 3000mm high	4	NO		
K	Window overall size 1500 x 3000mm high	2	NO		
L	Window overall size 2000 x 3000mm high	3	NO		
M	Window overall size 6600 x 3000mm high	4	NO		
	<u>Window Cills</u>				
N	200 x 150 x 30 mm thick concrete window cill with one curved edge including bedding and pointing in cement and sand mortar (1:3) mortar	146	LM		
	<u>Window Board</u>				
	<u>Mahogany: selected and kept clean</u>				
P	200 x 25 mm Window board; plugged	146	LM		
Q	35 x 35 mm decorated beading	146	LM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	<u>Blinds</u> 25mm x 0.25mm thick Aluminium shutter/blinds manual controlled of customized colour to match or to Architects requirement.	378	Sm		
	CARRIED TO COLLECTION BELOW				
	<u>COLLECTION</u> <u>WINDOWS</u> Brought forward from page GF/9 Brought down from page GF/110 Above				
	TOTAL WINDOWS CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 6</u>				
	<u>FINISHES</u>				
	<u>Floor Finishes</u>				
	<u>Screed; cement and sand (1:4) with approved integral dust proofing additive wood floated.</u>				
A	30mm thick to floors to receive Ceramic Tiles	1180	SM		
C	Ditto to ramp to receive granite tiles	140	SM		
D	Ditto to risers 100-200 mm girth to receive Ceramic Tiles	130	LM		
E	Ditto to treads 200-300 mm girth to receive Ceramic Tiles	130	LM		
F	Ditto to receive ceramic tiles	165	SM		
	<u>Ceramic Tiles</u>				
	<u>Polished Ceramic Tiles to regular pattern laid onto cement sand backing mix 1:3 (m/s) including grouting joints with matching colour cement</u>				
E	400 x 400 x 10mm thick Ceramic Tiles	1180	SM		
F	Ditto to risers 100 - 200 mm girth	130	LM		
G	Ditto to treads 200 - 300 mm girth : with non slip grooves and rounded nose	130	LM		
H	Ditto 400 x 100 x 8mm thick skirting	450	LM		
	<u>Ceramic Tiles</u>				
	<u>Non- slip floor tiles, local approved colour; glazed; to regular pattern bedding and jointing in cement mortar (1:4). Grouting joints with matching colour cement</u>				
M	300 x 300 x 8 mm coloured ceramic tiles	165	SM		
N	100 x 8mm Skirting	86	LM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Wall & Ceiling Finishes</u>				
	<u>Plaster; 9mm first coat of cement, lime putty and sand (1:2:9); 4mm second coat of cement lime putty and sand (1:1:6); Steel trowelled</u>				
B	13 mm thick 2No. Coatwork to walls; internal	1728	SM		
C	Ditto to beams	2124	SM		
D	13 mm thick 2No. Coatwork to columns	1230	SM		
F	Ditto to soffites of ramp	140	SM		
G	Ditto to sloping soffites of staircases	64	SM		
H	Ditto to landings	20	SM		
J	Ditto to edges of ramp 100-200 mm girth	162	LM		
	<u>Suspended acoustic ceiling as "Hunter Douglas" or other equally approved : taped and filled joints : on and including metal grid system :</u>				
K	Horizontal ceiling lining	1345	SM		
	<u>Suspended moulded gypsum plasterboard ceiling: taped and filled joints : on and including metal grid system: including all cutting and trimming to light fittings:</u>				
M	Horizontal ceiling lining (lobby)	1000	SM		
N	100 x 100 mm decorative polystyrene cornice	150	LM		
	<u>Backing; cement and sand (1:4) with approved integral dust proofing additive wood floated</u>				
P	15 mm thick to receive ceramic tiles	2385	SM		
	<u>Granite</u>				
	Supply and fix 20mm thick black galaxy granite to worktop	95	SM		
	<u>Glazed wall tiles, local approved colour; glazed; to regular pattern bedding and jointing in cement mortar (1:4). Grouting joints with matching colour cement</u>				
	200 x 200 x 6 mm coloured ceramic tiles to wall surfaces	2816	SM		
	Border tile to Architect's detail	425	LM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Painting & Decoration</u> Prepare and apply three coats of premium quality silk vinyl paint as "Basco Paints - Duracoat" or "Crown Paints" or equal and approved to:-				
D	13 mm thick 2No. Coatwork to walls; internal	1728	SM		
E	Ditto to beams	2124	SM		
F	Ditto to columns	1230	SM		
G	Ditto to soffites of ramp	140	SM		
H	Ditto to sloping soffites of staircases	64	SM		
K	Ditto to landings	20	SM		
L	Ditto to edges of ramp 100-200 mm girth <u>Prepare and apply three coats PVA based Emulsion Paint as "Basco Paints - Duracoat" or "Crown Paints" to:-</u>	162	LM		
M	Ceiling surfaces; gypsum; internally	1000	SM		
N	Cornice; 200 - 300 mm girth; internally <u>External Wall Finishes</u>	150	LM		
P	20mm thick gauged lime render (1:2:9) in two coats finished with steel trowel	142	SM		
Q	<u>Painting and decoration</u> Apply undercoat and final coat wall master paint applied as per manufacturer's instructions to plastered surfaces externally	142	SM		
	CARRIED TO COLLECTION				

SF/14

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	<p>ELEMENT NO. 7</p> <p>BALUSTRADING</p> <p>Main Staircase 3No</p> <p>The following in mild steel sections; included smooth welded joints and all necessary connections, plates and bolts to approval</p> <p>Balustrades and railings : all joints ground smooth: one shop coat primer undercoat and spray paint with automotive metallic and gloss paint as "Basco Paints - Duracoat" or "Crown Paints" as directed ; to Architect's detail</p> <p>1050mm high 50mm diameter mild steel balusters, including welding one end onto mild steel handrail (m/s), and other end fish tailed and built into concrete work; all to Architect's detailed drawing</p>	48	NO		
B	Horizontal handrail 50mm diameter x 3 mm thick mild steel CHS; fixed onto 50mm long lugs at 1000mm centres, one end fish tailed and built into concrete / blockwork	30	LM		
C	25mm diameter x 3mm thick mild steel rods/railing including welding to balusters/standards (m/s)	120	LM		
D	40 x 75 x 6 mm thick mild steel plate welded to RHS balusters (m/s)	96	LM		
E	40 x 25 x 6 mm thick mild steel plate welded to RHS balusters (m/s)	150	LM		
F	40 x 75 x 6 mm thick mild steel plate welded to RHS balusters (m/s)	100	LM		
	TOTAL BALUSTRADING CARRIED TO SUMMARY				

SF/16

THIRD FLOOR

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>GROUND FLOOR</u>				
	<u>ELEMENT NO. 1</u>				
	<u>REINFORCED CONCRETE SUPERSTRUCTURES</u>				
	<u>Insitu reinforced concrete: grade 25 : vibrated in:-</u>				
A	Beams	265	CM		
B	Columns	225	CM		
C	175mm thick suspended slab	650	SM		
D	Staircase: steps and waist/string	6	CM		
E	150mm suspended landings	20	SM		
F	200mm thick ramp	140	SM		
G	200mm thick lift shaft walls	65	SM		
H	Ducts	12	CM		
	<u>Reinforcement</u>				
	<u>Bars: high yield steel; cold worked to B.S. 4461 including bends, hooks, tying wire and distance blocks</u>				
J	25 mm diameter	75,195	KG		
K	20mm diameter	14,194	KG		
L	16mm diameter	3,516	KG		
M	12mm diameter	1,968	KG		
N	10mm diameter	7,096	KG		
P	8mm diameter	13,548	KG		
	<u>Sawn timber formwork: to</u>				
Q	Sides and sides of beams	2124	SM		
R	Sides of columns	1125	SM		
S	Extra over for moulded circular formwork	105	SM		
T	Soffits of suspended slab	650	SM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Sawn formwork...continued...</u>				
A	Edges of risers 0 -150mm girth	130	LM		
B	To strings of staircases 300mm extreme girth	130	LM		
C	Sloping soffites of ramp	140	SM		
D	Sides of lift shaft walls	130	SM		
E	Sloping soffits of staircases	64	SM		
F	Soffits of landings	20	SM		
G	Sides and soffits of ducts	46	SM		
H	Edges of suspended slab 150 - 225mm girth	840	LM		
J	Edges of ramp 150 - 225mm girth	110	LM		
K	Boxing in formwork to form lift door opening ; size 900 x 2000mm high : 200mm thick reinforced concrete walls	2	NO		
	<u>Flexcell expansion joint.</u>				
L	25mm thick in masonry walls	46	SM		
M	25mm thick in columns	24	SM		
	<u>Expansion joint sealant</u>				
N	Mastic expansion joint sealant	100	LM		
	CARRIED TO COLLECTION				
	<u>COLLECTION</u>				
	Brought forward from page TF/1				
	Brought down from page TF/2 above				
	TOTAL REINFORCED CONCRETE SUPERSTRUCTURES CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	ELEMENT NO. 2 EXTERNAL WALLING <u>Approved natural/local masonry stone, squared; hand dressed one side to zero joint; including bedding and jointing in cement and sand (1:4) mortar;</u>				
A	Walls 200mm thick	450	SM		
	<u>Precast concrete grade 20(12mm aggregate) including formwork, finishing fair on all exposed surfaces and hoisting and placing in position, bedding, jointing and pointing in cement and sand (1:3) mortar</u>				
B	300 x 150mm concrete features, 4.5meters long including hanging/building on RC beams/columns to form prescribed pattern; all to detail	75	NO		
	TOTAL EXTERNAL WALLING CARRIED TO SUMMARY				

TF/4

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 4</u>				
	<u>DOORS</u>				
	<u>Mild Steel Doors</u>				
	<u>Galvanized mild steel grilled door, framed with 40 x 25 x 3mm RHS sections including assembly and fixing to opening cutting and pinning lugs to concrete or blockwork and bedding frame in cement and sand (1.4) mortar</u>				
A	Single door overall size 900 x 2400mm high	1	NO		
	<u>Timber Doors</u>				
	<u>50mm thick wrot mahogany panelled doors comprising of 150 x 50mm thick stiles and top rail; 150 x 50mm thick middle and bottom rail</u>				
B	Double door overall size 1500 x 2700mm high	2	NO		
C	Double door overall size 2500 x 2700mm high	2	NO		
D	Single door overall size 900 x 2700mm high	2	NO		
	<u>Flush Doors</u>				
	<u>50mm thick solid core standard flush door faced both sides with mahogany veneer and hardwood lipped all round in:</u>				
E	Door overall size 900 x 2700mm high : comprising of 900 x 2100 mm high openable leaf and 900 x 400 mm high fanlight infilled with 6 mm thick clear sheet glass (m/s) : decorative beading all round the panel .	21	NO		
F	Door overall size 800 x 2400mm high, including decorative beading all round the panel .	12	NO		
	<u>Duct doors comprising 100 x 50mm top, middle rails and stiles and 200mm wide bottom rails; 25 x25mm decorative beading around panels ; hardwood lipped to all edges</u>				
G	50mm thick door overall size 1200 x 2400mm high; with 350 x 400mm high 6mm thick clear fire resistant glass panel: 350 x 300mm high 25 x 25mm hard wood timber louvre vents spaced at 30mm centres .	4	NO		
H	Ditto single leaf door size 700 x 2400mm high	2	NO		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Frames & Finishings</u>				
	<u>Wrot mahogany as described in:</u>				
A	200 x 50mm frame with three labours : moulded screwed and pelleted	200	LM		
B	Ditto 150 x 50 mm frame	68	LM		
C	200 x 50mm Transome with four labours : moulded	200	LM		
D	Ditto 150 x 50 mm	68	LM		
E	75 x 25mm moulded architrave.	268	LM		
F	20 x 25 mm quadrant beading	268	LM		
G	20 x 25 mm glazing beading	268	LM		
	<u>Ironmongery</u>				
	<u>Supply and fix the following ironmongery from 'ASSA ABLOY' or other equal & approved manufacturer including all necessary matching screws.</u>				
H	Double action floor springs; hold open:	6	NO		
J	Stainless steel pull handle "S" shape - 600 x 32 mm	2	NO		
K	Roller catch - 70mm - Satin steel:	6	NO		
L	Stainless steel signage plate	45	NO		
M	Ball bearing stainless steel hinges:	33	PRS		
N	Stainless steel pull handle, 150 x 19mm:	12	NO		
P	Coat & hat hook - rubber tipped:	6	NO		
	<u>Duct doors</u>				
Q	Stainless steel double washered hinges:	10	PRS		
R	Security bolts, stainless steel:	6	NO		
S	Push plate.	12	NO		
T	Pull plate.	12	NO		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	<u>Glazing</u> Supply and fix 6mm thick clear sheet glass to wood with beads (m/s) In panes of various sizes (fanlight)	74	SM		
B	<u>Painting and Decoration</u> Prepare and apply one coat of aluminium primer as "Basco Paints - Duracoat" or "Crown Paints" before fixing: to back of wood Surfaces over 200 but not exceeding 300mm	400	LM		
C	Surfaces over 100 but not exceeding 200mm	136	LM		
D	Ditto: not exceeding 100mm	804	LM		
E	<u>Prepare and apply three coats of premium quality clear varnish as "Basco Paints - Duracoat" or "Crown Paints" to</u> Timber surfaces ; externally	118	SM		
F	Timber surfaces ; internally	118	SM		
G	Surfaces over 200 but not exceeding 300mm	400	LM		
H	Surfaces over 100 but not exceeding 200mm	136	LM		
J	Ditto: not exceeding 100mm	804	LM		
K	<u>Prepare touch up primer and apply two undercoats and one finishing coat gloss oil paint as "Basco Paints - Duracoat" or "Crown Paints" on metal:</u> General surfaces :	12	SM		
L	Frames ; 100 - 200 mm girth	18	LM		
	CARRIED TO COLLECTION				

TF/8

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 5</u>				
	<u>WINDOWS</u>				
	<u>Mild steel framed casement windows and accessories fabricated on site to Architect's approval: including 8mm thick tinted one way glass : to concrete or blockwork surfaces with plugs and screws: with permanent aluminium louvre vents at top edge and jointed all round in mastic</u>				
A	Window overall size 1000 x 2000mm high	9	NO		
B	Window overall size 3600 x 2000mm high	5	NO		
C	Window overall size 3500 x 3000mm high	1	NO		
D	Window overall size 5600 x 3000mm high	1	NO		
E	Window overall size 1200 x 3500mm high	4	NO		
F	Window overall size 6000 x 3000mm high	2	NO		
G	Window overall size 3000 x 3000mm high	2	NO		
H	Window overall size 4000 x 3000mm high	3	NO		
J	Window overall size 2500 x 2000mm high	2	NO		
K	Window overall size 1500 x 3000mm high	11	NO		
L	Window overall size 1200 x 3000mm high	3	NO		
M	Window overall size 4500 x 3000mm high	1	NO		
N	Window overall size 5000 x 3000mm high	4	NO		
P	Window overall size 4000 x 3000mm high	2	NO		
Q	Window overall size 750 x 3000mm high	2	NO		
	<u>Window Cills</u>				
R	200 x 150 x 30 mm thick concrete window cill with one curved edge including bedding and pointing in cement and sand mortar (1:3) mortar	148	LM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Window Board</u>				
	<u>Mahogany: selected and kept clean</u>				
A	200 x 25 mm Window board; plugged	148	LM		
B	35 x 35 mm decorated beading	148	LM		
	<u>Blinds</u>				
C	25mm x 0.25mm thick Aluminium shutter/blinds manual controlled of customized colour to match or to Architects requirement.	378	Sm		
	CARRIED TO COLLECTION BELOW				
	<u>COLLECTION</u>				
	<u>WINDOWS</u>				
	Brought forward from page GF/9				
	Brought down from page GF/10 Above				
	TOTAL WINDOWS CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 6</u>				
	<u>FINISHES</u>				
	<u>Floor Finishes</u>				
	<u>Screed; cement and sand (1:4) with approved integral dust proofing additive wood floated.</u>				
A	30mm thick to floors to receive Ceramic Tiles	815	SM		
B	Ditto to ramp to receive granite tiles	140	SM		
C	Ditto to risers 100-200 mm girth to receive Ceramic Tiles	130	LM		
D	Ditto to treads 200-300 mm girth to receive Ceramic Tiles	130	LM		
E	Ditto to receive ceramic tiles	134	SM		
F	Ditto to receive concrete paving blocks	776	SM		
	<u>Ceramic Tiles</u>				
	<u>Polished Ceramic Tiles to regular pattern laid onto cement sand backing mix 1:3 (m/s) including grouting joints with matching colour cement</u>				
G	400 x 400 x 10mm thick Ceramic Tiles	815	SM		
H	Ditto to risers 100 - 200 mm girth	130	LM		
J	Ditto to treads 200 - 300 mm girth : with non slip grooves and rounded nose	130	LM		
K	Ditto 400 x 100 x 8mm thick skirting	450	LM		
	<u>Ceramic Tiles</u>				
	<u>Non - slip floor tiles, local approved colour; glazed; to regular pattern bedding and jointing in cement mortar (1:4). Grouting joints with matching colour cement</u>				
L	300 x 300 x 8 mm coloured ceramic tiles	134	SM		
M	100 x 8mm Skirting	86	LM		
	<u>Concret paving blocks</u>				
N	Supply and fix 30mm thick concrete paving blocks on prepared backings	776	SM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Wall & Ceiling Finishes</u>				
	<u>Plaster; 9mm first coat of cement, lime putty and sand (1:2:9); 4mm second coat of cement lime putty and sand (1:1:6); Steel trowelled</u>				
A	13 mm thick 2No. Coatwork to walls; internal	1578	SM		
B	Ditto to beams	2124	SM		
C	13 mm thick 2No. Coatwork to columns	1230	SM		
D	Ditto to soffites of ramp	140	SM		
E	Ditto to sloping soffites of staircases	64	SM		
F	Ditto to landings	20	SM		
G	Ditto to edges of ramp 100-200 mm girth	162	LM		
	<u>Suspended acoustic ceiling as "Hunter Douglas" or other equally approved : taped and filled joints : on and including metal grid system :</u>				
H	Horizontal ceiling lining	949	SM		
	<u>Suspended moulded gypsum plasterboard ceiling: taped and filled joints : on and including metal grid system: including all cutting and trimming to light fittings:</u>				
J	Horizontal ceiling lining (lobby)	1000	SM		
K	100 x 100 mm decorative polystyrene cornice	150	LM		
	<u>Backing; cement and sand (1:4) with approved integral dust proofing additive wood floated</u>				
L	15mm thick to receive ceramic tiles	216	SM		
	<u>Glazed wall tiles, local approved colour; glazed; to regular pattern bedding and jointing in cement mortar (1:4). Grouting joints with matching colour cement</u>				
M	200 x 200 x 6 mm coloured ceramic tiles to wall surfaces	216	SM		
N	Border tile to Architect's detail	102	LM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Painting & Decoration</u>				
	<u>Prepare and apply three coats of premium quality silk vinyl paint as "Basco Paints - Duracoat" or "Crown Paints" or equal and approved to:-</u>				
A	13 mm thick 2No. Coatwork to walls; internal	1578	SM		
B	Ditto to beams	2124	SM		
C	Ditto to columns	1230	SM		
D	Ditto to soffites of ramp	140	SM		
E	Ditto to sloping soffites of staircases	64	SM		
F	Ditto to landings	20	SM		
G	Ditto to edges of ramp 100-200 mm girth	162	LM		
	<u>Prepare and apply three coats PVA based Emulsion Paint as "Basco Paints - Duracoat" or "Crown Paints" to:-</u>				
H	Ceiling surfaces; gypsum; internally	1000	SM		
J	Cornice; 200 - 300 mm girth; internally	150	LM		
	<u>External Wall Finishes</u>				
K	20mm thick gauged lime render (1:2:9) in two coats finished with steel trowel	142	SM		
	<u>Painting and decoration</u>				
L	Apply undercoat and final coat wall master paint applied as per manufacturer's instructions to plastered surfaces externally	142	SM		
	<u>Waterproofing</u>				
M	Supply and apply APP waterproofing or approved equivalent waterproofing agent on and including 30mm thick cement and sand (1:4) mortar	776	SM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	<u>Gazebo</u>				
	<u>Laminated glass cover with and including all fixing accessories all as supplied by the manufacturer</u>				
	Supply and fix 10mm thick laminated glass, on steel roof structure (m/s) to approval	140	SM		
	<u>All steel trusswork to include for connections and welding; thus angle cleats, gussets plates, washers, bolts and the like</u>				
	B 75 x 50 x 4mm thick RHS (7.6Kg/m) External members	315	KG		
C	50 x 50 x 3mm thick SHS (3.62 Kg/m) internal member	210	KG		
D	150 x 50 x 2 mm (4.44 kg/m) purlins	386	KG		
	<u>Steel sections for gazebo</u>				
E	75 x 50 x 4mm thick RHS (7.6Kg/m) External members	7146	KG		
	CARRIED TO COLLECTION				
	<u>COLLECTION</u>				
	<u>FINISHES</u>				
	Brought forward from page GF/11				
	Brought forward from page GF/12				
	Brought forward from page GF/13				
	Brought forward from page GF/14 Above				
	TOTAL FINISHES CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 7</u> <u>BALUSTRADING</u> <u>Main Staircase 3No</u> <u>The following in mild steel sections; included smooth welded joints and all necessary connections, plates and bolts to approval</u> <u>Balustrades and railings : all joints ground smooth: one shop coat primer undercoat and spray paint with automotive metallic and gloss paint as "Basco Paints - Duracoat" or "Crown Paints" as directed : to Architect's detail</u>				
A	1050mm high 50mm diameter mild steel balusters, including welding one end onto mild steel handrail (m/s), and other end fish tailed and built into concrete work; all to Architect's detailed drawing	48	NO		
B	Horizontal handrail 50mm diameter x 3 mm thick mild steel CHS; fixed onto 50mm long lugs at 1000mm centres, one end fish tailed and built into concrete / blockwork	30	LM		
C	25mm diameter x 3mm thick mild steel rods/railing including welding to balusters/standards (m/s)	120	LM		
D	40 x 75 x 6 mm thick mild steel plate welded to RHS balusters (m/s)	96	LM		
E	40 x 25 x 6 mm thick mild steel plate welded to RHS balusters (m/s)	150	LM		
F	40 x 75 x 6 mm thick mild steel plate welded to RHS balusters (m/s)	100	LM		
G					
	TOTAL BALUSTRADING CARRIED TO SUMMARY				

TF/16

FOURTH FLOOR

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>FOURTH FLOOR</u>				
	<u>ELEMENT NO. 1</u>				
	<u>REINFORCED CONCRETE SUPERSTRUCTURES</u>				
	<u>Insitu reinforced concrete: grade 25 : vibrated in:-</u>				
A	Beams	185	CM		
B	Columns	145	CM		
D	250mm thick lift shaft walls	65	SM		
E	Ducts	12	CM		
F	Gutter	65	CM		
	<u>Reinforcement</u>				
	<u>Bars; high yield steel; cold worked to B.S. 4461 including bends, hooks, tying wire and distance blocks</u>				
G	25 mm diameter	7,144	KG		
H	20mm diameter	9,194	KG		
J	16mm diameter	4,683	KG		
K	12mm diameter	3,968	KG		
L	10mm diameter	7,244	KG		
M	8mm diameter	8,548	KG		
	<u>Sawn timber formwork: to</u>				
N	Sides and sides of beams	856	SM		
P	Sides of columns	485	SM		
R	Sides and soffits of ducts	46	SM		
	CARRIED TO COLLECTION BELOW				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Sawn timber formwork: (continued...)</u>				
A	Sides of lift shaft walls	130	SM		
B	Edges of slab 0-150 mm girth	340	LM		
C	Boxing in formwork to form lift door opening; size 900 x 2000mm high : 200mm thick reinforced concrete walls	2	NO		
	<u>Flexcell expansion joint.</u>				
D	25mm thick in masonry walls	46	SM		
E	25mm thick in columns	24	SM		
	<u>Expansion joint sealant</u>				
F	Mastic expansion joint sealant	100	LM		
	CARRIED TO COLLECTION				
	<u>COLLECTION</u>				
	Brought forward from page FF/1				
	Brought forward from page FF/2				
	TOTAL REINFORCED CONCRETE SUPERSTRUCTURES CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	ELEMENT NO. 2 EXTERNAL WALLING <u>Approved local stone of the approved colour; squared ; hand dressed one side to Zero joint; bedding, jointing in cement and sand mortar (1:4);including reinforcing with hoop iron in every alternative course</u>				
A	Walls 200 mm thick	184	SM		
B	Ditto, parapet wall	150	SM		
	<u>Precast concrete grade 20(12mm aggregate) including formwork, finishing fair on all exposed surfaces and hoisting and placing in position, bedding, jointing and pointing in cement and sand (1:3) mortar</u>				
C	300 x 150mm concrete features, 4.5meters long including hanging/building on RC beams/columns to form prescribed pattern; all to detail	75	NO		
D	275 x 75mm coping twice weathered and throated	124	LM		
	TOTAL EXTERNAL WALLING CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 3</u>				
	<u>ROOFING</u>				
	<u>Galvanized steel IT5 box profile sheets; 28 gauge; prepainted</u>				
A	Roof covering; 150mm laps on one end and one and a half corrugation side lap; fixed to angle section purlins with and including J-bolts, nut and neoprene washers.	1800	sm		
	<u>Accessories, fixing as necessary to roof sheets</u>				
B	150mm dia. Half round ridge cap	40	lm		
B	Ditto; hip cap	28	lm		
C	Extra over roofing sheets for raking cutting	136	lm		
	<u>Trusses</u>				
	<u>All steel trusswork to include for connections and welding; thus angle cleats, gussets plates, washers, bolts and the like</u>				
	<u>The following in 14No truss type T2; steel members of various sizes, hoisted approximately 27000mm high above ground level, spanning 7500mm long; comprising steel section members joined with nuts and bolts , including priming with red oxide primer and painting with gloss oil paint. Thus; supply, cut to size, weld/connect mild steel sections in trusses and other roof members and fix in position at height of approximately 27meters</u>				
D	75 x 50 x 4mm thick RHS (7.6Kg/m) External members	2942	KG		
E	50 x 50 x 3mm thick SHS (3.62 Kg/m) internal member	1745	KG		
F	Bracings 50 x 50 x 3mm Angle	320	KG		
G	150 x 50 x 2 mm (4.44 kg/m) purlins	1891	KG		
	Unframed Members				
H	75 x 50 x 4mm thick RHS (7.6Kg/m) External members	1700	KG		
J	50 x 50 x 3mm thick SHS (3.62 Kg/m) internal member	1600	KG		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<p>The following in 3No truss type T4; steel members of various sizes, hoisted approximately 27000mm high above ground level, spanning 7500mm long; comprising steel section members joined with nuts and bolts , including priming with red oxide primer and painting with gloss oil paint. Thus; supply, cut to size, weld/connect mild steel sections in trusses and other roof members and fix in position at height of approximately 27meters</p>				
A	75 x 50 x 4mm thick RHS (7.6Kg/m) External members	694	KG		
B	50 x 50 x 3mm thick SHS (3.62 Kg/m) internal member	415	KG		
C	Bracings 50 x 50 x 3mm Angle	102	KG		
D	150 x 50 x 2 mm (4.44 kg/m) purlins	763	KG		
	<p>All steel trusswork to include for connections and welding; thus angle cleats, gussets plates, washers,bolts and the like</p> <p>Sundries</p>				
E	300 x 300 x 8mm mild steel base plates with 4 no. holes countersunk of diameter 16mm long bolt(m/s)	40	No.		
F	300mm long 2NO 8mm steel plates welded to rafters	16	No.		
G	100mm long 75 x 50 x 4mm angle cleats welded to truss rafter and bolted with 2no. M12 bolts to the Z - purlins	64	No.		
H	300mm long x 6mm thick base plate welded to truss : drilled with 2 No. holes for 12 mm diameter bolts	160	NO		
	Bolts				
J	16mm diameter x 300mm long bolts with head, nut and washers : fixed to concrete or masonry walls	160	NO		
	CARRIED TO COLLECTION BELOW				
	<p><u>COLLECTION</u></p> <p><u>ROOFING & RAINWATER DISPOSAL</u></p> <p>Brought forward from page FF/4</p> <p>Brought forward from page FF/5 Above</p>				
	TOTAL ROOFING CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 4</u>				
	<u>DOORS</u>				
	<u>Aluminium Glazed Doors</u>				
	<u>Aluminium standard section framed doors and accessories by an approved specialist subcontractor ; powder coated to Architect's approval ; including 12 mm thick toughened glass infill to panels in 100 x 50 mm aluminium edge plates: glazing beads bedded in mastic : to concrete or blockwall surfaces with screws plugged ; bedded and pointed all round in mastic</u>				
A	Composite door overall size 1500 x 2700mm high, comprising of 2No. openable leaves; 2No. 450 x 2100mm high fixed side lights; 1800 x 600mm high fanlight with 2No. mullions and infilled with glass: complete with all necessary ironmongery as described	2	NO		
B	Ditto but single door 900 x 2700 high	2	NO		
	<u>Mild Steel Doors</u>				
	<u>Galvanized mild steel grilled door framed with 40 x 25 x 3mm RHS sections including assembly and fixing to opening cutting and pinning lugs to concrete or blockwork and bedding frame in cement and sand (1:4) mortar</u>				
C	Door overall size 900 x 2400mm high	1	NO		
	<u>Timber Doors</u>				
	<u>50mm thick wrot mahogany panelled doors comprising of 150 x 50mm thick stiles and top rail; 150 x 50mm thick middle and bottom rail</u>				
D	Double door overall size 1800 x 2700mm high	2	NO		
	<u>Flush Doors</u>				
	<u>50mm thick solid core standard flush door faced both sides with mahogany veneer and hardwood lipped all round in:</u>				
E	Ordinary solid core flush door overall size 900 x 2400mm high complete with viewing panel, panic bolt, push bar all other escape hardware	1	NO		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Frames & Finishings</u>				
	<u>Wrot mahogany as described in:</u>				
A	200 x 50mm frame with three labours : moulded screwed and pelleted	64	LM		
B	Ditto 150 x 50 mm frame	27	LM		
C	200 x 50mm Transome with four labours : moulded	64	LM		
D	Ditto 150 x 50 mm	27	LM		
E	75 x 25mm moulded architrave.	91	LM		
F	20 x 25 mm quadrant beading	91	LM		
G	20 x 25 mm glazing beading	91	LM		
	<u>Ironmongery</u>				
	<u>Supply and fix the following ironmongery from 'ASSA ABLOY' or other equal & approved manufacturer including all necessary matching screws.</u>				
H	Double action floor springs; hold open:	2	NO		
J	Stainless steel pull handle "S" shape - 600 x 32 mm	1	NO		
K	Roller catch - 70mm - Satin steel:	1	NO		
L	Stainless steel signage plate	3	NO		
M	Ball bearing stainless steel hinges:	3	PRS		
N	Stainless steel pull handle, 150 x 19mm:	1	NO		
P	Coat & hat hook - rubber tipped:	2	NO		
Q	Push plate.	1	NO		
R	Pull plate.	1	NO		
	<u>Glazing</u>				
	<u>Supply and fix 6mm thick clear sheet glass to wood with beads (m/s)</u>				
E	In panes of various sizes (fanlight)	16	SM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Painting and Decoration</u>				
	<u>Prepare and apply one coat of aluminium primer as "Basco Paints - Duracoat" or "Crown Paints" before fixing: to back of wood</u>				
A	Surfaces over 200 but not exceeding 300mm	128	LM		
B	Surfaces over 100 but not exceeding 200mm	54	LM		
C	Ditto: not exceeding 100mm	273	LM		
	<u>Prepare and apply three coats of premium quality clear varnish as "Basco Paints - Duracoat" or "Crown Paints" to</u>				
D	Timber surfaces ; externally	134	SM		
E	Timber surfaces ; internally	134	SM		
F	Surfaces over 200 but not exceeding 300mm	128	LM		
G	Surfaces over 100 but not exceeding 200mm	54	LM		
H	Ditto: not exceeding 100mm	273	LM		
	CARRIED TO COLLECTION				
	<u>COLLECTION</u>				
	<u>DOORS</u>				
	Brought forward from page FF/6				
	Brought forward from page FF/7				
	Brought forward from page FF/8 Above				
	TOTAL DOORS CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	ELEMENT NO. 5 PARTITIONS AND SCREENS <u>Aluminium partitions</u> 100mm thick x 2400mm high glazed partition comprising 50 x 25mm heavy duty powder coated aluminium framework of approved colour and beadings to BS10 B15 spaced approximately 1200mm; comprising 25mm thick MDF board 2400mm high panel;	342	SM		
B	50 x 25 x 3mm thick aluminium angle glazing channels screwed to aluminium frame (m/s)	420	LM		
C	50 x 25 x 3mm thick square hollow section aluminium glazing bead ditto	315	LM		
D	<u>Glazing</u> 6mm thick toughened/frosted glass (sandlasted); fixed to frames using 15 x 10mm beading	112	SM		
	TOTAL ALUMINIUM PARTIONING CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 6</u>				
	<u>WINDOWS</u>				
	<u>Mild steel framed casement windows and accessories fabricated on site to Architect's approval: including 8mm thick tinted one way glass : to concrete or blockwork surfaces with plugs and screws: with permanent aluminium louvre vents at top edge and jointed all round in mastic</u>				
A	Window overall size 1500 x 3500mm high	1	NO		
B	Window overall size 1500 x 3000mm high	4	NO		
C	Window overall size 3000 x 3000mm high	1	NO		
D	Window overall size 750 x 3000mm high	2	NO		
E	Window overall size 1200 x 3500mm high	2	NO		
H	Window overall size 4000 x 3000mm high	1	NO		
J	Window overall size 2500 x 3000mm high	8	NO		
K	Window overall size 1200 x 3000mm high	1	NO		
	<u>Window Cills</u>				
Z	200 x 150 x 30 mm thick concrete window cill with one curved edge including bedding and pointing in cement and sand mortar (1:3) mortar	32	LM		
	<u>Window Board</u>				
	<u>Mahogany: selected and kept clean</u>				
A	200 x 25 mm Window board; plugged	32	LM		
B	35 x 35 mm decorated beading	32	LM		
	<u>Blinds</u>				
C	25mm x 0.25mm thick Aluminium shutter/blinds manual controlled of customized colour to match or to Architects requirement.	142	Sm		
	TOTAL WINDOWS CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 7</u>				
	<u>FINISHES</u>				
	<u>Floor Finishes</u>				
	<u>Screed; cement and sand (1:4) with approved integral dust proofing additive wood floated.</u>				
A	30 mm thick to floors to receive Ceramic Tiles	650	SM		
	<u>Ceramic Tiles</u>				
	<u>Polished Ceramic Tiles to regular pattern laid onto cement sand backing mix 1:3 (m/s) including grouting joints with matching colour cement</u>				
B	400 x 400 x 10 mm thick granitto tiles	650	SM		
C	Ditto 150 x 8 mm thick skirting	250	LM		
	<u>Wall & Ceiling Finishes</u>				
	<u>Plaster; 9mm first coat of cement, lime putty and sand (1:2:9); 4mm second coat of cement lime putty and sand (1:1:6); Steel trowelled</u>				
D	13 mm thick 2No. Coatwork to walls; internal	334	SM		
E	Ditto to beams	428	SM		
F	13 mm thick 2No. Coatwork to columns	485	SM		
	<u>Suspended acoustic ceiling as "Hunter Douglas" or other equally approved : taped and filled joints : on and including metal grid system :</u>				
G	Horizontal ceiling lining	650	SM		
	<u>Painting & Decoration</u>				
	<u>Prepare and apply three coats of premium quality silk vinyl paint as "Basco Paints - Duracoat" or "Crown Paints" or equal and approved to:-</u>				
H	13 mm thick 2No. Coatwork to walls; internal	334	SM		
J	Ditto to beams	428	SM		
K	Ditto to columns	485	SM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	<u>External Wall Finishes</u> 20mm thick gauged lime render (1:2:9) in two coats finished with steel trowel	305	SM		
B	<u>Painting and decoration</u> Apply undercoat and final coat wall master paint applied as per manufacturer's instructions to plastered surfaces externally	305	SM		
	CARRIED TO COLLECTION				
	<u>COLLECTION</u> <u>FINISHES</u> Brought forward from page FF/11 Brought forward from page FF/12 Above				
	TOTAL FINISHES CARRIED TO SUMMARY				

FF/13

FIFTH FLOOR

FF/1

Fifth Floor

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 3</u>				
	<u>ROOFING</u>				
	<u>Atrium roof cover</u>				
	<u>Laminated glass cover with and including all fixing accessories all as supplied by the manufacturer</u>				
A	Supply and fix 10mm thick laminated glass, on steel roof structure (m/s) to approval	221	SM		
	<u>Trusses</u>				
	<u>All steel trusswork to include for connections and welding; thus angle cleats, gussets plates, washers,bolts and the like</u>				
	<u>The following in 3No truss type T4; steel members of various sizes, hoisted approximately 27000mm high above ground level, spanning 7500mm long; comprising steel section members joined with nuts and bolts , including priming with red oxide primer and painting with gloss oil paint. Thus; supply, cut to size, weld/connect mild steel sections in trusses and other roof members and fix in position at height of approximately 27meters</u>				
B	75 x 50 x 4mm thick RHS (7.6Kg/m) External members	694	KG		
C	50 x 50 x 3mm thick SHS (3.62 Kg/m) internal member	415	KG		
D	150 x 50 x 2 mm (4.44 kg/m) purlins	763	KG		
	<u>Sundries</u>				
E	300 x 300 x 8mm mild steel base plates with 4 no. holes countersunk of diameter 16mm long bolt(m/s)	12	No.		
F	300mm long x 6mm angle cleats welded to truss rafter and bolted with 2no. M12 bolts to the Z - purlins	18	No.		
	<u>Bolts</u>				
G	16mm diameter x 300mm long bolts with head, nut and washers : fixed to concrete or masonry walls	24	NO		
	TOTAL ROOFING CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	<p>ELEMENT NO. 6</p> <p>WINDOWS</p> <p>Mild steel grille windows, including welding together of steel members as per Architect's Schedule</p> <p>Window overall size 1100 x 2000mm high</p> <p>Window Cills</p> <p>200 x 150 x 30 mm thick concrete window cill with one curved edge including bedding and pointing in cement and sand mortar (1:3) mortar</p>	8	NO		
B		17	LM		
	TOTAL WINDOWS CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>FIFTH FLOOR SUMMARY</u>	PAGE			
1	REINFORCED CONCRETE SUPERSTRUCTURES	FF/1			
2	EXTERNAL WALLING	FF/2			
3	ROOFING & RAINWATER DISPOSAL	FF/3			
4	WINDOWS	FF/4			
TOTAL: FIFTH FLOOR WORKS CARRIED TO BUILDER'S WORK SUMMARY					

SERVICES BLOCK

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 1</u>				
	<u>SUBSTRUCTURES (All provisional)</u>				
	<u>Site Preparation</u>				
A	Clear site of all bushes, shrubs and grub up roots and remove from site	150	SM		
	<u>Excavations & Earthworks</u>				
B	Excavate oversite soil average 150mm deep and cart away from site	150	SM		
C	Excavate for strip footings not exceeding 1.5m depth starting from reduced level	70	CM		
D	Ditto for columns and column bases	23	CM		
E	Extra over all excavations for excavating in all types of rock	15	CM		
	<u>Disposal of Excavated Material</u>				
F	Fillings around foundation: backfill and compact in 150 mm layers: selected excavated materials	40	CM		
G	Remove surplus spoil from site to an authorized dumping site	53	CM		
	<u>Planking and Strutting</u>				
H	Planking and strutting to sides of all excavations: keep excavations free from all falling materials		ITEM		
	<u>Disposal of Water</u>				
I	Keep excavations free from all water including spring, underground and running water.		ITEM		
	<u>Hardcore Filling</u>				
J	Hardcore fillings in making up levels: levelled and compacted in 150mm thick layers	50	CM		
	<u>Murram</u>				
	50mm Thick murram blinding to surfaces of hardcore	110	SM		
	<u>Insecticide treatment</u>				
	<u>'Premise 200CC" insecticide or approved equivalent treatment on top of hardcore filling and over foundation walls applied as per manufacturer's instruction with a 10 year guarantee</u>				
	To murram surface	110	SM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Damp Proof Membrane</u>				
C	1000 Gauge polythene sheeting including sides and end laps laid on blinded surfaces	110	SM		
	<u>Concrete Work</u>				
	<u>Insitu concrete mix (1:4:8): in</u>				
D	50mm thick blinding under strip foundations	45	SM		
E	Ditto column bases	18	SM		
	<u>Vibrated reinforced concrete: CLASS 25 in:-</u>				
F	Strip footing	14	CM		
G	Columns bases	4	CM		
H	Columns	1	CM		
I	150mm thick floor bed	88	SM		
J	Extra over for formwork 400 x 400mm cable trench	12	SM		
K	400mm thick floor bed	22	SM		
	<u>Reinforcement</u>				
	<u>Ribbed steel reinforcement bar to B.S. 4449, including tying wire, spacer blocks, etc as required by the Structural Engineer</u>				
L	8mm diameter bars	712	KG		
	10mm diameter bars	1,451	KG		
	16mm diameter bars	986	KG		
	<u>BRC Mesh.</u>				
	Double layer BRC Fabric mesh reinforcement Ref. A142	220	SM		
	<u>Fair face Formwork: to</u>				
B	Edges: slab not exceeding 150 mm	56	LM		
C	Sides of strip foundation	150	SM		
D	Sides of 400 x 400mm trench	24	SM		
E	Sides of columns and column bases	25	SM		
F	Sides of columns	16	SM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Walling</u>				
	Natural stone walling in cement and sand (1:3) mortar and including reinforcing with 20 x 3mm thick hoop iron in every alternate course.				
G	200mm Thick walling	88	SM		
	<u>Plinth Treatment</u>				
H	12mm thick render (400mm girth) of cement to sand 1:4 to receive bituminous paint.	73	SM		
I	Prepare and apply one under coat and two finishing coats of black bituminous paint.	73	SM		
	<u>PAVING SLABS</u>				
L	50mm thick precast concrete (1:2:4) paving slab each size 600 x 600mm laid with (1:3) cement sand mortar on and including 50mm thick bed of sand including applying approved herbicide before laying slabs	45	SM		
	CARRIED TO COLLECTION				
	<u>COLLECTION</u>				
	Brought forward from page SB/1				
	Brought forward from page SB/2				
	Brought forward from page SB/3 Above				
	TOTAL SUBSTRUCTURE CARRIED TO SUMMARY				

SB/4

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	ELEMENT NO. 3				
	EXTERNAL WALLING				
	<u>Approved natural local stone of the approved colour; squared ; hand dressed one side to architect approval ; bedding, jointing in cement and sand mortar (1:4);including reinforcing with hoop iron in every alternative course</u>				
A	200 mm thick walling	100	SM		
B	Extra over walls for horizontal key finish	100	SM		
	<u>Damp Proof Course</u>				
	<u>Damp proof course : bituminous felt : bedded in cement and sand mortar (1:3) : 300 mm laps (measured net-no allowance for laps)</u>				
C	Horizontal: 200 mm wide	70	LM		
	INTERNAL WALLING				
	<u>Approved local stone; squared ; machine dressed both side; bedding, jointing in cement and sand mortar (1:4);including reinforcing with hoop iron in every alternative course</u>				
D	200 mm thick walling	155	SM		
	<u>Damp Proof Course</u>				
	<u>Damp proof course : bituminous felt : bedded in cement and sand mortar (1:3) : 300 mm laps (measured net-no allowance for laps)</u>				
E	Horizontal: 200 mm wide	22	LM		
	TOTAL WALLING CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 4</u>				
	<u>ROOF CONSTRUCTION (PROVISIONAL)</u>				
	<u>VERSATILE GREEN</u>				
A	Prepainted Galvanized Versatile Iron Sheets as Metcoppo or other equal and approved	250	SM		
	<u>Accessories, fixing as necessary to roof sheets</u>				
B	150mm dia. Half round ridge cap	19	LM		
C	Ditto hip	25	LM		
	<u>The following in 10No. mild steel trusses, with bolted/welded connections, spanning 9900 wide, hoisting to about 4 m above ground Level</u>				
	Trusses				
D	75 x 50 x 3mm thick (5.6 Kg/M)RHS external members	1,118	KGS		
E	40 x 40 x 3mm thick (3.48 Kg/M) SHS internal member	306	KGS		
F	125 x 50 x 2mm thick (4.05 Kg/M) Zed Purlins	435	KGS		
G	100 x 75 x 3 mm angle Cleat bolted on beams	18	NO		
H	200 x 100 x 4mm thick gusset plate, bolted to beam on cement	18	NO		
	<u>Rainwater disposal:</u>				
	<u>Supply and fix the following UPVC rainwater goods from "Terrain 2100 half round system" or equal and approved manufacturer(s)</u>				
J	110 mm Diameter Spray painted downpipe with and including approved brackets at 1800 mm centres to masonry wall.	18	LM		
K	Extra over ditto for 100 mm diameter access bend No. 138.4	6	NO		
L	Extra over ditto for 100 mm shoe.	6	NO		
M	100 mm Diameter flat roof fulbora outlet No. 2171.4	6	NO		
	ROOF WORKS CARRIED TO SUMMARY				

[illegible]

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	<p><u>ELEMENT NO. 6</u></p> <p><u>WINDOWS</u></p> <p><u>Steel Casement Windows</u></p> <p><u>Mild steel louvered windows, including all the necessary louvres; one coat manufacturer's primer; Include all necessary ironmongery; all welding ground to smooth finish</u></p> <p>Overall size 900 x 2500mm high</p>	25	NO		
	TOTAL FOR WINDOWS CARRIED TO SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 7</u>				
	<u>FINISHES</u>				
	<u>External Wall Finishes</u>				
	<u>In situ finishes</u>				
	<u>Render; 18mm thick, 1 No. coatwork of cement and sand (1:3); power floated to concrete or blockwork base generally to: -</u>				
A	Beams and columns; externally	202	SM		
	<u>Internal Wall Finishes</u>				
	<u>Plaster; 18mm thick, 2 No. coatwork, 15mm first coat of cement sand (1:3); 3mm second coat of cement and lime putty (1:9); steel trowelled to concrete or blockwork base generally to: -</u>				
B	Walls, beams and columns; internally	512	SM		
	<u>Apply one undercoat and three coats of first quality emulsion paint to the following surfaces</u>				
C	Walls, beams and columns, internally	512	SM		
	<u>Floor Finishes</u>				
	<u>Beds or Backings</u>				
	<u>Screed; cement and sand (1:3)</u>				
D	40 mm thick cement sand (1:4) screed backing steel trowelled smooth on floor and with red oxide	196	SM		
	TOTAL FOR FINISHES CARRIED TO SUMMARY				

SB/10

SB/11

ABLUTION BLOCK

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO 1</u>				
	<u>SUBSTRUCTURES(ALL PROVISIONAL)</u>				
	<u>Site Preparation</u>				
	<u>Clearing site vegetation, grubbing up roots and filling up voids left with selected excavated materials</u>				
A	Bushes, shrubs, undergrowth or the like and cart away from site	100	SM		
	<u>Excavation</u>				
	<u>Excavating vegetable soil for preservation, average 200mm deep</u>				
B	Load up and store on site, later level and spread as directed on site and cart away surplus excavated material	100	SM		
C	Excavate trenches for foundations : commencing from reduced level and not exceeding 1.5 metres deep	43	CM		
	<u>Disposal of excavated materials</u>				
D	Backfill and compact in layers : selected excavated material around foundations : placed in 200mm layers : watered and compacted to 95% MDD	20	CM		
E	Surplus excavated materials : remove and deposit in spoil heaps on site	23	CM		
	<u>Disposal of water</u>				
F	Keep excavations free from all water by baling, pumping or otherwise	1	Item		
	<u>Planking and strutting</u>				
G	Planking and strutting to sides of all excavations : keep excavation free from all fallen materials	1	Item		
	<u>Imported hardcore Filling</u>				
H	Approved quarry stone hardcore filling : 300mm thick (overall) : deposit, spread, level and compact in layers not exceeding 150mm thick : to receive 100mm slab (m/s)	28	CM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>Murram filling</u>				
A	50mm Murram blinding to surface of hardcore	93	SM		
	<u>Insecticide treatment</u>				
B	Chemical anti-termite treatment to subsoil or filling ; Dragnet 30% EC or equal and approved : provide ten year guarantee	93	SM		
	<u>Damp Proof Membrane</u>				
C	One layer 500 gauge polythene sheet damp proof membrane : under beds ; 300mm laps	93	SM		
	<u>Insitu concrete 15/20mm in:-</u>				
D	50mm Blinding layer : under wall foundations	28	SM		
	<u>Insitu concrete : class 20/20 : vibrated; reinforced</u>				
E	Foundations in trenches	5	CM		
F	150mm Surface bed	93	SM		
	<u>Mesh fabric reinforcement to BS 4483 : 200mm laps</u>				
G	Fabric mesh reference A142 weighing 2.22kg per square metre : in surface beds	93	SM		
	<u>High yield square twisted bar reinforcement to BS 4461 (Provisional)</u>				
H	12mm Ditto	85	KG		
J	10mm Ditto	445	KG		
K	8mm Ditto	125	KG		
	<u>Sawn formwork : to</u>				
L	Strip foundations	23	SM		
M	Foundation bases	12	SM		
N	Foundation columns	12	SM		
P	Vertical edge of bed : over 150 but not exceeding 225mm wide	38	LM		
	CARRIED TO COLLECTION				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	<u>Approved quality local stone blocks walling: medium chisel dressed in regular courses : in cement and sand (1:3) mortar</u>				
	200mm Walls	55	SM		
	Plinth finishes				
B	<u>Render: cement and sand (1:4), wood floated</u>				
	12 mm thick in two coats render (1:4) to plinth area	20	SM		
C	<u>Painting: 3 coats black bituminous paint to: -</u>				
	Rendered surfaces externally	20	SM		
CARRIED TO COLLECTION					
<u>COLLECTION</u>					
Total Brought Forward from Page AB/1					
Total Brought Forward from Page AB/2					
Total Brought Forward from Page AB/3 Above					
TOTAL: SUBSTRUCTURES CARRIED TO BLOCK SUMMARY					

[illegible]

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO 3</u>				
	<u>ROOFING AND RAIN WATER DISPOSAL</u>				
	<u>Roof Covering</u>				
A	28 Gauge pre-painted IT4 resincot corrugated iron sheets fixed to steel purlins (m/s)	95	SM		
B	Standard ridge capping	10	LM		
C	25 x 250mm Fascia or barge board	54	LM		
	<u>Roof Structure (Provisional)</u>				
	<u>Unframed structural steel work, factory primed before delivery to site and to be executed by an approved Sub-contractor</u>				
D	75 x 50 x 3mm Rafters	38	LM		
E	50 x 50 x 3mm Ties/Struts	93	LM		
F	50 x 50 x 3mm king posts	18	LM		
G	125 x 50 x 3mm "Z" purlins	38	LM		
	<u>Rainwater Disposal (Provisional)</u>				
	<u>Unplasticised PVC rainwater pipes and fittings : solvent welded joints</u>				
H	150mm Diameter half round gutter: fixed with approved brackets	40	LM		
J	100mm Diameter rain water pipe : fixed to wall with approved holderbats	18	LM		
K	Extra for stopped end	2	NO		
M	Extra for bend	6	NO		
M	Extra for swan neck : 600mm projection.	6	NO		
N	Extra for rainwater shoe	6	NO		
	<u>Prepare and knot coated surfaces : prime and apply two undercoats and one finishing coat gloss paint : on wood</u>				
P	Fascia : over 200 but not exceeding 300mm girth	54	LM		
	TOTAL FOR ROOFING CARRIED TO BLOCK SUMMARY				

[illegible]

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	<p>ELEMENT NO 5</p> <p><u>WINDOWS</u></p> <p>Precast concrete units : class 20/20 : reinforced as necessary for handling ; fair face finished on all exposed faces</p> <p>250 x 75mm Cill : once weathered and throated : bedded in cement mortar (1:4)</p> <p><u>METAL WORK</u></p> <p>Standard section steel casement windows of approved manufacture : with polished brass handles, stays and hinges ; permanent vents along full length of top edge : fixed with lugs built into concrete or blockwork : pointed externally in mastic and oiling.</p>	22	LM		
B	Window size 1200 x 1000mm high :Two top opening casements.	2	NO		
C	Window size 1200 x 1500mm high	1	NO		
D	<p>Ditto size 600 x 600mm high ; one top opening casements and one bottom fixed panels.</p> <p><u>5mm obscure sheet glass to Architect's approval : fixed with putty to metal frames</u></p>	10	NO		
E	<p>In panes over 0.1 but not exceeding 0.5 square metres</p> <p><u>Prepare, prime and apply two undercoats and one finishing coat gloss paint : on metal</u></p>	4	SM		
F	Window casements (both sides measured flat overall)	8	SM		
	TOTAL FOR WINDOWS CARRIED TO BLOCK SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO 6</u>				
	<u>DOORS</u>				
	<u>Flush doors : solid cored mahogany veneered both sides : hardwood lipping all edges</u>				
A	45mm Door size 900 x 2400mm	3	NO		
B	45mm Thick door size 800 x 2100mm	8	NO		
	<u>Wrot camphor : selected and kept clean</u>				
C	100 x 50mm Frame : four labours : screwed and pellated	60	LM		
D	20 x 25mm Quadrant beading	60	LM		
E	20 x 25mm Architrave	60	LM		
	<u>Supply and fix the following ironmongery to timber : with matching screws : references are to 'Union' catalogue or other equal and approved</u>				
F	10mm pressed steel butt hinges	17	PAIRS		
F	Two lever mortice lock : set lever handles	3	NO		
G	WC Indicator bolt	8	NO		
J	Rubber door stops	11	NO		
K	Male/female signs	8	NO		
	<u>prepare, prime and apply two undercoats and one finishing coat gloss paint; on woodwork</u>				
L	General surfaces : doors : (both sides measured flat overall)	20	SM		
M	Frames : over 100 but not exceeding 200mm girth	180	LM		
	TOTAL FOR DOORS CARRIED TO BLOCK SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO 7</u>				
	<u>INTERNAL FINISHES</u>				
	<u>FLOOR FINISHES</u>				
	<u>Cement and sand (1:4) trowelled screeds : on concrete : to</u>				
A	32mm Floor screed to receive ceramic floor tiles (ms)	58	SM		
	<u>Approved non-slip ceramic floor tiles: as selected by the Architect : on screeded bed (m/s) jointed, pointed and grouted in matching colour cement mortar]</u>				
B	Floors	58	SM		
	<u>WALL FINISHES</u>				
	<u>12mm Lime plaster in two coats : steel trowelled finish : on concrete or blockwork ; to</u>				
C	Walls	190	SM		
	<u>300 x 250 x 6mm Thick white glazed ceramic wall tiles ; fixed with approved quality adhesive in accordance with the manufacturers instructions ; on and including 12mm thick cement and sand screed backing ; jointed, pointed and grouted in matching colour</u>				
D	Walls	84	SM		
	<u>Prepare and apply three coats 1st grade gloss oil paint : on</u>				
E	Plastered walls	106	SM		

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
A	<p>ELEMENT NO. 8</p> <p>EXTERNAL FINISHINGS</p> <p>FLOOR FINISHES</p> <p>PAVEMENT</p> <p>50mm Sand bed : levelled and compacted to receive paving</p>	30	SM		
B	<p>50 x 600 x 600 mm Precast concrete (class 20) paving slabs : laid on sand bed (measured separately) : jointed and pointed in cement mortar (1:4)</p> <p>WALL FINISHES</p> <p><i>Extra over walling for : horizontal recessed and flush vertical joints as work proceeds : in cement and sand (1:3) mortar</i></p>	30	SM		
C	Medium chisel dressed stone : wall finish	56	SM		
D	<p>Cement and sand (1:4) render : wood float finish to : concrete or blockwall</p> <p><i>Prepare and apply three coats first grade plastic emulsion paint : to</i></p>	34	SM		
E	Plastered walls and beams	34	SM		
	TOTAL FOR EXTERNAL FINISHES CARRIED TO BLOCK SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ELEMENT NO. 9</u>				
	<u>FITTINGS & FIXTURES</u>				
	<u>2No. Vanity Worktops</u>				
	<u>Blockwork</u>				
A	100 mm thick reinforced with hoop iron at alternate courses approved local natural stone walling; chisel dressed both sides; bedding, jointing and pointing in cement sand (1:3) mortar	9	SM		
	<u>Plain concrete class 15/20 as described in: -</u>				
B	100mm thick plinth	8	SM		
C	100mm thick suspended worktop	8	SM		
	<u>Fabric; B.S. 4483</u>				
D	Reference A142 mesh 200 x 200 mm , weight 2.22 kgs per square meter (measured net - no allowance made for laps(including bends, tying wire and distance blocks	9	SM		
	<u>Sawn formwork to insitu concrete as described:-</u>				
E	To soffits of suspended worktop	8	SM		
F	Edges of suspended worktop, 75 to 150mm wide	18	LM		
G	Edges of plinth ditto	18	LM		
	<u>12mm thick cement sand (1:3) screed, steel trowelled as described in: -</u>				
H	Concrete or blockwork base to walls; internal	18	SM		
	<u>Granito tiles</u>				
J	10mm thick; butt joints both ways; to cement sand base (m/s); to floors level; internal	9	SM		
K	Skirtings; 100mm wide; rounded junction with wall finish and straight junction with floor finish.	18	LM		
	TOTAL FIXTURES AND FITTINGS CARRIED TO BLOCK SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<p><u>ELEMENT NO .10</u></p> <p><u>BUILDERS WORK IN CONNECTION TO SPECILISTS WORK</u></p> <p><u>BUILDERS WORK - PLUMBING AND DRAINAGE INSTALLATIONS</u></p> <p><u>Builders work in connection with Plumbing and Drainage Installations</u></p> <p>A Allow a provisional Sum of Ksh One Hundred and Fifty Thousand Only (Ksh 150,000.00) for Builders work in connection with Plumbing and Drainage Installations</p> <p><u>BUILDERS WORK - ELECTRICAL INSTALLATION</u></p> <p><u>Builders work in connection with Electrical Installations</u></p> <p>B Allow a provisional Sum of Ksh One Hundred and Fifty Thousand Only (Ksh 150,000.00) for Builders work in connection with Electrical Installations</p>		ITEM		
			ITEM		
	BUILDERS WORK CARRIED TO BLOCK SUMMARY				

Item	Description	Quantity	Unit	Rate	Amount (Kshs)
	<u>ABLUTION BLOCK - SUMMARY</u>				
1	SUBSTRUCTURES				
2	R.C FRAMES				
3	ROOFING				
4	WALLING				
5	WINDOWS				
6	DOORS				
7	INTERNAL FINISHES				
8	EXTERNAL FINISHES				
9	FITTINGS				
10	BUILDERS WORK IN CONNECTION TO SPECIALISTS WORK				
TOTAL: ABLUTION BLOCK WORKS CARRIED TO GRAND SUMMARY					

BUILDER'S WORKS SUMMARY

PROPOSED LIBRARY FOR MAASAI MARA UNIVERSITY, NAROK COUNTY

BUILDER'S WORK SUMMARY

ITEM	TITLE	PAGE NO.	AMOUNT	
			KSHS	CTS
1	SUBSTRUCTURES	Subs/5		
2	LOWER GROUND FLOOR	LGF/16		
3	GROUND FLOOR	GF/18		
4	FIRST FLOOR	FF/16		
5	SECOND FLOOR	SF/16		
6	THIRD FLOOR	TS/19		
7	FOURTH FLOOR	FF/5		
8	FIFTH FLOOR	FF/1		
9	SERVICES BLOCK	SB/13		
10	ABLUTION BLOCK	AB/13		
	TOTAL BULDER'S WORKS CARRIED TO GRAND SUMMARY			

BILL NO.4
CIVIL WORKS

BILL NO. 2 - EXTERNAL WORKS AROUND THE BUILDING					
ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT SHS
<u>PAVING SLABS AROUND THE BUILDING</u>					
A	Excavate area around the building and trim surfaces above to achieve reduced levels and cart away excavated materials to tips as directed. Depth n.e 0.45m.	CM	249		
B	Provide, lay & compact approved fill material in layers not exceeding 300mm well watered & rolled to Engineer's satisfaction	CM	249		
C	Treat surface of the formation with approved persistent herbicide	SM	552		
D	Provide, lay and compact 150mm thick hardcore	SM	552		
E	Provide, lay and joint 600x600x50mm precast concrete paving slabs including 50mm thick sand bed to M.O.P.W specifications.	SM	552		
F	Provide, lay and joint 125x100mm precast concrete channel including 100mm thick concrete bed and haunch, mix 1:3:6, any necessary excavation, formwork and disposal of surplus	LM	230		
<u>STORM WATER DRAINAGE AROUND THE BUILDING</u>					
G	Provide, lay and joint 800x500x175mm precast concrete shallow Storm Water Channel including 50mm thick concrete bed, mix 1:3:6, any necessary excavation, formwork and disposal of surplus material to detail (50) 5330.	LM	255		
<u>Masonry Retaining Wall</u>					
H	Provide all materials and construct natural quarry masonry stone retaining wall include for excavations, backfilling, construction, finishes, weep holes and other associated works as	LM	46		
<u>French Drains to Retaining Wall</u>					
J	Excavate trench for french drain starting from ground level not exceeding 1.5m deep, trim & shape as in detail (50)5344 av. depth 1.25m	LM	100		
K	Provide & lay in trench dia. 160mm Dia Perforated agricultural pipe as in detail (50)5344	LM	100		
TOTAL CARRIED TO COLLECTION					

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
					SHS
A	Provide & lay in trench crushed stone 20 -60mm thick as in detail (50)5344	LM	100		
B	Provide lay & compact in trench 200mm thick approved murram	LM	100		
C	Return fill & ram	CM	40		
D	Cart away surplus material as directed by the	CM	30		
<u>DRAINAGE SUMPS</u>					
E	Provide materials and construct rectangular storm water drainage sump with RC concrete base and walls including screeding and plastering to the inside, channel grating covers and frames, malleable step irons; including excavations of pits, formwork, part return fill and ram and part cart	No.	4		
F	Provide and install 300mm dia heavy duty Upvc Pipe as drainage channel from the sump to the storm drain as directed by the Engineer	LM	120		
TOTAL CARRIED TO COLLECTION					
<u>COLLECTION</u>					
1	TOTAL CARRIED FROM CIV 1				
2	TOTAL CARRIED FROM ABOVE				
TOTAL CARRIED TO SUMMARY PAGE					

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT SHS
BILL NO. 3 - FOUL DRAINAGE					
	<u>SEWER LINE EXCAVATIONS</u>				
A	Excavate trench for diameter 200 & 160mm dia sewer pipe starting from ground level not exceeding 1.5m deep backfill after laying pipe and dispose excess materials as directed by the Engineer average depth 1.25m	CM	189		
B	Ditto but average depth 1.5m	CM	38		
C	Ditto but average depth 1.75m	CM	38		
D	Allow for plunking and strutting to all excavations during construction	ITEM	1		
E	Allow for keeping all excavations free from general waters	ITEM	1		
F	Extra over excavation in rock	CM	37		
	<u>PIPE LAYING</u>				
G	Provide lay and joint in trench dia 160mm Upvc golden brown class 41Upvc pipe in flexible rubber	LM	165		
H	Provide lay and joint in trench dia 200mm Upvc golden brown class 41Upvc pipe in flexible rubber ring joints	LM	50		
J	Provide lay & compact 100mm thick approved compacted murram bed to sewer line	SM	151		
K	Provide lay and joint in trench dia 160mm Upvc golden brown class 41Upvc pipe in flexible rubber ring joints as drop in manhole to detail (50)53	NO	4		
L	Provide and place 150mm thick concrete surround around pipes across the road, (mix 1:3:6) to detail (50)5310'c'. Including all the necessary formwork.	CM	6		
	<u>MANHOLES EXCAVATIONS</u>				
M	Excavate pit in normal soil for rectangular manhole type A as per drawing detail No. (50) 5300. Depth to invert max. 0.75m.	CM	4		
N	Extra over excavations in rock class A	CM	1		
	TOTAL CARRIED TO COLLECTION				

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
					SHS
BILL NO. 3 - FOUL DRAINAGE					
A	Excavate pit in normal soil for rectangular manhole type B as per drawing detail No. (50) 5301. Depth to invert max. 1.2m.	CM	18		
B	Extra over excavations in rock class A	CM	2		
C	Excavate pit in normal soil for rectangular manhole type C as per drawing detail No. (50) 5302. Depth to invert max. 1.70m.	CM	32		
D	Extra over excavations in rock class A	CM	3		
E	Excavate pit in normal soil for rectangular manhole type D as per drawing detail No. (50) 5303. Depth to invert max. 2.20m.	CM	19		
F	Extra over excavations in rock class A	CM	2		
MANHOLES CONSTRUCTION					
G	Provide, mix and place 50mm thick concrete class P (1:4:8 mix) as blinding for manholes.	SM	46		
H	Provide, mix and place concrete class 20 (1:2:4) to construct 150mm thick manholes' bases.	CM	8		
J	Provide, mix and place 150mm thick concrete grade 20 (1:2:4) as cover slab for manholes.	CM	6		
K	Provide all materials, mix and place conc. class Q (1:3:6) as benching for 160mm diameter pipe. Include for forming as well as finishing benching to falls and building in pipes as per drawings.	CM	4		
E	Provide materials for and 200mm thick for manholes type A, B,C& D as per drawing details 50 (5300), 50 (5301), 50 (5302)and 50(5303)	SM	185		
F	Provide 8mm diameter steel bars for cover slab to detail 50 (5309)	KG	278		
G	Provide and fix bitumen coated cast iron steps to B.S 1247 as per detailed drawings.	NO	78		
H	Provide 12mm thick cement and sand (mix 1:1) sulphate resisting rendering to the walls of the manholes.	SM	185		
J	Ditto but to cover slab	SM	102		
TOTAL CARRIED TO COLLECTION					

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
					SHS
	EXCAVATIONS				
A	Excavation pit for biodigester n.e. 1.5m deep)	CM	66		
B	Ditto between 1.5m and 3.0m deep)	CM	66		
C	Ditto between 3.0m and 4.5m deep)	CM	66		
D	Extra over excavation in rock class 1	CM	71		
E	Return fill & ram	CM	80		
F	Cart away the excavated material away from site as instructed by the Engineer	CM	118		
G	Allow for keeping all excavations free from general waters	ITEM	1		
H	Planking & strutting to sides of excavations	ITEM	1		
	Concrete				
J	50mm thick mass concrete class Q (1:3:6) to bottoms of foundations	SM	23		
	<u>Insitu water proofed concrete; reinforced; class 25 / (20mm); vibrated</u>				
K	Foundation	CM	6		
L	Walling	CM	19		
M	Top Slab	CM	4		
	<u>Reinforcement(provisional)</u>				
	<u>Bars; high yield steel; cold worked to B.S. 4449-2005 including bends, hooks, tying wire and distance blocks</u>				
N	12mm bars	KG	1895		
P	10mm bars	KG	1475		
	<u>Sawn formwork to insitu concrete as described:-</u>				
Q	To sides of foundation slab	SM	9		
R	To sides of walls	SM	230		
S	To soffit of slab	SM	27		
T	Edges of cover slab; 75 to 200mm wide	LM	21		
	TOTAL CARRIED TO COLLECTION				

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
					SHS
A	200mm Thick machine dressed stones in masonry walling reinforced with and including 25mm wide hoop iron in every alternate course as skin wall to the outside of water tank	SM	88		
B	Make or leave dia. 160mm hole & build in dia 200mm pipe	NO	9		
C	Provide & apply 12mm thick water proof plaster to walls and soffit of slab	SM	230		
D	Provide apply 25mm thick water proof screed to floor slab	SM	27		
E	Provide & fix 600x450mm MD MH cover &	NO	2		
F	Build in dia. 200mm pipe	NO	2		
G	Provide and fix bitumen coated step irons in manholes at 300mm c/c. All to detail 50(5309)	NO	16		
H	Provide and fix 200mm wide Upvc water bar as directed by the Engineer	LM	51		
J	Allow a provisional sum of Kshs. 300,000.00 for Mechanical/Electrical works together with its associated works as directed by the Engineer	Sum	1		
TOTAL CARRIED TO COLLECTION					
<u>COLLECTION</u>					
1	TOTAL CARRIED FROM CIV/4				
2	TOTAL CARRIED FROM CIV/5				
	TOTAL CARRIED FROM ABOVE				
TOTAL CARRIED TO COLLECTION					

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT SHS
BILL NO. 4 - UNDERGROUND WATER TANK					
	<u>SITE CLEARANCE</u>				
A	Clear site of all grown weeds and the like and dispose as directed by Engineer	SM	375		
	<u>EXCAVATIONS</u>				
A	Excavation pit for biodigester n.e. 1.5m deep)	CM	243		
B	Ditto between 1.5m and 3.0m deep)	CM	243		
C	Ditto between 3.0m and 4.5m deep)	CM	243		
D	Extra over excavation in rock class 1	CM	343		
E	Return fill & ram	CM	292		
F	Cart away the excavated material away from site as instructed by the Engineer	CM	437		
G	Allow for keeping all excavations free from general waters	ITEM	1		
H	Planking & strutting to sides of excavations	ITEM	1		
	<u>Concrete</u>				
J	50mm thick mass concrete class Q (1:3:6) to bottoms of foundations	SM	153		
	<u>Insitu water proofed concrete; reinforced; class 30 / (20mm); vibrated</u>				
K	Foundation	CM	74		
L	Walling & Columns	CM	112		
M	Top Slab	CM	30		
	<u>Reinforcement(provisional)</u>				
	<u>Bars; high yield steel; cold worked to B.S. 4449-2005 including bends, hooks, tying wire and distance blocks</u>				
N	16mm bars	KG	14597		
P	12mm bars	KG	9418		
Q	10mm bars	KG	2124		
	<u>Sawn formwork to insitu concrete as described:-</u>				
R	To sides of foundation slab	SM	47		
S	To sides of walls	SM	742		
	TOTAL CARRIED TO COLLECTION				

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
					SHS
BILL NO. 4 - UNDERGROUND WATER TANK					
A	To soffit of slab	SM	148		
B	Edges of cover slab; 75 to 200mm wide	LM	47		
C	200mm Thick machine dressed stones in masonry walling reinforced with and including 25mm wide hoop iron in every alternate course as skin wall to the outside of water tank	SM	235		
D	Make or leave dia. 160mm hole & build in dia 200mm pipe	NO	9		
E	Provide & apply 12mm thick water proof plaster to walls and soffit of slab	SM	742		
F	Provide apply 25mm thick water proof screed to floor slab	SM	198		
G	Provide & fix 600x450mm MD MH cover &	NO	4		
H	Build in dia. 200mm pipe	NO	4		
J	Provide and fix bitumen coated step irons in manholes at 300mm c/c. All to detail 50(5309)	NO	18		
K	Provide and fix 200mm wide water bar as directed by the Engineer	LM	150		
L	Allow a provisional sum of Kshs. 1,000,000.00 for Mechanical/Electrical works together with its associated works as directed by the Engineer	Sum	1		
TOTAL CARRIED TO COLLECTION PAGE BELOW					
<u>COLLECTION</u>					
1	TOTAL CARRIED FROM CIV 7				
2	TOTAL CARRIED FROM ABOVE				
TOTAL CARRIED TO SUMMARY PAGE					

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
					SHS
	<u>SUMMARY</u>				
1	EXTERNAL WORKS AROUND THE BUILDING				
2	STORM WATER				
2	UNDERGROUND WATER TANK				
	TOTAL FOR CIVIL WORKS CARRIED TO BUILDERS WORKS GRAND SUMMARY PAGE				

BILL 5

ELECTRICAL INSTALLATION AND STRUCTURED

CABLING INSTALLATION

WORKS



**TENDER DOCUMENTS FOR PROCUREMENT OF WORKS
(ELECTRICAL INSTALLATION AND STRUCTURED CABLING INSTALLATION
WORKS)**

Tender Name: **PROPOSED CONSTRUCTION OF LIBRARY FOR MAASAI
MARA UNIVERSITY – NAROK COUNTY**

Tender Name: **PROPOSED MAASAI MARA UNIVERSITY LIBRARY PHASE 1**

W.P Item No: **D1065/RV/NKR/230/ JOB NO. 11217A**

VOLUME 2 of 4

PROJECT MANAGER
WORKS SECRETARY

STATE DEPARTMENT FOR PUBLIC WORKS
P.O BOX 30743 – 00100
NAIROBI

CLIENT

MAASAI MARA UNIVERSITY,
P.O.BOX 861 - 20500
NAROK, KENYA

ARCHITECT

CHIEF ARCHITECT

STATE DEPARTMENT FOR PUBLIC WORKS
P.O BOX 30743 - 00100
NAIROBI

QUANTITY SURVEYOR

CHIEF QUANTITY SURVEYOR

STATE DEPARTMENT FOR PUBLIC WORKS
P.O BOX 30743 - 00100
NAIROBI

ELECTRICAL ENGINEER

CHIEF ENGINEER (ELECTRICAL)

STATE DEPARTMENT FOR PUBLIC WORKS
P.O BOX 30743- 00100
NAIROBI

MECHANICAL ENGINEER

CHIEF ENGINEER (MECHANICAL (BS))

STATE DEPARTMENT FOR PUBLIC WORKS
P.O BOX 30743- 00100,
NAIROBI

STRUCTURAL ENGINEER

CHIEF ENGINEER (STRUCTURAL)

STATE DEPARTMENT FOR PUBLIC WORKS
P.O BOX 30743– 00100
NAIROBI

November, 2023

TABLE OF CONTENTS

TENDER EVALUATION CRITERIA.....1
 Preliminary evaluation.....2
 Technical evaluation.....3

SECTION II – TENDERING FORMS.....5
 FORM CON 2.....5
 SELF-DECLARATION FORMS6

SECTION III – BILLS OF QUANTITIES9
 Special Notes to bills of quantities.....9

SECTION IV - SPECIFICATIONS..... 63

SECTION V - DRAWINGS92

SECTION VI - CONTRACT FORMS93

SECTION I

TENDER EVALUATION CRITERIA

TENDER EVALUATION CRITERIA

After tender opening, the tenders will be evaluated in **2 stages**, namely:

1. Preliminary Evaluation;
2. Technical Evaluation.

STAGE 1: PRELIMINARY EVALUATION

This stage of evaluation shall involve examination of the mandatory requirements as set out in the Tender Advertisement Notice or Letter of Invitation to Tender and any other conditions stated in the bid document.

These conditions shall include the following:

ITEM	MANDATORY REQUIREMENTS (MR)	SUBMITTED (YES/NO)
MR 1	Valid Copy of company certificate of incorporation/ Registration issued by the Registrar of companies	
MR 2	Current National Construction Authority (NCA) Registration Certificate; NCA 2 and above in i) Electrical installation Works ii) Structured Cabling installation Works	
MR 3	Current annual contractors practicing license from NCA for works listed in item MR 2 above.	
MR 4	Provide Current License for Energy & Petroleum Regulatory Authority (EPRA) in class A1 in Electrical Installation Works	
MR 5	Current registration License with Energy and Petroleum Regulatory Authority (EPRA) in class T3 in Solar Installation Works	
MR 6	Copy of valid compliance certificate from Communication Authority of Kenya (CA)	
MR 7	Copy of current license from Communication Authority of Kenya (CA)	
MR 8	Domestic sub-contractors must sign and stamp the summary page of their respective specialist works on the tender document.	
MR 9	Signed agreement between the bidder and their builder's works contractors	
MR 10	The bid has been submitted in the format required by the procuring entity with all the sections of the bid as issued by the procuring entity. <i>(The tender must be downloaded as issued without altering the format with all pages of the tender documents submitted chronologically serialized)</i>	
MR 11	Valid tax compliance certificate	

ITEM	MANDATORY REQUIREMENTS (MR)	SUBMITTED (YES/NO)
MR 12	Bidders to provide manufacturer's authorization letter for the data switches and active components they propose to supply.	
MR 13	Duly filled and signed Technical Schedule of items to be supplied	
MR 14	Power of attorney/ Authorization Letter duly signed (should be signed by directors appearing in CR12/13) , giving the name of person who has been authorized to submit/execute this agreement as a binding document and this person should sign all the documents related to this tender.	

N/B Full compliance by the tenderers shall be required to proceed to the next stage of evaluation. Failure to provide any of the listed requirements shall lead to disqualification.

TECHNICAL EVALUATION

The technical evaluation will involve examination of specifications on the product brochure against the technical specifications spelt out in the tender document to confirm conformity.

The evaluation will be on a YES/NO basis.

Item	Description	YES/NO
1.	Compliance with Technical Specifications 1) <i>Tender Evaluation Committee to evaluate compliance to all technical specifications as detailed in the Particular Specifications Section of this document</i> 2) <i>Bidders who do not highlight catalogue number and model of the proposed items shall be considered non-compliant.</i> 3) <i>Non-compliance to any of the specifications shall render the whole bid non-compliant</i>	
2.	Qualification and Experience of Key Personnel	
	Academic Qualification and Experience (Provide evidence) a) Director of the firm <ul style="list-style-type: none"> Holder of at least a degree/diploma/certificate with 10 years' experience in Electrical/Telecommunication, information technology or any other relevant Engineering field 	
	b) Project Manager <ul style="list-style-type: none"> Holder of at least a degree/diploma/certificate with 5 years' experience in Electrical/Telecommunication, information technology or any other relevant Engineering field 	

Item	Description	YES/NO
	c) At least 3 No artisans <ul style="list-style-type: none"> Holder of at least a certificate with 3 years' experience in Electrical/Telecommunication, information technology or any other relevant Engineering field 	
3.	Experience of the firm in similar services: Electrical installation works a) Provide Three (3No.) projects of similar nature, complexity or magnitude) between the Period 2015 – 2021: (Provide evidence) Attach LPOs/ contracts	
4.	Adequacy of tools and equipment The tenderer <u>must</u> show proof of ownership or leasing of the following equipment: - a) Relevant Transport <ul style="list-style-type: none"> Pickup b) Relevant Equipment (at least 3No.) <ul style="list-style-type: none"> Fluke tester Digital Earth Loop Tester Insulation Continuity Tester Digital Earth Resistance Tester Multimeter and Clamp Meter Electrician 's Tool Kit 	
5.	Litigation History The tenderer MUST fill the forms listed below in the format provided. 1. Form Con-2: Historical contract Non-performance, pending litigation and Litigation history	
	QUALIFIED YES / NO	

N/B Full compliance by the tenderers shall be required. Failure to provide any of the listed requirements shall lead to disqualification.

The employer may seek further clarification/ confirmation if necessary; to confirm authenticity/ compliance to any condition of the tender.

SECTION II - TENDERING FORMS

FORM CON – 2

Historical Contract Non-Performance, Pending Litigation and Litigation History

Tenderer's Name: _____ Date: _____

JV Member's Name _____ ITT No. And Title _____

Non-Performed Contracts			
Contract (s) non-performance did not occur since 1 st January 2020			
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] Name of Procuring Entity: [insert street/city/country] Reason(s) for non-performance: [indicate main reasons]	[insert amount]
Pending Litigation			
No Pending Litigation			
Year of dispute	Amount in dispute (currency)	Contract Identification	Total Contract Amount (currency), Kenya Shilling Equivalent (exchange rate)
[insert year]	[insert percentage]	Contract Identification: _____ Name of Procuring Entity: _____ Address of Procuring Entity: _____ Matter in dispute: _____ Party who initiated the dispute: _____ Status of Dispute: _____	[insert year]
[insert year]	[insert percentage]	Contract Identification: _____ Name of Procuring Entity: _____ Address of Procuring Entity: _____ Matter in dispute: _____ Party who initiated the dispute: _____ Status of Dispute: _____	[insert year]

Litigation			
No Litigation			
Year of award	Outcome as percentage of Net Worth	Contract Identification	Total Contract Amount (currency), Kenya Shilling Equivalent (exchange rate)
[insert year]	[insert 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] Matter in dispute: [indicate main issues in dispute] Party who initiated the dispute: [indicate "Procuring Entity" or "Contractor"] Reason(s) for Litigation and Award Decision: [indicate main reasons]	[insert amount]

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.

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)

(Date)

(Signature)

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.....

SECTION III - BILLS OF QUANTITIES

SPECIAL NOTES TO BILLS OF QUANTITIES

1. The Bills of Quantities form part of the contract documents and are to be read in conjunction with the contract drawings and general specifications of materials and works.
2. The prices quoted shall be deemed to include for all obligations under the contract including but not limited to supply of materials, labour, delivery to site, storage on site, installation, testing, commissioning and all taxes including 16% V.A.T
3. All prices omitted from any item, section or part of the Bills of Quantities shall be deemed to have been included to another item, section or part.
4. The brief descriptions of the items given in the Bills of Quantities are for the purpose of establishing a standard to which the contractor shall adhere to. Otherwise alternative brands of **equal** and **approved** quality will be accepted.

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

5. The grand total of prices in the price summary page must be carried forward to the **Grand Summary Page** in the main works tender document.
6. Tenderers must enclose, together with their submitted tenders, manufacturer's brochures detailing technical literature and specifications on all materials/equipment they intend to offer.

PROPOSED MAASAI MARA UNIVERSITY LIBRARY - ELECTRICAL INSTALLATION WORKS

BILL No. 1: PRELIMINARY ITEMS

Item	Description	Unit	Qty	Rate Kshs	Cost Kshs
1	<p>Conditions of sub-contract Agreement</p> <p>The sub-contractor shall be required to enter into a Sub-contract with the main contractor.</p>				
2	<p>Payment clause</p> <p>Payment will be made through certificates to the Main Contractor, unless he specifically agrees to forego this right, in which case direct payment can be made to the Sub-contractor. All payments will be less retention as specified in the Main Contract. No payment will become due until materials are delivered to site.</p>				
3	<p>Duration of Sub-Contract</p> <p>The sub-contractor shall be required to phase his work in accordance with the main contractor's programme (or its revision). The programme is to be agreed with the main contractor.</p>				
4	<p>Firm – price sub-contract</p> <p>Unless specifically stated in the documents or the invitation to tender, this is a firm-price contract and the sub-contractor must allow in his tender for the increase in the cost of labour and/or materials during the duration of the contract.</p>				
5	<p>Variations</p> <p>No alteration to the sub-contract works shall be carried out by the sub-contractor without proper approvals</p>				
6	<p>Import Duty and Value Added Tax</p> <p>The sub-contractor will be required to pay full Import Duty and Value Added Tax on all items of equipment, fittings and plant, whether imported or locally manufactured. The tenderer shall make full allowance in his tender for all such taxes</p>				
7	<p>Insurance Company Fees</p> <p>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.</p>				
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
8	<p>Samples and Materials</p> <p>Allow for provision of any samples of all materials to be incorporated in the works as might be required before implementation. Such samples, when approved, shall be well mounted on the sample board on site and shall form the standard for all such materials incorporated.</p>				
9	<p>Bills of Quantities</p> <p>All the Quantities are based on the contract drawings and are provisional and they shall not be held to gauge or to limit the amount or description of the work to be executed by the sub-contractor but the value thereof shall be deducted from the sub-contract sum and the value of the work ordered by the Engineer and executed there under shall be measured and valued by the Engineer.</p>				
10	<p>Position of Services, Plant, Equipment, Fittings and Apparatus</p> <p>The Contract Drawings give a general indication of the intended layout. The position of the equipment and apparatus, and also the exact routes of the ducts, main and distribution pipework shall be confirmed before installation is commenced. The exact siting of appliances, pipework, etc., may vary from that indicated.</p> <p>The routes of services and positions of apparatus shall be determined by the approved dimensions detailed in the working drawings or on site by the Engineer in consultation with the Sub-contractor or the main contractor.</p>				
11	<p>Checking of Work</p> <p>The Sub-contractor shall satisfy himself to the correctness of the connections he makes to all items of equipment supplied under the Sub-contract agreement and equipment supplied under other contracts before it is put into operation. Details of operation, working pressures, temperatures, voltages, phases, power rating, etc., shall be confirmed to others and confirmation received before the system is first operated.</p>				
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
12	<p>Identification of Plant Components</p> <p>The sub-contractor shall supply and fix identification labels to all plant, starters, switches and items of control equipment including valves, with white traffolyte or equal labels engraved in red lettering denoting its name, function and section controlled. The labels shall be mounted on equipment and in the most convenient positions. Care shall be taken to ensure the labels can be read without difficulty. This requirement shall apply also to major components of items of control equipment. Details of the lettering of the labels and the method of mounting or supporting shall be forwarded to the Engineer for approval prior to manufacture.</p>				
13	<p>Contact Drawings</p> <p>The contract drawings when read in conjunction with the text of the specification, have been completed in such detail as was considered necessary to enable competitive tenders to be obtained for the execution and completion of the sub-contract works. The contract drawings are not intended to be working drawings and shall not be used unless exceptionally they are released for this purpose.</p>				
14	<p>Working drawings</p> <p>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.</p>				
15	<p>Record Drawings 'As Installed' drawings</p> <p>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.</p>				
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
16	Maintenance manual Upon practical completion of the sub-contract works, the sub-contractor shall furnish the Engineer four copies of a maintenance manual relating to the installation forming part of all of the Sub-contract works.				
17	Hand over The sub-contract works shall be considered complete 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. The handing over of the sub-contract works shall be coincident with the handing over of the main contract works.				
18	Testing and Inspection – Manufactured Plant The Engineer reserves the right to inspect and test or witness of all manufactured plant equipment and materials.				
19	Testing and Inspection –Installation Allow for testing each section of the sub-contract works installation as described hereinafter to the satisfaction of the Engineer.				
20	Storage of materials Space for storage will be provided by the main contractor but the sub-contractor will be responsible for provision of any lock-up sheds or stores required.				
21	Initial Maintenance The sub-contractor shall make routine maintenance once a month during the liability for the Defects Period and shall carry out all necessary adjustments and repairs, cleaning and oiling of moving parts. A monthly report of the inspection and any works done shall be supplied to the Engineer.				
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
22	Local and other Authorities notices and fees The contractor shall comply with and give all notices required by any Regulations, Act or by Law of any Local Authority or of any Public Service, Company or Authority who have any jurisdiction with regard to the works or with those systems the same are or will be connected and he shall pay and indemnify the Government against any fees or charges legally demandable under any regulation or by-law in respect of the works; provided that the said fees and charges if not expressly included in the contract sum or stated by way of provisional sum shall be added to the contract sum.				
23	Supervision by Engineer and Site Meetings A competent project Engineer appointed by the CE (E) as his representative shall supervise the contract works. The project Engineer shall be responsible for issuing all the site instructions in any variations to the works and these shall be delivered through the contractor with the authority of the project manager. Any instructions given verbal shall be confirmed in writing.	Item	1	400,000	
24	Mobilization and Demobilization The contractor shall mobilize labour plant and equipment to site according to his programme and schedule of work. He shall ensure optimum presence and utilization of labour, plant and equipment. He should not pay and maintain unnecessary labour force or maintain and service idle plant and equipment. Where necessary he shall demobilize and mobilize the labour, plant and equipment, as he deems fit to ensure optimum progress of the works and this shall be considered to be a continuous process as works progress. He shall make provision for this item in his tender. No claim will be entertained where the contractor has not made any provision for mobilization and demobilization of labour, plant and equipment in the preliminary bills of quantities or elsewhere in this tender.				
	Total for BILL No. 1- Preliminaries:- carried forward to Price Collection Page				

BILL NO. 2: ELECTRICAL INSTALLATION WORKS - MAASAI MARA LIBRARY**Schedule 1: Lower ground floor**

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Supply, install, test and commission the following items: <u>LIGHTING INSTALLATION</u>				
1	Lighting points wired in 3 x 1.5mm ² PVC/SC CU cables drawn in 20mm-Ø concealed HG PVC conduits complete with all necessary accessories but excluding switches for:-				
	a) One way switching	No.	30		
	b) Two way switching.	No.	121		
	b) Intermediate switching.	No.	13		
2	10A, moulded ivory white switch plates as MK Range or approved equivalent as follows:-				
	a) 1 gang - 2 way	No.	28		
	b) 2 gang - 2 way.	No.	10		
	c) One gang Intermediate	No	4		
	<u>LIGHTING FITTINGS</u>				
3	Lighting fittings complete with lamps of appropriate wattage and colour rendering and fixing materials as follows:-				
	a) Ultra efficient 1200mm, 20w,6500k,50,000hrs lamp life LED luminaire suitable for surface mounting as PHILIPS or approved equivalent	No.	12		
	b) 600x600mm recessed LED luminaire designed for use in lay-in ceiling grids as PHILIPS or approved equivalent	No.	122		
	c) 600x600mm recessed LED luminaire designed for use in lay-in ceiling grids as PHILIPS or approved equivalent but emergency conversion	No.	14		
	d)18w,100mm diameter low voltage LED downlight with warm output light suitable for recessed installtion in standard or approved equivalent	No.	13		
	e)18w,100mm diameter low voltage LED downlight with warm output light suitable for recessed installtion in standard or approved equivalent but emergency conversion	No.	3		
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
	<u>POWER POINTS</u>				
4	Raw power socket outlet power points comprising wiring in 3 x 2.5 mm ² PVC/SC CU cables drawn in 25mmØ concealed HG PVC conduits/trunking including all conduit accessories but excluding plates:- a) twin outlet	No.	80		
5	13A switched socket outlet mounted on trunking and conduits as MK or approved euivalent:- a) Twin switched	No.	80		
	<u>TELEPHONE & DATA POINTS</u>				
6	Data/Telephone outlet point done in 25mm diameter HG PVC conduits concealed in building fabric/trunking complete with all necessary accessories a) Plastic moulded case dual data/telephone outlet plate as Crabtree or approved equivalent.	No.	76		
	<u>CCTV & ACCESS CONTROL POINTS</u>				
7	Access control points done in 25mm diameter HG PVC conduits concealed in building fabric complete with draw wire.(wiring to be done by others)	No.	4		
8	CCTV outlet point done in 25mm diameter HG PVC conduits concealed in building fabric complete with draw wire.(wiring to be done by others)	No.	8		
	<u>DUCTING</u>				
9	Supply and install a heavy gauge PVC conduiting of size 3x50mm diameter from the electrical service duct to the DBs and data/voice reticulation.	M	80		
10	Supply and install an adaptable box 400x400mm for the DBs located using 38mm diameter heavy gauge PVC conduits.	No	4		
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
	Supply, install, test and commission the following items: <u>INTERNAL POWER DISTRIBUTION</u> 11 Supply, install, test and commission consumer units/power distribution boards as that manufactured by Merlin GERIN or equal and approved equivalent as described below:- a) 100A, 8 Way TPN+E 12 SP/TP MCBs for DB above as follows: a) 10A SP MCB b) 20A SP MCB c) 45A SP MCB d) SP/TP blanking plates <u>SUB-MAIN CABLES</u> 13 16mm ² 4-C PVC/SWA/PVC copper cable c/w appropriate cable lugs: basement floor DB i) Cable glands for above cable <u>FIRE DETECTION AND ALARM SYSTEM</u> 14 <i>Supply, deliver, install and commission a complete Fire Detection and Alarm system, addressable type and in accordance with BS 5839 :2017</i> i) Outlet for fire Alarm panel, fire alarm manual call point/smoke/heat detector comprising box, concealed 20mm HG PVC conduit, wiring in 3 x 2.5mm ² "firetuff" cables and all accessories. ii) Addressable Manual Fire break glass call point unit as MENVIER or approved equivalent complete with a packet of 5 spare glasses, a packet of 5 spare test keys, a spare back box and a hinged cover to be installed recessed in building fabric.	No. No. No. No. M No. No. No.	2 8 20 1 20 60 8 32 4		
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
	Supply, install, test and commission the following items: FIRE DETECTION AND ALARM SYSTEM CONTD'..... iii) Addressable Photometric Smoke Detector as Menvier MENVIER or equal and approved. iv) Addressable Electronic Fire Alarm Sounder complete with Red Flashing Beacon Light as MENVIER or approved equivalent. v) Supply and install fire exit point done using fire resistant 2x1.5mm ² PVC cables drawn in 20mm diameter PVC heavy gauge conduits vi) Supply and install 300mm 8w emergency lighting luminaire with 3hrs duration as MENVIER or approved equivalent. vii) Supply and install an addressable four zone repeater fire alarm panel flush mounted on wall with 72 hour standby battery, complete with all accessories and as Menvier or approved equivalent.	No.	24		
		No.	3		
		No.	6		
		No.	6		
		No.	1		
	Sub-total for lower ground floor level carried forward to Price Collection Page				

Schedule 2: Ground Floor

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Supply, install, test and commission the following items:				
	<u>LIGHTING INSTALLATION</u>				
1	Lighting points wired in 3 x 1.5mm ² PVC/SC CU cables drawn in 20mm-Ø concealed HG PVC conduits complete with all necessary accessories but excluding switches for:-				
	a) One way switching	No.	20		
	b) Two way switching.	No.	149		
	c) Intermediate switching.	No.	15		
2	10A, moulded ivory white switch plates as MK Range or approved equivalent as follows:-				
	a) 1 gang - 2 way	No.	18		
	b) 2 gang - 2 way.	No.	5		
	c) One gang Intermediate	No.	2		
	d) Twelve gang grid switch complete with switches	No.	4		
	<u>LIGHTING FITTINGS</u>				
3	Lighting fittings complete with lamps of appropriate wattage and colour rendering and fixing materials as follows:-				
	a) Ultra efficient 1200mm, 20w,6500k,50,000hrs lamp life LED luminaire suitable for surface mounting as PHILIPS or approved equivalent	No.	1		
	b) 600x600mm recessed LED luminaire designed for use in lay-in ceiling grids as PHILIPS or approved equivalent	No.	110		
	c) 600x600mm recessed LED luminaire designed for use in lay-in ceiling grids as PHILIPS or approved equivalent but emergency conversion	No.	14		
	d) Surface mounted circular 24w,500lm output, 4000k, LED downlight, warm white body and polycarbonate diffuser, IP 44 as PHILIPS or approved equivalent	No.	2		
	e) Standard circular IP 65 LED fitting for surface mounting with polycarbonate body and white trim polycarbonate and opal diffuser and integral control gear for 16w 2D lamps with tough exterior, moist and dust proof as PHILIPS or approved equivalent	No.	11		
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
	f) Aluminium Bulkhead with moulded glass cover for LED lamps, IP65 protection as Thorn DB Bulkhead or an approved equivalent.	No.	24		
	g) 18w,100mm diameter low voltage LED downlight with warm output light suitable for recessed installation in standard or approved equivalent	No.	15		
	h) 600mm,8w, 4000k LED mirror tube, 50,000hrs lamp life with pull chord as PHILIPS or approved equivalent	No.	8		
	<u>POWER POINTS</u>				
4	Raw power socket outlet power points comprising wiring in 3 x 2.5 mm ² PVC/SC CU cables drawn in 25mmØ concealed HG PVC conduits/trunking including all conduit accessories but excluding plates:-				
	a) twin outlet	No.	100		
5	13Aswitched socket outlet mounted on trunking and conduits as MK or approved equivalent:-				
	a) Twin switched	No.	100		
6	Hand Driers - Power points comprising wiring in 3 x 4mm ² PVC/SC/CU cables drawn in 25mm-Ø concealed HG PVC conduits	M	60		
	a) 20A DP control switch marked 'As per application' with neon light and cord outlet for above item as	No.	4		
7	Air conditioning - Points comprising wiring in 3 x 4mm ² PVC/SC/CU cables drawn in 25mm-Ø concealed HG PVC conduits	M	100		
	a) 20A DP control switch marked 'As per application' with neon light and cord outlet for above item as Crabtree or approved equivalent	No.	6		
8	Extract fan - Extract fans Power points comprising wiring in 3 x 4mm ² PVC/SC/CU cables drawn in 25mm-Ø concealed HG PVC conduits	M	120		
	a) 20A Fused, single switched socket complete with top plug and all other necessary accessories as Crabtree or approved equivalent	No.	2		
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
	TELEPHONE & DATA POINTS				
9	Data/Telephone outlet point done in 25mm diameter HG PVC conduits concealed in building fabric/trunking complete with all necessary accessories	No.	96		
	a) Plastic moulded case dual data/telephone outlet plate as Crabtree or approved equivalent.	No.	96		
	TELEVISION, CCTV & ACCESS CONTROL POINTS				
10	Access control points done in 25mm diameter HG PVC conduits concealed in building fabric complete with draw wire.(wiring to be done by others)	No.	2		
11	CCTV outlet point done in 25mm diameter HG PVC conduits concealed in building fabric complete with draw wire.(wiring to be done by others)	No.	16		
12	TV outlet point wired in 75 Ohms Screened Coaxial TV cables drawn in concealed 20mm diameter HG/PVC conduits and linked to the outside through the roof space (to the amplifier) via telephone draw in boxes.	No.	5		
13	Supply and install disabled toilet emergency system (disabled person alarm kit) complete with buzzer and the indicator lamp	Item	2		
	<u>TRUNCKING AND DUCTING</u>				
14	Supply and install a heavy gauge PVC conduiting of size 3x50mm diameter from the electrical service duct to the DBs and data/voice reticulation.	M	80		
15	Supply and install an adaptable box 400x400mm for the DBs located using 38mm diameter heavy gauge PVC conduits.	No	4		
16	Supply and install rectangular skirting trunking Type B of dimensions 200X50mm 3 compartment along all walls as indicated in drawing number drg. Trunking to be powder coated and white in colour	M	60		
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
	Supply, install, test and commission the following items:				
17	Supply and install factory manufactured corner rectangular skirting trunking Type B of dimensions 200x50mm three compartment along all walls. Trunking to be powder coated and white in colour with all accessories				
	a) Inside Corner Bends	No.	10		
	b) Outside Corner Bends	No.	10		
	c) End Cover	No.	10		
18	Supply and install single mounting plates for mounting data and TV outlet plate on the trunking(200mm x 50 mm)	No	50		
	<u>INTERNAL POWER DISTRIBUTION</u>				
19	Supply, install, test and commission consumer units/power distribution boards as that manufactured by Merlin GERIN or equal and approved equivalent as described below:-				
	a) 100A, 8 Way TPN+E	No.	2		
20	SP/TP MCBs for DB above as follows:				
	a) 10A SP MCB	No.	10		
	b) 20A SP MCB	No.	12		
	c) 30A SP MCB	No.	2		
	d) SP blanking plates	No.	24		
	<u>SUB-MAIN CABLES</u>				
21	16mm ² 4-C PVC/SWA/PVC copper cable c/w appropriate cable lugs: ground floor DBs	M	70		
	i) Cable glands for above cable	No.	8		
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
22	<p>Supply, install, test and commission the following items:</p> <p><u>FIRE DETECTION AND ALARM SYSTEM</u></p> <p><i>Supply, deliver, install and commission a complete Fire Detection and Alarm system, addressable type and in accordance with BS 5839 :2017</i></p> <p>i) Outlet for fire Alarm panel, fire alarm manual call point/smoke/heat detector comprising box, concealed 20mm HG PVC conduit, wiring in 3 x 2.5mm² "firetuff" cables and all accessories.</p> <p>ii) Addressable Manual Fire break glass call point unit as MENVIER or approved equivalent complete with a packet of 5 spare glasses, a packet of 5 spare test keys, a spare back box and a hinged cover to be installed recessed in building fabric.</p> <p>iii) Addressable Rate of Heat Rise Detector as Menvier MENVIER or equal and approved.</p> <p>iv) Addressable Electronic Fire Alarm Sounder complete with Red Flashing Beacon Light as MENVIER or approved equivalent.</p> <p>v) Addressable Photometric Smoke Detector as Menvier MENVIER or equal and approved.</p> <p>vi) Supply and install fire exit point done using fire resistant 2x1.5mm² PVC cables drawn in 20mm diameter PVC heavy gauge conduits</p> <p>vii) Supply and install 300mm 8w emergency lighting luminaire with 3hrs duration as MENVIER or approved equivalent.</p> <p>viii) 2 - Loop zone addressable fire alarm control panel complete with 72hrs autonomous time emergency batteries as Menvier or equal and approved equivalent.</p> <p><u>SMATV INSTALLATION WORKS</u></p> <p>Supply and install master aerial TV wiring for eight outlets using coaxial cable. Wiring to include installation of one UHF and one VHF aerial to be located outside the building</p>	No.	65		
		No.	6		
		No.	2		
		No.	3		
		No.	45		
		No.	8		
		No.	8		
		No.	1		
23	<p><u>SMATV INSTALLATION WORKS</u></p> <p>Supply and install master aerial TV wiring for eight outlets using coaxial cable. Wiring to include installation of one UHF and one VHF aerial to be located outside the building</p>	No.	1		
	Sub-total for ground floor carried forward to Price Collection page				

Schedule 3: First Floor

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Supply, install, test and commission the following items:				
	<u>LIGHTING INSTALLATION</u>				
1	Lighting points wired in 3 x 1.5mm ² PVC/SC CU cables drawn in 20mm-Ø concealed HG PVC conduits complete with all necessary accessories but excluding switches for:-				
	a) One way switching	No.	30		
	b) Two way switching.	No.	143		
	c) Intermediate switching.	No.	15		
2	10A, moulded ivory white switch plates as MK Range or approved equivalent as follows:-				
	a) 1 gang - 2 way	No.	30		
	b) 2 gang - 2 way.	No.	10		
	c) One gang Intermediate	No	5		
	<u>LIGHTING FITTINGS</u>				
3	Lighting fittings complete with lamps of appropriate wattage and colour rendering and fixing materials as follows:-				
	a) Ultra efficient 1200mm, 20w, 6500k, 50,000hrs lamp life LED luminaire suitable for surface mounting as PHILIPS or approved equivalent	No.	1		
	b) 600x600mm recessed LED luminaire designed for use in lay-in ceiling grids as PHILIPS or approved equivalent	No.	138		
	c) 600x600mm recessed LED luminaire designed for use in lay-in ceiling grids as PHILIPS or approved equivalent but emergency conversion	No.	16		
	d) Standard circular IP 65 LED fitting for surface mounting with polycarbonate body and white trim polycarbonate and opal diffuser and integral control gear for 16w 2D lamps with tough exterior, moist and dust proof as PHILIPS or approved equivalent	No.	11		
	e) 600mm, 8w, 4000k LED mirror tube, 50,000hrs lamp life with pull chord as PHILIPS or approved equivalent	No.	7		
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
	f) 18w,100mm diameter low voltage LED downlight with warm output light suitable for recessed installation in standard or approved equivalent	No.	15		
	<u>POWER POINTS</u>				
4	Raw power socket outlet power points comprising wiring in 3 x 2.5 mm ² PVC/SC CU cables drawn in 25mmØ concealed HG PVC conduits/trunking including all conduit accessories but excluding plates:-				
	a) twin outlet	No.	66		
5	13A switched socket outlet mounted on trunking and conduits as MK or approved equivalent:-				
	a) Twin switched	No.	66		
6	Hand Driers - Power points comprising wiring in 3 x 4mm ² PVC/SC/CU cables drawn in 25mm-Ø concealed HG PVC conduits	M	60		
	a) 20A DP control switch marked 'As per application' with neon light and cord outlet for above item as Crabtree or approved equivalent	No.	4		
7	Air conditioning - Points comprising wiring in 3 x 4mm ² PVC/SC/CU cables drawn in 25mm-Ø concealed HG PVC conduits	M	100		
	a) 20A DP control switch marked 'As per application' with neon light and cord outlet for above item as Crabtree or approved equivalent	No.	3		
8	Cooker Power Point (1-Φ) :-Cooker point completely wired in 3 x 6.0 mm ² PVC insulated single core copper cables drawn in concealed 25 mm diameter heavy gauge PVC conduits and including all necessary accessories but excluding cooker control and connection unit	No.	1		
	a) 45A DP cooker control unit with pilot light and an auxiliary 13A socket outlet as Crabtree or approved equivalent	No.	1		
	b) Cooker connection unit as Crabtree or approved equivalent	No	1		
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
	Supply, install, test and commission the following items:				
9	Extract fan - Extract fans Power points comprising wiring in 3 x 4mm ² PVC/SC/CU cables drawn in 25mm-Ø concealed HG PVC conduits	M	90		
	a) 20A Fused, single swithed socket complete with top plug and all othe necessary accessories as Crabtree or approved equivalent	No.	2		
	<u>TELEPHONE & DATA POINTS</u>				
10	Data/Telephone outlet point done in 20mm diameter HG PVC conduits concealed in building fabric/trunking complete with all necessary accessories	No.	60		
	a) Plastic moulded case dual data/telephone outlet plate as Crabtree or approved equivalent.	No.	60		
	<u>TELEVISION, CCTV & ACCESS CONTROL POINTS</u>				
11	Access control points done in 25mm diameter HG PVC conduits concealed in building fabric complete with draw wire. (wiring to be done by others)	No.	2		
12	CCTV outlet point done in 25mm diameter HG PVC conduits concealed in building fabric complete with draw wire. (wiring to be done by others)	No.	8		
13	TELEVISION outlet point done in 25mm diameter HG PVC conduits concealed in building fabric complete with all necessary accessories (including the television white face plate)	No.	3		
14	Supply and install disabled toilet emergency system (disabled person alarm kit) complete with buzzer and the indicator lamp	Item	2		
	<u>TRUNKING AND DUCTING</u>				
15	Supply and install a heavy gauge PVC conduiting of size 3x50mm diameter from the electrical service duct to the DBs and data/voice reticulation.	M	120		
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
	Supply, install, test and commission the following items:				
16	Supply and install an adaptable box 400x400mm for the DBs located using 38mm diameter heavy gauge PVC conduits.	No	4		
17	Supply and install rectangular skirting trunking Type B of dimensions 200X50mm 3 compartment along all walls as indicated in drawing number drg. Trunking to be powder coated and white in colour	M	180		
18	Supply and install factory manufactured corner rectangular skirting trunking Type B of dimensions 200x50mm three compartment along all walls. Trunking to be powder coated and white in colour with all accessories				
	a) Inside Corner Bends	26	No.		
	b) Outside Corner Bends	26	No.		
	c) End Cover	30	No.		
19	Supply and install single mounting plates for mounting data and TV outlet plate on the trunking(200mm x 50 mm)	50	No		
	<u>INTERNAL POWER DISTRIBUTION</u>				
20	Supply, install, test and commission consumer units/power distribution boards as that manufactured by Merlin GERIN or equal and approved equivalent as described below:-				
	a) 125A, 8 Way TPN+E	No.	2		
21	SP/TP MCBs for DB above as follows:				
	a) 10A SP MCB	No.	20		
	b) 20A SP MCB	No.	8		
	c) 30A SP MCB	No.	2		
	d) SP blanking plates	No.	3		
	<u>SUB-MAIN CABLES</u>				
22	16mm ² 4-C PVC/SWA/PVC copper cable c/w appropriate cable lugs: first floor DBs	M	80		
	i) Cable glands for above cable	No.	8		
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
23	<p><u>FIRE DETECTION AND ALARM SYSTEM</u></p> <p><i>Supply, deliver, install and commission a complete Fire Detection and Alarm system, addressable type and in accordance with BS 5839 :2017</i></p> <p>i) Outlet for fire Alarm panel, fire alarm manual call point/smoke/heat detector comprising box, concealed 20mm HG PVC conduit, wiring in 3 x 2.5mm² "firetuff" cables and all accessories.</p> <p>ii) Addressable Manual Fire break glass call point unit as MENVIER or approved equivalent complete with a packet of 5 spare glasses, a packet of 5 spare test keys, a spare back box and a hinged cover to be installed recessed in building fabric.</p> <p>iii) Addressable Rate of Heat Rise Detector as Menvier MENVIER or equal and approved.</p> <p>iv) Addressable Electronic Fire Alarm Sounder complete with Red Flashing Beacon Light as MENVIER or approved equivalent.</p> <p>v) Addressable Photometric Smoke Detector as Menvier MENVIER or equal and approved.</p> <p>vi) Supply and install fire exit point done using fire resistant 2x1.5mm² PVC cables drawn in 20mm diameter PVC heavy gauge conduits</p> <p>vii) Supply and install 300mm 8w emergency lighting luminaire with 3hrs duration as MENVIER or approved equivalent.</p> <p>viii) Supply and install an addressable four zone repeater fire alarm panel flush mounted on wall with 72 hour standby battery, complete with all accessories and as Menvier or approved equivalent.</p>	No.	48		
		No.	3		
		No.	1		
		No.	2		
		No.	36		
		No.	5		
		No.	5		
		No.	1		
	Sub-total for first floor carried forward to Price Collection page				

Schedule 4: Second Floor

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Supply, install, test and commission the following items:				
	<u>LIGHTING INSTALLATION</u>				
1	Lighting points wired in 3 x 1.5mm ² PVC/SC CU cables drawn in 20mm-Ø concealed HG PVC conduits complete with all necessary accessories but excluding switches for:-				
	a) One way switching	No.	23		
	b) Two way switching.	No.	140		
	c) Intermediate switching.	No.	15		
2	10A, moulded ivory white switch plates as MK Range or approved equivalent as follows:-				
	a) 1 gang - 2 way	No.	16		
	b) 2 gang - 2 way.	No.	8		
	c) 1 gang Intermediate	No.	2		
	d) 2 gang Intermediate	No.	1		
	<u>LIGHTING FITTINGS</u>				
3	Lighting fittings complete with lamps of appropriate wattage and colour rendering and fixing materials as follows:-				
	a) 600x600mm recessed LED luminaire designed for use in lay-in ceiling grids as PHILIPS or approved equivalent	No.	122		
	b) 600x600mm recessed LED luminaire designed for use in lay-in ceiling grids as PHILIPS or approved equivalent but emergency conversion	No.	14		
	c) Standard circular IP 65 LED fitting for surface mounting with polycarbonate body and white trim polycarbonate and opal diffuser and integral control gear for 16w 2D lamps with tough exterior, moist and dust proof as PHILIPS or approved equivalent	No.	11		
	d) Ultra efficient 1200mm, 20w,6500k,50,000hrs lamp life LED luminaire suitable for surface mounting as PHILIPS or approved equivalent	No.	8		
	e) 18w,100mm diameter low voltage LED downlight with warm output light suitable for recessed installation in standard or approved equivalent	No.	15		
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
	f) 600mm,8w, 4000k LED mirror tube, 50,000hrs lamp life with pull chord as PHILIPS or approved equivalent	No.	8		
	<u>POWER POINTS</u>				
4	Raw power socket outlet power points comprising wiring in 3 x 2.5 mm ² PVC/SC CU cables drawn in 25mmØ concealed HG PVC conduits/trunking including all conduit accessories but excluding plates:-				
	a) twin outlet	No.	50		
5	13A, moulded ivory white switched socket outlet plates as Crabtree or approved equivalent as follows:				
	i) Twin switched	No.	50		
6	Hand Driers - Power points comprising wiring in 3 x 4mm ² PVC/SC/CU cables drawn in 25mm-Ø concealed HG PVC conduits	M	60		
	a) 20A DP control switch marked 'As per application' with neon light and cord outlet for above item as Crabtree or approved equivalent	No.	4		
7	Cooker Power Point (1-Φ):- power point wired in 3x4.0 mm ² SC/PVC Cu. cables in concealed 25mm diameter HG/PVC conduits	No.	1		
	a) 20A DP control switch marked 'As per application' with neon light and cord outlet for above item as Crabtree or approved equivalent	No.	1		
8	Extract fan - Extract fans Power points comprising wiring in 3 x 4mm ² PVC/SC/CU cables drawn in 25mm-Ø concealed HG PVC conduits	No.	2		
	a) 20A Fused, single switched socket complete with top plug and all other necessary accessories as Crabtree or approved equivalent	No.	2		
9	Supply and install disabled toilet emergency system (disabled person alarm kit) complete with buzzer and the indicator lamp	Item	2		
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
	Supply, install, test and commission the following items:				
	TELEPHONE AND DATA POINTS				
10	Data/Telephone outlet point done in 25mm diameter HG PVC conduits concealed in building fabric complete with all necessary accessories	No.	44		
	a) Plastic moulded case dual data/telephone outlet plate as Crabtree or approved equivalent.	No.	44		
11	TELEVISION outlet point done in 25mm diameter HG PVC conduits concealed in building fabric/trunking complete with all necessary accessories (including the television white face plate)	No.	2		
12	Access control points done in 20mm diameter HG PVC conduits concealed in building fabric/trunking complete with all necessary accessories	No.	2		
	CCTV POINTS				
13	CCTV outlet point done in 20mm diameter HG PVC conduits concealed in building fabric complete with all necessary accessories	No.	8		
14	300mmx250mmx150mm, 18 SWG, powder coated, telephone draw box spray painted to approval	No	4		
	DUCTING				
15	Supply and install a heavy gauge PVC conduiting of size 3x50mm diameter from the electrical service duct to the DBs and data/voice reticulation.	M	90		
16	Supply and install an adaptable box 400x400mm for the DBs located using 38mm diameter heavy gauge PVC conduits.	No	3		
	INTERNAL POWER DISTRIBUTION				
17	Supply, install, test and commission consumer units/power distribution boards as that manufactured by Merlin GERIN or equal and approved equivalent as described below:-				
	a) 125A, 8 Way TPN	No.	2		
18	SP/TP MCBs for DB above as follows:				
	a) 10A SP MCB	No.	6		
	b) 20A SP MCB	No.	10		
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
	c) 30A SP MCB	No.	2		
	d) SP blanking plates	No.	6		
	SUB-MAIN CABLES				
19	16mm ² 4-C PVC/SWA/PVC copper cable c/w appropriate cable lugs: DB on second Floor	M	90		
	i) Cable glands for above cable	No.	8		
	FIRE DETECTION AND ALARM SYSTEM				
20	<i>Supply, deliver, install and commission a complete Fire Detection and Alarm system, addressable type and in accordance with BS 5839 :2017</i>				
	i) Outlet for fire alarm manual call point/smoke/heat detector comprising box, concealed 20mm HG PVC conduit, wiring in 3 x 2.5mm ² "firetuff" cables and all accessories.	No.	43		
	ii) Addressable Manual Fire break glass call point unit as MENVIER or approved equivalent complete with a packet of 5 spare glasses, a packet of 5 spare test keys, a spare back box and a hinged cover to be installed recessed in building fabric.	No.	5		
	iii) Addressable Electronic Fire Alarm Sounder complete with Red Flashing Beacon Light as MENVIER or approved equivalent.	No.	2		
	iv) Addressable Photometric Smoke Detector as Menvier MENVIER or equal and approved.	No.	30		
	v) Supply and install fire exit point done using fire resistant 2x1.5mm ² PVC cables drawn in 20mm diameter PVC heavy gauge conduits	No.	6		
	vi) Supply and install 300mm 8w emergency lighting luminaire with 3hrs duration as MENVIER or approved equivalent.	No.	6		
	viii) Supply and install an addressable four zone repeater fire alarm panel flush mounted on wall with 72 hour standby battery, complete with all accessories and as Menvier or approved equivalent.	No.	1		
	Sub-total for second floor carried forward to Price Collection page				

Schedule 5: Third Floor

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Supply, install, test and commission the following items: <u>LIGHTING INSTALLATION</u>				
1	Lighting points wired in 3 x 1.5mm ² PVC/SC CU cables drawn in 20mm-Ø concealed HG PVC conduits complete with all necessary accessories but excluding switches for:-				
	a) One way switching	No.	18		
	b) Two way switching	No.	167		
	c) Intermediate switching	No.	13		
2	10A, moulded ivory white switch plates as MK Range or approved equivalent as follows:-				
	a) 1 gang - 2 way	No.	13		
	b) 2 gang - 2 way.	No.	8		
	c) 1 gang Intermediate	No.	1		
	d) 2 gang Intermediate	No.	2		
	<u>LIGHTING FITTINGS</u>				
3	Lighting fittings complete with lamps of appropriate wattage and colour rendering and fixing materials as follows:-				
	a) 600x600mm recessed LED luminaire designed for use in lay-in ceiling grids as PHILIPS or approved equivalent	No.	133		
	b) 600x600mm recessed LED luminaire designed for use in lay-in ceiling grids as PHILIPS or approved equivalent but emergency conversion	No.	17		
	c) Ultra efficient 1200mm, 20w, 6500k, 50,000hrs lamp life LED luminaire suitable for surface mounting as PHILIPS or approved equivalent	No.	15		
	d) Standard circular IP 65 LED fitting for surface mounting with polycarbonate body and white trim polycarbonate and opal diffuser and integral control gear for 16w 2D lamps with tough exterior, moist and dust proof as PHILIPS or approved equivalent	No.	11		
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
	e) 18w,100mm diameter low voltage LED downlight with warm output light suitable for recessed installation in standard or approved equivalent	No.	14		
	f) 600mm,8w, 4000k LED mirror tube, 50,000hrs lamp life with pull chord as PHILIPS or approved equivalent	No.	8		
	<u>POWER POINTS</u>				
4	Raw power socket outlet power points comprising wiring in 3 x 2.5 mm ² PVC/SC CU cables drawn in 25mmØ concealed HG PVC conduits/trunking including all conduit accessories but excluding plates:-				
	a) twin outlet	No.	62		
5	13A, moulded ivory white switched socket outlet plates as Crabtree or approved equivalent as follows:				
	i) Twin switched	No.	62		
6	Hand Driers - Power points comprising wiring in 3 x 4mm ² PVC/SC/CU cables drawn in 25mm-Ø concealed HG PVC conduits	M	60		
	a) 20A DP control switch marked 'As per application' with neon light and cord outlet for above item as Crabtree or approved equivalent	No.	4		
7	Cooker Power Point (1-Φ):- power point wired in 3x6.0 mm ² SC/PVC Cu. cables in concealed 25mm diameter HG/PVC conduits	No.	1		
	a) 45A DP control switch marked 'As per application' with neon light and cord outlet for above item as Crabtree or approved equivalent	No.	1		
	b) Cooker connection unit as Crabtree or approved equivalent	No	2		
8	Extract fan - Extract fans Power points comprising wiring in 3 x 4mm ² PVC/SC/CU cables drawn in 25mm-Ø concealed HG PVC conduits	No.	2		
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
	Supply, install, test and commission the following items:				
	a) 20A Fused, single swithed socket complete with top plug and all othe necessary accessories as Crabtree or approved equivalent	No.	2		
9	Supply and install disabled toilet emergency system (disabled person alarm kit) complete with buzzer and the indicator lamp	Item	2		
	TELEPHONE AND DATA POINTS				
10	Data/Telephone outlet point done in 20mm diameter HG PVC conduits concealed in building fabric/trunking complete with all necessary accessories	No.	56		
	a) Plastic moulded case dual data/telephone outlet plate as Crabtree or approved equivalent.	No.	56		
	CCTV POINTS				
11	CCTV outlet point done in 20mm diameter HG PVC conduits concealed in building fabric/trunking complete with all necessary accessories	No.	7		
12	300mmx250mmx150mm, 18 SWG, powder coated, telephone draw box spray painted to approval	No	3		
	DUCTING				
13	Supply and install a heavy gauge PVC conduiting of size 3x50mm diameter from the electrical service duct to the DBs and data/voice reticulation.	M	90		
14	Supply and install an adaptable box 400x400mm for the DBs located using 38mm diameter heavy gauge PVC conduits.	No	3		
	INTERNAL POWER DISTRIBUTION				
15	Supply, install, test and commission consumer units/power distribution boards as that manufactured by Merlin GERIN or equal and approved equivalent as described below:-				
	a) 125A, 8 Way TPN	No.	2		
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
16	SP/TP MCBs for DB above as follows: a) 10A SP MCB b) 20A SP MCB c) 30A SP MCB d) SP blanking plates	No. No. No. No.	6 10 2 6		
	SUB-MAIN CABLES				
17	16mm ² 4-C PVC/SWA/PVC copper cable c/w appropriate cable lugs: DB on third Floor	M	100		
	i) Cable glands for above cable	No.	8		
	FIRE DETECTION AND ALARM SYSTEM				
18	<i>Supply, deliver, install and commission a complete Fire Detection and Alarm system, addressable type and in accordance with BS 5839 :2017</i>				
	i) Outlet for fire alarm manual call point/smoke/heat detector comprising box, concealed 20mm HG PVC conduit, wiring in 3 x 2.5mm ² "firetuff" cables and all accessories.	No.	30		
	ii) Addressable Manual Fire break glass call point unit as MENVIER or approved equivalent complete with a packet of 5 spare glasses, a packet of 5 spare test keys, a spare back box and a hinged cover to be installed recessed in building fabric.	No.	3		
	iii) Addressable Electronic Fire Alarm Sounder complete with Red Flashing Beacon Light as MENVIER or approved equivalent.	No.	2		
	iv) Addressable Photometric Smoke Detector as Menvier MENVIER or equal and approved.	No.	20		
	v) Supply and install fire exit point done using fire resistant 2x1.5mm ² PVC cables drawn in 20mm diameter PVC heavy gauge conduits	No.	5		
	vi) Supply and install 300mm 8w emergency lighting luminaire with 3hrs duration as MENVIER or approved equivalent.	No.	5		
	vii) Supply and install an addressable four zone repeater fire alarm panel flush mounted on wall with 72 hour standby battery, complete with all accessories and as Menvier or approved equivalent.	No.	1		
	Sub-total for third floor carried forward to Price Collection page				

Schedule 6: Fourth Floor

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Supply, install, test and commission the following items: <u>LIGHTING INSTALLATION</u>				
1	Lighting points wired in 3 x 1.5mm ² PVC/SC CU cables drawn in 20mm-Ø concealed HG PVC conduits complete with all necessary accessories but excluding switches for:-				
	a) One way switching	No.	14		
	b) Two way switching.	No.	54		
	c) Intermediate switching.	No.	14		
2	10A, moulded ivory white switch plates as MK Range or approved equivalent as follows:-				
	a) 1 gang - 2 way	No.	8		
	b) 2 gang - 2 way.	No.	4		
	c) Four gang grid switch	No	1		
	<u>LIGHTING FITTINGS</u>				
3	Lighting fittings complete with lamps of appropriate wattage and colour rendering and fixing materials as follows:-				
	a) 600x600mm recessed LED luminaire designed for use in lay-in ceiling grids as PHILIPS or approved equivalent	No.	49		
	b) 600x600mm recessed LED luminaire designed for use in lay-in ceiling grids as PHILIPS or approved equivalent but emergency conversion	No.	7		
	c) 18w,100mm diameter low voltage LED downlight with warm output light suitable for recessed installation in standard or approved equivalent	No.	16		
	d) Ultra efficient 1200mm, 20w,6500k,50,000hrs lamp life LED luminaire suitable for surface mounting as PHILIPS or approved equivalent	No.	10		
	<u>POWER POINTS</u>				
4	Raw power socket outlet power points comprising wiring in 3 x 2.5 mm ² PVC/SC CU cables drawn in 25mmØ concealed HG PVC conduits/trunking including all conduit accessories but excluding plates:-				
	a) twin outlet	No.	36		
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
5	13A, moulded ivory white switched socket outlet plates as Crabtree or approved equivalent as follows: i) Twin switched	No.	36		
6	Horse Reel Pump Power Point , wired in 3x 4.0sq mm PVC SC copper cables drawn in concealed 25mm Dia. HG PVC conduits complete with all accessories but excluding the D.P switch. a) 45A Fused, single switched socket complete with top plug and all othe necessary accessories as Crabtree or approved equivalent	No.	1		
		No.	1		
	TELEPHONE AND DATA POINTS				
7	Data/Telephone outlet point done in 20mm diameter HG PVC conduits concealed in building fabric/trunking complete with all necessary accessories a) Plastic moulded case dual data/telephone outlet plate as Crabtree or approved equivalent.	No.	30		
		No.	30		
	CCTV POINTS				
8	CCTV outlet point done in 20mm diameter HG PVC conduits concealed in building fabric/trunking complete with all necessary accessories	No.	5		
9	300mmx250mmx150mm, 18 SWG, powder coated, telephone draw box spray painted to approval	No	3		
	DUCTING				
10	Supply and install a heavy gauge PVC conduiting of size 3x50mm diameter from the electrical service duct to the DBs and data/voice reticulation.	M	60		
11	Supply and install an adaptable box 400x400mm for the DBs located using 38mm diameter heavy gauge PVC conduits.	No	3		
	INTERNAL POWER DISTRIBUTION				
12	Supply, install, test and commission consumer units/power distribution boards as that manufactured by Merlin GERIN or equal and approved equivalent as described below:- a) 100A, 8 Way TPN	No.	1		
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
13	SP/TP MCBs for DB above as follows: a) 10A SP MCB b) 20A SP MCB c) 30A SP MCB d) SP blanking plates SUB-MAIN CABLES	No. No. No. No.	6 10 2 6		
14	16mm ² 4-C PVC/SWA/PVC copper cable c/w appropriate cable lugs: DB on fourth Floor i) Cable glands for above cable	M No.	120 8		
	<u>FIRE DETECTION AND ALARM SYSTEM</u>				
15	<i>Supply, deliver, install and commission a complete Fire Detection and Alarm system, addressable type and in accordance with BS 5839 :2017</i> i) Outlet for fire alarm manual call point/smoke/heat detector comprising box, concealed 20mm HG PVC conduit, wiring in 3 x 2.5mm ² "firetuff" cables and all accessories. ii) Addressable Manual Fire break glass call point unit as MENVIER or approved equivalent complete with a packet of 5 spare glasses, a packet of 5 spare test keys, a spare back box and a hinged cover to be installed recessed in building fabric. iii) Addressable Electronic Fire Alarm Sounder complete with Red Flashing Beacon Light as MENVIER or approved equivalent. iv) Addressable Photometric Smoke Detector as Menvier MENVIER or equal and approved. v) Supply and install fire exit point done using fire resistant 2x1.5mm ² PVC cables drawn in 20mm diameter PVC heavy gauge conduits vi) Supply and install 300mm 8w emergency lighting luminaire with 3hrs duration as MENVIER or approved equivalent.	No. No. No. No. No.	24 2 2 12 4 4		
	Sub-total for fourth floor carried forward to Price Collection page				

Schedule 7: Power Supply

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
1	<p>MAIN LV BOARD</p> <p>Supply and install the main library sub board this being a self supporting switchboard constructed out of 16 SWG mild steel metal with powder coating with 1200Amps TPN split busbars. On it is to be mounted switchgear; 1000A TPN MCCB with current adjustable of 0.5I-1.0I and electronic trip unit, 1000A TPN busbar coupler with shunt trip, 1No. 630A TP MCCB with current adjustable of 0.5I-1.0I, 3No. 500A TP MCCB with current adjustable of 0.5I-1.0I, 1No. panel mounted 3Φ digital metering (Kwh, KVA, KW, P.F, Amps) equipment with logging capability, 5No. TPN spareways for future expansion and with all accessories as shown on the schematic layout and approved by the Engineer.</p> <p>a) Incoming</p> <p>i) 1No.1000A TPN MCCB with Shunt Trip as Merlin Gerin or approved equivalent.</p> <p>ii) Space for KPLC metering, fuses and a sealable C.T. chamber</p> <p>iii) 1No. Voltmeter 0-600V plus selector switch.</p> <p>iv) 1No. Ammeter plus selector switch with C.T.s (600/5)</p> <p>v) 3No. Phase indicating lights</p> <p>vi) 1No. Power factor meter</p> <p>vii) All power system parameters (KW, KVA, KWHr, KVARs, Frequency, P.F., harmonics etc.). The multimeter should be complete with selector switches for viewing/displaying the various parameters.</p> <p>Appropriately rated surge diverter</p> <p>b) Outgoing</p> <p>i) 5No. 150A TPN MCCB feeder to ground, first, second and third floors DBs as Merlin Gerin or approved equivalent.</p> <p>ii) 1No. 100A TPN MCCB feeder to fourth floor as Merlin Gerin or approved equivalent.</p>	Item	1		
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
	<p>iii) 1No. 63A TPN MCCB feeder to external lighting as Merlin Gerin or approved equivalent.</p> <p>iv) A suitably rated 415V three-phase surge diverter as Furse ESP 415, fully wired, complete with enclosure with viewing window.</p> <p>v) Space for 3No. TPN MCCBs</p> <p>vi) Space for 3No. SPN MCCBs</p> <p>c) Carry out comprehensive labeling of all the bus bars. CT chambers, circuit breakers etc. above, indicating the areas served, outgoing cable sizes etc.</p> <p>POWER DISTRIBUTION CABLES Supply, install, test and commission the following cables complete with cable glands and lugs where necessary.</p> <p>MAINS POWER CABLE</p> <p>2 120mm sq 4C/PVC/SWA/PVC UG copper cable from switchroom to the modern learningk centre low voltage sub board.</p> <p>a) Supply and install cable glands for items above</p> <p>3 Trenching at an average depth of 750 mm ducts laying, tilling (with HATARI tiles if required) and backfilling for the above cables to engineers approval.</p> <p>CENTRALISED VOLTAGE STABILIZER</p> <p>4 Supply, install, test and commission a 250kVA 415V, 50Hz Modular centralised voltage stabilise installed at the switchroom .</p> <p>5 POWER FACTOR CORRECTION Supply and install a 250 kVAR rated power factor correction capacitor bank to be installed on the main switch board complete with a 500 Amps TPN MCCB for connection to the main busbars .the plant is to have an electronic programmable controller with programming ports and capable of downloading data through an non isolated RS232 serial interface.</p>				
	Sub-total for power supply carried forward to Price Collection page				

SCHEDULE 8: LIGHTNING PROTECTION SYSTEM

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	AIR TERMINATION				
1	Supply and lay along the ridge cap 25mm x 3mm thick bare copper tape as Furse	M	300		
2	State Holdfast as Furse to fix the above tape to the roof ridge.	No.	300		
3	Air termination spike comprising the following. 2000mm by 15mm diameter copper rod as Furse Complete with: Copper multiple point as Furse and Copper ridge saddle as Furse	Item	10		
	DOWNWARD CONDUCTOR AND EARTHING				
4	Downward conductor comprising 25mm x 3mm thick bare copper tape as item 1	M	90		
5	Copper square tape clamp for making crossing tape joints as Furse	No.	20		
6	DC tape clips for fixing the down conductors to the wall as Furse	No.	90		
7	Copper Oblong test clamp as Furse	No.	7		
8	Steel conduits 32 mm diameter conduit.	M	50		
9	Saddles for the above item 5	No.	50		
10	Earth inspection concrete chamber 300mm x 300mm x 300mm with an air tight inspection cover to approval.	No.	7		
11	16 mm nominal diameter by 1500mm threaded copper bond earth rod as Furse driven to ground.	No.	7		
12	Driving stud for the above item as Furse	No.	7		
13	Earth electrode rod - to - downward conductor copper tape clamps as Furse	No.	7		
	Sub-total for Lightning Protection System c/f to Price Collection page				

Schedule 9: OUTSIDE LIGHTING

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Solar street light system comprising of the following:				
1	8M Single Arm Street Lighting Pole complete with ventilated lockable housing for 2No. Batteries, power control box, support mechanism, mounting brackets for 2No. PV solar panels and mounting brackets for the light fitting and arrangement of concealed junction box with 2No. 6A SP MCBs. The pole shall be located in the ground in a suitably compacted or concrete foundation suitable of withstanding wind gusts of 200 Km/hr. The column and the luminaire bracket shall be of galvanised mild steel.	No.	20		
2	2No. 100W, 12V Mono-Crystalline Silicon cells PV Modules with solar cell operating temperature from - 15°C to 85°C, efficiency of 14% minimum ,junction box to IP 65 and panel mounting structure flexible to tilt to any angle at site.	No.	20		
3	2No. 120AH Solar deep Cycle sealed/VRLA /AGM Battery, maintenance free rechargeable lead-lead dioxide technology batteries with provision for pressure release mechanism in the event of overcharge, permitted depth of discharge 50% back up of 36 hours and working life of 8years. The battery should come with a lockable battery enclosure with mounting brackets, protection powder coating of 60 micron thickness. The battery enclosure shall have an insulated lid or a double skin lid to minimise heat transfer to the battery.	No.	20		
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
4	An LED road and street lantern, designed for durability with intensive distribution. LED converter. Class I electrical, IP66, IK08. Body: die-cast aluminium, powder coated grey. Bracket: die-cast aluminium, unpainted. Enclosure: flat glass. Suitable for side mounting on Ø34-42mm spigot. Variable tilting in 5° steps, post top: 0° to +10°, lateral: -20° to 0°. Cable gland for Ø8 to 12mm cable. Delivered, ready to install, in a single carton. The lamp to have a light output of 4000K and 50,000 hours life at 25°C Total power: 60 W Lumen output: 90Lm/W	No.	20		
5	20A, 12V Solar Charge controller type MPPT (Micro processor based) with circuit efficiency of 92%. The no load current should be less than 10 MA and complete with IP65 enclosure.	No.	20		
6	Dusk to Dawn programmable timer switch control system with appropriate voltage and current rating for the Street Lamps offered and weather resistant/ moisture ingress protection to IP65.	No.	20		
7	2.5mm² twin with earth cable from MCB to luminaire	M	150		
8	25 sq.mm PVC Twin core with earth copper cable from East Africa cable from the battery to the charge controller and to the solar panel	M	150		
9	50A Battery Fuse and Carrier, wall mounted	No.	30		
10	Excavate holes to take the metallic columns above, average 600mm deep and 400mm diameter, install columns, backfill with concrete mix and compact to natural ground level	No.	30		
	Sub-total for Outside Lighting c/f to Price Collection page				

Schedule 10: External ablution block

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Supply, install, test and commission the following items:				
	<u>LIGHTING INSTALLATION</u>				
1	Lighting point wired in 3x1.5mm ² SC-PVC-Cu cables drawn in 20mm diameter HG PVC conduits concealed inside the ceiling complete with all necessary accessories excluding switches and fittings for one way and two way switching	No.	28		
2	10A moulded ivory switch plates as MK or approved equivalent as follows: ii). Two gang two way switch	No.	6		
	<u>LIGHTING FITTINGS</u>				
3	Light fittings complete with all accessories and lamps as follows:- a) Standard circular surface luminaire with polycarbonate body and white trim, polycarbonate opal diffuser and integral control gear for 16 W 2D compact flourescent lamp as THORN Supernovela or approved equivalent	No.	10		
	b) Ultra efficient 1200mm, 20w,6500k,50,000hrs lamp life LED luminaire suitable for surface mounting as PHILIPS or approved equivalent	No.	10		
	c) 600mm,8w, 4000k LED mirror tube, 50,000hrs lamp life with pull chord as PHILIPS or approved equivalent	No.	4		
	f) Aluminium Bulkhead with moulded glass cover for LED lamps, IP65 protection as Thorn DB Bulkhead or an approved equivalent.	No.	8		
	<u>POWER POINTS</u>				
4	Raw power socket outlet power points comprising wiring in 3 x 2.5 mm ² PVC/SC CU cables drawn in 25mmØ concealed HG PVC conduits/trunking including all conduit accessories but excluding plates:- a) twin outlet	No.	10		
5	13A, moulded ivory white switched socket outlet plates as Crabtree or approved equivalent as follows: i) Twin switched	No.	10		
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
6	Hand Driers - Power points comprising wiring in 3 x 4mm ² PVC/SC/CU cables drawn in 25mm-Ø concealed HG PVC conduits	M	50		
	a) 20A DP control switch marked 'As per application' with neon light and cord outlet for above item as Crabtree or approved equivalent	No.	4		
	INTERNAL POWER DISTRIBUTION				
7	Supply, install, test and commission consumer units/power distribution boards as that manufactured by Merlin GERIN or equal and approved equivalent as described below:-				
	a) 63A,4 Way TPN	No.	1		
8	SP/TP MCBs for DB above as follows:				
	a) 10A SP MCB	No.	4		
	b) 20A SP MCB	No.	2		
	c) 30A SP MCB	No.	4		
	d) SP blanking plates	No.	1		
	SUB-MAIN CABLES				
9	10mm ² 4-C PVC/SWA/PVC copper cable c/w appropriate cable lugs: DB on fourth Floor	M	80		
	i) Cable glands for above cable	No.	8		
	Sub-total for external ablution carried forward to Price Collection page				

Schedule 11: Hybrid solar system

Item	Description	Unit	Qty	Rate (Kshs)	Amount (Kshs)
	50kW Grid tie solar installation works Supply, install, test and commission the following items:				
1	400w monocrystalline solar panels as per particular specifications	No.	125		
2	50kW inverter as per particular specifications	No.	2		
3	PV combiner - H6T/384V as per particular specifications	No.	1		
4	Allow for any other items necessary to complete installation (give breakdown and cost as part of the bills of quantities) a) b) c) d)				
	Total Carried Forward to Price Collection Page				

PRICE COLLECTION PAGE

Item	Description	Amount (Kshs)
1	Sub-total for B1, brought forward from Page 14	
2	Sub-total for Bill 2, Schedule 1 brought forward from Page 18	
3	Sub-total for Bill 2, Schedule 2 brought forward from Page 23	
4	Sub-total for Bill 2, Schedule 3 brought forward from Page 28	
5	Sub-total for Bill 2, Schedule 4 brought forward from Page 32	
6	Sub-total for Bill 2, Schedule 5 brought forward from Page 36	
7	Sub-total for Bill 2, Schedule 6 brought forward from Page 39	
8	Sub-total for Bill 3, Schedule 7 brought forward from Page 41	
9	Sub-total for Bill 3, Schedule 8 brought forward from Page 42	
10	Sub-total for Bill 2, Schedule 9 brought forward from Page 44	
11	Sub-total for Bill 3, Schedule 10 brought forward from Page 46	
12	Sub-total for Bill 3, Schedule 11 brought forward from Page 47	
13	CONTINGENCY: Allow a contingency sum of Kenya Shillings One Million to be expended at the discretion of the project manager	
14	Preparation and production of 4 No. sets of 'As installed drawings' (Soft and Hard copies in Auto CAD 2019)	
	TOTAL AMOUNT FOR ELECTRICAL INSTALLATION WORKS CARRIED FORWARD TO PRICE SUMMARY PAGE	

**BILL NO. 3 STRUCTURED CABLING INSTALLATION WORKS -
LOWER GROUND FLOOR**

Item	Description	Unit	Qty	Rate (Kshs)	Amount (Kshs)
	<u>DATA AND VOICE INSTALLATION WORKS</u>				
	Supply,install, test and commission the following items				
1.00	RJ 45 cat 6A UTP (Dual) Data/Telephone outlet points complete with draw wire and with twin faceplate and labelling system as Siemons or approved equivalent	No.	76		
1.01	3M RJ45-RJ45 Cat 6A UTP factory terminated patch cord as Siemon or approved equivalent to be used at work station.	No.	152		
1.02	1M RJ45-RJ45 Cat 6A UTP factory terminated patch cord as Siemon or approved equivalent to be used in cabinet.	No.	152		
1.03	Cat 6A UTP 4-Pair cable as Siemon or approved equivalent drawn in the trunkings to wire both the data and voice points	Lm.	9120		
	<u>ACTIVE COMPONENTS</u>				
1.04	Backbone core switch complete with the chasis, power supply unit, virtual supervisor engine with 40 Gigabit Ethernet uplinks, switches, chasis cable management system, high speed fan tray,Secure segmentation with SD-Access, 2PSUs (N+1 power redundancy), fibre income and output capability, rack and all accessories and as Cisco or Approved equivalent	No.	1		
1.05	a) 48 Port UPOE Edge Switch as Cisco or equal and approved equivalent as described in particular specifications	No.	3		
	b) 24 Port UPOE Edge Switch as Cisco or equal and approved equivalent as described in particular specifications	No.	1		
1.06	Wireless router for wifi hotspot as cisco installed in each wing or equal and approved equivalent as described in particular specifications	No.	2		
1.07	fans and power outlet sockets, as described in particular specifications	No.	2		
	TOTAL C/F TO NEXT PAGE				

Item	Description	Unit	Qty	Rate (Kshs)	Amount (Kshs)
	TOTAL B/D FROM PREV. PAGE				
	<u>CABINETS</u>				
1.08	a) 48 port RJ45 cat 6 Data patch panel for UTP termination as Siemon.	No.	3		
	b) 24 port RJ45 cat 6 Data patch panel for UTP termination as Siemon.	No.	1		
1.09	4U WM series rack mount cable managers	No.	4		
1.10	240V, 50Hz 3000VA, Rack Mountable Double Conversion APC Smart-UPS un-interrupted power supply unit (UPS) with USB and Serial Port or equal and approved equivalent	No	2		
1.11	Accessories and supportive works.				
	a) Flexible conduits and service plates.	Lot	1		
	b) self tapping labels	No.	100		
	c) connecting the cabinets to power supply.	Item	6		
	d) Earthing	Lot	3		
	e) Configuration of switches.	Item	1		
	<u>TELEPHONE INSTRUMENTS</u>				
1.12	Standard IP Network Phone as described in the technical Specifications	No.	2		
	<u>IP PABX SYSTEM</u>				
1.13	IP PABX Control Unit - Network communication platform for unified communication as described in the technical Specifications	No.	1		
	SUB TOTAL FOR LOWER GROUND FLOOR CARRIED FORWARD TO PRICE COLLECTION PAGE				

GROUND FLOOR

Item	Description	Unit	Qty	Rate (Kshs)	Amount (Kshs)
	<u>DATA AND VOICE INSTALLATION WORKS</u>				
	Supply,install, test and commission the following items				
2.00	RJ 45 cat 6A UTP (Dual) Data/Telephone outlet points complete with draw wire and with twin faceplate and labelling system as Siemons or approved equivalent	No.	96		
2.01	3M RJ45-RJ45 Cat 6A UTP factory terminated patch cord as Siemon or approved equivalent to be used at work station.	No.	192		
2.02	1M RJ45-RJ45 Cat 6A UTP factory terminated patch cord as Siemon or approved equivalent to be used in cabinet.	No.	192		
2.03	Cat 6A UTP 4-Pair cable as Siemon or approved equivalent drawn in the trunkings to wire both the data and voice points	LM	11520		
	<u>ACTIVE COMPONENTS</u>				
2.04	48 Port UPOE Edge Switch as Cisco or equal and approved equivalent as described in particular specifications	No.	3		
2.05	24 Port UPOE Edge Switch as Cisco or equal and approved equivalent as described in particular specifications	No.	2		
2.06	Wireless router for wifi hotspot as cisco installed in each wing or equal and approved equivalent as described in particular specifications	No.	2		
	<u>CABINETS</u>				
2.07	42U ground Mounted cabinet with low noise (low dB) fans and power outlet sockets, as described in particular specifications	No.	1		
2.08	32U ground Mounted cabinet with low noise (low dB) fans and power outlet sockets, as described in particular specifications	No.	2		
2.09	48 port RJ45 cat 6 Data patch panel for UTP termination as Siemon.	No.	3		
2.10	24 port RJ45 cat 6 Data patch panel for UTP termination as Siemon.	No.	2		
2.11	4U WM series rack mount cable managers	No.	5		
	TOTAL C/F TO NEXT PAGE				

FIRST FLOOR

Item	Description	Unit	Qty	Rate (Kshs)	Amount (Kshs)
	<u>DATA AND VOICE INSTALLATION WORKS</u>				
	Supply,install, test and commission the following items				
3.00	RJ 45 cat 6A UTP (Dual) Data/Telephone outlet points complete with draw wire and with twin faceplate and labelling system as Siemons or approved equivalent	No.	75		
3.01	3M RJ45-RJ45 Cat 6A UTP factory terminated patch cord as Siemon or approved equivalent to be used at work station.	No.	150		
3.02	1M RJ45-RJ45 Cat 6A UTP factory terminated patch cord as Siemon or approved equivalent to be used in cabinet.	No.	150		
3.03	Cat 6A UTP 4-Pair cable as Siemon or approved equivalent drawn in the trunkings to wire both the data and voice points	Lm.	9000		
	<u>ACTIVE COMPONENTS</u>				
3.04	48 Port UPOE Edge Switch as Cisco or equal and approved equivalent as described in particular specifications	No.	3		
3.05	24 Port UPOE Edge Switch as Cisco or equal and approved equivalent as described in particular specifications	No.	1		
3.06	Wireless router for wifi hotspot as cisco installed in each wing or equal and approved equivalent as described in particular specifications	No.	2		
	<u>CABINETS</u>				
3.07	42U ground Mounted/Free standing cabinet with low noise (low dB) fans and power outlet sockets, as described in particular specifications	No.	1		
3.08	48 port RJ45 cat 6 Data patch panel for UTP termination as Siemon.	No.	3		
3.09	24 port RJ45 cat 6 Data patch panel for UTP termination as Siemon.	No.	1		
3.10	4U WM series rack mount cable managers	No.	4		
	TOTAL C/F TO NEXT PAGE				

Item	Description	Unit	Qty	Rate (Kshs)	Amount (Kshs)
	TOTAL B/D FROM PREV. PAGE				
3.11	240V, 50Hz 1500VA, Rack Mountable Double Conversion APC Smart-UPS un-interrupted power supply unit (UPS) with USB and Serial Port or equal and approved equivalent	No	1		
3.12	Accessories and supportive works.				
	a) Flexible conduits and service plates.	Lot	1		
	b) self tapping labels	No.	100		
	c) connecting the cabinets to power supply.	Item	6		
	d) Earthing	Lot	1		
	e) Configuration of switches.	Item	1		
	<u>TELEPHONE INSTRUMENTS</u>				
3.13	Standard IP Network Phone as described in the technical Specifications	No.	3		
3.14	Allow for preparing and presenting warranty and documentation, cabling layout diagrams, indelible point labels and preparing and submitting individual test results (for each point and for all point to be submitted as a bound report).	Item	1		
	SUB TOTAL FOR FIRST FLOOR CARRIED FORWARD TO PRICE COLLECTION PAGE				

SECOND FLOOR

Item	Description	Unit	Qty	Rate (Kshs)	Amount (Kshs)
	<u>DATA AND VOICE INSTALLATION WORKS</u>				
	Supply,install, test and commission the following items				
4.00	RJ 45 cat 6A UTP (Dual) Data/Telephone outlet points complete with draw wire and with twin faceplate and labelling system as Siemons or approved equivalent	No.	64		
4.01	3M RJ45-RJ45 Cat 6A UTP factory terminated patch cord as Siemon or approved equivalent to be used at work station.	No.	128		
4.02	1M RJ45-RJ45 Cat 6A UTP factory terminated patch cord as Siemon or approved equivalent to be used in cabinet.	No.	128		
4.03	Cat 6A UTP 4-Pair cable as Siemon or approved equivalent drawn in the trunkings to wire both the data and voice points	Lm.	7680		
	<u>ACTIVE COMPONENTS</u>				
4.04	48 Port UPOE Edge Switch as Cisco or equal and approved equivalent as described in particular specifications	No.	3		
4.05	Wireless router for wifi hotspot as cisco installed in each wing or equal and approved equivalent as described in particular specifications	No.	2		
	<u>CABINETS</u>				
4.06	42U ground Mounted/Free standing cabinet with low noise (low dB) fans and power outlet sockets, as described in particular specifications	No.	1		
4.07	48 port RJ45 cat 6 Data patch panel for UTP termination as Siemon.	No.	3		
4.08	4U WM series rack mount cable managers	No.	4		
4.09	240V, 50Hz 1500VA, Rack Mountable Double Conversion APC Smart-UPS un-interupted power supply unit (UPS) with USB and Serial Port or equal and approved equivalent	No	1		
	TOTAL C/F TO NEXT PAGE				

Item	Description	Unit	Qty	Rate (Kshs)	Amount (Kshs)
	TOTAL B/D FROM PREV . PAGE				
4.10	Accessories and supportive works.				
	a) Flexible conduits and service plates.	Lot	1		
	b) self tapping labels	No.	100		
	c) connecting the cabinets to power supply.	Item	6		
	d) Earthing	Lot	1		
	e) Configuration of switches.	Item	1		
	<u>TELEPHONE INSTRUMENTS</u>				
4.11	Standard IP Network Phone as described in the technical Specifications	No.	3		
4.12	Allow for preparing and presenting warranty and documentation, cabling layout diagrams, indelible point labels and preparing and submitting individual test results (for each point and for all point to be submitted as a bound report).	Item	1		
	SUB TOTAL FOR SECOND FLOOR CARRIED FORWARD TO PRICE COLLECTION PAGE				

THIRD FLOOR

Item	Description	Unit	Qty	Rate (Kshs)	Amount (Kshs)
	<u>DATA AND VOICE INSTALLATION WORKS</u>				
	Supply,install, test and commission the following items				
5.00	RJ 45 cat 6A UTP (Dual) Data/Telephone outlet points complete with draw wire and with twin faceplate and labelling system as Siemons or approved equivalent	No.	58		
5.01	3M RJ45-RJ45 Cat 6A UTP factory terminated patch cord as Siemon or approved equivalent to be used at work station.	No.	116		
5.02	1M RJ45-RJ45 Cat 6A UTP factory terminated patch cord as Siemon or approved equivalent to be used in cabinet.	No.	116		
5.03	Cat 6A UTP 4-Pair cable as Siemon or approved equivalent drawn in the trunkings to wire both the data and voice points	Lm.	6960		
	<u>ACTIVE COMPONENTS</u>				
5.04	48 Port UPOE Edge Switch as Cisco or equal and approved equivalent as described in particular specifications	No.	2		
5.05	24 Port UPOE Edge Switch as Cisco or equal and approved equivalent as described in particular specifications	No.	1		
5.06	Wireless router for wifi hotspot as cisco installed in each wing or equal and approved equivalent as described in particular specifications	No.	2		
	<u>CABINETS</u>				
5.07	42U ground Mounted/Free standing cabinet with low noise (low dB) fans and power outlet sockets, as described in particular specifications	No.	1		
5.08	48 port RJ45 cat 6 Data patch panel for UTP termination as Siemon.	No.	2		
5.09	24 port RJ45 cat 6 Data patch panel for UTP termination as Siemon.	No.	1		
5.10	4U WM series rack mount cable managers	No.	4		
	TOTAL C/F TO NEXT PAGE				

Item	Description	Unit	Qty	Rate (Kshs)	Amount (Kshs)
	TOTAL B/D FROM PREV. PAGE				
5.11	240V, 50Hz 1500VA, Rack Mountable Double Conversion APC Smart-UPS un-interrupted power supply unit (UPS) with USB and Serial Port or equal and approved equivalent	No	1		
5.12	Accessories and supportive works.				
	a) Flexible conduits and service plates.	Lot	1		
	b) self tapping labels	No.	100		
	c) connecting the cabinets to power supply.	Item	6		
	d) Earthing	Lot	1		
	e) Configuration of switches.	Item	1		
	<u>TELEPHONE INSTRUMENTS</u>				
5.13	Standard IP Network Phone as described in the technical Specifications	No.	3		
5.14	Allow for preparing and presenting warranty and documentation, cabling layout diagrams, indelible point labels and preparing and submitting individual test results (for each point and for all point to be submitted as a bound report).	Item	1		
	SUB TOTAL FOR THIRD FLOOR CARRIED FORWARD TO PRICE COLLECTION PAGE				

FOURTH FLOOR

Item	Description	Unit	Qty	Rate (Kshs)	Amount (Kshs)
	<u>DATA AND VOICE INSTALLATION WORKS</u>				
	Supply,install, test and commission the following items				
6.00	RJ 45 cat 6A UTP (Dual) Data/Telephone outlet points complete with draw wire and with twin faceplate and labelling system as Siemons or approved equivalent	No.	30		
6.01	3M RJ45-RJ45 Cat 6A UTP factory terminated patch cord as Siemon or approved equivalent to be used at work station.	No.	60		
6.02	1M RJ45-RJ45 Cat 6A UTP factory terminated patch cord as Siemon or approved equivalent to be used in cabinet.	No.	60		
6.03	Cat 6A UTP 4-Pair cable as Siemon or approved equivalent drawn in the trunkings to wire both the data and voice points	Lm.	3600		
	<u>ACTIVE COMPONENTS</u>				
6.04	48 Port UPOE Edge Switch as Cisco or equal and approved equivalent as described in particular specifications	No.	2		
6.05	Wireless router for wifi hotspot as cisco installed in each wing or equal and approved equivalent as described in particular specifications	No.	2		
	<u>CABINETS</u>				
6.06	32U ground Mounted/Free standing cabinet with low noise (low dB) fans and power outlet sockets, as described in particular specifications	No.	1		
6.07	48 port RJ45 cat 6 Data patch panel for UTP termination as Siemon.	No.	2		
6.08	4U WM series rack mount cable managers	No.	4		
6.09	240V, 50Hz 1500VA, Rack Mountable Double Conversion APC Smart-UPS un-interrupted power supply unit (UPS) with USB and Serial Port or equal and approved equivalent	No	1		
	TOTAL C/F TO NEXT PAGE				

Item	Description	Unit	Qty	Rate (Kshs)	Amount (Kshs)
6.10	TOTAL B/D FROM PREV. PAGE Accessories and supportive works. a) Flexible conduits and service plates. b) self tapping labels c) connecting the cabinets to power supply. d) Earthing e) Configuration of switches.	Lot No. Item Lot Item	1 100 6 1 1		
	<u>TELEPHONE INSTRUMENTS</u>				
6.11	Standard IP Network Phone as described in the technical Specifications	No.	1		
6.12	Allow for preparing and presenting warranty and documentation, cabling layout diagrams, indelible point labels and preparing and submitting individual test results (for each point and for all point to be submitted as a bound report).	Item	1		
	SUB TOTAL FOR FOURTH FLOOR CARRIED FORWARD TO PRICE COLLECTION PAGE				

PRICE COLLECTION PAGE

Item	Description	Amount (Kshs)
A	TOTAL FOR DATA AND VOICE INSTALLATION WORKS - LOWER GROUND B/F FROM PAGE 50	
B	TOTAL FOR DATA AND VOICE INSTALLATION WORKS - GROUND FLOOR B/F FROM PAGE 52	
C	TOTAL FOR DATA AND VOICE INSTALLATION WORKS - FIRST FLOOR B/F FROM PAGE 54	
D	TOTAL FOR DATA AND VOICE INSTALLATION WORKS - SECOND FLOOR B/F FROM PAGE 56	
E	TOTAL FOR DATA AND VOICE INSTALLATION WORKS - THIRD FLOOR B/F FROM PAGE 58	
F	TOTAL FOR DATA AND VOICE INSTALLATION WORKS - FOURTH FLOOR B/F FROM PAGE 60	
G	Contingency Provisional sum of kenya Shillings Kshs.500,000 /= contingency to be used at the discretion of the project manager	
	TOTAL FOR STRUCTURED CABLING WORKS C/F TO PRICE SUMMARY PAGE	

PRICE SUMMARY PAGE

ITEM	DESCRIPTION	AMOUNT(KSH.)
A	TOTAL FOR ELECTRICAL INSTALLATION WORKS B/F FROM PAGE 48	
B	TOTAL FOR STRUCTURED CABLING INSTALLATION WORKS B/F FROM PAGE 61	
	TOTAL ELECTRICAL INSTALLATION AND STRUCTURED CABLING WORKS C/F TO GRAND SUMMARY PAGE	

Amount of tender in words: Kenya
Shillings.....

Kenya Shillings.....

Domestic subcontractor's Signature and
Stamp.....

Address.....Date:.....

Witness: Name and
Signature.....

Address.....Date:

SECTION IV - SPECIFICATIONS

1. GENERAL

This specification is to be read in conjunction with the drawings which are issued with it. Bills of quantities shall be the basis of all additions and omissions during the progress of the works.

2. STANDARD OF MATERIALS

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

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

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

3. WORKMANSHIP

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

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

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

4. PROCUREMENT OF MATERIALS

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

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

5. SHOP DRAWINGS

Before manufacture or Fabrication is commenced the sub-contractor shall submit Two copies of detailed drawings of all control pillars, meter cubicles, medium voltage switchboards including their components showing all pertinent information including sizes, capacities, construction details, etc., as may be required to determine the suitability of the equipment for the approval of the Engineer. Approval of the detailed drawings shall not relieve the sub-contractor of the full responsibility of errors or the necessity of checking the drawings himself or of furnishing the materials and equipment and performing the work required by the plans and specifications.

6. RECORD DRAWINGS

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

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

Three sets of diagrams and drawings shall be provided, all to the approval of the Engineer.

One coloured set of line diagrams relating to operating and maintenance instructions shall be framed and, mounted in a suitable location.

7. **REGULATIONS AND STANDARDS**

All work executed by the Sub-contractor shall comply with the current edition of the “Regulations” for the Electrical Equipment of Buildings, issued by the Institution of Electrical Engineers, and with the Regulations of the Local Electricity Authority

Where the two sets of regulations appear to conflict, they shall be clarified with the Engineers. All materials used shall comply with relevant Kenya Bureau of Standards Specification.

8. **SETTING OUT WORK**

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

9. **POSITIONS OF ELECTRICAL PLANT AND APPARATUS**

The routes of cables and approximate positions of switchboards etc, as shown on the drawings shall be assumed to be correct for purpose of Tendering, but exact positions of all electrical Equipment and routes of cables must be agreed on site with the Engineer before any work is carried out.

10. **MCB DISTRIBUTION PANELS AND CONSUMER UNITS**

All cases of MCB Panels and consumer units shall be constructed in heavy gauge sheet with hinged covers.

Removable undrilled gland plates shall be provided on the top and bottom of the cases. Miniature circuit breakers shall be enclosed in moulded plastic with the tripping mechanism and arc chambers separated and sealed from the cable terminals.

The operating dolly shall be trip free with a positive movement in both make and break position. Clear indication of the position of the handle shall be incorporated.

The tripping mechanism shall be on inverse characteristic to prevent tripping in temporary overloads and shall not be affected by normal variation in ambient temperature.

A locking plate shall be provided for each size of breaker; A complete list of circuit details on typed cartridge paper glued to stiff cardboards and covered with a sheet of Perspex, and held in position with four suitable fixings, shall be fitted to the inner face of the lids of each distribution panel. The appropriate MCB ratings shall be stated on the circuit chart against each circuit in use: Ivorine labels shall be secured to the insulation barriers in such a manner as to indicate the number of the circuits shown on the circuit chart.

Insulated barriers shall be fitted between phases, and neutrals in all boards, and to shroud live parts.

Neutral cables shall be connected to the neutral bar in the same sequence as the phase cables are connected to the MCB's. This shall also apply to earth bars when installed.

11. **FUSED SWITCHGEAR AND ISOLATORS**

All fused switchgear and isolators whether mounted on machinery, walls or industrial panels shall conform to the requirements of KS 04 – 226 PART: 1: 1985.

All contacts are to be fully shrouded and are to have a breaking capacity on manual operations as required by KS 04 – 182: 1980.

Fuse links for fused switches are to be of high rupturing capacity cartridge type, conforming to KS 04 – 183: 1978.

Isolators shall be load breaking/fault making isolators.

Fused switches and isolators are to have separate metal enclosures. Mechanical interlocks are to be provided between the door and main switch operating mechanism so arranged that the door may not be opened with the switch in the 'ON' position. Similarly; it shall not be possible to close the switch with the door open except that provision to defeat the mechanical interlock and close the switch with the door in the open position for test purposes.

The 'ON' and 'OFF' positions of all switches and isolators shall be clearly indicated by a mechanical flag indicator or similar device. In T.P & N fused switch units, bolted neutral links are to be fitted.

12. CONDUITS AND CONDUIT RUNS

Conduit systems are to be installed so as to allow the loop-in system of wiring:

All conduits shall be black rigid super high impact heavy gauge class 'A' PVC in accordance with KS 04 – 179: 1988 and IEE Regulations. No conduit less than 20mm in diameter shall be used anywhere in this installation.

Conduit shall be installed buried in plaster work and floor screed except when run on wooden or metal surface when they will be installed surface supported with saddles every 600mm. Conduit run in chases shall be firmly held in position by means of substantial pipe hooks driven into wooden plugs.

The Sub-contractor's attention is drawn to the necessity of keeping all conduits entirely separate from other piping services such as water and no circuit connections will be permitted between conduits and such pipes. All conduits systems shall be arranged wherever possible to be self-draining to switch boxes and conduit outlet points for fittings:

The systems, when installed and before wiring shall be kept plugged with well-fitting plugs and when short conduit pieces are used as plugs, they shall be doubled over and tied firmly together with steel wire; before wiring all conduit, systems shall be carried out until the particular section of the conduit installation is complete in every respect.

The sets and bends in conduit runs are to be formed on site using appropriate size bending springs and all radii of bends must not be less than 2.5 times the outside diameter of the conduit. No solid or inspection bends, tees or elbows will be used.

Conduit connections shall either be by a demountable (screwed up) assembly or adhesive fixed and water tight by solution. The tube and fittings must be clean and free of all grease before applying the adhesive. When connections are made between the conduit and switch boxes, circular or non-screwed boxes, care shall be taken that no rough edges of conduit stick out into the boxes.

Runs between draw in boxes are not to have more than two right angle bends or their equivalent. The sub-contractor may be required to demonstrate to the Engineers that wiring in any particular run is easily withdrawable and the sub-contractor may, at no extra cost to the contract; be required to install additional draw-in boxes required. If conduit is installed in straight runs in excess of 6000mm, expansion couplings as manufactured by Egatube shall be used at intervals of 6000mm.

Where conduit runs are to be concealed in pillars and beams, the approval of the Structural Engineer, shall be obtained. The sub-contractor shall be responsible for marking the accurate position of all hole's chases etc., on site, or if the Engineer so directs, shall provide the Main Contractor with dimensional drawings to enable him to mark out and form all holes and chases. Should the sub-contractor fail to inform the main contractor of any inaccuracies in this respect they shall be rectified at the sub-contractor's expense.

It will be the Sub-contractor's responsibility to ascertain from site, the details of reinforced concrete or structural steelwork and check from the builder's drawings the positions of walls, structural concrete and finishes. No reinforced concrete or steelwork may be drilled without first obtaining the written permission of the Structural Engineer.

The drawings provided with these specifications indicate the appropriate positions only of points and switches, and it shall be the Sub-Contractors responsibility to mark out and centre on site the accurate positions where necessary in consultation with the Architect and the Engineer. The sub-contractor alone shall be responsible for the accuracy of the final position.

13. CONDUIT BOXES AND ACCESSORIES

All conduit outlets and junction boxes are to be either malleable iron and of standard circular pattern of the appropriate type to suit saddles being used or super high impact PVC manufactured to KS 04 – 179: 1983.

Small circular pattern boxes are to be used with conduits up to and including 25mm outside diameter. Rectangular pattern adaptable boxes are to be used for conduits of 32mm outside diameter and larger. For drawing in of cables in exposed runs of conduit, standard pattern through boxes are to be used:

Boxes are to be not less than 50mm deep and of such dimensions as will enable the largest appropriate number of cables for the conduit sizes to be drawn in without excessive bending.

Outlet boxes for lighting fittings are to be of the loop-in type where conduit installation is concealed and the sub-contractor shall allow one such box per fitting, except where fluorescent fittings are specified when two such boxes per fitting shall be fitted flush with ceiling and if necessary fitted with break joint rings. Pattresses shall be fitted where required to outlets on surface conduit runs.

Adaptable boxes are two of PVC or mild steel (of not less than 12swg) and black enameled or galvanized finish according to location. They shall be of square or oblong shape location. They shall be of square or oblong shape complete with lids secured by four 2 BA brass roundhead screws; No adaptable box shall be less than 75mm x 75mm x 50mm or larger than 300mm x 300mm x 75mm and shall be adequate in depth in relation to the size of conduit entering it. Conduits shall only enter boxes by means of conduit bushes.

14. LABELS

Labels fitted to switches and fuse boards; -

- (i) Shall be Ivorine engraved black on white.
- (ii) Shall be secured by R.H brass screws of same manufacturing throughout.
- (iii) Shall be indicated on switches: -
 - a) Reference number of switch
 - b) Special current rating
 - c) Item of equipment controlled
- (iv) Shall indicate on MCB panels
 - a) Reference number
 - b) Type of board, i.e.; lighting, sockets, etc.
 - c) Size of cable supplying panel
 - d) where to isolate feeder cable
- (v) Shall be generally not less than 75mm x 50mm.

15. EARTHING

The earthing of the installation shall comply with the following requirements; -

- (i) It shall be carried out in accordance with the appropriate sections of the current edition of the Regulations, for the Electrical Equipment of Buildings issued by Institute of Electrical Engineers of Great Britain.
- (ii) At all main distribution panels and main service positions a 25mm x 3mm minimum cross-sectional area Copper tape shall be provided and all equipment including the lead sheath and armouring of cables, distribution boards and metal frames shall be bonded thereto.
- (iii) The earth tape in Sub-clause (ii) shall be connected by means of a copper tape or cable of suitable cross-sectional area to an earth electrode which shall be a copper earth rod (see later sub-clause).
- (iv) All tapes to be soft high conductivity copper, untinned except where otherwise specified and where run underground on or through walls, floors, etc., it shall be served with corrosion resisting tape or coated with corrosion compound and braided
- (v) Where the earth electrode is located outside the building a removable test link shall be provided inside the building as near as possible to the point of entry to the tape, for isolating the earth electrode for testing purposes.
- (vi) Earthing of sub-main equipment shall be deemed to be satisfactory where the sub-main cables are M.I.C.S. or conduit with separate earth wire, and installation is carried out in accordance with the figures stated in the current edition of the I.E.E Regulations.

- (vii) Where an earth rod is specified (see Sub-clause (iii)) it shall be proprietary manufacture, solid hand drawn copper of 15mm diameter driven into the ground to a minimum depth of 3.6M. It shall be made up to 1.2m sections with internal screw and socket joints and fitted with hardened steel tip and driving cap.
- (viii) Earth plates will not be permitted
- (ix) Where an earth rod is used the earth resistance shall be tested in the manner described in the current edition of the IEE Regulations, by the Sub-Contractor in the presence of the Engineer and the Sub-Contractor shall be responsible for the supply of all test equipment.
- (x) Where copper tape is fixed to the building structure it shall be by means of purpose made non-ferrous saddles which space the conductor away from the structure a minimum distance of 20mm. Fixings, shall be made using purpose made plugs; No fixings requiring holes to be drilled through the tape will be accepted.
- (xi) Joints in copper tape shall be tinned before assembly riveted with a minimum of two copper rivets and seated solid.
- (xii) Where holes are drilled in the earth tape for connection to items of equipment the effective cross-sectional area must not be less than required to comply with the IEE regulations.
- (xiii) Bolts, nuts and washers for any fixing to the earth tape must be of non-ferrous material.
- (xiv) Attention is drawn to the need for the earthing metal parts of lighting fittings and for bonding ball joint suspension in lighting fittings.

16 CABLES AND FLEXIBLE CORDS

All cables used in this Sub-Contract shall be manufactured in accordance with the current appropriate Kenya standard Specification which are as follows: -

P.V.C. Insulated Cables and Flexible Cords	---	Ks 04-192:1988
P.V.C Insulated Armoured Cables	---	Ks 04-194:1990
Armouring of Electric cables	---	Ks 04-290:1987

The successful Sub-Contractor will, at the Engineers discretion be required to submit samples of cables for the Engineers approval; the Engineer reserves the right to call for the cables of an alternative manufacture without any extra cost being incurred.

P.V.C. insulated cables shall be 500/1000-volt grade. No cables smaller than 1.5mm² shall be used unless otherwise specified. The installation and the finish of cables shall be as detailed in later clauses. The colour of cables shall conform to the details stated in the "Cable Braid and insulation Colours" Clause.

17. ARMoured P.V.C. INSULATED AND SHEATHED CABLES:

Shall be 600/1000-volt grade manufactured to Ks 04-194:1988 and Ks 04-187/188 with copper stranded conductors.

The wire armour of the cable shall be used wholly as an earth continuity conductor and the resistance of the wire armour shall have a resistance not more than twice of the largest current carrying conductor of the cable.

P.V.C./S.W.A./P.V.C. cables shall be terminated using "Telecom" "B" type or approved equal or approved equal glands and a P.V.C. tapered sleeve shall be provided to shroud each gland.

18. CABLE SUPPORTS, MARKERS AND TILES

All PVC/SWA/PVC cables run inside the building shall be fixed in rising ducts or on ceilings by means of die cast cable hooks or clamps, of appropriate size to suit cables, fixed by studs and back nuts to their channel sections.

Alternatively, fixing shall be by BICC claw type cleating system with die-cast cleats and galvanised mild steel back straps or similar approved equal method. For one or two cables run together the cleats shall be fixed a special channel section supports or backstraps described above which shall in turn be secured to walls or ceilings of ducts by rawbolts.

In excessively damp or corrosive atmospheric conditions special finishes may be required and the Sub-contractor shall apply to the Engineer for further instructions before ordering cleats and channels for such areas.

The above type of hooks and clamps and channels or cleats and blackstrap shall also be used for securing cables in vertical ducts.

Cables supports shall be fixed at 600mm maximum intervals, the supports being supplied and erected under this Sub-contract. Saddles shall not be used for supporting cables nor any other type of fixing other than one of the two methods described above or other system which has received prior approval of the Engineer;

Cables are to be kept clear of all pipe work and the Sub-contractor shall work in close liaison with other services Sub-contractors.

The Sub-Contractor shall include for the provision of fixing of approved type coloured slip on cables end markers to indicate permanently the correct phase and neutral colours on all ends.

Provision shall be made for supplying and fixing approved non-corrosive metal cable markers to be attached to the outside of all PVC/SWA/PVC cables at 15mm intervals indicating cable size and distinction.

Where PVC/SWA/PVC cables are outside the building they shall be laid underground 750mm deep with protecting concrete interlocking cover tiles laid over which shall be provided and laid under this Sub-contract.

All necessary excavations and reinstatement of ground including sanding or trenches will be carried out by the Sub-Contractor, unless otherwise stated.

19. **PVC INSULATED CABLES**

Shall be of non-braided type as CMA reference 6491 x 600/1000/1000-volt grade cables, or equal approved.

PVC cables shall conform to the details of the “Cables and Flexible cords” and “Cable Braid and Insulation Colours” clauses.

20. **HEAT RESISTING CABLES**

Final connections to cookers, water heaters, etc., shall be made using butyl rubber insulated cable as CMA reference 610 butyl (Single core 600/1000 Volt).

This type of cable shall be used in all instances where a temperature exceeding 100°F, but not exceeding 150°F is likely to be experienced. Final connections to all lighting fittings (and other equipment where a temperature in excess of 150°C likely to be experienced) shall be made using silicon rubber insulated cable or equal and approved.

21. **FLEXIBLE CORDS**

Shall be in accordance with the “Cable and Flexible Cords” clause. No cord shall be less than 24/0.2mm in size unless otherwise specified.

Circular white twin TRS flex shall be used for plain pendant fittings up to 100 watts. For all other types of lighting fittings, the flexible cable shall be silicone rubber insulated.

No polythene insulated flexible cable shall be used in any lighting fitting or other appliance (see “Heat Resisting Cables” Clause 30).

22. **CABLE ENDS AND PHASE COLOURS**

All cable ends connected up in switchgear, MCB panels etc., shall have the insulation carefully cut back and the ends sealed with Hellerman rubber slip on cable end markers.

The markers shall be of appropriate phase colour for switch and all other live feeds to the details of the “Cable Insulation Colours” clause. Black cable with black end markers shall only be used for neutral cables.

23. CABLE INSULATION COLOURS

Unless otherwise stated in later clauses the insulation colours shall be in accordance with the following table.

Where other systems are installed the cable colours shall be in accordance with the details stated in the appropriate clause.

<u>SYSTEM</u>	<u>INSULATION COLOUR</u>	<u>CABLE END MARKER</u>
1) Main and Sub-Main		
a) Phase	.. Red	Red
b) Neutral	Black	Black
2) Sub-Circuits Single Phase		
a) Phase	Red	Red
b) Neutral	Black	Black

24. SUB-CIRCUIT WIRING

For all lighting and sockets wiring shall be carried out in the “looping in” system and there shall be no joints whatsoever. No lighting circuits shall comprise more than 20 points when protected by 10A MCB. Cables with different cross-section area of copper shall not be used in combination.

Lighting circuits P.V.C. cable.

- (i) 1.5mm² for all lighting circuits indicated on the drawing.

Power circuits P.V.C cable (minimum sizes).

- (ii) 2.5mm² for one, two or three 5Amp sockets wired in parallel.

- (iii) 2.5mm² for one 15Amp socket.

- (iv) 2.5mm² for maximum of ten switched 13 Amp sockets wired from 30 Amp MCB.

The wiring sizes for lighting circuits and sockets are shown on the drawings. In such cases, the sizes shown on the drawings shall prevail over the sizes specified.

Wiring sizes for other appliances shall be shown on the drawing or specified in later clauses of this specification.

25. SPACE FACTOR

The maximum number of cables that may be accommodated in a given size of conduit or trunking or duct is not to exceed the number in Tables B.5 and B.6 or as stated in Regulation B.91, B.117 and B.118 of the I.E.E Regulations whichever is appropriate.

26. INSULATION

The insulation resistance to earth and between poles of the whole wiring system, fittings and lumps, shall not be less than the requirements of the latest edition of the I.E.E Regulations. Complete tests shall be made on all circuits by the Sub-contractor before the installations are handed over.

A report of all tests shall be furnished by the Sub-Contractor to the Engineer. The Engineer will then check test with his own instruments if necessary.

27. LIGHTING SWITCHES

These shall be mounted flush with the walls, shall be contained in steel or alloy boxes and shall be of the gangs' ratings and type shown in the drawings. They shall be as manufactured by M.K. Electrical Ltd., or other equal and approved to KS 04 – 247: 1988

28. SOCKETS AND SWITCHED SOCKETS

These shall be flush pattern in steel/pvc box and shall be of the gangs and type specified in the drawings.

They shall be 13- Amp, 3-pin, shuttered, switched and as manufactured by “M.K. Electrical Co. Ltd.”, or other approved equal to KS 04 – 246: 1987

29. FUSED SPUR BOXES

These shall be flush, D.P switched as in steel/pvc box and of type and make specified in the drawings complete with pilot light and as manufactured by “M. K. Electrical Company Ltd”, or other approved equal. KS 04 – 247: 1988

30. COOKER OUTLETS

These shall be flush mounted with 13-A switched socket outlet and neon indicator Lamps.

The cooker control units shall be as manufactured by “M.K. Electrical Company Ltd”, or other approved equal KS 04 – 247: 1988

31. CONNECTORS

Shall be specified in the drawings and appropriate rating. These shall be fitted at all conduit box lighting point outlets for jointing of looped P.V.C cables with flexible cables of specified quality.

32. LAMPHOLDERS

Shall be of extra heavy H.O skirted and shall be provided for every specified lighting fitting and shall be B.C; E.S; or G.E.S as required. All E.S. and G.E.S. holders shall be heavy brass type (except for plain pendants where the reinforced bakelite type shall be used). The screwed cap of the E.S and G.E.S. holders shall be connected to the neutral.

Where lamp holders are supported by flexible cable, the holders shall have “cord grip” arrangements and in the case of metal shades earthing screws shall be provided on each of the holders.

The Sub-Contractor must order the appropriate type of holder when ordering lighting fittings, to ensure that the correct types of holders are provided irrespective of the type normally supplied by the manufacturers.

33. LAMPS

All lamps shall be suitable for normal stated supply voltage and the number and sizes of lamps detailed on the drawings shall be supplied and fixed. The Sub-Contractor must verify the actual supply voltage with the supply authority before ordering the lamps.

Tungsten filament lamps shall be manufactured in accordance with KS 04 – 112:1978 for general service lamps and KS 04 – 307:1985 for lamps other than general services. Tubular fluorescent lamps shall comply with KS 04 – 464:1982

Pearl lamps shall be used in all fittings unless otherwise specified.

34. LIGHTING FITTINGS AND STREET LIGHTING LANTERNS

This Sub-Contract shall include for the provision, handling charges, taking the delivery, safe storage, wiring (including internal wiring) assembling and erecting of all lighting fittings shown on the drawings.

All fittings and pendants shall be fixed to the conduit boxes with brass R/H screws. These to be in line with metal finish of fittings. The lighting fittings are detailed for the purpose of establishing a high standard of finish and under no circumstances will substitute fittings be permitted.

In case of rectangular shaped ceiling fittings, the extreme ends of the fittings shall be secured to suitable support in addition to the central conduit box fittings. Supports shall be provided and fixed by the Sub-Contractor.

The whole of the metal work of each lighting fittings shall be effectively bonded to earth. In the case of ball and/or knuckle joints short lengths of flexible cable shall be provided, bonded to the metal work on either side of the joints. If the above provisions are not made by the manufacturers -, the Sub-contractor shall include cost of additional work necessary in his tender. See “Flexible Cords” clause for details of internal wiring of lighting fittings.

Minimum size of internal wiring shall be 20/0.20mm (23/0067). Each lighting fitting shall be provided with number type and size of lamps as detailed on the drawings. It is to be noted that some fittings are suspended as shown on the drawings.

Where two or more points are shown adjacent to each other on the drawings, e.g. socket outlet and telephone outlet, they shall be lined up vertically or horizontally on the centre lines of the units concerned.

Normally, the units shall be lined up on vertical centre lines, but where it is necessary to mount units at low level, they shall be lined up horizontally.

35. POSITIONS OF POINTS AND SWITCHES

Although the approximate positions of all points are shown on the drawings, enquiry shall be made as to the exact positions of all M.C.B panels, lighting points, socket outlets etc., before work is actually commenced. The Sub-contractor must approach the Architect with regard to the final layout of all lights on the ceiling and walls.

The Sub-contractor must consult with the Engineer in liaison with the Clerk of Works, or the General Foreman on site regarding the positions of all points before fixing any conduit etc. The Sub-Contractor shall be responsible for all alterations made necessary by the non-compliance with the clause.

36. STREET/SECURITY OUTDOOR LIGHTING COLUMNS:

The column shall be at a minimum of 225mm in the ground on 75mm thick concrete foundations and the pole up to 150mm shall be surrounded with concrete. The top bracket and plain section of the columns shall be common to and interchangeable with all brackets with maximum mismatching tolerance of 3mm between any pole and bracket. After manufacture and before erection the columns shall be treated with an approved mordant solution which shall be washed off and the whole allowed to dry. Thereafter, the columns shall be painted with one undercoat and two coats of gloss paint to an approved colour. All columns shall be complete with fused cut-outs.

37. TIMING CONTROL SWITCH

These shall be installed where shown on the drawings. Photocell timing control circuits which will operate 'on' with a specified level of darkness and 'off' with a given level of light. The initial adjustment will be done with approval of the Electrical Engineer.

38. WIRING SYSTEM FOR STREET LIGHTING

Cables shall be as indicated on the drawings, and shall be laid in a cable trench 450mm deep along the road sides and 600mm deep across the roads and 900mm away from the road kerb or 1500mm away from the edges of the road. 'Loop-in' and 'Loop-out' arrangement shall be used at every pole. Wiring to the lanterns on each pole shall be with 1.5mm² PVC twin insulated and sheathed cable with earth wire shall be laid at least 600mm below the finished road level on a compact bed of murram at least 50mm thick and covered with a concrete surrounded 150mm thick.

39. METAL CONTROL PILLAR

These shall be metal clad and fabricated as per contract drawings and specification. The Sub-Contractor shall supply, install, test and commission control pillars including supplying, fixing connecting switchgears as detailed on the appropriate drawings.

40. CURRENT OPERATED EARTH LEAKAGE CIRCUIT BREAKER

Current operated earth leakage circuit breaker shall conform to B.S.S. 4293:68 rated at 240 volts D.P. 50 cycles A.C. Mains.

The breaker shall be provided with test switch and fitted in weather proof enclosure for surface mounting. The rated load current and earth fault operating current shall be as specified in the drawings.

These shall be as manufactured by Crabtree, Siemens or other equal and approved.

41. M.V. SWITCHBOARD AND SWITCHGEAR

The switchboard shall be manufactured in accordance with KS04-226 which co-ordinates the requirements for electrical power switchgear and associated apparatus. It is not intended that this K.S. should cover the requirements for specified apparatus for which separate Kenyan Standard exist. All equipment and material used in the switchboard shall be in accordance with the appropriate Kenya Standard.

The switchboard shall comprise the equipment shown on the drawings together with all current transformers, auxiliary fuses, labels, small wiring and interconnections necessary for the satisfactory operation of the switchboard.

The Switchboard shall be of the flush fronted, enclosed, metal clad type with full front or rear access as called for in the particular specifications, suitable for indoor use, sectionalized as necessary to facilitate transport and erection. The maximum height of the switchboard is to be approximately 2.0 metres. A suitable connection chamber containing all field terminals shall be provided at the top or bottom of the switchboard as appropriate.

Before manufacture, the Sub-Contractor shall submit to the consulting Engineer for approval of detailed drawings showing the layout, construction and connection of the switchboard.

All bus-bars and bus-bar connections shall consist of high conductivity copper and be provided in accordance with KS 04-226: 1985. The bus-bars shall be clearly marked with the appropriate phase and neutral colours which should be red, yellow, blue for the phases and black for neutral. The bus-bars shall be so arranged in the switchboard that the extensions to the left and right may be made in the future with ease should the need arise.

Small wiring, which will be neatly arranged and cleated, shall be executed in accordance with B.S. 158 and the insulation of the wiring shall be coloured according to the phase or neutral connection.

Switches and fuse switches, shall be in strict accordance with KS04-183:1978 Class 2 switches. Means of locking the switch in the "OFF" position shall be provided.

All fuse switches shall comply with KS04-183:1978, PARTS 2 and 3 a fault rating at least equal to the fault rating of the switchboard in which they are installed. Cartridge fuse links to KS 04-183:1978 category A.C. 46, class Q1 and fusing factor not exceeding 1.5 shall be supplied with each fused switch.

Mounting arrangements shall be such that individual complete fuse switches may be disconnected and withdrawn when necessary without extensive dismantling work.

When switches are arranged in their formation all necessary horizontal and vertical barriers shall be provided to ensure segregation from adjacent units. Means of locking the switch in the "OFF" position shall be provided.

42. STEEL CONDUITS AND STEEL TRUNKING

Conduits shall be of heavy gauge class "B" welded to Standard specification KS 04-180:1985. In no case will conduit smaller than 20mm diameter be used on the works. Conduits installed within buildings shall be black enameled finish except where specified otherwise. Where installed externally or in damp conditions they shall be galvanised. Conduit fittings, accessories or equipment used in conjunction with galvanised conduits shall also be galvanised or otherwise as approved by the service engineer.

Metal trunking shall be fabricated from mild steel of not less than 18 swg. All sections of trunking shall be rigidly fixed together and attached to the framework or fabric of the building at intervals of not less than 1.2m. Joint trunking shall not overhang fixing points by more than 0.5m.

All trunking shall be made electrically continuous by means of 25 x 3mm copper links across each joint and where the trunking is galvanised, the links shall be made by galvanised flat iron strips.

All trunking fittings (i.e. Bends, tees, etc.) shall leave the main through completely clear of obstructions and continuously open except through walls and floors at which points suitable fire resisting barriers shall be provided as may be necessary. The inner edge of bends and tees shall be chamfered where cables larger than 35mm² are employed.

Where trunking passes through ceilings and walls the cover shall be solidly fixed to 150mm either side of ceilings and floors and 50mm either side of walls.

Screws and bolts securing covers to trunking or sections of covers together shall be arranged so that damage to cables cannot occur either when fixing covers or when installing cables in the trough.

Where trunking is used to connect switchgear or fuse boards, such connections shall be made by trunking fittings manufactured for this purpose and not by multiple conduit couplings.

Where vertical sections of trunking are used which exceed 4.5m in length, staggered tie off points shall be provided at 4.5m intervals to support the weight of cables.

Unless otherwise stated, all trunking systems shall be painted as for conduit.

Where a wiring system incorporates galvanized conduit and trunking, the trunking shall be deemed to be galvanized unless specified otherwise.

The number of cables to be installed in trunking shall be such as to permit easy drawing in without damage to the cables, and shall in no circumstances be such that a space factor of 45% is exceeded.

Conduit and trunking shall be mechanically and electrically continuous. Conduit shall be tightly screwed between the various lengths so that they butt at the socketed joints. The internal edges of conduit and all fittings shall be smooth, free from burrs and other defects.

Oil and any other insulating substance shall be removed from the screw threads; where conduits terminate in fuse-gear, distribution boards, adaptable boxes, non-spouted switchboxes, etc., they shall, unless otherwise stated, be connected thereto by means of smooth bore male brass bushes, compression washers and sockets. All exposed threads and abrasions shall be painted using an oil paint for black enameled tubing and galvanizing paint for galvanized tubing immediately after the conduits are erected. All bends and sets shall be made cold without altering the section of the conduit.

The inner radius of the bend shall not be less than four (4) times the outside diameter of the conduit. Not more than two right angle bends will be permitted without the inter-position of a draw-in-box. Where straight runs of conduit are installed, draw-in-boxes shall be provided at distances not exceeding 15m. No tees, elbows, sleeves, either of inspection or solid type, will be permitted.

Conduit shall be swabbed out prior to drawing in cables, and they shall be laid so as to drain of all condensed moisture without injury to end connections.

Conduits and trunking shall be run at least 150mm clear of hot water and steam pipes, and at least 75mm clear of cold water and other services unless otherwise approved by the services engineer.

All boxes shall conform to KS 04 – 668: 1986, to be of malleable iron, and black enameled or galvanized according to the type of conduit specified. All accessory boxes shall have threaded brass inserts.

Box lids where required shall be heavy gauge metal, secured by means of zinc plated or cadmium plated steel screws.

All adaptable boxes and lids of the same size shall be interchangeable.

Boxes used on surface work are to be tapped or drilled to line up with the conduit fixed in distance type saddles allowing clearance between the conduit and wall without the need for setting the conduit.

Where used in conjunction with mineral insulated copper sheathed cable, galvanized boxes shall be used and painted after erection.

Draw-in boxes in the floors are generally to be avoided but where they are essential, they must be grouped in positions approved by the services engineer and covered by the suitable floor traps, with non-ferrous trays and covers.

The floor trap covers are to be recessed and filled in with a material to match the floor surface.

The Sub-contractor must take full responsibility for the filling in of all covers, but the filling in material will be supplied and the filling carried out by the main building contractor.

Where buried in the ground outside the building the whole of the buried conduit is to be painted with two coats of approved bitumastic composition before covering up.

Where run on the surface, unpainted fittings and joints shall be painted with two coats of oil bound enamel applied to rust and grease free metalwork.

43. TESTING ON SITE

The Sub-contractor shall conduct during and at the completion of the installation and, if required, again at the expiration of the maintenance period, tests in accordance with the relevant section of the current edition of the Regulations for the electrical equipment of buildings issued by the I.E.E of Great Britain, the Government Electrical Specification and the Electric Supply Company's By-Laws.

- (a) Tests shall be carried out to prove that all single pole switches are installed in the 'live' conductor.
- (c) Tests shall be carried out to prove that all socket outlets and switched socket outlets are connected to the 'live' conductor in the terminal marked as such, and that each earth pin is effectively bonded to the earth continuity system. Tests shall be carried out to verify the continuity of all conductors of each 'ring' circuit.
- (d) Phase tests shall be carried out on completion of the installation to ensure that correct phase sequence is maintained throughout the installation. Triplicate copies of the results of the above tests shall be provided within 14 days of the witnessed tests and the Sub-contractor will be required to issue to the service engineer the requisite certificate upon completion as required by the regulations referred to above.
- (e) Any faults, defects or omissions or faulty workmanship, incorrectly positioned or installed parts of the installation made apparently by such inspections or tests shall be rectified by the Sub-contractor at his own expense.
- (f) The Sub-contractor shall provide accurate instruments and apparatus and all labour required to carry out the above tests. The instruments and apparatus shall be made available to the services engineer to enable him to carry out such tests as he may require.
- (g) The Sub-contractor shall generally attend on other contractors employed on the project and carry out such electrical tests as may be necessary.
- (h) The Sub-contractor shall test to the services engineer's approval and as specified elsewhere in this specification or in standards and regulations already referred to, all equipment, plant and apparatus forming part of the works and before connecting to any power or other supply and setting to work.
- (i) Where such equipment, etc., forms part of or is connected to a system whether primarily or of an electrical nature or otherwise (e.g. air conditioning system) the Sub-contractor shall attend on and assist in balancing, regulating testing and commissioning, or if primarily an electrical or other system forming part of works, shall balance, regulate, test and commission the system to the service engineer's approval.

IN ADDITION TO GENERAL SPECIFICATIONS OF MATERIALS AND WORKS

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

1. Government Electrical Specifications No. 1 and No. 2.
2. All requirements of Kenya Power and Lighting Company Limited, and Communications Authority of Kenya (CA).

PARTICULAR SPECIFICATIONS

1.0 SITE LOCATION

The site of the proposed works is at **Maasai Mara University, Narok County.**

2.0 SCOPE OF WORKS

The works to be carried out under this sub-contract comprise supply, installation, testing and commissioning of the following: -

a. Electrical Installation works

- Installation of all conduit work and trunking for electrical installation works
- Installation of draw wires where necessary
- Wiring for power and lighting points
- Lighting and wiring accessories installation
- LV Switchgears
- Power reticulation

b. Telephone, data, CCTV, access control and library security Installation works

- This shall include installation of all conduit works and trunking
 - Telephone outlet plates, data outlet plates, cameras. *Others shall do telephone block wiring, instruments and IP.P.B.X.*

c. Lightning protection Installation works

- This shall include air terminations, copper tape, junction clamps and Earthing

d. Hybrid solar installation works

3.0 MATERIALS FOR THE WORKS

Materials shall be as specified in Section D and in the Bills of Quantities of this document, which shall be read in conjunction with contract drawings. Alternative materials shall be accepted only after approval by the project manager.

4.0 BROCHURES FOR FIRE ALARM PANEL & ANY ELECTRICAL EQUIPMENT AND FITTINGS

For consideration and qualification tenderers shall, at their own cost, provide *coloured* manufacturer's brochures detailing technical literature and specifications where applicable.

5.0 MINIMUM SPECIFICATIONS FOR LED LIGHTING FITTINGS

- i) Power Factor: ≥ 0.9
- ii) Operating freq. range: 45-55Hz
- iii) Operating Voltage Range: 130-300Vac
- iv) Operating hours: $\geq 50,000$ Hrs
- v) Correlated Colour Temperature (CCT): ≥ 6000 K
- vi) Total Harmonic Distortion (THD): $< 15\%$

N/B: Bidders **MUST** provide Technical Brochures to assess their technical compliance with these specifications.

PART A
ELECTRICAL INSTALLATION WORKS

LED TUBES, PANELS & BULBS LIGHT FITTING TECHNICAL SPECIFICATIONS IEC Compliant		
Item	Minimum Specifications	Proposed solution
Brand	State the brand, model and attach Technical Brochure (Mandatory)	
Operating	<ul style="list-style-type: none"> ➤ Voltage range: 130-300 V ac ➤ Frequency range: 50/60Hz ➤ Power factor ≥ 0.9 lagging ➤ Total Harmonic Distortion (THD) < 15% ➤ Ambient temperature range -10 to +35 °C ➤ Operating ➤ Colour Consistency ≤ 5SDCM 	
Performance	<ul style="list-style-type: none"> ➤ System efficacy ≥ 100lm/W ➤ Lamp colour temperature: 4000K - 6500K ➤ Colour Rendering Index ≥ 80 ➤ Median useful life ≥ 50000 h 	
Standards Compliance	CB/EMC/CE	
General	<ul style="list-style-type: none"> ➤ Driver/power unit/transformer - PSU-E ➤ Optical cover/lens type - Polystyrene bowl/cover prismatic ➤ Protection class IEC - Safety class II (II) 	

FIRE ALARM PANEL INSTALLATION WORKS		
TECHNICAL SPECIFICATIONS		
Item	Minimum Specifications	Proposed solution
Brand	State the brand, model and attach Technical Brochure (Mandatory)	
Feature	<ul style="list-style-type: none"> ➤ 2 loop version ➤ Up to 200 addresses per loop ➤ Full network capability up to 126 panels ➤ Event History Buffer (9,999 events) with Date/Time stamp ➤ Soft addressing ➤ Multi-language selection capability ➤ Integral battery and power supply ➤ Flexible cause and effect programming ➤ Simple to operate end user touch-screen interface ➤ Flexible distributed network capability ➤ Full range of compatible accessories 	

SOLAR INSTALLATION WORKS

Tender specifications for String Grid Tie Inverter		
Compliant Standards:		
Item	Minimum Specifications	Proposed Solution
Brand	State the brand, model and attach Technical Brochure (Mandatory)	
Key Features	INPUT (DC) <ul style="list-style-type: none"> ❖ Max. PV input voltage: 110 V ❖ Min. PV input voltage / Start-up input voltage: 200 V / 250 V ❖ Nominal PV input voltage: 585 V ❖ MPPT voltage range: 200 – 1000 V ❖ MPPT voltage range for nominal power: 550 – 850V ❖ No. of independent MPPT inputs: 5 ❖ Max. number of PV strings per MPPT: 2 ❖ Max. PV input current: 130 A ❖ Max. current for input connector: 30 A ❖ Max. DC short-circuit current: 200 A 	

	<ul style="list-style-type: none"> ❖ DC Disconnect Switch: Yes (2 DC Switch) ❖ Max. PV input: 50kW <p>OUTPUT(AC)</p> <ul style="list-style-type: none"> ❖ Nominal AC output power: 50 kW ❖ Max AC output power 55 kVA ❖ (Rated apparent power): (50 kVA ❖ Max. AC output current: 83.6 A ❖ Nominal AC voltage: 3 / N / PE, 230 / 400 V ❖ AC voltage range: 312 – 528 V ❖ Nominal grid frequency / Grid frequency range: 50 Hz / 45 – 55 Hz, 60 Hz / 55 – 65 Hz ❖ THD: < 3 % (at nominal power) ❖ DC current injection: < 0.5 % In ❖ Power factor at nominal power / Adjustable power factor: > 0.99 / 0.8 leading – 0.8 lagging ❖ Feed-in phases / connection phases: 3 / 3 <p>EFFICIENCY: Max. efficiency: 98.7% / 98.4%</p> <p>PROTECTION</p> <ul style="list-style-type: none"> ❖ DC reverse connection protection: Yes ❖ AC short circuit protection: Yes ❖ Leakage current protection: Yes ❖ Grid monitoring: Yes ❖ DC switch / AC switch: Yes / No ❖ PV String current monitoring: Yes ❖ Q at night: Yes ❖ PID recovery function: Optional ❖ Overvoltage protection: DC Type II / AC Type II <p>OTHER SPECIFICATIONS</p> <ul style="list-style-type: none"> ❖ Isolation method: Transformer less ❖ Degree of protection: IP66 ❖ Night power consumption: ≤ 2 W ❖ Cooling method: Smart forced air cooling ❖ Display: LED, Bluetooth +APP ❖ Communication: RS485 ❖ DC connection type: MC4 (Max. 6 mm²) ❖ AC connection type: OT or DT terminal (Max.70 mm²) ❖ System network and remote monitoring: Available 	
--	---	--

Tenderers **Must** enclose together with their submitted bids **Brochures** detailing Technical Literature and specifications of all electrical components. The brochures shall be used to evaluate the suitability of these components.

Any bid submitted without the brochures shall be considered technically non-responsive, and may subsequently be disqualified

(A) COMPLIANCE TO TECHNICAL SPECIFICATIONS FOR ELECTRICAL WORKS

Bidders must provide Technical Brochures to assess their technical compliance with these specifications and Mark clearly the items they propose to supply from the attached Brochures.

ITEM	Description	COMPLIANCE	
		YES	NO
1	<u>LIGHT FITTINGS</u> i. LED Type ii. Power Factor: ≥ 0.9 iii. Efficiency: 100Lm/Watt iv. Operating Frequency Range: 50 – 60Hz v. Operating Voltage Range: 220 – 240Vac vi. Correlated Colour Temperature (CCT): $\geq 6500K$		
2	<u>FIRE ALARM PANEL</u> i) 2 Loop ii) Addressable iii) With 72 Hour Standby Battery		
3	<u>SMOKE DETECTOR</u> • Addressable • Photoelectric		
4	<u>MANUAL CALL POINT</u> • Addressable		
5	<u>Metallic trunking</u> i) Powder Coated ii) 150x50mm, two compartment		
	RESPONSIVE/ NON-RESPONSIVE		

(B) COMPLIANCE TO TECHNICAL SPECIFICATIONS FOR SOLAR INSTALLATION WORKS

Bidders must provide Technical Brochures to assess their technical compliance with these specifications and Mark clearly the items they propose to supply from the attached Brochures.

ITEM	Description	COMPLIANCE	
		YES	NO
1	PV Solar module ❖ Monocrystalline ❖ 72 cells		
2	Grid tied solar inverter ❖ 50 kVA power output ❖ String ❖ 3phase		
	RESPONSIVE/ NON-RESPONSIVE		

PART B

STRUCTURED CABLING

PARTICULAR AND TECHNICAL SPECIFICATIONS

1.1 Location of site

The location of the proposed works is at **Maasai Mara University, Narok.**

Climate Conditions

The following climate conditions can apply at the site of the sub-contract works and all the plant, equipment, apparatus, materials and installations shall be suited for these conditions:

Mean Maximum Temperatures 31.50 c Mean Minimum

Temperature 13.1 c Range of Relative humidity 48% - 93%

Altitude 1825m above sea level

Latitude /Longitude 1.0946° S, 35.8592° E

Solar Radiation, February Mean Max 543 Langley's

Extremely heavy rainfall is experienced at certain periods of the year and the contractor shall be deemed to have taken account of this factor both in his prices and his planning of the execution of the contract works.

1.2 Scope of the Works

The works to be carried out include the supply, delivery, installation, testing, commissioning of the following:

(a) Structured Cabling Installation Works

This shall include *Data/voice outlets, Telephone and ippbx, Data switches and Cabling*

(b) IP CCTV Installation Works

This shall include *CCTV cameras, NVR, cabling and monitoring displays*

(c) Access Control Installation Works

This shall include *Access module, Card readers, push to exit buttons, override key switch and associated cabling*

(d) Library management and Security system to run and manage the operations of its library

This shall include *antitheft system, i.e. RFID, video surveillance, optical readable bar code and associated cabling*

(e) Audiovisual

This shall include *Display, Digital Conference System and Video Conference*

2. BROCHURES AND TECHNICAL LITERATURE

Tenderers **Must** enclose together with their submitted bids **Brochures** detailing Technical Literature and specifications of the active components of the structured cabling system. The brochures shall be used to evaluate the suitability of these components.

Any bid submitted without the brochures shall be considered technically non-responsive, and may subsequently be disqualified

1. NETWORK CABINETS

Item	Minimum Specifications	Proposed Solution
Brand	State the brand, model and attach Technical Brochure (Mandatory)	
Product type	Ventilated rack with fans where applicable	
Construction	<ul style="list-style-type: none"> ❖ Detachable composite structure ❖ 800x1000mm ❖ Material: SPCC quality cold rolled steel ❖ Thickness: Square hole strips 2.0mm, others 1.2mm 	
Power	<ul style="list-style-type: none"> ❖ Pre-wired 240V AC conditioned grounded power circuit ❖ Supplied with Earth Bond Kit and Cage nuts 	

2. CABLES – HORIZONTAL CABLING AND PATCH CORD

Item	Minimum specifications	Proposed Solution
Brand	State the brand, model and attach Technical Brochure (Mandatory)	
Construction	<ul style="list-style-type: none"> ❖ CAT 6A STP ❖ Solid (non-tinned) copper ❖ Centre Isolation Member 	
Jacket	8.5mm with Sequential meter markings	
Industry Compliance	<ul style="list-style-type: none"> ❖ ISO/IEC 11801 Ed. 2.2 (Class EA) ❖ ISO/IEC 61156-5 (Category 6A) ❖ TIA-568-C.2 (Category 6A) ❖ LSOH: ISO/IEC 60332, IEC 60754, IEC 61034 ❖ EN50399 Class Eca 	
Warranty	End-to-End Manufacturer's Warranty on Cabling System (<i>Attach Manufacturer's Warranty Statement</i>) Minimum 15 Years Warranty	

3. FIBRE

i) BACKBONE MULTIMODE FIBRE OPTIC CABLE

Item	Minimum Specifications	Proposed Solution
Brand	State the brand, model and attach Technical Brochure (Mandatory)	
Construction	Steel Tape armoured with Glass Yarn	
Armour	Corrugated Steel Tape Armour	
Cable characteristics	<ul style="list-style-type: none"> • Support for 10GBASE-T • Low Density Polyethylene Sheath • Gel Filled Loose Buffer Tube • Level 1 Rodent Protection • Crash(N) at least 2500 • Torsion (Turns/M) not more than 5 • Multimode 	
Warranty	End-to-End Manufacturer's Warranty on Cabling System (<i>Attach Manufacturer's Warranty Statement</i>) Minimum 15 Years	

ii) BACKBONE DISTRIBUTION FIBRE PATCH CORDS

Item	Minimum Specifications	Proposed Solution
Brand	State the brand, model and attach Technical Brochure (Mandatory)	
Features	<ul style="list-style-type: none"> • Easy Identification- Connectors color coded per ANSI/TIA/EIA-568-B.3 	
	<ul style="list-style-type: none"> • Dust Caps- Dust caps included to protect polished ferrule from dirt and damage • Polarity Connection- LC Duplexing clip for polarity correction 	
Industry Compliance	<ul style="list-style-type: none"> • IEEE802.3ae standard • TIA/EIA and ISO/IEC requirements for aging, exposure to humidity, temperature extremes, impact, vibration, coupling strength, and cable resistance to stress and strain. • EMC/EMI Specifications 	
Warranty	End-to-End Manufacturer's Warranty on Cabling System (<i>Attach Manufacturer's Warranty Statement</i>) Minimum 10 Years	

4. ACTIVE DEVICES

(i) ACTIVE CONTROL EQUIPMENTS AT THE NETWORK CORE (CORE SWITCH)

The active control equipment at the core should have the following features:

Item	Minimum Specifications	Proposed Solution
Brand	State the brand, model and attach Technical Brochure (Mandatory)	
Product type	Core Switch	
	Product Features <ul style="list-style-type: none"> ❖ Up to 1 TBps of local stackable switching bandwidth. ❖ Flexible downlink options with 1G Copper and Fiber as well as the densest Multigigabit links ❖ Mix of Copper (1G up to 10G) and Fiber (1G up to 25G) supported in a single stack ❖ Flexible and dense uplink offerings with 1G, Multigigabit, 10G, 25G, 40G 	

Item	Minimum Specifications	Proposed Solution
	<p>and 100G in the form of fixed or modular uplinks</p> <ul style="list-style-type: none"> ❖ Based on UADP 2.5sec ASIC which adds line rate support for Crypto, including 100G IPSec ❖ PoE capabilities with up to 384 ports of PoE per stack, PoE+, and high-density IEEE 802.3bt ❖ Intelligent Power Management, providing power stacking among members for power redundancy. ❖ Line-rate, hardware-based Flexible NetFlow (FNF), delivering flow collection of up to 128,000 flows with select models ❖ IPv6 support in hardware, providing wire-rate forwarding for IPv6 networks ❖ Dual-stack support for IPv4/IPv6 and dynamic hardware forwarding table allocations, for ease of IPv4-to-IPv6 migration ❖ Support for both static and dynamic NAT and Port Address Translation (PAT) ❖ IEEE 802.1ba AV Bridging (AVB) built in to provide a better audio and video experience through improved time synchronization and QoS 	
Storage	<ul style="list-style-type: none"> • 86 CPU complex with 8-GB memory, and 16 GB of flash and external USB 3.0 SSD pluggable storage slot (delivering up to 240GB of storage with an option SSD drive • x86 CPU complex with 8-GB memory, and 16 GB of flash and external USB 3.0 SSD pluggable storage slot (delivering up to 240GB of storage with an option SSD drive 	
Warranty	Comprehensive Manufacturer's Warranty (<i>Attach Manufacturer's Warranty Statement</i>) Minimum 3 Years	

(ii) ACTIVE CONTROL EQUIPMENTS AT THE LAN EDGE

Active control equipment at the LAN Edge should have the following features:

Item	Minimum Specifications	Proposed Solution
Brand	State the brand, model and attach Technical Brochure (Mandatory)	
Product type	Data floor Switch	
	Product Features <ul style="list-style-type: none"> • Switching capacity of at least 56Gbps • Stacking bandwidth of at least 80Gbps • At least 16,000 MAC Addresses • at least 512 Total Switched Virtual Interfaces (SVIs) • Full Power over Ethernet Plus (PoE+) capability • Modular uplinks of 4x 1G fixed uplinks or more • 48 Ethernet 10/100/1000 Full PoE+ ports, • 4 -SFP transceiver-based Gigabit multimode Fiber ports • 1 Management port • 1 console port 	
Memory	<ul style="list-style-type: none"> • Atleast 2GB DRAM • Atleast 4GB flash 	
Warranty	Comprehensive Manufacturer's Warranty (<i>Attach Manufacturer's Warranty Statement</i>) Minimum 3 Years	

(iii) WIRELESS ACCESS POINT

The wireless access point shall have the following features:

Item	Minimum Specifications	Proposed Solution
Brand	State the brand, model and attach Technical Brochure (Mandatory)	
Product type	Wireless Access Point	
	Product Features <ul style="list-style-type: none"> ❖ Access Points should be at least MIMO 4x4 Wave ❖ At least 2 frequency bands (2.4Ghz and 5Ghz) ❖ It should support PoE+ ❖ Wi-Fi standards 802.11 a/b/g/n/ac should be supported. ❖ Radios should support auto channel and power selection based on surrounding Wi-Fi conditions ❖ Access Points should have the ability to load balance users between APs in the same area. ❖ The proposed solution should support WPA/WPA2/TKIP/AES security ❖ The proposed solution should support Authentication methods that include 802.1x, Mac-based and Captive Portal ❖ The Access Points should support radius authentication of wireless users ❖ The Access Points should support hidden SSIDs ❖ The Access Points should have built-in Wi-Fi Protected Setup (WPS) and Wireless Distribution System (WDS) to provide protection against wireless DoS attacks. 	
Warranty	Comprehensive Manufacturer's Warranty (<i>Attach Manufacturer's Warranty Statement</i>) Minimum 3 Years	

(iv) SMART INTERACTIVE DISPLAY SCREEN

Item	Minimum Specifications	Proposed Solution
Brand	State the brand, model and attach Technical Brochure (Mandatory)	
Product type	Smart Display screen <ul style="list-style-type: none"> ❖ Narrow bezel, more natural touch feeling, 2 handles ❖ 86' inch Size ❖ Effective display area 1897.04(H)*1068(V)mm ❖ Contrast ratio: 1200:1 ❖ Aspect ratio: 16:9 ❖ Brightness: 350cd/m² ❖ Backlight: DLED 	

Item	Minimum Specifications	Proposed Solution
Brand	State the brand, model and attach Technical Brochure (Mandatory)	
	<ul style="list-style-type: none"> ❖ Viewing angle: 178°(V)/178°(H) ❖ Refresh rate: 60 Hz ❖ Resolution: 3840 (H) X 2160(V) ❖ Response time ≤ 8 ms ❖ Glass: Fully heat-tempered anti-glare glass that resists smudges and fingerprint ❖ Glass thickness : 4 mm ❖ Built-in Android experience: CPU/GPU CA73*2+ CA53*2 ❖ CPU processor: Quad-Core ❖ RAM+ ROM : 2GB + 16GB respectively ❖ Compatible video format : MKV, MPE4, AVI, FLV, WMV, ASF ❖ Front port : HDMI, Touch USB, 3NO. USB3.0 ❖ Back port: RJ45, USB, TOUCH USB, HDMI, VGA IN, VGA AUDIO IN, EARPHONE, RS232, SPDIF, YPbPr IN, AV IN, AV OUT, RF ❖ Speaker: 2×15 W (forward) ❖ Bluetooth: Built-in ❖ Wi-Fi: Built-in ❖ Interactive experience Touch technology: Multiple Infrared Scanning technology ❖ Touch point: 20 Points ❖ Minimum object size 2mm ❖ Touch screen sensor mode: Finger, writing pen or other non-transparent touch sensitive medium ❖ Anti-Interference: 80000 Lux ❖ Support system: Android/Win10 ❖ Remote control: Yes ❖ Lifetime: More than 60000 hours 	
Warranty	Comprehensive Manufacturer's Warranty (Attach Manufacturer's Warranty Statement) Minimum 3 Years	

(v) RACKMOUNT UPS

Item	Minimum Specifications	Proposed solution
Brand	State the brand, model and attach Technical Brochure (Mandatory)	
Features	<p>Rack Mounted Output</p> <ul style="list-style-type: none"> ❖ Max Configurable Power (3.0kVA) ❖ Nominal Output Voltage: 240V ❖ Output Voltage Distortion: Less than 5% ❖ Output Frequency (sync to mains): 50 Hz ❖ Line Interactive ❖ Waveform Type: Sine wave ❖ Input ❖ 320 C13 (Battery Backup) ❖ Nominal Input Voltage: 240V 	

Item	Minimum Specifications	Proposed solution
Brand	State the brand, model and attach Technical Brochure (Mandatory)	
	<ul style="list-style-type: none"> ❖ Input Frequency: 50/60 Hz +/- 3 Hz (auto sensing) ❖ Input Connections: IEC-320 C20 ❖ Input voltage range for main operations 180 - 287 V ❖ Batteries & Runtime ❖ Battery Type: Maintenance-free sealed Lead-Acid battery with suspended electrolyte: leakproof ❖ Runtime > 5mins ❖ Typical recharge time: 3 hour(s) ❖ Replacement Battery: YES ❖ RBC Quantity: 1 ❖ Surge Protection and Filtering ❖ Surge energy rating: 300 Joules ❖ Filtering: Full time multi-pole noise filtering: 0.3% IEEE surge let-through: zero clamping 	
Support	Locally Available Technical Support Services (<i>Manufacturer's Letter of Authorization Mandatory</i>)	
Warranty	Manufacturer's Limited Lifetime Warranty Minimum 2 years- repair or replace	

Provide manufacturer's Brochures MUST be p for all the above Listed items.

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

1. The technical schedule shall be submitted by tenderers to facilitate and enable the Project Manager to evaluate the tenders, especially where the tenderer intends to supply or has based his tender sum on equipment which differs in manufacture, type or performance from the specifications indicated by the Project Manager.
2. The filling of this schedule forms part of Technical Evaluation of the tenders, and bidders shall therefore be required to indicate the type/make and country of origin of all the materials and equipment they intend to offer to the employer in this schedule.
3. This schedule shall form part of the technical evaluation criterion, and tenderers are therefore advised to complete the schedule, as they shall be considered responsive.

NB. The tenderer must complete in full the technical schedule. Apart from the information required in the technical schedule, the tenderer **MUST SUBMIT LEGIBLE** comprehensive manufacturer's technical brochures and performance details for all items listed in this schedule and **CLEARLY HIGHLIGHT THE SPECIFIC REQUIRED ITEM ONLY.**

PART A

ITEM	DESCRIPTION	TYPE/MAKE	MODEL	COUNTRY OF ORIGIN
1	Lighting fittings			
2	Lighting Switches			
3	D.P Switches			
4	Socket outlet plates			
5	TV outlet plates			
6	UPSs			
7	Copper tape			
8	Consumer unit/Distribution board			
9	MCBs / MCCB			
10	Pv modules			
11	Fire Alarm cable			
12	Manual fire break glass unit			
13	Fire Alarm Control Panel			
14	Smoke/Heat detectors			
15	Fire Alarm Bells			
16	Fire Alarm cable			
17	TPN & SPN Isolating Switches			
18	DP Contactor			

PART B

ITEM	DESCRIPTION	TYPE/MAKE	COUNTRY OF ORIGIN
1.0	Edge switch		
2.0	CAT 6 cables		
3.0	Patch panels		
4.0	UPSs		
5.0	Data Cabinets		
6.0	Server		

SCHEDULE OF UNIT RATES**(To be completed by the Tenderer)**

ITEM	DESCRIPTION	QTY/UNIT	RATE(KSHS)
ELECTRICAL INSTALLATION WORKS			
1.	125A MCCB	1No.	
2.	Industrial socket outlets, 5 pin: a) 32A b) 40A c) 63 A d) 100 A	1No. 1No. 1No. 1No.	
3.	LED Flood lights: a) 50 Watts b) 100 Watts	1No. 1No.	
4.	PVC/SWA/PVC Copper cable: a) 75.0mm sq. 2 core b) 185.0 mm sq 4core	1M 1M	
5.	Distribution Boards/Consumer unit. a) 24 Way TPN Distribution Board a) 4 Way TPN Distribution Board b) 4-way consumer unit	1No. 1No. 1No.	
STRUCTURED CABLING WORKS			
6.	12 port POE edge switch	No.	
7.	12 port patch panel	No.	
8.	18U Wall Mounted cabinet	No.	
9.	9U Wall Mounted cabinet	No.	
10.	1U/2U cable manager	No.	
11.	2.2kVA UPS	No.	
12.	5kVA UPS	No.	

SECTION V - DRAWINGS

Note A list of drawings should be inserted here. *No drawings attached*

However, tenderers are advised to inspect the electrical drawings at the office of the **Chief Engineer (Electrical) – State Department for Public Works.**, during normal working hours.

SECTION VI - CONTRACT FORMS**NOTE:**

Tenderers must duly fill these Standard Forms as a mandatory requirement as they will form part of the evaluation criteria.

1. Key Personnel
2. Schedule of Contracts completed in the last five (5) years
3. Schedule of on-going projects
4. Details of Litigation or Arbitration Proceedings

KEY PERSONNEL

Qualifications and experience of key personnel proposed for administration and execution of the Contract.

Note: The Tenderer must give actual names. The successful Tenderer will not be permitted to vary the supervisory staff employed on the site without prior approval of the Engineer.

POSITION	NAME	YEARS OF EXPERIENCE (GENERAL)	YEARS OF EXPERIENCE IN PROPOSED POSITION
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

I certify that the above information is correct.

.....

Title

.....

Signature

.....

Date

CONTRACTS COMPLETED IN THE LAST FIVE (5) YEARS

Work performed on works of a similar nature, complexity and volume over the last 5 years.

PROJECT NAME	NAME OF CLIENT	TYPE OF WORK AND YEAR OF COMPLETION	VALUE OF CONTRACT (Kshs.)

I certify that the above works were successfully carried out and completed by ourselves.

.....

.....

.....

Title

Signature

Date

SCHEDULE OF ON-GOING PROJECTS

Details of on-going or committed projects, including expected completion date.

PROJECT NAME	NAME OF CLIENT	CONTRACT SUM	% COMPLETE	COMPLETION DATE

I certify that the above works are currently being carried out by ourselves.

.....

.....

.....

Title

Signature

Date

BILL 6
2 No. PASSENGER/GOODS LIFT



PROPOSED MAASAI MARA UNIVERSITY LIBRARY

**TENDER SPECIFICATIONS & BILLS OF QUANTITIES FOR SUPPLY,
INSTALLATION, TESTING AND COMMISSIONING OF 2 No.
PASSENGER/GOODS LIFT**

W.P Item No: D1065/RV/NKR/230/ JOB NO. 11217A

VOLUME 3 of 4

CLIENT

THE VICE CHANCELLOR,
MAASAI MARA UNIVERSITY
P.O.BOX 861 – 20500 NA ROK.

PROJECT MANAGER

WORKS SECRETARY

MINISTRY OF LANDS, PUBLIC WORKS,
HOUSING & URBAN DEVELOPMENT
STATE DEPARTMENT FOR PUBLIC WORKS,
P.O BOX 30743 – 00100,
NAIROBI

CHIEF ENGINEER (ELECTRICAL)

MINISTRY OF LANDS, PUBLIC WORKS,
HOUSING & URBAN DEVELOPMENT
STATE DEPARTMENT FOR PUBLIC WORKS,
P.O BOX 30743 – 00100,
NAKURU

ARCHITECT

CHIEF ARCHITECT

MINISTRY OF LANDS, PUBLIC WORKS,
HOUSING & URBAN DEVELOPMENT
STATE DEPARTMENT FOR PUBLIC WORKS,
P.O BOX 30743 – 00100,
NAIROBI

STRUCTURAL ENGINEER

CHIEF ENGINEER (STRUCTURAL)

MINISTRY OF LANDS, PUBLIC WORKS,
HOUSING & URBAN DEVELOPMENT
STATE DEPARTMENT FOR PUBLIC WORKS,
P.O BOX 30743 – 00100,
NAIROBI

QUANTITY SURVEYOR

CHIEF QUANTITY SURVEYOR

MINISTRY OF LANDS, PUBLIC WORKS,
HOUSING & URBAN DEVELOPMENT
STATE DEPARTMENT FOR PUBLIC WORKS,
P.O BOX 30743 – 00100,
NAIROBI

MECHANICAL ENGINEER

CHIEF ENGINEER (MECHANICAL (BS))

MINISTRY OF LANDS, PUBLIC WORKS,
HOUSING & URBAN DEVELOPMENT
STATE DEPARTMENT FOR PUBLIC WORKS,
P.O BOX 30743 – 00100,
NAIROBI

TABLE OF CONTENTS

TENDER EVALUATION CRITERIA..... 1

 Preliminary evaluation.....2

 Technical evaluation.....3

SECTION II – TENDERING FORMS.....5

 FORM CON 2.....5

 SELF-DECLARATION FORMS7

SECTION III – BILLS OF QUANTITIES10

 Special Notes to bills of quantities.....10

SECTION IV - SPECIFICATIONS..... 19

SECTION V - DRAWINGS31

SECTION VI - CONTRACT FORMS32

SECTION I

TENDER EVALUATION CRITERIA

TENDER EVALUATION CRITERIA

After tender opening, the tenders will be evaluated in **2 stages**, namely:

1. Preliminary Evaluation;
2. Technical Evaluation.

STAGE 1: PRELIMINARY EVALUATION

This stage of evaluation shall involve examination of the mandatory requirements as set out in the tender advertisement notice or letter of invitation to tender and any other conditions stated in the bid document.

These conditions shall include the following:

S/No	MANDATORY REQUIREMENTS (MR)
MR 1	Valid Copy of company certificate of incorporation/ Registration.
MR 2	Current Certificate of registration with National Construction Authority in Lift Installation Works (NCA 2 and above)
MR 3	Current and Valid NCA contractor's practicing license.
MR 4	Current and Valid License with the Energy and Petroleum Regulatory Authority (EPRA) in Class A2 (Lift) or in Class A1
MR 5	Domestic sub-contractors must sign and stamp the summary page of their respective specialist works on the tender document.
MR 6	Signed agreement between the bidder and their builder's works contractors
MR 7	The Bidder should provide a Manufacturer's Authorization Letter for the Lift being offered by the bidder for this specific tender addressed to the CEO.
MR 8	The bidder must provide copies of European standards EN81-20:2014 and EN81-50:2014 from the lifts manufacturers

N/B Full compliance by the tenderers shall be required to proceed to the next stage of evaluation. Failure to provide any of the listed requirements shall lead to disqualification

TECHNICAL EVALUATION

The bids will then be analysed, using the information in the technical brochures, to determine compliance with technical specifications for the works/items as indicated in the tender document. Bidders not complying with any of the technical specifications shall be adjudged technically non-responsive while those meeting all technical specifications shall be considered technically responsive.

The tenderer shall also fill in the Technical Schedule as specified in the tender document for Equipment and Items indicating the Country of Origin, Model/Make/Manufacturer and catalogue numbers of the Items/Equipment they propose to supply.

ITEM	DESCRIPTION	YES/NO
1.	Compliance with Technical Specifications (Note: See Compliance to Technical Specifications section on the next page)	
2.	Qualification and Experience of Key Personnel	
	a) Project Manager <ul style="list-style-type: none"> ✓ Holder of at least a degree with 5 years' experience in Electrical Engineering field 	
	b) At least 3 No artisans Holder of at least a certificate with 5 years' experience in Electrical / Mechanical Attach trade test certificates for the said artisans	
3.	Experience of the firm in similar services: Passenger Lift Installation Works a) Provide Three (3No.) projects of similar nature, complexity and magnitude between the Period 2020 – 2022 (Each of the three projects should have a minimum of three lifts installed, with a requirement for them to serve a minimum of 5 floors.): (Provide evidence in form of Government Inspectors report – FACTORIES ACT CAP 514 – 30 & OSHA Act 2007 – Notice of Use of Lifts, contracts or letters of awards, completion certificates, and Reference Letters from Client). (Mandatory Requirement)	
4.	Adequacy of tools and equipment The tenderer must show proof of ownership or leasing of the following equipment: - a) Relevant Transport (at least 3No.) <ul style="list-style-type: none"> ✓ Means of transport b) Relevant Equipment (at least 3No.) <ul style="list-style-type: none"> ✓ Phase Sequence meter; ✓ Earth loop impedance Tester; ✓ Earth resistance tester; 	

Item	Description	YES/NO
	<ul style="list-style-type: none"> ✓ Insulation resistance tester; ✓ Clamp meter/Multimeter; ✓ Bending springs; 	
5.	Litigation History The tenderer MUST fill the forms listed below in the format provided. <ol style="list-style-type: none"> 1. Form Con-2: Historical contract Non-performance, pending litigation and Litigation history 	
	QUALIFIED YES / NO	

N/B Full compliance by the tenderers shall be required. Failure to provide any of the listed requirements shall lead to disqualification.

COMPLIANCE TO TECHNICAL SPECIFICATION

Item	Tender Specifications	Compliant/ Non-compliant
1.0	Lift Drive Motor type and Size (<i>AC gearless closed loop, digital VVVF, microprocessor controlled</i>)	
2.0	Lift Machine Type (<i>Gearless with Machine-room</i>)	
3.0	Power Factor (<i>0.8 lagging</i>)	
4.0	Lift Capacity (KG / No. of Passengers) (<i>1000Kg, 13pax</i>)	
5.0	Lift Speeds (<i>2.5m/s</i>)	
6.0	Control System (<i>Fully microcontroller-based system</i>)	
7.0	Complete form “Information To Be Supplied By The Tenderer”	
8.0	Brochure with Relevant Data highlighted	
9.0	Door Landing Center (<i>center opening</i>)	
9.1	Landing Door Architrave Dimensions (<i>1000mm wide by 2200mm high</i>)	
10.0	Material Build (<i>Stainless Steel</i>)	
11.0	Power Supply Rating (<i>415 AC \pm 5%, 3 phase, 50Hz</i>)	
12.0	Shaft Sizes (2060mm by 2000mm) (W x D)	
13.0	Operation method – Destination Control	
	Compliant (YES/NO)	

SECTION II - TENDERING FORMS

FORM CON – 2

Historical Contract Non-Performance, Pending Litigation and Litigation History

Tenderer's Name: _____ Date: _____

JV Member's Name _____ ITT No. And Title _____

Non-Performed Contracts			
Contract (s) non-performance did not occur since 1 st January 2020			
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] Name of Procuring Entity: [insert street/city/country] Reason(s) for non-performance: [indicate main reasons]	[insert amount]
Pending Litigation			
No Pending Litigation			
Year of dispute	Amount in dispute (currency)	Contract Identification	Total Contract Amount (currency), Kenya Shilling Equivalent (exchange rate)
[insert year]	[insert percentage]	Contract Identification: _____ Name of Procuring Entity: _____ Address of Procuring Entity: _____ Matter in dispute: _____ Party who initiated the dispute: _____ Status of Dispute: _____	[insert year]
[insert year]	[insert percentage]	Contract Identification: _____ Name of Procuring Entity: _____ Address of Procuring Entity: _____ Matter in dispute: _____ Party who initiated the dispute: _____ Status of Dispute: _____	[insert year]

Litigation			
No Litigation			
Year of award	Outcome as percentage of Net Worth	Contract Identification	Total Contract Amount (currency), Kenya Shilling Equivalent (exchange rate)
[insert year]	[insert percentage]	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 reasons]</i>	[insert amount]

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.

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/Direct or 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 aforesaid 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.

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

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.....
.....

SECTION III BILLS OF QUANTITIES

SPECIAL NOTES TO BILLS OF QUANTITIES

1. The Bills of Quantities form part of the contract documents and are to be read in conjunction with the contract drawings and general specifications of materials and works.
2. The prices quoted shall be deemed to include for all obligations under the contract including but not limited to supply of materials, labour, delivery to site, storage on site, installation, testing, commissioning and all taxes including 16% V.A.T
3. All prices omitted from any item, section or part of the Bills of Quantities shall be deemed to have been included to another item, section or part.
4. The brief descriptions of the items given in the Bills of Quantities are for the purpose of establishing a standard to which the contractor shall adhere to. Otherwise alternative brands of **equal** and **approved** quality will be accepted.

Should the contractor install any material not specified here-in before receiving **approval** from the Project Manager, the contractor shall remove the material in question and, **at his own cost**, install the proper material.
5. The grand total of prices in the price summary page must be carried forward to the **Grand Summary Page** in the main works tender document.
6. Tenderers must enclose, together with their submitted tenders, manufacturer's brochures detailing technical literature and specifications of the lifts that they intend to offer. Where the brochure contains different models and sizes of lifts, the bidders **MUST** clearly mark out the model and size of lifts they intend to offer by using a 'mark pen'.

The brochures are to be used to ascertain the suitability of the lift being offered by the bidders, and bidders not complying with this requirement will be considered non-responsive and disqualified from technical evaluation.

PROPOSED MAASAI MARA UNIVERSITY LIBRARY - LIFT INSTALLATION WORKS
BILL No. 1: PRELIMINARY ITEMS

Item	Description	Unit	Qty	Rate Kshs	Cost Kshs
1	<p>Conditions of sub-contract Agreement</p> <p>The sub-contractor shall be required to enter into a Sub-contract with the main contractor.</p>				
2	<p>Payment clause</p> <p>Payment will be made through certificates to the Main Contractor, unless he specifically agrees to forego this right, in which case direct payment can be made to the Sub-contractor. All payments will be less retention as specified in the Main Contract. No payment will become due until materials are delivered to site.</p>				
3	<p>Duration of Sub-Contract</p> <p>The sub-contractor shall be required to phase his work in accordance with the main contractor's programme (or its revision). The programme is to be agreed with the main contractor.</p>				
4	<p>Firm – price sub-contract</p> <p>Unless specifically stated in the documents or the invitation to tender, this is a firm-price contract and the sub-contractor must allow in his tender for the increase in the cost of labour and/or materials during the duration of the contract.</p>				
5	<p>Import Duty and Value Added Tax</p> <p>The sub-contractor will be required to pay full Import Duty and Value Added Tax on all items of equipment, fittings and plant, whether imported or locally manufactured. The tenderer shall make full allowance in his tender for all such taxes</p>				
6	<p>Insurance Company Fees</p> <p>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.</p>				
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
7	<p>Bills of Quantities</p> <p>All the Quantities are based on the contract drawings and are provisional and they shall not be held to gauge or to limit the amount or description of the work to be executed by the sub-contractor but the value thereof shall be deducted from the sub-contract sum and the value of the work ordered by the Engineer and executed there under shall be measured and valued by the Engineer.</p>				
8	<p>Position of Services, Plant, Equipment, Fittings and Apparatus</p> <p>The Contract Drawings give a general indication of the intended layout. The position of the equipment and apparatus, and also the exact routes of the ducts, main and distribution pipework shall be confirmed before installation is commenced. The exact siting of appliances, pipework, etc., may vary from that indicated.</p> <p>The routes of services and positions of apparatus shall be determined by the approved dimensions detailed in the working drawings or on site by the Engineer in consultation with the Sub-contractor or the main contractor.</p>				
9	<p>Checking of Work</p> <p>The Sub-contractor shall satisfy himself to the correctness of the connections he makes to all items of equipment supplied under the Sub-contract agreement and equipment supplied under other contracts before it is put into operation. Details of operation, working pressures, temperatures, voltages, phases, power rating, etc., shall be confirmed to others and confirmation received before the system is first operated.</p>				
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
10	<p>Identification of Plant Components</p> <p>The sub-contractor shall supply and fix identification labels to all plant, starters, switches and items of control equipment including valves, with white traffolyte or equal labels engraved in red lettering denoting its name, function and section controlled. The labels shall be mounted on equipment and in the most convenient positions. Care shall be taken to ensure the labels can be read without difficulty. This requirement shall apply also to major components of items of control equipment. Details of the lettering of the labels and the method of mounting or supporting shall be forwarded to the Engineer for approval prior to manufacture.</p>				
11	<p>Contact Drawings</p> <p>The contract drawings when read in conjunction with the text of the specification, have been completed in such detail as was considered necessary to enable competitive tenders to be obtained for the execution and completion of the sub-contract works. The contract drawings are not intended to be working drawings and shall not be used unless exceptionally they are released for this purpose.</p>				
12	<p>Working drawings</p> <p>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.</p>				
13	<p>Record Drawings 'As Installed' drawings</p> <p>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.</p>				
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
14	Maintenance manual Upon practical completion of the sub-contract works, the sub-contractor shall furnish the Engineer four copies of a maintenance manual relating to the installation forming part of all of the Sub-contract works.				
15	Hand over The sub-contract works shall be considered complete 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. The handing over of the sub-contract works shall be coincident with the handing over of the main contract works.				
16	Testing and Inspection – Manufactured Plant The Engineer reserves the right to inspect and test or witness of all manufactured plant equipment and materials.				
17	Testing and Inspection –Installation Allow for testing each section of the sub-contract works installation as described hereinafter to the satisfaction of the Engineer.				
18	Storage of materials Space for storage will be provided by the main contractor but the sub-contractor will be responsible for provision of any lock-up sheds or stores required.				
19	Initial Maintenance The sub-contractor shall make routine maintenance once a month during the liability for the Defects Period and shall carry out all necessary adjustments and repairs, cleaning and oiling of moving parts. A monthly report of the inspection and any works done shall be supplied to the Engineer.				
	Sub-total carried forward to the next page				

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
	Sub-total carried forward from the previous page				
20	Local and other Authorities notices and fees The contractor shall comply with and give all notices required by any Regulations, Act or by Law of any Local Authority or of any Public Service, Company or Authority who have any jurisdiction with regard to the works or with those systems the same are or will be connected and he shall pay and indemnify the Government against any fees or charges legally demandable under any regulation or by-law in respect of the works; provided that the said fees and charges if not expressly included in the contract sum or stated by way of provisional sum shall be added to the contract sum.				
21	Supervision by Engineer and Site Meetings A competent project Engineer appointed by the CE (E) as his representative shall supervise the contract works. The project Engineer shall be responsible for issuing all the site instructions in any variations to the works and these shall be delivered through the contractor with the authority of the project manager. Any instructions given verbal shall be confirmed in writing.	Item	1	300,000	
22	Mobilization and Demobilization The contractor shall mobilize labour plant and equipment to site according to his programme and schedule of work. He shall ensure optimum presence and utilization of labour, plant and equipment. He should not pay and maintain unnecessary labour force or maintain and service idle plant and equipment. Where necessary he shall demobilize and mobilize the labour, plant and equipment, as he deems fit to ensure optimum progress of the works and this shall be considered to be a continuous process as works progress. He shall make provision for this item in his tender. No claim will be entertained where the contractor has not made any provision for mobilization and demobilization of labour, plant and equipment in the preliminary bills of quantities or elsewhere in this tender.				
	Total for BILL No. 1- Preliminaries:- carried forward to Price Summary Page 18				

BILL NO. 2: WORK ITEMS**PRICE SCHEDULE 1.0 – PRICE FOR 2NO. PASSENGER LIFT**

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
1.01	Price for all imported materials (give break-down on a separate sheet)	Item	2		
1.02	Price for locally purchased materials, installation, testing and commissioning costs (give breakdown on separate sheet)	Item	2		
1.03	Price for registration of the lifts by the Ministry of Labour (see page 21 clause 15 of section IV).	Item	2		
1.04	Price for full service maintenance of the 1No.new lifts during the 12 months defects liability period for whole period as described on page 21 clause 14 @ Kshs.per month	Item	2		
1.05	Price for statutory inspection of the 2No.new lifts on commissioning and there after two times during the 12 months defects liability period for whole period as described on page 21 clause 13	Item	1		
1.06	Allow for the assembling and installation of the 2No. lift.	Item	1		
1.07	Supply and install Suitably rated Voltage Stabilizers, 1No. for each lift	No.	2		
1.08	Supply and installation of Automatic Rescue Devices in each lift to Engineers Approval	No.	2		
1.09	Price for 2 sets of record drawing as described in the specifications.	Item	2		
1.10	Price for the travelling cable for interfacing fire alarm system, C.C.T.V and Audio system (the systems to be installed by others). Include high quality speakers connected to the cable and installed in the lift cars to engineers' approval.	Item	2		
1.11	Allow for any associated electrical works including provision of shaft lighting, power distribution to the new lifts	Item	2		
1.12	Allow for lift car interior finishes as described in page 22 and section IV of the tender document	Item	2		
1.13	Allow for lift landing doorarchitrive finishesin granite tiles and all lift landingsto the satisfaction of theproject manager and client as on page 22 of the tender document	Item	2		
1.14	Allow for Testing and Commissioning of the 2No. Lifts	Item	2		
	Sub-Total For 2No. Passenger Lifts Carried Forward to Price Summary Page18				

PRICE SCHEDULE 2.0 – PROVISIONAL SUMS

Item	Description	Unit	Qty	Rate (Kshs)	Cost (Kshs)
2.01	Allow for a provisional sum of Ksh. 200,000 for CPD Training for Electrical Engineers	Item	1	200,000	200,000
2.02	Allow for profit and attendance on item 2.01 above%				
2.03	Contingency Allow a Provisional Sum of Kenya Shillings Kshs. 400,000/- contingency to be used at the discretion of the project manager	Item	1	400,000	400,000
2.04	Provisional sum for overseas factory inspection by 2 no. Engineers from the ministry of Lands, public works, housing and urban development as described in clause 17 of section IV	Item	1	2,800,000	2,800,000
2.05	Allow for profit and attendance on item 2.04 above%	Item	1		
2.06	Provisional sum for training 2No. Technicians as described in clause 11 of section IV on page 21	Item	1	300,000	300,000
2.07	Allow for profit and attendance on item 2.06 above%	Item	1		
	Sub-Total For Provisional Sums And Project Manager's Expenses Carried Forward to Price Summary Page 18				

PRICE SUMMARY PAGE

Item	Description	Cost (Kshs)
1	Subtotal for Preliminaries brought forward from page 15	
2	Subtotal for Schedule 1.0 - 2No. Passenger Lifts brought forward from page 16	
3	Subtotal for Schedule 2.0 – Provisional Sums brought forward from page 17	
	GRAND TOTAL OF PRICES CARRIED FORWARD TO GRAND SUMMARY PAGE	

Total amount in words: Kenya Shillings

.....

.....

Signed by Tenderer

P.I.N. VAT Reg. No

Date

Official rubber stamp

Signed by Witness

Name of Witness

Address

Date

SECTION IV – SPECIFICATIONS

A. GENERAL SPECIFICATIONS

1. REGULATIONS

All Apparatus and materials supplied and work carried out shall comply with the provisions of the following documents: -

- (a) The latest Edition of I.E.E Regulations
- (b) The Kenya Power and Lighting Co. Ltd By-laws
- (c) The Electric Power Act and the Rules made there under.
- (d) EN81-20:2014 and EN81-50:2014
- (e) The requirements of the Chief Inspector of Factories for the Kenya Government, Factories Act Chapter 514 SECTION 30. **The contractor shall avail all the certificates.**
- (f) Any other regulations governing lift and escalator installations in Kenya
- (g) Kenya Bureau of Standards (KBS) lifts standard KS 2169 – 1

2. BUILDER'S WORK BY LIFT CONTRACTOR

A. Lifts Shaft

- (i) The dimensions of the lifts shafts are 2200 (width) by 2060 mm (depth) for Passenger Lifts (2NO.)– It shall be the responsibility of the lifts Contractor to verify the dimensions of the lifts shaft before placing any orders for importation. The Employer/employer's representative will bear neither responsibility nor liability for any approximate dimensions issued – as a guide to the Contractor.
- (ii) The lifts Contractor shall provide cut-outs for hall buttons, hall position indicators, hall lanterns, shaft ventilations and fire man's switch.

It shall be the responsibility of the lifts Contractor to provide, properly position and fix the hall buttons, hall indicators, hall lanterns, fire man's switches, door frames, sills and architraves.
- (iii) The lifts Contractor shall provide the necessary scaffolding for erection of equipment and hoarding to secure the work area from general public and maintain safety of the people and other installations in the building.
- (iv) The lifts Contractor shall provide temporary electricity supply for erection and shaft lighting, and thereafter a permanent supply from an appropriate isolator.

B. Lifts Pits

The lifts contractor shall provide and fix ladders where such facility may be required as stipulated in **EN81-20:2014**, and terminal and over travel limit switches.

C. Lift Motor Room

The lifts Contractor shall provide the following in the lifts motor room:

- (i) Cut-outs for roping, safety gear ropes, selector tapes (where provided) cabling etc. in the lift room floor.

- (ii) Lifting beam in the form of a rolled steel joist if required.
- (iii) General lighting cable ducts and conduits and power and ventilation equipment.

D. Access

The lifts Contractor shall provide stairway access with lockable doors to the lifts motor room. On the outer side of the door shall be written in red letters:

“DANGERS 415 VOLTS – LIFT MOTOR ROOM – NO UNAUTHORISED PERSON ALLOWED INSIDE”

E. Builder’s Work

The lifts Contractor shall provide for:

- (i) All chasing, shaft ventilation and making good
- (ii) All drilling and plugging of holes in floors, walls, ceiling and roofs for security services, and for equipment requiring screw or bolt fixing.
- (iii) Any purpose made fixing brackets

3. FIREMAN’S SWITCH FOR THE LIFTS

A fireman’s control switch shall be provided in the down terminal floor, main entrance lobby. The Fireman’s Switch shall be of the type approved by the Engineer.

Operation of the Fireman’s switch shall stop the lift car on the next landing but without opening the car and landing doors and immediately return the lift to the ground floor irrespective of any other calls and park lift with doors open. The car will then become in-operative with the exception of the ‘Fireman’s Lift’ which shall operate in answer to the car buttons until only the fireman’s switch is reset.

4. EMERGENCY ALARM SYSTEM

An emergency alarm system and an intercom shall be installed between the car, the motor room, and the reception desk on the ground floor.

The alarm system shall be clearly labeled “Emergency Alarm”. On pushing an alarm button, the system should ring simultaneously in the car, motor room (top floor at the controller for MLR lifts) and the reception desk. The lifts Contractor shall carry out the wiring in the lift car and between machine and the reception desk. The Power supply for the alarm system shall be derived from a self-recharging unit.

5. EMERGENCY DOOR KEYS

It shall be possible to open every lift-landing door by the use of a release key whether or not the lift car is in the landing zone. The key hole shall be unobtrusive and located at high level.

6. CALL STATION AND OPERATING PANEL BUTTONS

The call station, distributed between the lifts on each landing, and operating panel buttons shall be micro-motion push button.

7. INTERFERENCE SUPPRESSION

The lift motor and auxiliary controls shall be suppressed so as not to interfere with local radio and television reception and closed circuit television or Electro mechanical equipment within the building. The suppression shall be carried out in accordance with **EN81-50:2014** and all suppression devices incorporated shall comply with **EN81-20:2014**.

8. PROTECTION PADS

The lifts Contractor shall supply one set of protective quilted cover pads to approval for passenger lift cars.

9. CAR EMERGENCY LIGHTING

The lift car shall be provided with an emergency light fitting operating from a self-recharging battery unit. The emergency light will be built in the car-operating panel.

10. TEST

Both on completion of his work on the lift and at the end of the guarantee period, the lift Contractor shall carry out all the tests as required and in accordance with **EN81-50:2014** in the presence of the Engineer and shall provide all the necessary instruments, labour and materials to do so at his cost.

Damage occurring, as a result of these tests will be made good by the Lifts Contractor to the Engineer's Satisfaction at his expense.

2No. (Two) copies of the test certificates for each lift should be forwarded to the Engineer within 4 days of completion of the last test.

11. TRAINING

The tenderer shall provide in his tender for the attachment on site, for training in the maintenance of the lifts, of 2No. technicians during the dismantling, installation, testing and commissioning period.

12. PROTECTION AGAINST POWER/VOLTAGE FLUCTUATIONS, SURGE AND TRANSIENT CURRENTS

The lift equipment and all its controls shall be protected against power/ voltage fluctuations, surges and transient currents. The contractor shall provide for and install all the necessary equipment for this protection.

The protective switchgear shall be verified by the Engineer during the overseas factory inspection.

13. INITIAL STATUTORY INSPECTION

13.1 The tenderer shall allow in his tender for the initial statutory inspection of the lifts by an Approved Government Lift Inspector during the commissioning of the new lifts, and thereafter for inspection at intervals of six (6) months periodic time during the 12 months defects liability period. One of the inspections shall be done after the expiry of the defects liability period on confirming that all the defects (if any) have been corrected by the lifts contractor.

13.2 The employer and the contractor shall, at each inspection, each retain a copy of the lift inspection certificates while the original will be submitted to the Ministry of Labour and Human Resources Development.

14. INITIAL MAINTENANCE

14.1 The tenderer shall allow in his tender for the initial routine service maintenance of the new lifts once a month during the 12 months defects liability period and shall carry out all necessary adjustments and repairs, cleaning, greasing and oiling of moving parts.

14.2 During the initial maintenance of the new lifts, the tenderer shall also allow in his tender 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 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.

14.3 The 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 the defects liability period.

14.4 A monthly report of any works done upon the installation shall be supplied to the Engineer.

15. REGISTRATION OF THE NEW LIFTS

15.1 The tenderer shall allow in his tender for the registration of the new lifts with the Ministry of Labour including payments of any fees that may be required. It is the responsibility of the Contractor to avail the registration certificate to the client once the registration has been done.

16. INTERIOR LIFT CAR FINISHES

16.1 The car interior (wall, doors and ceiling) shall be highly engineered polished mirror stainless steel finish with LED Down lighter and LED Strips on ceiling periphery.

The full Architraves shall be real original Granite to Architects/ clients approval.

The tenderer must allow for the said car interior finishes in their bid.

17. FACTORY INSPECTION

17.1 The employer shall be entitled to have the quantity and quality of the imported lifts materials inspected by two number (2No.) engineers appointed by the project manager and two (2No.) representative for the employer.

17.2 The said inspection shall be carried out at the factory of manufacture of the lifts materials during normal working hours and the successful tenderer shall give written notice to the project manager at the latest thirty (30) calendar days in advance of the date that the lifts materials are ready for inspection.

17.3 Travel (including ground, air travel and airport passage taxes) and full board accommodation expenses in at least a three (3) star hotel incurred by the engineers appointed by the project manager, and the employer's representative shall (see clause 17.1) be borne by the contractor. The contractor shall also meet out of pocket expenses for the officers at Government of Kenya rates for the duration of the factory inspection. The costs incurred shall be re-imbursed to the contractor from the provisional sum allowed in the Bills of Quantities.

17.4 The inspection period shall be five (5) working days excluding travelling time.

17.5 If as a result of the inspection any of the lift materials are found to be defective, the successful tenderer shall replace the defective materials and determine a new date as when a new inspection shall be performed at the expense of the contractor.

17.6 The successful tenderer shall only ship the lift materials after the said factory inspection.

18. LIFTS MONITORING SYSTEM

This is to be a software based system with two 24" color monitors and key boards (in parallel – **two locations - for the client**) to monitor and control security functions at all times. They shall be located at – security area – and at maintenance office. It shall monitor the 2No. Lifts.

B. PARTICULAR SPECIFICATIONS

1.0 LOCATION OF SITE

The site of the proposed works is at **Maasai Mara University, Narok County.**

2.0 DESCRIPTION OF THE WORKS

The project comprises the supply, installation, testing and commissioning of 13pax, 2.5m/sec conventional passenger destination controlled (3VF) modern microprocessor control based lifts and including associated builders and electrical works.

3.0 CLIMATE CONDITIONS

The following climatic conditions apply at the site of the contract work and the equipment, materials and the installations shall be suitable for these conditions.

Mean Maximum Temperatures 31.50 °C Mean Minimum

Temperature 13.1 °C Range of Relative humidity 48% - 93%

Altitude 1825m above sea level

Latitude /Longitude 1.0946° S, 35.8592° E

Solar Radiation, February Mean Max 543 Langley's

Extremely heavy rainfall is experienced at certain periods of the year and the contractor shall be deemed to have taken account of this factor both in his prices and his planning of the execution of the contract works.

4.0 GENERAL REQUIREMENTS

The lifts Contractor shall supply, deliver unload, hoist, fix and erect, test and commission all the equipment, plant and materials in accordance with all specifications contained in this document including the Building plans to provide a complete and operable installation.

The lifts Contractor shall become liable for defects and be responsible for the initial maintenance of the lifts installed all as specified here in.

5.0 PARTICULAR REQUIREMENTS

The tenderer shall provide factory compliance certificate for EN81–20 / EN81-50 to prove compliance with this European code. Failure to provide this shall render the tender non –responsive and hence the bid will not be considered.

6.0 TECHNICAL SPECIFICATION FOR THE PASSENGER LIFTS

D) 2NO. PASSENGER LIFTS

No. of Units:	Two (2No.)
Load:	1000Kg (13 persons)
Speed:	2.5m/s
Drive:	AC gearless closed loop digital VVVF (microprocessor Controlled)
Control System:	Electronic. Fully software based microprocessor controlled system and an advanced integrated lift management system to serve 2No. Lifts in one group.
No. of Stops:	6 stops (lower ground floor, G, 1,2,3,4, Floors)
Travelling Cable:	Install travelling cable to serve interface for fire alarm system, C.C.T.V and Audio System.
Lift Pit:	Minimum 1800mm (subject to confirmation on site)
Head Room:	5000mm minimum - (subject to confirmation on site)
Normal Operation:	2No. Group collective function.
Power Requirements:	415V±5% ac, 3 phase, at 50Hz
Machinery:	Gearless with Machine room.
Travel Height:	(subject to confirmation on site)
Shaft Size:	The dimensions of the lifts shafts 2200mm (width) by 2060mm (depth)

Other main facilities

and functions to be included:	Car door operation shall be fully automatic with (infra-red) electronic door sensors
:	Car position indicator with floor numbers on every floor
:	Door button – re-open
:	Voice guidance system (voice synthesizer)
:	Emergency power operation and system backing (To ensure lift stops and opens doors at the nearest floor landing in case of power failure)
:	Intercom facility – 3 way
:	Alarm power unit and bell complete with a maintained back-up power supply
:	Safe landing with deviation of not more than 3mm
:	Floor position indicator on every floor
:	Independent service key operation
:	Signal floor lantern with sounders or car arrival chimes on all floors.
:	All the lift call buttons and car operation panels must have buttons for the disabled (Braille for the blind and button for wheel chair users)
:	Remote control car stop (emergency)
:	Cabin ventilation shall be tropicalized high Capacity cylinder type operation.
:	Car extract fan should be powerful, quiet, drought free and multi-directional complete with maintained back-up power supply
:	Shall incorporate an Audio Visual car overload device.
:	Shall have forced ventilation key switch.
Code Compliance:	The lift shall comply with European Specification equivalent code EN 81-20/2014 and EN81-50/2014
Structural Openings:	The lift Contractor shall set the landing doors at 10mm from the finished floor levels so as to get a fall away from the landing to prevent water from flowing down the lift shafts when washing up.
Entrances:	The lifts car shall have automatic high speed power operated doors as follows: - Panel Centre opening doors of 900mm wide by 2200mm high.
Car door:	Stainless steel all to Engineer's approval.
Landing door:	Stainless steel to Engineer's approval.
Landing door architraves:	Architraves to be stainless steel wide jamb to approval by the engineer.
Wall switches:	All operating switches in the lifts shaft shall be of the totally enclosed drip Proof type.
Lighting:	Indirect Lighting shall be fitted in the car to a level of 150 lux. The fittings shall be fully recessed to prevent damage by tall items and have automatic ON/OFF energy saving features. Emergency car lighting to be incorporated
Cabin walls:	Hairline stainless steel to Engineer's approval.
Mirror:	Three Quarters of height and full width on rear side of lifts for passenger lift (2No.)
Door Operation:	Heavy duty variable frequency driven door operators on a frame above the lift car. Fully adjustable door open and close speeds - Micro-processor controlled. Intelligent speed adjustments to cope with traffic requirements Full curtain electronic infrared 3 dimensional detectors.

An electro mechanical type tested interlock shall be provided, fitted on the landing door and operated by the door lock cam on the lift car to prevent movement of the lift car until the landing door is both mechanically and electronically locked.

Hand rails:	Hairline stainless steel plating hand rails to be provided on the three panel sides. Lower rails for wheel chair users also to be incorporated.
Emergency light:	Emergency light in the lift cars shall be 6 watts complete with a maintained back-up power supply
Signal Hall Lanterns:	LCD displays and different tones for up and down motions.
Signal fixtures:	Wide angle view car position indicator unit with high reliable LED technology.
Floor buttons:	Micro motion with ring illumination Brushed stainless steel plate with Braille indication and button for wheel chair users.
Floor:	Granite tiles, 6mm thick for
Car position indicators:	Car position indicators shall be digital LCD type & Buzzers.
Car direction indicators:	Car direction indicators shall have polycarbonate Covers and 160° angle view.
Manual operation:	Provision shall be made for manual raising and Lowering by means of spokeless Wheel. This wheel shall be mounted on the drive motor or provided at the controls for the machine-room less lifts. This facility should be availed at the control panel
Guarantee of Spare parts:	The tenderer must confirm in writing and provide Written commitment from manufacturer, the availability of parts for the make of lift proposed for installation, for a continuous period of at least 10 (Ten) years.
Painting:	All parts of the control equipment, switchgear trunking bed plates and closed sections of metal parts which will not be accessible for painting after erection shall be given three coats of paint at the manufacture's works. All bright surfaces shall be coated with lacquer or other protective coating before leaving the manufacturer's works. Metal works in the lift shaft shall be painted on site with three coats of best quality oil paint. The lifts machine and other machinery located in the lifts motor room shall be painted with three coats of best quality oil paint one coat being applied after erection.
Construction:	In general, the lift car shall be constructed from pressed steel. The method of construction and strength of lift cars, doors and panels shall comply with B.S. 5655. Part 1 1970 and the amendments and in accordance with European code EN81-20 / EN81-50.
Base frame:	The complete hoisting equipment shall be mounted on a base frame of fabricated steel which when installed shall be insulated from the building structure by means of rubber or other approved sound and vibration isolated material provided and fixed in an approved manner between frame and the supporting beams.
Facilities for the Disabled:	Shall comply to EN81-20 / EN81-50
Communication & Monitoring Equipment wiring:	The lifts shall be fully equipped with an industry standard interface (LON, BACnet etc.,) for Building management system interconnection for remote monitoring and control. The lifts shall also have an interface for integration with the facility's access control system.

7.0 INFORMATION TO BE SUPPLIED BY THE TENDERER

7.1: The tenderer shall fill in the following information pertaining to the Lift offered at the time of tendering: -

- (i) Type of Drive Motor
- (ii) Size of the Drive Motor (KW).....
- (iii) Country of Manufacture
- (iv) Power Factor
- (v) Starting Current A
- (vi) Running Current B.
- (vii) Duration of Starting Current
- (viii) Lift Capacity (Kg/Persons).....
- (ix) Lift Speed
- (x) Landing Doors Type
- (xi) Landing Doors Safety Features.....
- (xii) Dimensions of Lift Car
- (xiii) Shaft size dimensions (WxD).....
- (xiv) Dimensions of Landing Doors
- (xv) Structural Openings (WxH).....
- (xvi) Headroom (Height)

Statement of Compliance

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

Signed:*for and on behalf of the Tenderer*

Date:

Official Rubber Stamp:

C. TECHNICAL SCHEDULE

1. The technical schedule shall be submitted by tenderers to facilitate and enable the Project Manager to evaluate the tenders, especially where the tenderer intends to supply or has based his tender sum on equipment which differs in manufacture, type or performance from the specifications indicated by the Project Manager.
2. The filling of this schedule forms part of Technical Evaluation of the tenders, and bidders shall therefore be required to indicate the type/make and country of origin of all the materials and equipment they intend to offer to the employer in this schedule.
3. This schedule shall form part of the technical evaluation criterion, and tenderers are therefore advised to complete the schedule as they shall be considered responsive.

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

(ATTACHMENTS ARE ALLOWED IF THE LIST IS LONG)

ITEM	DESCRIPTION	TYPE/MAKE	COUNTRY OF ORIGIN

SECTION V - DRAWINGS

Note A list of drawings should be inserted here. The actual drawings including Site plans should be annexed in a separate booklet.

SECTION VI - CONTRACT FORMS

NOTE:

Tenderers must duly fill these Standard Forms as a mandatory requirement as they will form part of the evaluation criteria.

1. Key Personnel
2. Schedule of Contracts completed in the last five (5) years
3. Schedule of on-going projects

Commissioning Guide for Electric Lifts

KEY PERSONNEL

Qualifications and experience of key personnel proposed for administration and execution of the Contract.

Note: The Tenderer must give actual names. The successful Tenderer will not be permitted to vary the supervisory staff employed on the site without prior approval of the Engineer.

POSITION	NAME	YEARS OF EXPERIENCE (GENERAL)	YEARS OF EXPERIENCE IN PROPOSED POSITION
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

I certify that the above information is correct.

.....

Title

.....

Signature

.....

Date

CONTRACTS COMPLETED IN THE LAST FIVE (5) YEARS

Work performed on works of a similar nature, complexity and volume over the last 5 years.

PROJECT NAME	NAME OF CLIENT	TYPE OF WORK AND YEAR OF COMPLETION	VALUE OF CONTRACT (Kshs.)

I certify that the above works were successfully carried out and completed by ourselves.

.....

.....

.....

Title

Signature

Date

SCHEDULE OF ON-GOING PROJECTS

Details of on-going or committed projects, including expected completion date.

PROJECT NAME	NAME OF CLIENT	CONTRACT SUM	% COMPLETE	COMPLETION DATE

I certify that the above works are currently being carried out by ourselves.

.....

.....

.....

Title

Signature

Date _____



COMMISSIONING GUIDE

FOR

ELECTRIC LIFTS

Issued by:

**CHIEF ENGINEER
(ELECTRICAL) P.O. BOX 30743 -
00100
NAIROBI.**

1ST EDITION (2008)

A. DOCUMENTS REQUIRED

The following documentation is required for conducting tests

1. Owner's manual
2. Specifications/Bills of Quantities
3. As Built (approved) drawings

B. SPECIAL NOTES

NA - means not applicable

NC – means not in compliance (to clarify noncompliance give more details at the bottom of the corresponding page if necessary).

Fix – means compliance is obtained after fixing. OK

– means in compliance.

. C. CONTRACT DETAILS

1. CONTRACT NO.
2. COMMENCEMENT DATE
3. COMPLETION DATE
4. SITE IDENTIFICATION
5. NUMBER OF LIFTS
6. NAME AND ADDRESS OF CONTRACTOR.....
.....
.....
.....
7. BUILDING
.....

D. LIFTS IDENTIFICATION DETAILS

LIFT SERIAL NO. LIFT
TYPE
YEAR OF MANUFACTURE
COUNTRY MANUFACTURE CAPACITY
.....

E. DESCRIPTION OF LIFT(S) INSTALLATION

1. Length of travel
2. No. of levels served (total).....
3. No of landing doors front
- Rear
4. Rated loadkgpersons
5. Rated speedm/s
6. Mass of counterweightkg
7. Mass of Empty carkg

F. DRAWING/DOCUMENTS**CONFIRM THAT THE DRAWING OR OTHER DOCUMENTS CONTAIN****INFORMATION RELATING TO THE FOLLOWING**

Item	Details/Remarks
1. Loads and forces imposed on the building	
2. Indication of the shaft enclosure dimensions	
3. Dimensions of pit and headroom	
4. Location of the machinery and access	
5. Access spaces underneath the shaft	
6. Fixation points of guide rails, maximum distance allowed between each brackets	

G. POWER SUPPLY**1. SPECIFIED**

Power voltage V

Fusing rating A

2. ACTUAL AT TIME OF TEST

Power voltageV

Fusing ratingA

H. LIST OF USED SAFETY COMPONENTS

Item	Details/Remarks
1. Device for locking handing door	
2. Device to prevent lift car from falling (safety gear)	
3. Over speed limitation device (speed governor)	
4, Buffers – Energy accumulation, nonlinear (car)	
5. Buffers – Energy accumulation – non liner (cw)	
6. Energy dissipation (car)	
7. Energy dissipation (cw)	
8. Device to prevent uncontrolled upward movement.	
9. Electric switches containing electronic components	

I. MACHINERY

Item	Details/Remarks
<p>1. Confirm that the main switch is in accordance with the specified</p> <p>2. Confirm that an electric socket outlet has been provided in the controller.</p> <p>3. Confirm that a light has been provided at the controller and operates.</p> <p>4. Confirm that the safety signs are inside the MAC and SCP.</p> <p>5. Confirm that the electrical emergency operation system functions correctly</p> <p>6. Confirm that the emergency release instructions are displayed in the controller cabinet</p> <p>7. Confirm that the controller cabinet is fitted with a suitable door Lock.</p> <p>8. Confirm that there is a communication device in place and working</p> <p>9. Confirm that means of lifting heavy components are available and correctly marked (lifting accessories)</p> <p>10. Confirm that the safety chain has been tested to ensure that an earth fault will cause disconnection.</p> <p>11. Confirm the installation of the surge protector</p>	

J. THE SHAFT**CLEARANCES AND RUN BYS**

Check pit/overhead dimensions by reference to approved values of the type – examination certificate.

	TOLERANCES mm	SPECIFIED M	MEASURED (M) DISTANCE	IN COMPLIANCE
Overhead complies with the value of layout (drawing)	0, + 25			
Pit depth complies with value of the layout	0, + 25			
Run-by between counter weight and buffer complies with layout (Drawings)	-25/+25			
Lift travel complies with layout. (Drawings)	-25/+25			

Item	Details/Remarks
1. Confirm that the above dimensions are within the specified tolerance	
2. Confirm that the car buffers are in accordance with what was specified by the manufacturer	
3. Confirm that the Energy accumulation buffers (non-linear type) have been CE marked	
4. Confirm that the cwt buffers are in accordance with the manufactures specification	
5. Confirm that the Energy dissipation buffers (oil type) has been CE	
6. Confirm whether Energy accumulation buffers (non-linear type) have been CE marked	
7. Confirm that the well lighting level above the car roof and the pit is about 50 lux	
8. Confirm that the lighting level in front of the machine is about 200 lux	
9. confirm that the terminal light fittings are less than 0.5m from the pit floor	
10. Confirm that the lights can be switched from both the pit and controller	
11. Confirm that an electrical outlet has been provided in the pit	
12. Is the designation of the guide rails in accordance with the Manufacturer's specification for the car?	
13. Confirm that the maximum pitch of the rail fixings does not exceed the value	

K THE CAR

Item	Details/Remarks
<ol style="list-style-type: none"> 1. Confirm that the available floor conforms to that specified 2. Confirm that the inside of the car is at least 2.0m in height 3. confirm that where glass panels are used a hand rail is not fixed on the panels 4. Confirm that the max load and manufacturers name is indicated in the car (i.e. number of persons, load in kg and identification number) 5. Confirm that the emergency alarm device allows two-way verbal communication with a rescue service 6. Confirm that the lighting in the car gives a minimum of 50lux at floor level and on the controls. 7. Confirm that the emergency lighting on the car roof Operates correctly. 8. Confirm that the emergency lighting in the car operates correctly 9. Confirm that the car overload device operates correctly. 10. Confirm that the ventilation has been provided in the car. 	

L. CAR TOP

Item	Details/Remarks
<ol style="list-style-type: none"> 1. Confirm that the top has been fitted with controls, stopping devices and socket outlets. 2. confirm that the car top station operates correctly on:- <ul style="list-style-type: none"> Movement Stopping Travel limits Interaction with emergency recall drive 3. Confirm that the alarm device on the car roof top operates correctly 4. Confirm that the car roof has one clear area for standing 5. Confirm that the parking device on the car roof operates correctly mechanically and electronically 6. Confirm that the stopping devices on the car top have been positioned correctly and provided so that when operated they stop and prevent movement of the car confirm double presence in case of double entrance. 	

M. CAR ENTRANCE CLEARANCE

Item	Details/Remarks
<ol style="list-style-type: none"> 1. Confirm that the running clearance between the door panels and between the panels and uprights, lintels, or sills is less than or equal to 6mm. 2. Confirm that no recess or projection on the face of the door panels exceeds 3mm. 3. Confirm the horizontal distance between car and landing door sills is 35mm or less 	

N. LANDING AND CAR DOOR

Item	Details/Remarks
<ol style="list-style-type: none"> 1. Confirm that the closing force limiter operates if the panel movement is blocked. 2. Confirm that all protective devices reverse the doors 3. Confirm that each set of landing doors is capable of being unlocked from outside with an emergency key. 4. Confirm that the doors can be opened manually within the unlocking zone. 	

O. SUSPENSION CONTROLS BRAKING AND TRACTION

Item	Details/Remarks
<ol style="list-style-type: none"> 1. Confirm that the correct suspension ropes are supplied. (Check using manufacturer's approved drawings/documents/specifications) 2. Confirm that the suspension rope terminations are correctly made and secure (washer, safety nut and pin). 3. Confirm that the suspension rope terminations ensure distribution of load between the rope (spring equalizer). 4. Confirm that the car stops under emergency conditions when traveling upwards at rated speed in the upper part of the well. 5. Confirm that the car stops under emergency conditions when traveling downwards at rated speed with 125% rated load in lower part of the well. 6. Confirm that the car cannot be raised when the counterweight rests on a compressed buffer. 7. Confirm that the car balance is correct. 8. Confirm that the leveling and re-leveling circuits operate correctly. 	

P. CAR & COUNTERWEIGHT SAFETY GEAR & OVERSPEED PROTECTION

Item	Details/Remarks
<ol style="list-style-type: none"> 1. Confirm that the safety gear has been CE marked 2. Confirm that the safety gear stops the car in the downward direction when operated by the governor and engaging at the appropriate speed with load uniformly distributed at 125% of rated load at rated speed or lower for progressive safety. 3. Confirm that the floor of the lift is horizontal or slopping less than 5% from the horizontal after safety gear operation. 4. Following the test confirm that no deterioration which could adversely affect normal use of the lift has occurred. 5. Confirm that the electrical safety device operates correctly. 	

Q. COUNTER WEIGHT GONERNOR

Item	Details/Remark
<ol style="list-style-type: none"> 1. Confirm that the over speed governor has been CE marked. 2. Confirm that the electrical safety device on the over speed governor operates correctly. 3. Confirm that the electrical safety device on tension weight detecting breakage or slack in overspeed governor safety rope operates correctly. 	

R. ASCENDING CAR PROTECTION

Item	Details/Remark
<ol style="list-style-type: none"> 1. Confirm that the protective device has been CE marked 2. Confirm that the device functions correctly with the car ascending at not less than the rated speed. 3. Confirm that the electrical safety device on the means of protection operates correctly (Governor Switch). 	

S. MEASUREMENT OF THE ELECTRICAL SYSTEM

Item	Details/Remark
S1. <u>PROTECTIVE DEVICES</u> <ol style="list-style-type: none"> 1. Is the motor for the for the lift windings protection operating correctly. (is the motor protected) 2. Is the protection for the door motor winding supplied and operating correctly 3. Is the correct motor run time limiter supplied and operating time correctly set 4. Confirm the that lighting and socket supply is separate from that of the lift machine and that they have their own independent circuits 	
S2. <u>DOCUMENTATION</u> <ol style="list-style-type: none"> 1. Confirm that all the specified documentation has been supplied. <ul style="list-style-type: none"> <input type="checkbox"/> USER MANUALS <input type="checkbox"/> WIRING DIAGRAMS <input type="checkbox"/> OPERATION MANUALS <input type="checkbox"/> STATUROTYPICAL INSPECTION <input type="checkbox"/> CERTIFICATES <input type="checkbox"/> LIFT INSPECTION REPORT BY LICENCED LIFT INSPECTOR <input type="checkbox"/> HANDING OVER CERTIFICATES 	

T. SIGNATURES

1. PROJECT MANAGER

NAME

DESIGNATION

STAMP

2. CONTRACTOR.

NAME

DESIGNATION

STAMP

3. CLIENT

NAME DESIGNATION

..... STAMP

.....

BILL 7

PLUMBING, DRAINAGE AND FIRE PROTECTION

WORKS

REPUBLIC OF KENYA



MAASAI MARA UNIVERSITY

PROPOSED MAASAI MARA UNIVERSITY LIBRARY BLOCK-PHASE 1

W.P ITEM No. BD1065/RV/NRK/2301/JOB No. 11217A

***TENDER SPECIFICATIONS & BILLS OF QUANTITIES FOR
SUPPLY, DELIVERY, INSTALLATION, TESTING AND COMMISSIONING OF
PLUMBING, DRAINAGE AND FIRE PROTECTION WORKS***

PROJECT MANAGER**WORKS SECRETARY**

STATE DEPARTMENT FOR PUBLIC WORKS

P.O BOX 30743 - 00100

NAIROBI**CLIENT****VICE CHANCELLOR**

MAASAI MARA UNIVERSITY

P.O BOX 861 - 20500

NAROK**ARCHITECT****CHIEF ARCHITECT**

STATE DEPARTMENT FOR PUBLIC WORKS

P.O BOX 30743 - 00100

NAIROBI**QUANTITY SURVEYOR****CHIEF QUANTITY SURVEYOR**

STATE DEPARTMENT FOR PUBLIC WORKS

P.O BOX 30743 - 00100

NAIROBI**ELECTRICAL ENGINEER****CHIEF ENGINEER (ELECTRICAL)**

STATE DEPARTMENT FOR PUBLIC WORKS

P.O BOX 41191- 00100

NAIROBI**MECHANICAL ENGINEER****CHIEF ENGINEER (MECHANICAL (BS))**

STATE DEPARTMENT FOR PUBLIC WORKS

P.O BOX 41191- 00100,

NAIROBI**STRUCTURAL ENGINEER****CHIEF ENGINEER (STRUCTURAL)**

STATE DEPARTMENT FOR PUBLIC WORKS

P.O BOX 30743- 00100

NAIROBI**NOVEMBER, 2023**

MECHANICAL WORKS

SUB-CONTRACT 1

INTERNAL PLUMBING, DRAINAGE AND FIRE PROTECTION INSTALLATION WORKS

NOVEMBER, 2023

PROPOSED MAASAI MARA UNIVERSITY LIBRARY-PHASE 1 PLUMBING AND DRAINAGE INSTALLATION WORKS EVALUATION CRITERIA

SECTION A - EVALUATION AND QUALIFICATION CRITERIA

This criterion shall be used to evaluate the bidders proposed to carry out the specialized works who shall be domestic subcontractors to the main bidder on award of the contract.

TENDER EVALUATION CRITERIA

After tender opening, the tenders will be evaluated in **4 stages**, namely:

- 1. Preliminary Evaluation**
- 2. Technical Evaluation**
- 3. Financial Evaluation**
- 4. Recommendation of Award**

Note: This criterion shall be used to evaluate sub-contracts

STAGE 1: PRELIMINARY EVALUATION

This stage of evaluation shall involve examination of the mandatory requirements as set out in the Tender Advertisement Notice or Letter of Invitation to Tender and any other conditions stated in the bid document. These conditions shall include the following:

S/No	MANDATORY REQUIREMENTS(MR)
MR1	Valid Copy of certificate of incorporation/ Registration.
MR2	Valid Current Tax Compliance Certificate from Bidding Company, and if Consortium, from each member of the consortium.
MR3	Submission of valid CR12 form showing the list of directors /shareholding (issued within the Tendering Period) or National Identity Card(s) for Sole Proprietorship / Partnership
MR4	NCA registration certificate and annual valid NCA 1 in Plumbing and Drainage, Water Tanks, Borehole Equipment, Fire Engineering Services and Treatment Plant Installation Works Categories
MR5	Current annual contractors practicing license from NCA for works listed in item MR4
MR6	Compliance to Particular Specifications of Key items to be supplied <i>(Please attach Catalogues and Brochures and mark the pages with items to be supplied)</i>
MR7	Fully filled, signed and stamped statement of compliance
MR8	Domestic sub-contractors must sign and stamp the summary page of their respective specialist works on the tender document.
MR9	Valid Copy of Current Single Business permit
MR10	Pre-contract agreement between the main contractor & Plumbing and Drainage sub-contractor signed and commissioned by commissioner of oaths.
MR11	Provide proof of authorization (in form of a Power of attorney signed by commissioner of oaths) as a Tender Signatory if the signatory is not a director or partner of the firm.
MR12	Must have an EPRA licensed technician (attach proof of certificate) with valid certificate.

N/B

- 1. Full compliance by the tenderers shall be required to proceed to the next stage of evaluation. Failure to provide any of the listed requirements shall lead to disqualification.***
- 2. All Copies of original certificates submitted must be certified as a true copy of the original***

The employer may seek further clarification/ confirmation if necessary; to confirm authenticity/ compliance to any condition of the tender.

The bidders' who do not satisfy any of the above requirements shall be considered non-responsive and their tenders will not be evaluated further.

STAGE 2: EVALUATION OF TECHNICAL ASPECT OF THE TENDER

At this stage technical evaluation shall be done by comparing each tender to the technical requirements in the tender document

Item	Description	COMPLIANT YES/NO
1.	Compliance with Technical Specifications (Note: Tender Evaluation Committee to carry out analysis showing how decision on this requirement has been arrived at)	
2.	Qualification and Experience of Key Personnel Academic Qualification and Experience (Provide evidence) a) Director of the firm <ul style="list-style-type: none"> Holder of at least a diploma with 10 years' experience in Mechanical Engineering field 	
	b) Project Manager <ul style="list-style-type: none"> Holder of at least a degree with 5 years' experience in Mechanical Engineering field 	
	c) At least 3 No artisans <ul style="list-style-type: none"> Holder of at least a certificate with 5 years' experience in relevant Engineering field. At least one of the Artisans to be EPRA/ERC Certified Solar Water heating installer <p>The tenderer MUST fill the forms listed below in the format provided and attach the necessary qualification certificates:</p> <ol style="list-style-type: none"> Form PER - 1 Contractor's Representative and Key Personnel Schedule Form PER - 2 Resume and Declaration - Contractor's Representative and Key Personnel. 	
3.	Experience of the firm in similar services: Mechanical installation works a) Provide Three (3No.) projects of similar nature, complexity or magnitude)between the Period 2016 – 2022: (Provide evidence) The tenderer MUST fill the forms listed below in the format provided <ol style="list-style-type: none"> Form EXP – 3.4 Current contract commitments/works in progress Form EXP – 4.1 General Construction and contract Experience Form EXP – 4.2.a Specific and Contract Management Experience Form EXP – 4.2.b Construction Experience and Key Activities 	
4.	Adequacy of tools and equipment The tenderer must show proof of ownership or leasing of the following equipment: -	
	a) Relevant Transport (at least 3No.) <ul style="list-style-type: none"> Means of transport b) Relevant Equipment (at least 3No.) <ul style="list-style-type: none"> Has relevant equipment for work being tendered <p>The tenderer MUST fill the forms listed below in the format provided.</p> <ol style="list-style-type: none"> Form EQU: Equipment 	

N/B Full compliance by the tenderers shall be required. Failure to provide any of the listed requirements shall lead to disqualification. Hence the tenderer shall not proceed to financial evaluation.

ION IV - QUALIFICATION FORMS

1. FORM EQU: 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
Current	Capacity	Year of Manufacture
	Current Location	
	Indicate source of the equipment <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> 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	

2 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	
	Name of Candidate	
	Duration of Appointment	
	Time Commitment for This Position	
	Expected Time Schedule for This Position	
2.	Title of Position	
	Name of Candidate	
	Duration of Appointment	
	Time Commitment for This Position	
	Expected Time Schedule for This Position	
3.	Title of Position	
	Name of Candidate	
	Duration of Appointment	
	Time Commitment for This Position	
	Expected Time Schedule for This Position	
4.	Title of Position	
	Name of Candidate	
	Duration of Appointment	
	Time Commitment for This Position	
	Expected Time Schedule for This Position	

1. FORM PER - 2:

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

Name of Tenderer		
Position [#1] [title of position from Form Per-1]		
Personell 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>	
	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 in 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 in 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:

Signature:.....

Date:(day month year):

Counter signature of authorized representative of the Tenderer:

Signature:.....

Date:(day month year)

5.6 FORMFIN-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.

[illegible]

5.7 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 _____	

5.8 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 <input type="checkbox"/>	Member in JV <input type="checkbox"/>	Management Contractor <input type="checkbox"/>	Sub-Contractor <input type="checkbox"/>
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:				
Description of the similarity in accordance with Sub-Factor 4.2(a) of Section III:				
Amount				
Physical Size of Required Works Items				
Complexity				
Methods/Technology				
Construction Rate for Key Activities				
Other Characteristics				

5.9 FORM EXP - 4.2 (b)**Construction Experience in Key Activities**

Tenderer's Name: Date: Tenderer's JV Member Name:

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.

Similar Contract No.	Information			
Contract Identification				
Award Date				
Completion Date				
Role in Contract	Prime Contractor <input type="checkbox"/>	Member in JV <input type="checkbox"/>	Management Contractor <input type="checkbox"/>	Sub-Contractor <input type="checkbox"/>
Total Contract Amount			Kenya Shilling	
Quantity (Volume, Number of 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:				
Description of the similarity in accordance with Sub-Factor 4.2(b) of Section III:				

STAGE 3 - FINANCIAL EVALUATION

Upon completion of the technical evaluation a detailed financial evaluation shall follow.

The evaluation shall be in **three stages**

- a) Determination of Arithmetic errors
- b) Comparison of Rates; and
- c) Consistency of the Rates.

A) Determination of Arithmetic Errors

Arithmetic Errors will be corrected by the Procuring Entity as follows:

- i) In the event of a discrepancy between the tender amount as stated in the form of Tender and the corrected tender figure in the Main summary of the Bills of Quantities, the amount as stated in the Form of Tender shall prevail. Pursuant to Section 82 of the Public Procurement and Asset Disposal Act 2015, 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;
- ii) Error correction factor shall be computed by expressing the difference between the amount and the corrected tender sum as a percentage of the corrected contract works (i.e. corrected tender sum less P.C; and Provisional Sums);
- iii) The Error correction factor shall be applied to all contract works (as a rebate or addition as the case may be) for the purposes of valuations for Interim Certificates and valuation of variations.

B) Comparison of rates

Items that are underpriced or overpriced may indicate potential for non-delivery and front loading respectively. The committee shall promptly write to the tenderer asking for detailed breakdown of costs for any of the quoted items, relationship between those prices, proposed construction/installation methods and schedules.

The evaluation committee shall evaluate the responses and make an appropriate recommendation to the procuring entity giving necessary evidence. Such recommendations may include but not limited to:

- (i) Recommend no adverse action to the tenderer after a convincing response;
- (ii) Employer requiring that the amount of the performance bond be raised at the expense of the successful tenderer to a level sufficient to protect the employer against potential financial losses;
- (iii) Recommend non-award based on the response provided and the available demonstrable evidence that the scope, quality, completion timing, administration of works to be undertaken by the tenderer, would adversely be affected or the rights of the employer or the tenderers obligations would be limited in a substantial way.

C) Consistency of the Rates

The evaluation committee will compare the consistency of rates for similar items and note all inconsistencies of the rates for similar items.

STAGE 4 - RECOMMENDATION FOR AWARD

The successful bidder shall be the tenderer with the lowest evaluated tender price

SPECIFICATIONS AND BILLS OF QUANTITIES

FOR

SUPPLY, INSTALLATION, TESTING AND
COMMISSIONING

OF

INTERNAL PLUMBING, DRAINAGE WATER TANKS
AND FIRE PROTECTION INSTALLATION WORKS

NOVEMBER, 2023

**SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF INTERNAL
PLUMBING, DRAINAGE AND FIRE PROTECTION INSTALLATION WORKS**

TABLE OF CONTENTS

<u>CONTENTS:</u>	<u>PAGE</u>
CONTENT PAGE.....	(i)
NOTES TO ALL TENDERERS.....	(ii)
PART A: PRELIMINARIES AND GENERAL CONDITIONS.....	A-1 to A-10
PART B: GENERAL MECHANICAL SPECIFICATION.....	GS-1 to GS-9
PART C: SPECIFICATIONS FOR SANITARY.....	SF/1 to SF/26
PART D: SPECIFICATIONS FOR PIPING.....	PS/1 to PS/37
PART E: SPECIFICATIONS FOR FIRE FIGHTING	FF/1 to FF/19
PART F: SPECIFICATIONS FOR SOLAR.....	SW/1 to SW/23
PART G: SPECIFICATIONS FOR BOREHOLE DRILLING.....	BH/1 to BH/4
PART H: BILLS OF QUANTITIES.....	BOQ/1 to BOQ /63
PART I: SCHEDULE OF UNIT RATES.....	SU/1
PART J: TECHNICAL SCHEDULE.....	TS/1

NOTES TO ALL TENDERERS;

1. The tenderer is required to check the number of pages in this document and should any be found to be missing or the figures indistinct, he must inform the Engineer at once and have the same rectified. Should the tenderer be in doubt the precise meaning of any item, word or figure. Or for any reason whatsoever observe any apparent omission of words or figures, he must inform the Engineer in order that the correct meaning may be decided upon before the date for the submission of the tenders.
2. No liability whatsoever will be admitted nor claim allowed in respect of errors in the completed tender due to mistakes in this document which should have been rectified in the manner described above.
3. The tenderer shall not otherwise qualify the text of this specification. Any alteration or qualification made without authority will be ignored and the text of the specification as printed will be adhered to.
4. The tenderer shall be deemed to have made allowances in his unit prices generally to cover items of preliminaries or additions to prime cost Sums or other items. If those have not been priced against the respective items.
5. The tenderer's price shall include all government taxes including duties, VAT, etc which must be included in the rates. No claims whatsoever will be allowed in respect of duties, VAT etc if the tenderer does not price them as aforementioned.
6. In no case will expense incurred by the tenderer in preparation of this tenderer be reimbursed.
7. The copyright of this specification is vested in the Engineer and no part thereof may be reproduced without their express permission, given in writing.
8. The Sub-Conductor shall be solely responsible for the accurate ordering of materials in accordance with the drawings and these specifications.
9. The specifications must be priced in Kenya Shillings
10. This is a fixed price Contract and no claims shall be entertained on whatever ground. The sub-contractor is advised to include all such costs as he projects may arise in his unit rates. Any variations in the exchange rate will also be no excuse for any variations in the contract sum.

Signed (As in form of Tender)

Date/Stamp

(ii)

PART A:

PRELIMINARIES AND GENERAL CONDITIONS

PART A - PRELIMINARIES AND GENERAL CONDITIONS

NAMES OF PARTIES

The following will be inserted in the Articles of Agreement:-

Architects:	AS PER MAIN WORKS
Engineer:	AS PER MAIN WORKS
Employer:	AS PER MAIN WORKS

2. DEFINITIONS OF TERMS

The terms, phrases and abbreviations shall be deemed to have the following meanings wherever used hereinafter and in all contract documents.

“Engineer” shall in the case of mechanical works mean **‘project mechanical engineer’** and, or in the event of any of their deaths, or ceasing to be the Engineers for the purposes of this Sub-contract, such other person as the client shall nominate for that purpose. For the purpose of **Mechanical** engineering works the Engineer shall be deemed vested with the duties of, and be the representative of the Architect, except on respect of variations which involve the sub-contract sum.

“Main Contractor” shall mean the person or persons, partnership, firm or company, whose tender for the main contract has been accepted, and who has or have, signed the main contract and shall include his or their heirs, executors, administrators, assigned successors and duly appointed representatives. For the purposes of this work, the terms “Main Contractor” and “Contractor” shall have the same meaning.

“Sub-Contractor” shall mean the person or persons, partnership, firm or company, whose tender for the sub-contract for the electrical and mechanical works has been accepted, and who has or have, signed the sub-contract and shall include his or their heirs, executors, administrators, assigned successors and duly appointed representatives.

“Works” shall mean all or part of the works, material and articles, wherever 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 the site or not.

A-1

“Approved” shall mean approved by the Engineer/Architect at his absolute discretion.

“Directed” shall mean directed by the Engineer/Architect at; his absolute discretion.

“Selected” shall mean selected by the Engineer/Architect at his absolute discretion.

“M³” shall mean cubic metre

“M²” shall mean square metre

“M” shall mean linear millimetre

“Kg” shall mean Kilogram

“No.” shall mean Number

“Prs” shall mean Pairs

“B.S.” shall mean the current British Standard Specification published by the British Standards institution, 2 Park Street, London, W.I. England

“As before” shall mean in all respects as earlier described in the same or previous bill

“Ditto” shall mean the whole of the preceding description except as qualified in the description. Where it occurs in descriptions of succeeding terms it shall mean the whole of the preceding description which is contained within the appropriate brackets.

“Fix Only” shall mean take delivery on site (unless otherwise stated), unload where necessary, transport within site compound, store, unpack, check contents against orders and packing lists, assemble as necessary, distribute to position, hoist and fix only.

3. TENDER CONDITIONS

Any act of collusion that may distort normal competitive conditions may cause the rejection of the tenders concerned. By participating in the tendering, tenderers certify not to be involved in such acts of collusion.

Tenders containing abnormally high or low unit prices and /or lump sums may be rejected. Before such rejection, however the sub-contractor may be given the opportunity of giving a detailed explanation.

Tenders must be returned complete and tenderers, or their assigned representatives are at liberty to witness the tender opening at the time and venue stated in the letter of invitation to tender. Tenders received after the stated time will be returned unopened and incomplete tenders will be rejected.

Tenders are invited in strict accordance with the documents issued, counter offers submitted with tenders will not be considered, letters of qualifications with tenders may be ignored if they have the effect of modifying either the terms of a tender or the compatibility of a tender with the other tenders. However should a tenderer. In good faith wish to propose modifications to the tender terms, conditions and contents for the purposes of reducing the tender amount then he shall contact the Engineer in writing well before the date of tender opening. Should the Engineer approve the proposed modification, all tenderers will be advised in due time for the modification of their tenders. No proposed modification will be considered unless this procedure has been followed.

The client is not bound to accept the lowest or any tender, nor is the client bound to divulge reasons for the acceptance or non-acceptance of any tender. Any tender may be accepted by the client within the stated period unless previously withdrawn by the tenderer.

All deletions, additions and corrections to figures inserted in the tender document are to be counter signed by the tenderer.

In the event of two or more tenders being in the same sum, tenderers may be given 7 days within which to revise their tender prices. Should there again be two or more tenders in the same sum, and in the absence of any qualities to give one tenderer preference over the other(s), then the sub-contract may be awarded by drawing lots in the presence of the tenderers concerned.

4. DESCRIPTION OF SITE

The site of the works is within **Ruai, Nairobi**. Due care will be required during construction so that the occupants and facilities in the adjacent premises and the premises themselves are not interfered with in any way.

The sub-contractor is recommended to visit the site and will be deemed to have satisfied himself with regard to the relevant details of preliminary. If the sub- contractor, for whatever reason, feels specialised attendance will be required, with significant financial implications or requires specialised mobilisation to start the works, he should spread the cost of such works in his unit rates.

No claims whatsoever by the sub-contractor for additional payment will be allowed on the grounds of any misunderstanding or misapprehension in respect of any such matters or otherwise, should the sub-contractor be required to offer specialised attendance prior to, or during, the performance of the contract.

5. TENDER EVALUATION PROCEDURES

Following the return of the tenders for the works measured in these bills of quantities, arithmetical and other analysis will be carried out in order to select the lowest acceptable tender in terms of responsive and realistic pricing, etc. This section will be at the sole discretion of the Employer.

The unit rates offered by the selected tenderer will then be applied to new quantities measured by the Engineer for the revised scope of works.

The resultant total, together with the priced preliminaries and any modified prime cost and provisional sums will be consolidated into a sum for which the sub-contract will be signed. This procedure will be applied only to the selected tender. Neither the Client nor the Consultants will enter into discussion or any correspondence with the other tenderers after the selection process has been carried out and no reasons will be given for selection or non-selection.

Any tenderer unable to comply with these procedures will be disqualified from the selection process

6. ACCESS TO SITE AND SECURITY

Means of access to the site will be as directed by the Architect; no other access will be permitted in any circumstances.

7. AREA TO BE OCCUPIED BY THE SUB-CONTRACTOR

Areas to be occupied by the sub-contractor for use as storage shall be as directed by the Project Architect.

8. DRAWINGS

8.1 The sub-contractor will be deemed to have examined the drawings before tendering and to have satisfied himself regarding their details and regarding the nature and extent of the works and the method of installation involved. No claims arising out of misapprehension in these respects will be allowed.

8.2 The sub-contractor shall at his own risk and costs execute and perform the works described in the conditions of contract and bills of quantities and detailed in the drawings provided and supplied to the sub-contractor for the purpose of works and completely finish the said works in a good workmanship and with the utmost expedition.

8.3 The sub-contractor shall satisfy himself as to the correctness of all drawings and measurements. If the sub-contractor finds any discrepancy in the drawing or between the drawing and the specifications he shall immediately refer the same to the Engineer who will decide which shall be followed.

Figured dimensions shall be taken in preference to the scale mentioned on or attached to any drawing. Details shown on drawings shall be taken in preference to items and quantities in the specification.

8.4 Two copies of all drawings and of the specifications will be furnished free of cost to the sub-contractor (whose tender has been accepted) for his own use. Any extra copies will be paid for.

9. VALUATIONS OF LUMP SUMS AND PRELIMINARY COSTS

Lump sums entered in these bills of quantities against any item of general condition or preliminaries will be included in appropriate valuations according to reasonable assessment of actual costs involved in the item.

10. PAYMENT FOR MATERIALS ON SITE

All materials for incorporation in the works must be properly installed before payment is effected unless specifically exempted by the Engineer/Architect. This is to include the materials of the sub-contractor, and his nominated suppliers.

11. CONTRACT AGREEMENT AND CONDITIONS

11.1 General

The articles of Agreement and conditions shall be the agreement and schedule of conditions of building contract forms published by the Kenya Association of Building and Civil Engineering Contractors' (KABCEC).

11.2 Water and Electricity Supply

The main contractor will make water and electrical power available to the **mechanical** sub-contractor. The main contractor and the sub-contractor will mutually agree whether or not the latter should pay for the water /electricity used for the works. That notwithstanding, no excuse will be entertained for power failure or lack of water as the sub-contractor is required to make his own arrangements in such circumstances.

11.3 Sub-contractor's Materials

Purchase of materials by the sub-contractor and their storage on site for inclusion in payment certificates far in advance of reasonable requirements may be allowed at the sole discretion of the Engineer. This however is also subject to availability of such storage space. Storage space may be provided on site.

12. WARRANTY AND PERFORMANCE STANDARDS

The sub-contractor must furnish the client through the Engineer with a general written warranty covering quality of workmanship, material and equipment and be compelled thereby for a one year period after practical completion of the sub- contract.

The sub-contractor must make good, at his own expense, such repairs and replacements as may be required as a consequence of negligent workmanship or defective materials. The sub-contractor must also procure such warranties and guarantees as aforesaid from all manufacturers and/or suppliers of materials or equipment incorporated in the project under this contract.

The sub-contractor must comply in all respects with given standards of workmanship as defined and described in the specifications and Bills of Quantities and relevant codes of Practice. The sub-contractor must also comply with all tests of materials as required and/or directed by the Engineer.

13. TOOLS, PLANTS, ETC

The sub-contractor shall allow for providing of all ladders, tools, plant and transport required for the works, except in so far as may be specifically stated otherwise.

14. SAFETY, HEALTH AND WELFARE OF WORKPEOPLE

The sub-contractor shall allow for providing for the safety, health and welfare of workpeople and for complying with any relevant ordinances, Regulations or Union agreement.

15. NATIONAL INSURANCE AND PENSIONS

The Sub-contractor shall allow for making any National Social Security Fund payments due in respect of workpeople.

16. HOLIDAY AND TRANSPORT OF WORKPEOPLE

The sub-contractor shall allow for providing holidays and transport for workpeople and for complying with any relevant ordinances or union agreement.

17. TRAINING LEVY

The sub-contractor's attention is drawn to legal notice no. 237 of October, 1971, which requires payments by the sub-contractor of a training levy on all contracts of more than Shs. 50,000/= in value and his tender must include for all costs arising or resulting there from. Proof of payment of those training levies will be required.

18. EXISTING PROPERTY

The sub-contractor shall take every precaution to avoid damage to all existing property including flower beds, fences, roads, cables, office equipment, drains, adjacent buildings and other services and he will be held responsible for all damages arising from the execution of this sub-contract to the afore-mentioned property and he shall make good all such damage where directed at his own expenses to the satisfaction of the Engineer.

19. TESTING

The sub-contractor shall allow for all testing of material and installations required by these specifications and he shall be responsible for all expenses incurred in completing such tests, including costs of materials and labour, equipment, transport and all other costs.

20. SUPERVISION AND WORKING HOURS

The works shall be executed under the direction, and to the entire satisfaction in all respects, of the Engineer who shall at all times during normal working hours have access to the works and to the yards and workshops of the sub-contractor or other places where work is being prepared for the sub-contractor.

The working hours shall be those generally worked by good employers in the building and civil engineering trades taking note of gazetted holidays unless the Engineer shall so direct.

No work shall be covered up in the absence of the clerk of works without the prior approval of the Engineer in writing.

21. SAMPLES

The Sub-contractor shall furnish at his own cost any samples of materials or workmanship that may be called for by the Engineer for his approval or rejection and any further samples in the case of rejection until such are approved by the Engineer, and the Engineer may reject any materials or workmanship not in his opinion up to the approved samples.

The Engineer shall instruct for the testing of such materials as he may at his discretion deem desirable and the testing shall be made at the sub-contractor's cost. The sub-contractor shall allow in his tender for such samples and tests.

22. MATERIALS, TOOLS, PLANT ETC.

All materials and workmanship used in the execution of works shall be of the best quality and description unless otherwise described. Any materials for the works condemned by the Engineer shall immediately be removed from the site at the sub-contractor's expense.

The sub-contractor shall provide at his own risk and cost all materials, scaffolding, tools, plant, transport and workmen required for the works except, insofar as may be stated otherwise herein.

The sub-contractor shall order all materials to be obtained from overseas immediately after the sub-contract is signed and shall also order materials to be obtained from local sources as early as necessary to ensure that such materials are on site when required for use in the works.

Any defects which may appear, either of materials or of workmanship, during the defects liability period provided by the sub-contract, shall be made good by the sub-contractor at his own expense, as and when directed.

If the sub-contractor shall fail to carry out such orders, as by the preceding paragraph provided within such reasonable time as may be specified in the order, the materials or works affected may be made good by others in such manner as the Engineer may direct, in which case the cost thereby incurred shall, upon the written certificate of the Engineer, be recovered from the sub-contractor as liquidated damages.

23. FOREMAN

The sub-contractor shall keep constantly on works a competent English-speaking foreman and any directions or explanations given by the Engineer to such a foreman shall be deemed to have been given to the sub-contractor.

24. INSURANCE

The sub-contractor shall during the execution of the works, insure himself and keep himself insured against all liability under the workmen's compensation act or any amendment thereto for accidents to workmen employed by him on the said works and shall hold the employer and all parties to the contract harmless in respect of any such liability.

The sub-contractor shall further insure himself and keep himself insured against all liabilities arising from all Third party claims arising from accidents and he shall hold the Employer, the Consultants and all parties to the contract harmless in respect of any such liabilities.

No payments on account of the work executed will be made to the sub-contractor until he has satisfied the Engineer either by the production of an Insurance Certificate that the foregoing provisions have been complied with in all respects. Thereafter the Engineer may from time to time check that premiums are duly paid up by the sub-contractor who shall, if called upon to do so, produce receipts of premium renewals for the Engineer's inspection.

25. BOND

The sub-contractor shall find and submit for the approval by the Engineer one surety who shall be an established bank, Insurance company or fidelity guarantee corporation and who will be willing to be bound to the Employer in an amount equal to five percent (5%) of the sub-contract amount for the due performance of the sub-contractor up to the date of completion as certified by the architect and who will then and if called upon, sign a bond to that effect, on the same day as the sub-contract agreement is signed. In the event of the surety named not being approved by the Engineer, the sub-contractor shall furnish within seven days another surety to the approval of the Engineer. This shall be complied with unless the **MAIN WORKS** deems the subcontract as **DOMESTIC** contract.

26. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

The sub-contractor shall proceed with the works in such manner and in such order, as the Engineer shall direct so as to complete the works on the shortest possible time.

It is the responsibility of the sub-contractor to ensure that all material, fittings, equipment and items to be supplied are ordered and delivered to the site ready for installation at such times as to cause no hold up to the programme of work.

NOTE: 1. The sub-contract completion period is the same as that of main contract.

2. Liquidated damages and Ascertained damages will be calculated pro-rata on the rate provided in the main contract.

27. PAYMENT AND CERTIFICATES

Payments shall be made through certificates direct to the sub-contractor. All payments shall be less retention as specified in the sub-contract agreement. The sub-contractor shall be paid only for work done and /or materials on site.

The percentage of certified value retained should be 10%. Limit of Retention shall be a sum equivalent to 5% of the sub-contract sum.

Prices quoted shall include 16% VAT and 3% withholding tax and all taxes applicable at the time of tender.

No certificate so issued by the Engineer/Architect shall in itself be considered conclusive evidence as to the sufficiency of any work or materials to which the terms and conditions of this agreement or from his liability to make good all defects as provided thereby.

28. CONDITIONS OF SUB-CONTRACT, ETC

The sub-contract agreement shall be based on KABCEC conditions. FIDIC conditions for electrical and mechanical works shall form complementary reference where clear interpretation cannot be made.

29. BLASTING

Blasting will not be allowed unless with express authority of the Engineer.

30. HOISTING

The sub-contractor is referred to the Drawings and to the general description of the building. Throughout these specifications generally no mention is made of heights for hoisting.

All prices must include for hoisting and fixing at any level within the limits shown on the drawings or included in the general description of works. Where a particular level is specified the sub-contractor shall price accordingly.

31. CASING UP AND PROTECTING

The sub-contractor shall be responsible for casing up or otherwise protecting to the satisfaction of the Engineer all parts of the sub-contract works liable to cause injury and for removing such protection and making good on completion.

32. WORKS TO BE DELIVERED UP CLEAN

On completion of the works, the site and the works shall be cleared of all plant, scaffolding, rubbish and unused materials and shall be delivered up in a clean and perfect condition in every respect to the satisfaction of the Engineer.

33. DEFECTS LIABILITY PERIOD

The defects liability period shall be as provided in the main contract.

34. CLAIMS FOR EXTRAS

This is a fixed price contract and no claims whatsoever on extras will be entertained.

35. TRADE NAMES

Where trade names of manufacturer's catalogue numbers are mentioned in these specifications the reference is intended, as a guide to the type of the article or material required. The sub-contractor may use any article or material equal in type or quality to those therein described subject to the prior approval of the Engineer, and at his (Engineer's) absolute discretion. The onus of proof as to equivalent quality will rest with the sub-contractor, whose tender will be deemed to include for the makes described hereafter.

36. FLUCTUATIONS

This is a fixed price sub-contract and claims shall not be allowed on fluctuations.

SECTION NAME:

GENERAL MECHANICAL SPECIFICATIONS

GENERAL MECHANICAL SPECIFICATION

<u>CLAUSE</u>	<u>DESCRIPTION</u>
1.01	GENERAL
1.02	QUALITY OF MATERIALS
1.03	REGULATIONS AND STANDARDS
1.04	ELECTRICAL REQUIREMENTS
1.05	TRANSPORT AND STORAGE
1.06	SITE SUPERVISION
1.07	INSTALLATION
1.08	TESTING
1.09	COLOUR CODING
1.10	WELDING

GENERAL MECHANICAL SPECIFICATION

1.01 General

This section specifies the general requirement for plant, equipment and materials forming part of the Sub-contract Works and shall apply except where specifically stated elsewhere in the Specification or on the Contract Drawings.

1.02 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 connection by the Sub-contractor shall be carefully examined on receipt. 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.

1.03 **Regulations and Standards**

The Sub-contract Works shall comply with the current editions of the following:

- ✓ The Kenya Government Regulations.
- ✓ The United Kingdom Institution of Electrical Engineers (IEE) Regulations for the Electrical Equipment of Buildings.
- ✓ The United Kingdom Chartered Institute of Building Services Engineers (CIBSE) Guides.
- ✓ British Standard and Codes of Practice as published by the British Standards Institution (BSI)
- ✓ The Local Council By-laws.
- ✓ The Electricity Supply Authority By-laws.
- ✓ Local Authority By-laws.
- ✓ The Kenya Building Code Regulations.
- ✓ The Kenya Bureau of Standards

1.04 **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 and connections to equipment shall form part of this Sub-contract and be the responsibility of the Sub-contractor. 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 Company (KP) 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 240Volts, 50Hz, 1-phase. Any equipment that is not rated for the above voltages and frequencies shall be rejected by the Engineer.

1.05 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.

1.06 Site Supervision

The Sub-contractor shall ensure that there is an English-speaking supervisor on the site at all times during normal working hours.

1.07 Installation

Installation of all special plant and 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 1.03 of this Section.

1.08 **Testing**

1.08.1 **General**

The Sub-contractor's attention is drawn to Part 'C' Clause 1.38 of the "Preliminaries and General Conditions".

1.08.2 **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 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 specially 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.

1.08.3 Manufactured Plant and Equipment – Work 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 weeks' notice to the Engineer of the manufacturer's intention to carry out such tests and inspections.

The Engineer or his representative shall be entitled to witness such tests and inspections. The cost 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.

1.08.4 Pressure Testing

All pipework installations shall be pressure tested in accordance with the requirements of the various sections of this Specification. The installations may be tested in sections 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 pressure 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 section of the work that has been tested.

1.09 **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 and to the approval of the Engineer or Architect.

1.10 **Welding**

1.10.1 **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 imperfection due to shearing or flame cutting operation, etc., and shall be free from rust scale, grease and other foreign matter.

1.10.2 **Method**

All welding shall be carried out by the electric arc processing 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.

1.10.3 **Welding Code and Construction**

All welded joints shall be carried out in accordance with the following Specifications:

a) **Pipe Welding**

All pipe welds shall be carried out in accordance with the requirements of B.S.806.

b) **General Welding**

All welding of mild steel components other than pipework shall comply with the general requirements of B.S. 1856.

1.10.4 Welders Qualifications

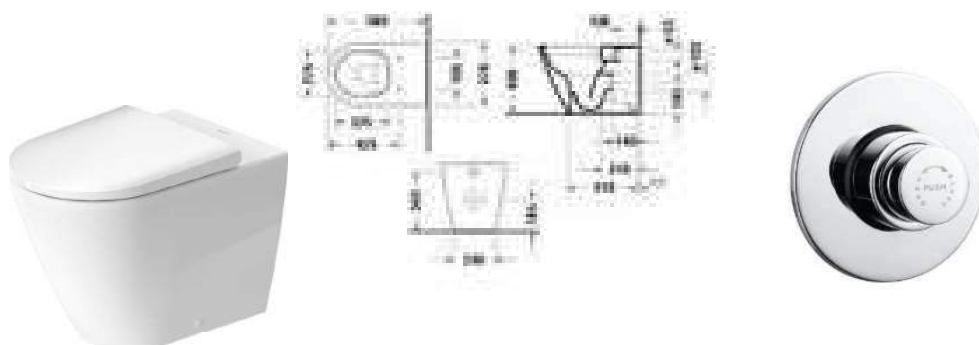
Any welder employed on this Sub-contractor shall have passed the trade tests as laid down by the Government of Kenya.

The Engineer may require to see the appropriate to see the appropriate 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.

PARTICULAR SPECIFICATIONS FOR SANITARY FITTINGS

WATER CLOSET

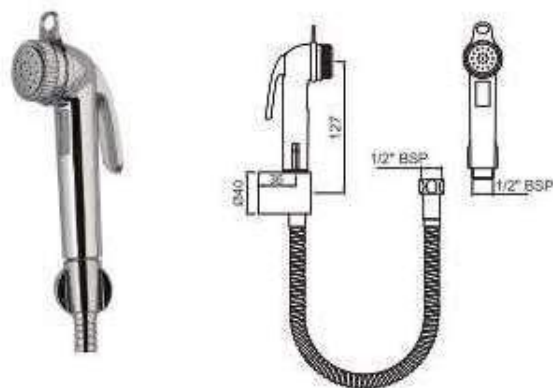
- ✓ Rimless Floor Standing WC with UF soft close slim seat cover and Hinges,
- ✓ Accessories set complete with Concealed cistern with Frame & Finish Plate
- ✓ Finish with an antibacterial ceramic glaze
- ✓ Noise reduction gasket
- ✓ Ceramic vitreous china
- ✓ Meets EU declaration of conformity certificate



**DURAVIT – D-NEO TOILET FLOOR STANDING RIMLESS D-NEO 2003090000
OR EQUIVALENT**

HEALTH FAUCET KIT

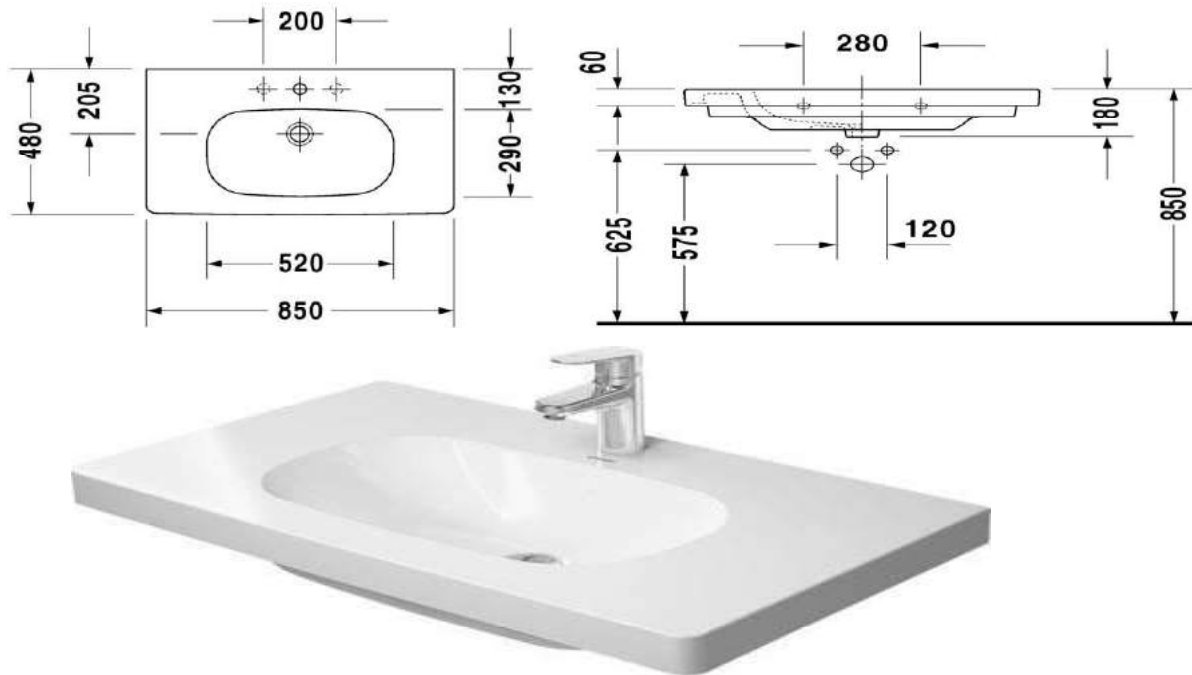
- ✓ Flexible Chrome Hose, Handset, ABS Body & Bracket
- ✓ For water pressure between 1.0 Bar - 3.0 Bar
- ✓ Finish Plating: Nickel-10.0 micron Chromium-0.3 micron, Salt Spray (500 hrs +Validated) and Adhesion (Pass)
- ✓ with preferred dimensions as indicated



AS JAQUAR HEALTH KIT ALE-ESS-593 OR EQUIVALENT

WASH HAND BASIN

- ✓ Without overflow
- ✓ with tap platform
- ✓ square tube 14 mm
- ✓ Ceramic
- ✓ Meets EU declaration of conformity certificate



**AS D-CODE COUNTER MOUNTED DURAVIT MODEL 03528500002 OR
EQUIVALENT**

TOWEL RACK

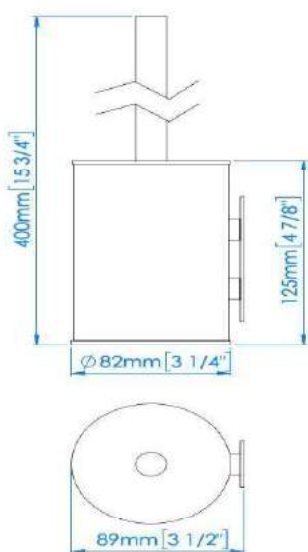
- Towel rack made of AISI 304 stainless steel with a hidden wall mounting system with stainless steel hardware to install on brick walls
- TOWEL SHELF: composed of a straight front bar and 3 Ø 12mm cylindrical bars, all made of AISI 304 stainless steel
- TOWEL RAIL: made of cylindrical AISI 304 stainless steel tube of Ø 12mm and attached with two screws to the two upper wall supports.
- WALL BRACKETS: 4 units, made with 1.8mm thick AISI 304 stainless steel square tube.
- WALL ANCHORS: 4 units, made of aluminum. Attached to the wall bracket by means of two screws.
- Dimensions 600 x 150 x 215 mm Shelf bar tube diameter 12 mm Towel rail tube diameter 12 mm Wall bracket diameter 1.8 mm



AS MEDICLINIC MODEL AII423B OR EQUIVALENT

TOILET BRUSH SET

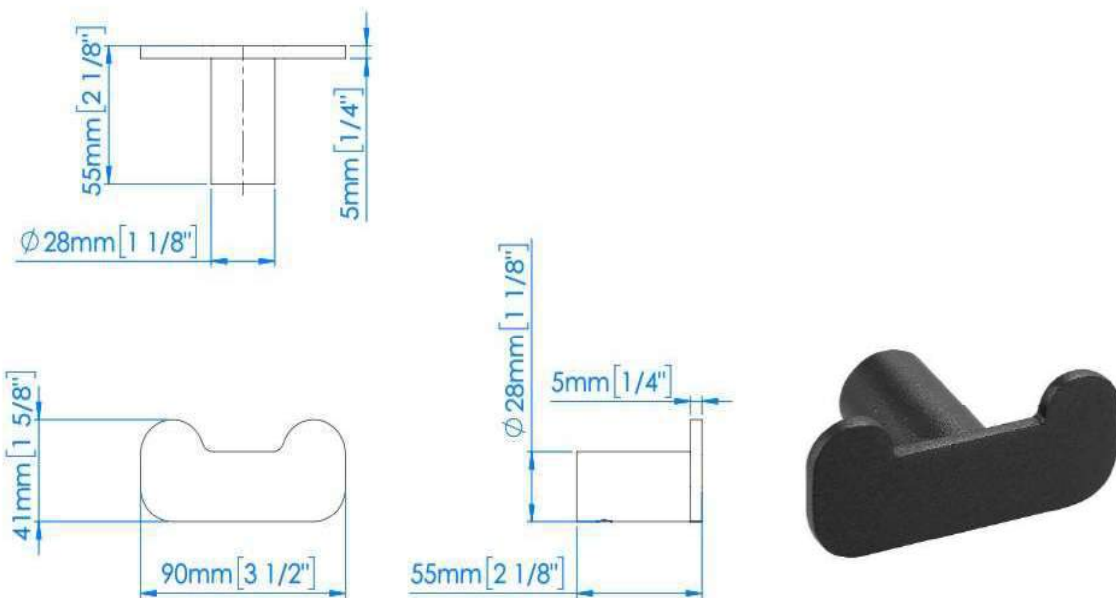
- ✓ Toilet brush set for fixing to the bathroom wall, made of AISI 304 stainless steel 1 mm thick
- ✓ Resistant to humidity and corrosion
- ✓ Circular lid with an airtight seal that prevents the spread of bad odors and protects hands from getting dirty or splashed while cleaning the toilet.
- ✓ Comes with stainless steel hardware for fixing it to a brick wall
- ✓ **WALL BRACKET:** made of AISI 304 stainless steel, 2 mm tick. Allows quick removal of the brush holder for cleaning, without tools.
- ✓ **INNER RECIPIENT:** to collect water and prevent body rust. Made of black thermoplastic to prevent oxidation of the body.
- ✓ **HANDLE:** made with AISI 304 stainless steel rod and is 27.5 cm in length, which for ease of reach and clean the toilet bowl.
- ✓ **LID:** made of black circular rubber seal, 2.0 mm thick.
- ✓ **BRUSHES:** long, dense and soft



AS MEDICLINIC MODEL ES1002B OR EQUIVALENT

ROBE HOOK

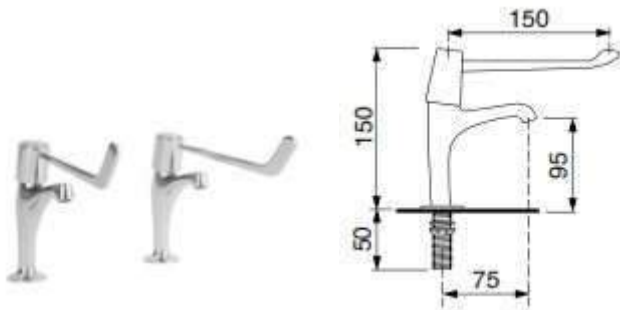
- ✓ Double-ended bathroom robe hook, made of AISI 304 stainless steel black finish
- ✓ Made with anti-corrosive and highly resistant stainless steel.
- ✓ With hidden wall mounting system
- ✓ With stainless steel hardware kit for installing on brick walls.
- ✓ **DOUBLE HOOK:** made of 5 mm thick AISI 304 stainless steel plate.
- ✓ **WALL BRACKETS:** two units, made with AISI 304 stainless steel cylindrical tube of Ø 28mm and 1.2mm thick. Attached to the bar by means of a threaded stud and nut.
- ✓ **WALL ANCHORS:** two units made of AISI 304 stainless steel tube of Ø 22mm and 1.0mm thick.



AS MEDICLINIC MODEL AI2318B OR EQUIVALENT

ELBOW ACTION PILLAR TAP

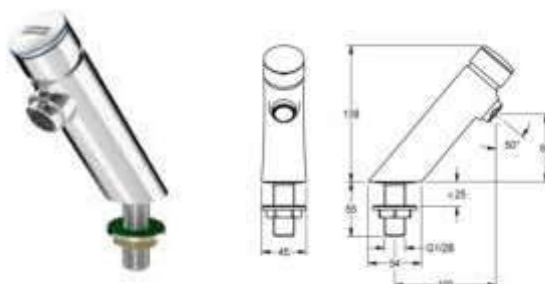
- ✓ For connecting to hot and cold water.
- ✓ with 150mm long levers which
- ✓ Can be operated by either the elbows or wrists using a quarter turn action.
- ✓ Manufactured from chromium plated brass.
- ✓ Mounting: Deck mounted
- ✓ Spout projection: 75mm
- ✓ To conform to WRAS standards



AS FRANKE TAP MODEL F1074 208.0000.019 OR EQUIVALENT

SELF CLOSING WASH HAND BASIN PILLAR TAP

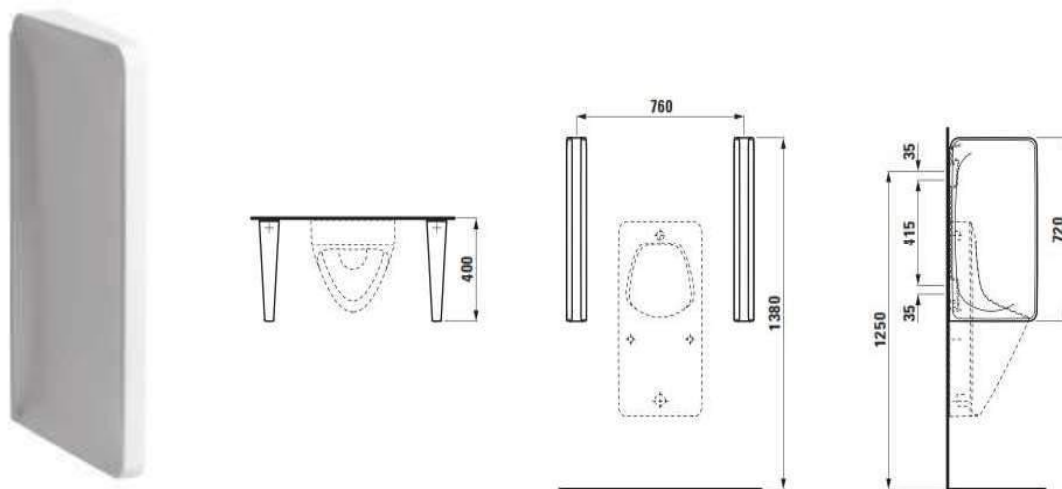
- ✓ F3S Self-closing pillar tap DN 15
- ✓ Self-closing cartridge, hydraulically controlled, piston-free design, self-closing, stepless adjustment of flow duration.
- ✓ With Aerator with an integrated flow regulator 3.0 l/min
- ✓ With adjustable flow time
- ✓ Maximum flow time 20.00 seconds
- ✓ Minimum flow time 5.00 seconds
- ✓ Chromised Surface finish fitting
- ✓ Volume flow rate at 3 bar 0.05 litre per second
- ✓ with preferred dimensions as indicated



AS FRANKE MODEL NO 3 F3SV1001 OR EQUIVALENT

URINAL DIVIDER

- ✓ Urinal division
- ✓ dimensions 400mm x 720mm
- ✓ Inclusive of fixing devices



AS

LAUFEN CINTO 0829300007 OR EQUIVALENT

URINAL BOWL

- Rimless, Concealed inlet, Syphonic action, Horizontal outlet
 - ✓ includes jet nozzle, inlet-set, waste, bottle trap Ø 32 mm and fixings with inlet adapter for 1/2" inlet connection
 - ✓ Meets EU declaration of conformity certificate



**AS DURAVIT MODEL OF CODE 2809300000 OR
EQUIVALENT**

MAINS OPERATION URINAL FLUSH VALVE-1

- Finish: Polished Chrome
- Manual Push Operation
- Non-Concussive Function (timed shut-off)
- Style: Modern
- Requirement: Suitable for all concealed toilet plumbing systems
- Does not use electricity
- Type of mounting: In Wall above back to wall toilet



**AS GEBERIT OF CODE 115.819.21.1 OR APPROVED
EQUIVALENT**

MAINS OPERATION URINAL FLUSH VALVE-2

- ✓ Urinal flush control with electronic flush actuation, mains operation
- ✓ Cover plate with securing bar
- ✓ Water-saving hybrid mode can be set with Adjustable interval flush
- ✓ Mains operation and Power failure control unit
- ✓ Valve-closing function when power fails
- ✓ Flush volume can be reduced to 0.5 l per flush with regulating screw of installation set
- ✓ Includes all accessories including Cover plate type 10 with IR window Infrared control, premounted on mounting frame, Solenoid valve ,Power supply unit and Fastening material, Plate in Die-cast zinc material with Protection degree IP45
- ✓ Flow pressure 1-8 bar, With flow regulator and Detection time, adjustment range 3-15 s
- ✓ Allow for pre wall carriers



AS TAPIS INFRA RED URINAL FLUSH VALVES MODEL MC-8512 OR EQUIVALENT

SINGLE LEVER SHOWER MIXER

- ✓ Single lever shower mixer
- ✓ for concealed installation
- ✓ four way
- ✓ Can operate upto operating pressure: 10 bar
- ✓ ceramic cartridge
- ✓ temperature limitation adjustable
- ✓ diverter with automatic resetting



AS JAGUAR MODEL ARI-CHR-39065 OR EQUIVALENT

SHOWER SPOUT

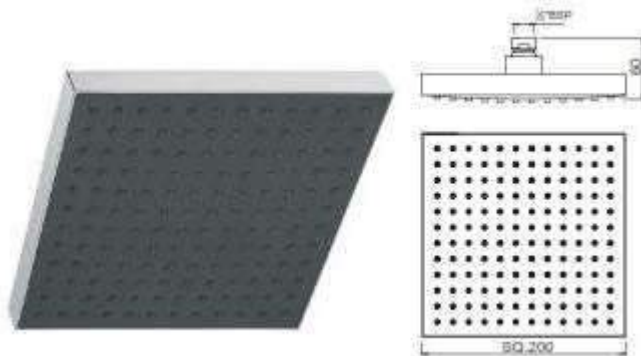
Shower spout 8" (203 mm) diverter bath spout with 1/2" NPT connection.
Finish Material resist corrosion and tarnishing.



AS JAGUAR MODEL ALD-065N OR EQUIVALENT

SQUARE SHOWER HEAD

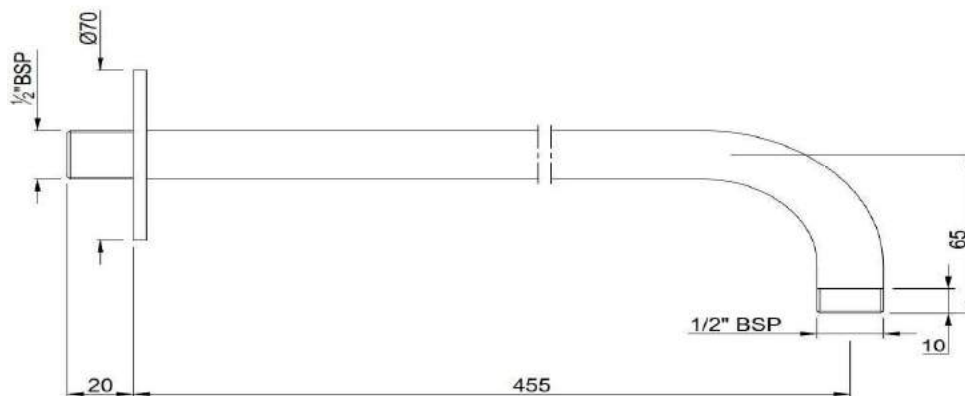
- ✓ Single Function 200X200mm Square Shape Overhead Shower
- ✓ 24.15 LPM @ 3 bar
- ✓ Mount Type Wall Mounting
- ✓ Chrome finish
- ✓ with preferred dimensions as indicated below



AS JAQUAR MODEL NO. OHS-CHR-35497 OR EQUIVALENT

LONG NECK SHOWER ARM

- ✓ length: & 450mm Long Round Shape with 90° Bend
- ✓ For wall-mounted showers with flange
- ✓ installation type: exposed installation
- ✓ connection thread $\phi 20\text{mm}$
- ✓ to complement the shower head
- ✓ With filter packing
- ✓ finish in chrome

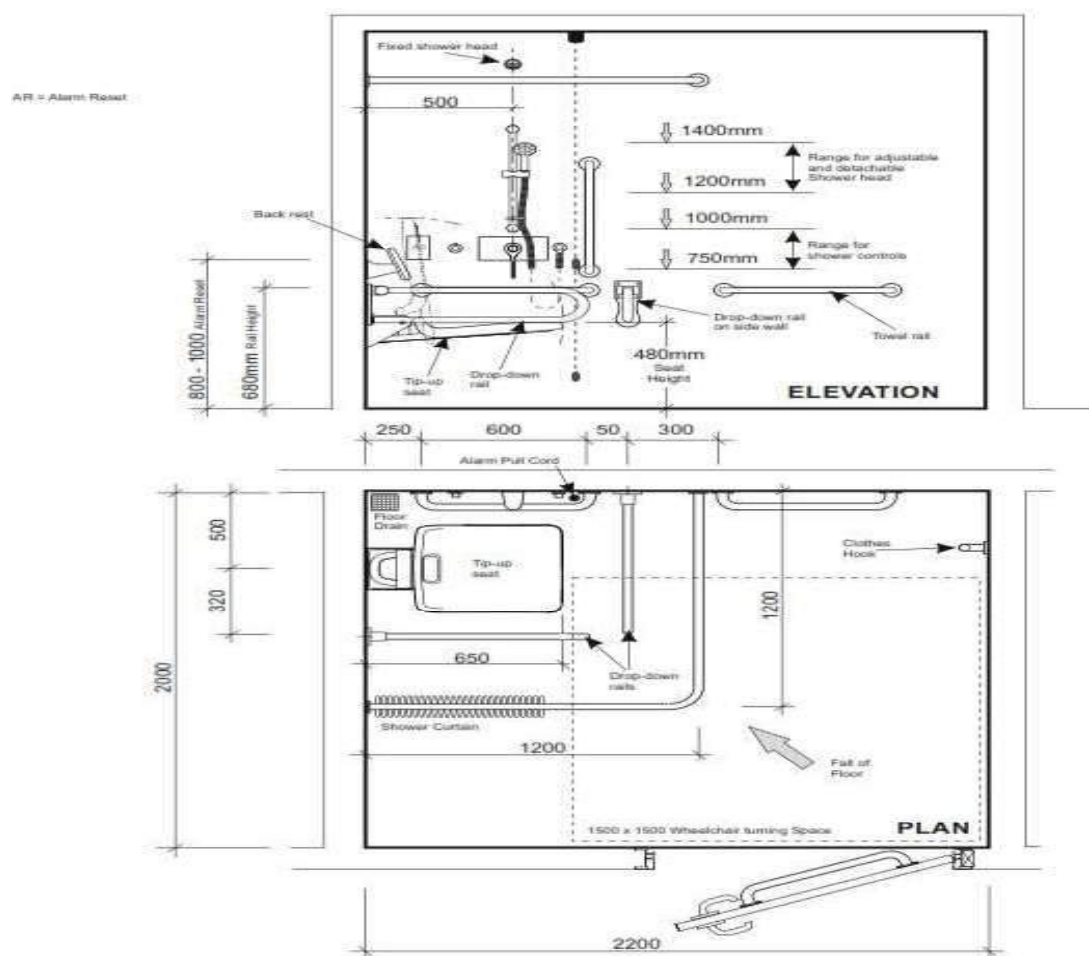


AS JAQUAR MODEL NO. SHA-WHM-479L450 OR EQUIVALENT

PHSICALLY CHALLENGED SHOWER

Physically challenged shower with all accessories including

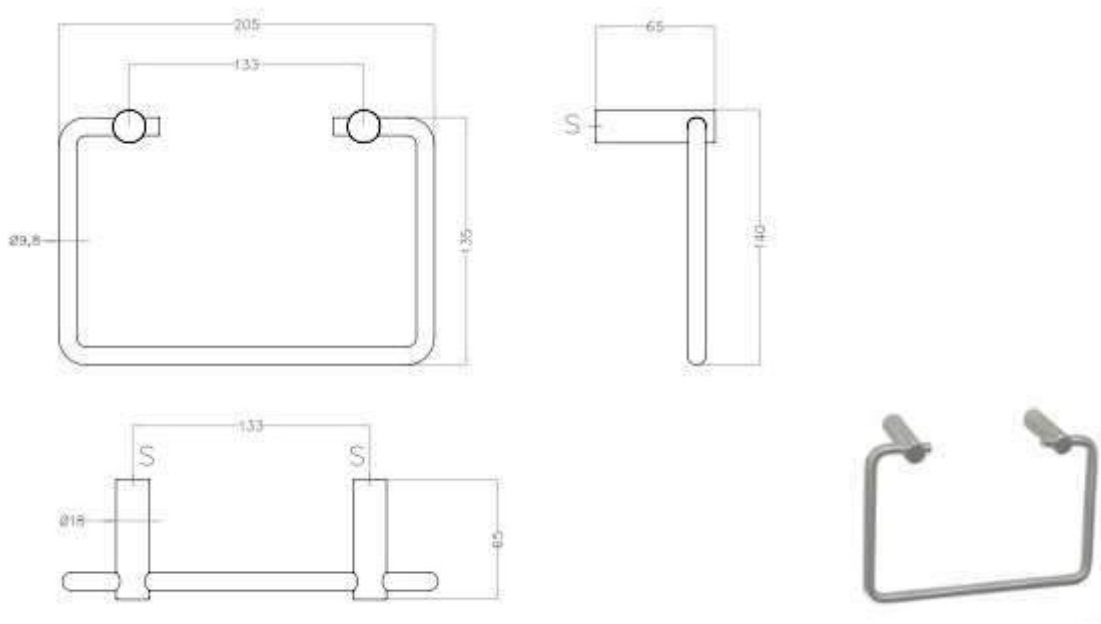
- ✓ Shower rail 1200 x 1200mm
- ✓ Shower curtain 1800 x 2000mm x 2
- ✓ Concealed shower valve to be **thermostatic concealed shower valves**
- ✓ Shower rail, hose and vandal resistant fixed head
- ✓ Shower diverter
- ✓ 3 x 600mm support rail concealed fixings and 2 x hinged support rail concealed fixings
- ✓ seat and back rest
- ✓ Grab rails in powder coated aluminium.
- ✓ WRAS and TMV3 Approved



AS TWYFORD DOC M SHOWER PACK MODEL PK7010BE OR EQUIVALENT

TOWEL RING

- ✓ Stainless steel AISI 304 ring, square form, 0.8 mm, satin finish.
- ✓ Stainless steel AISI 304 arm, 0.8 mm thick, satin finish.
- ✓ Completely welded construction.
- ✓ Mounting on the wall by means of two screws.
- ✓ Size 135mmx205mmx65 mm
- ✓ To meet ISO 9001:2008.



AS MEDICLINIC TOWEL RING MODEL AI0090CS OR EQUIVALENT

MIRROR

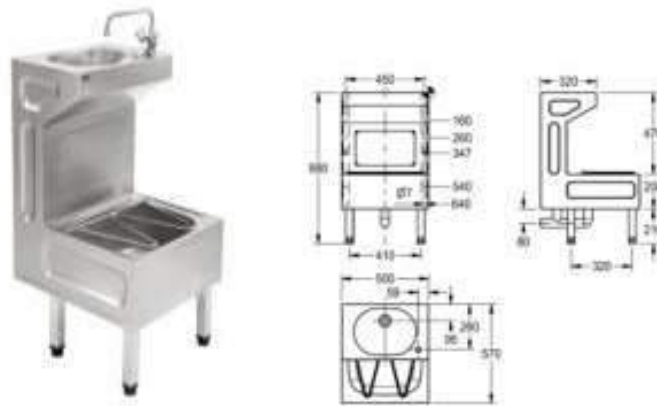
- ✓ Size 600mm diameter



AS VADO ELEMENTS MIRROR MODEL ELE-187-RO OR EQUIVALENT

JANITORIAL SINK

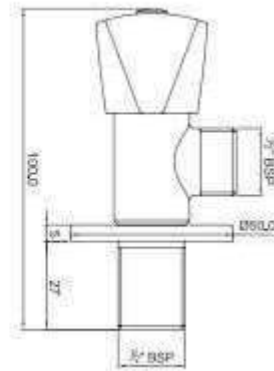
- ✓ Floor standing janitorial unit manufactured from grade 1.4301 (304) stainless steel
- ✓ 1.2mm material thickness throughout except for lower bowl which is 0.9mm.
- ✓ With monoblock mixer, 32mm flush grated waste (for top wash bowl) and 38mm domed waste outlet (for lower bowl).
- ✓ The janitorial unit to be fixed with 4 legs for floor standing
- ✓ WRAS Approved
- ✓ Bowl height 180mm,width 360mm and Bowl depth 420 mm
- ✓ Overall depth 570.00 mm, Overall height 880.00 mm and Overall width 500.00 mm
- ✓ Surface finish Satin finish With Tap ledge



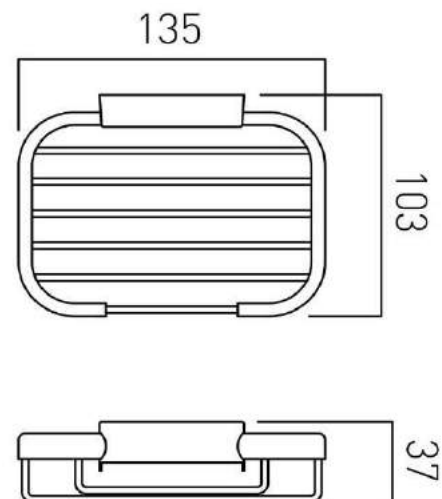
AS FRANKE JANITORIAL UNIT MODEL G20050N 207.0000.058 OR EQUIVALENT

ANGLE VALVE

- ✓ Angle Valve with Triangular Handle & Wall Flange
- ✓ Recommended Water Pressure 0.5 – 5 bar
- ✓ Flow Rate 21.00 LPM @ 3 bar
- ✓ Components have WRAS Approved for food grade conformity with Brass Housing and Spindle
- ✓ Finish Plating: Nickel-10.0 micron Chromium-0.3 micron

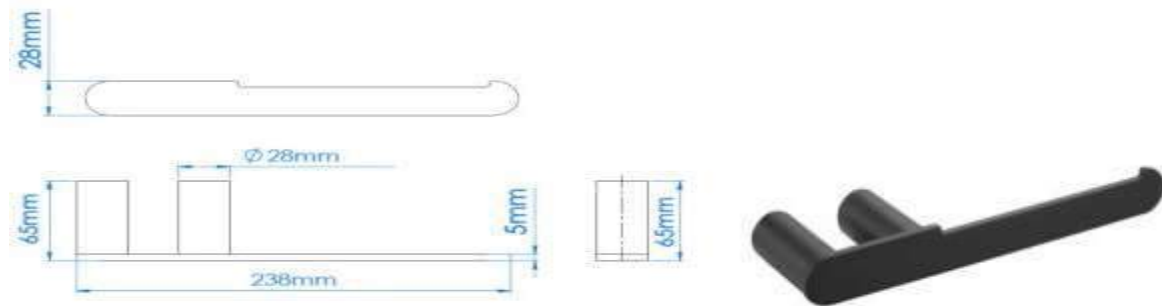
**AS JAGUAR MODEL AQT-CHR-3057P OR EQUIVALENT****BATHROOM SHELF**

- ✓ small rectangular basket
- ✓ wall mounted
- ✓ In chrome finish
- ✓ With preferred dimensions as below

**AS VADO BASKET MODEL BAS-2001-C/P OR EQUIVALENT**

TOILET ROLL HOLDER

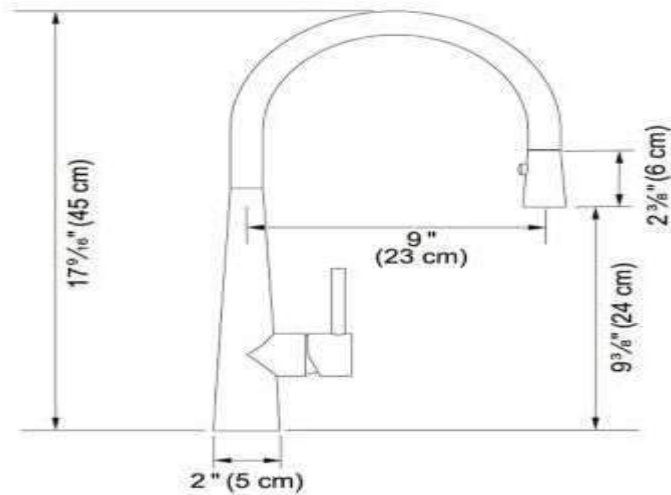
- ✓ Toilet roll holder made of AISI 304 stainless steel black finish.
- ✓ Roll axis made of 5 mm thick AISI 304 stainless steel sheet.
- ✓ Wall brackets of two units, made with AISI 304 stainless steel cylindrical tube of Ø 28mm and 1.2mm thick and attached to the bar by means of a threaded stud and nut.
- ✓ Wall anchors made of two units, made of AISI 304 stainless steel tube of Ø 22mm and 1.0mm thick. Attached to the wall bracket by means of a screw. It has two oval holes (one vertical and one horizontal) to facilitate wall mounting.



AS MEDICLINIC TOILET ROLL HOLDER MODEL AI1321B OR EQUIVALENT

KITCHEN SINK TAP

- ✓ Solid 304 stainless steel construction
- ✓ Side lever Pull down 360 degrees swivel spout
- ✓ Dual functioning head spray to provide spray and stream type
- ✓ Flowrate of 1.75gpm

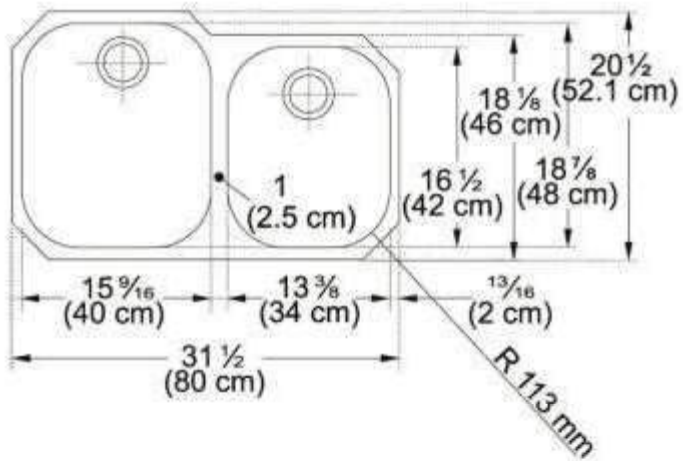


AS FRANKE FF3450 OR EQUIVALENT

KITCHEN SINK

- ✓ Solid 304 stainless steel construction
- ✓ One and a half bowl
- ✓ With preferred dimensions as shown

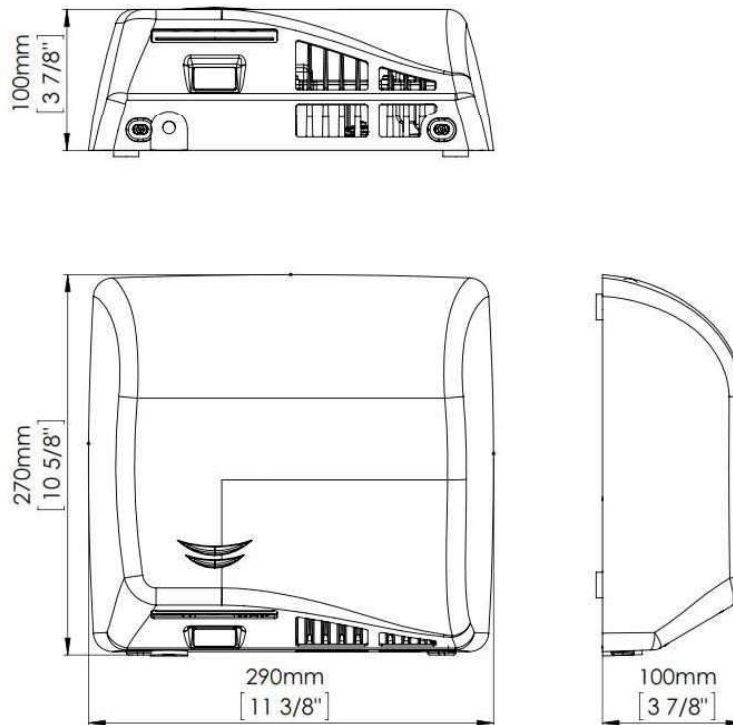




AS FRANKE REGATTA RGX 160 OR EQUIVALENT

HAND DRIER

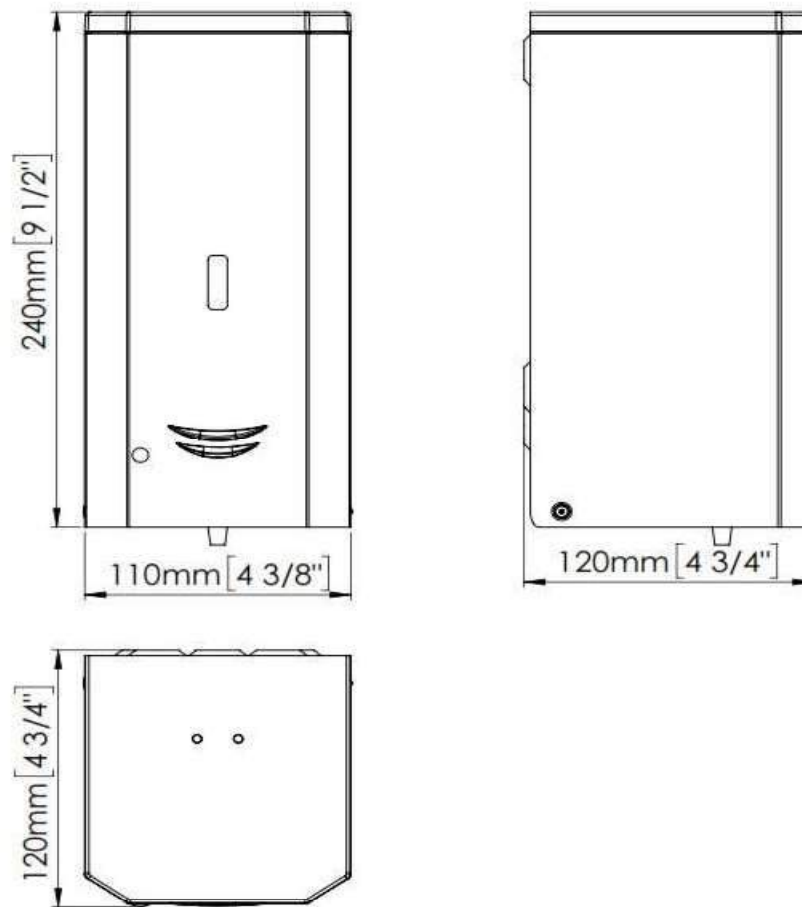
- ✓ Consumes less than 2.8 watts per drying cycle and less than 0.4 watts in stand-by mode
- ✓ Maximum air speed 400 km / h)
- ✓ Noise level less than 65 dBA
- ✓ Adjustable power motor
- ✓ Micro-switch "ON/OFF" located on the electronic board
- ✓ Detection of fixed targets.
- ✓ With an ionizer that purifies the air through negatively charged particles
- ✓ With an HEPA filter media
- ✓ With 30 second maximum continuous running time.
- ✓ Complies with the requirements of ADAAG for accessibility of public washrooms
- ✓ Compliance with RoHs, ISO and C.E standards
- ✓ With preferred dimensions as shown



AS MEDICLINIC MODEL M17AB-I OR EQUIVALENT

AUTOMATIC SOAP DISPENSER

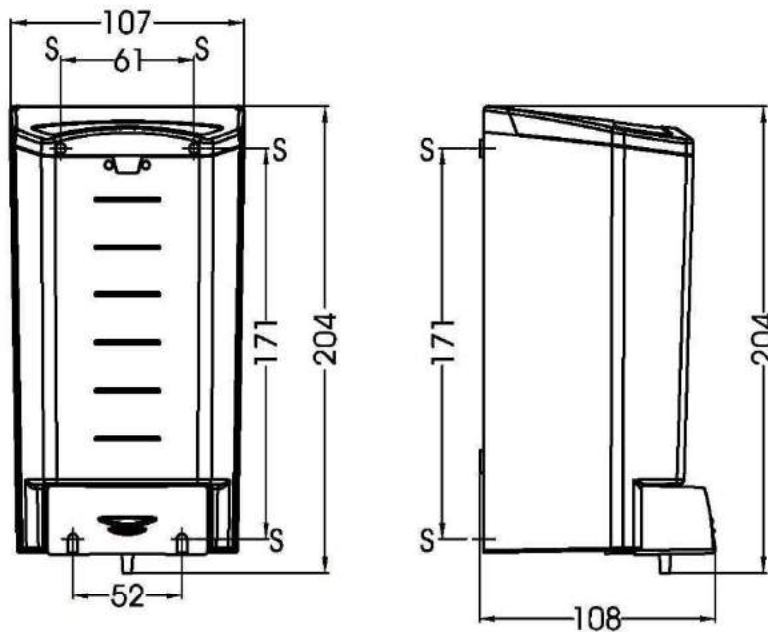
- ✓ Automatic wall-mounted liquid soap dispenser of 1 L capacity,
- ✓ Manufactured in stainless steel AISI 304, 0.8 mm thick.
- ✓ Level display located in the front part of the soap dispenser.
- ✓ Operates with an AC adapter.
- ✓ Compliance with RoHs,ISO and C.E standards
- ✓ With preferred dimensions as shown



AS MEDICLINIC MODEL DJ0037AB OR EQUIVALENT

PUSH BUTTON SOAP DISPENSER

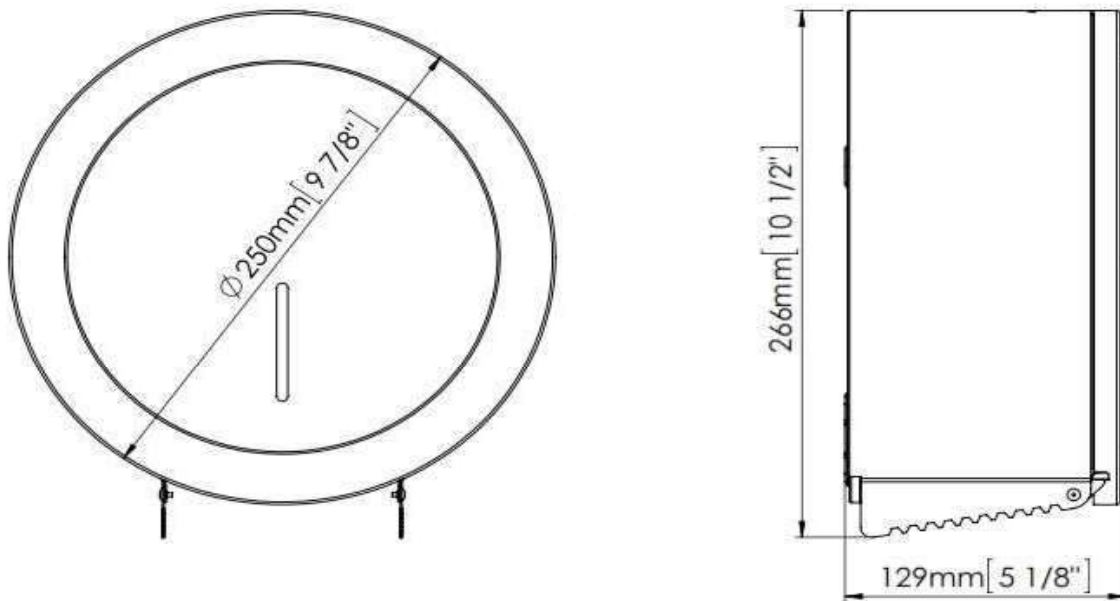
- ✓ Wall mounted liquid soap dispenser
- ✓ capacity of 1.1 litres
- ✓ manufactured in 3 mm thick thermoplastic ABS
- ✓ hand operated by means of a push-button
- ✓ Quantity dispensed per pump 1.2 ml
- ✓ Compliance with ISO and C.E standards
- ✓ With preferred dimensions as shown



AS MEDICLINIC MODEL DJ0020F OR EQUIVALENT

TOILET PAPER ROLL DISPENSER

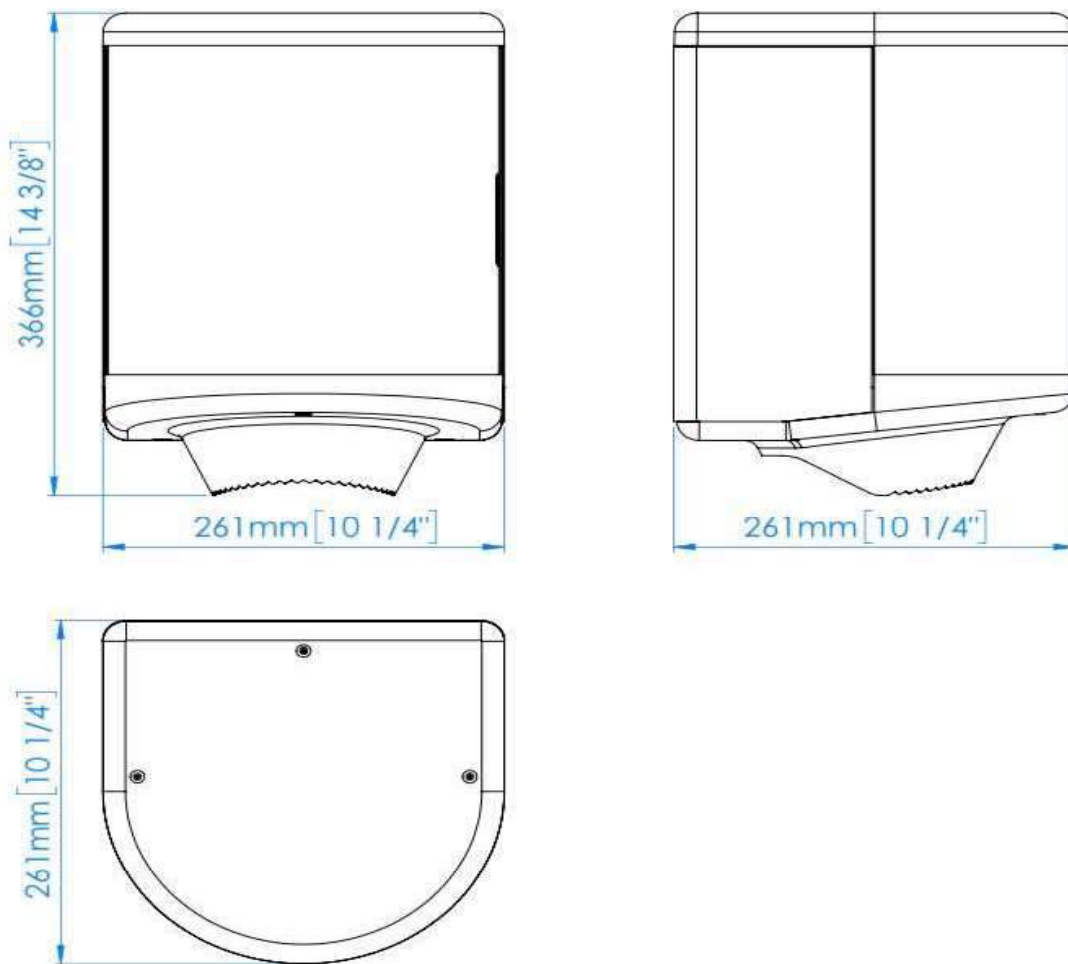
- ✓ Circular toilet paper dispenser for industrial rolls of 250/300 m, surface mounted
- ✓ One-piece body, 0,8 mm thick, round Ø 250 mm, fully sealed and with a catch system to prevent the opening of the door.
- ✓ It includes a lock system with standard key that allows opening the lid for replenishment.
- ✓ PA6 plastic shaft, for standard Ø45mm paper rolls tube, with inertial anti-spin retainer. This shaft is to be removable with 2 different positions to allow variety of paper rolls. It also allows the use of a standard paper roll in case of need.
- ✓ One-piece seamless lid, 0.8 mm thick, fully sealed. Fixed to the body by means of rivets that allow swinging down the lid for the replenishment.
- ✓ Slot at the front with a plastic viewer that indicates the content level
- ✓ Back-plate, 0.6 mm thick, with multiple slots
- ✓ With preferred dimensions as shown



AS MEDICLINIC MODEL PR2783B OR EQUIVALENT

PAPER TOWEL DISPENSER

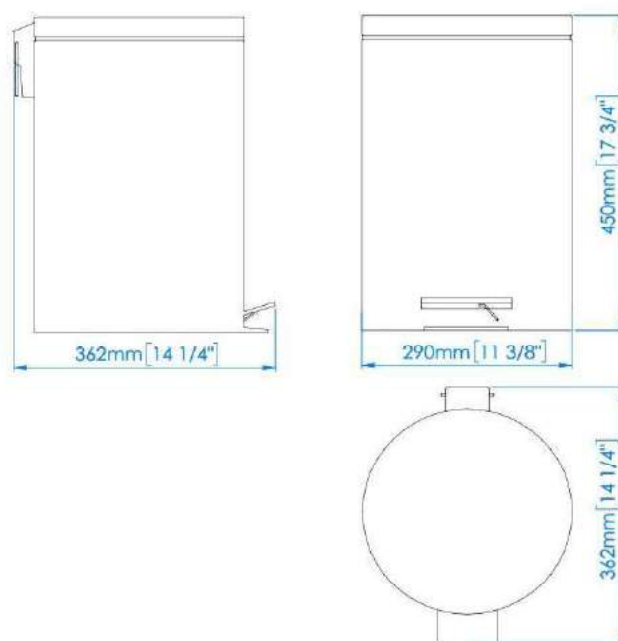
- ✓ Manual center feed paper towel dispenser, surface mounted,
- ✓ Supplied with a lock and special key for opening and screws.
- ✓ Seamless one-piece basis, 0.8 mm thick, welded to the body includes a teeth opening for the paper.
- ✓ Seamless one-piece sliding door, 0.8mm thick.
- ✓ Polyamide lid ring jointed to the top lid
- ✓ Polyamide door ring joint
- ✓ High density polyethylene ring placed over the basis with a slot to put out the paper
- ✓ With preferred dimensions as shown



AS MEDICLINIC MODEL DT0303CS OR EQUIVALENT

INDOOR CIRCULAR WASTE BINS

- ✓ Indoor circular body waste bins 20L capacity, operated by means of a pedal, to rest directly on the floor.
- ✓ **LID:** circular. Silent and anti-odors. Lid opening based on hinge system made of thermoplastic material.
- ✓ **BASE:** made of black thermoplastic, non-slip, insulates the cube bottom of moisture and makes the cube remain stable in place.
- ✓ **INNER BUCKET:** made of polypropylene with metal handle, for easy removal and capacity of 20 L
- ✓ **PEDAL:** metallic with a piece of non-slip black thermoplastic attached on its top. Activates the opening of the lid by pressing.
- ✓ **HANDLE:** metallic and located in the upper rear part of the bin to facilitate the transport.
- ✓ Made of stainless steel, 0.5 mm thick and the subject is embossed in black on the stainless steel.
- ✓ The signs are all circular and have a diameter of 116 mm and they are fixed to the wall by means of a double side tape



AS MEDICLINIC MODEL PP1321CS OR EQUIVALENT

BATHROOM SIGNS

- ✓ Made of stainless steel, 0.5 mm thick and the subject is embossed in black on the stainless steel.
- ✓ The signs are all circular and have a diameter of 116 mm and they are fixed to the wall by means of a double side tape

WOMEN'S WASHROOM SIGN

AS MEDICLINIC MODEL PP1321CS OR EQUIVALENT

MEN'S WASHROOM SIGN

AS MEDICLINIC MODEL PS0003CS OR EQUIVALENT

ADAPTED WASHROOM SIGN



AS MEDICLINIC MODEL PS0004CS OR EQUIVALENT

SECTION NAME:

PIPING SPECIFICATIONS

PARTICULAR SPECIFICATIONS FOR PLUMBING AND DRAINAGE INSTALLATION WORKS

GENERAL

This section specifies the general requirements for plant, equipment and materials forming part of the plumbing and drainage installations.

MATERIALS AND STANDARDS

Pipework and Fittings

Pipework materials are to be used as follows:

a) Galvanized Steel Pipework

Galvanized steel pipe work up to 65mm nominal bore shall be manufactured in accordance with B.S. 1387 Medium Grade, with tapered pipe threads in accordance with B.S. 21. All fittings shall be malleable iron and manufactured in accordance with B.S. 143.

Pipe joints shall be screwed and socketed and sufficient coupling unions 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.

Galvanized steel pipe work, 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 jointing of pipes to valves and other items of plant. All flanges shall comply with the requirements of B.S. 10 to the relevant classifications contained hereinafter under Section 'C' of the Specification.

Galvanizing shall be carried out in accordance with the requirements of B.S. 1387 and B.S. 143 respectively.

b) Copper Tubing

All copper tubing shall be manufactured in accordance with B.S. 2871 from C.160 'Phosphorous De-oxidized Non-Arsenical Copper' in accordance with B.S. 1172.

Pipe joints shall be made with soldered capillary fittings and connections to equipment shall be with compression fittings manufactured in accordance with B.S. 864.

Short copper connection tubes between galvanized pipe work 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 way than the use of copper tubing, then a brass straight connector shall be positioned between the galvanized pipe and the copper tube in order to prevent direct contact.

c) P.V.C. (Hard) Pressure Pipes and Fittings

All P.V.C. pipes and fittings shall be manufactured in accordance with B.S. 3505: 1968.

Jointing

The method of jointing to be employed shall be that of solvent welding, using the pipe and manufacturer's approved cement. Seal ring joint shall be introduced where it is necessary to accommodate thermal expansion.

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 practical after laying and when the pipeline is adequately 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.

b) HDPE Pressure Pipes and Fittings

All P.V.C. pipes and fittings shall be manufactured in accordance with B.S. 3505: 1968.

Jointing

The method of jointing to be employed shall be that of solvent welding, using the pipe and manufacturer's approved cement. Seal ring joint shall be introduced where it is necessary to accommodate thermal expansion.

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 practical after laying and when the pipeline is adequately 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.

c) 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 pipes shall be carried out by means of solvent welding, the manufacturer's instructions and B.S. 5572: 1978. Jointing of pipes 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, centers of which shall not exceed one meter. Expansion joints shall be provided as indicated. Supporting brackets and pipe clips shall be fixed on each side of these joints.

e) PVC Soil System

The Sub-contractor shall supply and fix PVC soil pipes 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 adhere to. Connections to WC pans shall be effected by the use of a WC connector, gasket and cover, fixed to suit pan outlet. Suitable supporting brackets and pipe clips shall be provided at maximum of one metre centres.

The Sub-contractor shall be responsible for the joint into the Gully Trap on Drain as indicated on the Drawings.

Valves

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 the requirements of B.S.1010.

Gate Valves

All gate 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 requirements 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.

Globe Valves

All globe valves up to and including 65mm 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.

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-Syphon Traps

Where anti-syphon traps are specified, these shall be similar or equal to the range of traps manufactured by Greenwood and Hughes Limited, Deacon Works Littlehampton, Sussex, England.

The trade name for traps manufactured by this company is 'Grevak'.

Pipe Supports

a) General

This sub-clause deals with pipe supports 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 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 works commence.

b) Steel and Copper Pipes and Tubes

Pipe runs shall be secured by clips connected to pipe angers, 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 supports spacing in metres for steel and copper pipe and tube is given in the following table for horizontal runs.

Size Nominal Bores	Copper Tube to B.S. 659	Steel Tube to B.S. 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	3.0m	4.5m
150mm	3.5m	4.5m

The support spacing for vertical runs shall not exceed one and a half times the distances given for horizontal runs.

c) 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

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 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 contractor shall supply flexible joints to prevent vibrations and other movements being transmitted from pumps to piping systems or vice versa.

Sanitary Appliances

All sanitary appliances supplied and installed as part of the Sub-contract works shall comply with the general requirements of B.S. Code of Practice 305 and the particular requirements of the latest B.S. Specifications.

Pipe Sleeves

Main runs of pipework are to be fitted with sleeves where they pass through walls and floors. Generally the sleeves 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.

INSTALLATION

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.

Above Ground Installation

a) Water Services

Before any joint is made, the pipes shall be hung in their supports and adjusted to ensure that the joining faces are parallel and any falls which shall 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 lines 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 user 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 small step ladder, extension spindles with floor or wall pedestals shall be provided.

Screwed piping shall be installed with sufficient number of unions to 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 allowances shall be made for the expansion and contraction of pipework, precautions being taken to ensure that any force produced by the pipe movements are not transmitted to valves, equipment or plant. All screwed joints to piping and fittings shall be made with P.T.F.E. tape.

The test pressure shall be maintained by the pump 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 4.5 litres 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 system 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 waste fittings are discharged to a gully trap before passing to the sewer via a manhole.

The Sub-contractor shall provide all necessary rodding and inspection facilities within the draining system in positions where easy accessibility is available. Where a branch requires rodding facilities in a position to which normal access is unobtainable, then that branch shall be extended so as to provide a suitable purpose made rodding 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 rodding 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 C.P. 305 to the approval of the Engineer.

Underground Water Mains

After laying, jointing and anchoring, the mains 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 sections 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 a socket valve with a plug and the wedge shall be placed in the open position while testing.

The Contractor shall provide suitable end supports to withstand the end thrust of the water pressure in the main.

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 Contractor may test the Pipelines in sections.

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 Contractor and the section retested.

The Contractor shall take all necessary precautions to prevent damage occurring to special valves and fittings during the tests. Any item damaged shall be required or replaced at the Contractor's expenses.

Underground Drainage System

A site test shall be carried out on all drainage pipes before haunching 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 a 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 this 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 10.36mm head at any point in the section.

The test pressure shall be maintained for the 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, drain pipe runs shall 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 practice 301, clause 601 (f).

TESTING AND INSPECTION

Site Tests – Pipework Systems

a) 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 to design working pressure. If preferred, the Sub-contractor may test the pipelines in sections. 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.

b) 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 respects, tests shall comply with the requirements of B.S. 5572.

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 pre-formed 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 “sweating”, 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 painting as follows

- i) Apply a coating of suitable filler until the canvas weave disappears and allow to dry.
- ii) Apply two coats of an approved paint and finish in suitable gloss enamel to colors approved by the Engineer.

All lagging for cold and hot water pipes erected in crawlways, 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 banded in colours to be approved by 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 of 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 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.

STERILISATION OF HOT AND COLD WATER SYSTEM

All water distribution system shall be thoroughly sterilised and flushed out after the completion of all tests and before being fully commissioned for handover.

The sterilisation procedures shall be carried out by the Sub-contractor in accordance with the requirements of B.S. Code of Practice 301, Clause 409 and to the approval of the Engineer.

PLUMBING PIPES SPECIFICATION

- ✓ Impact Strength of over 45 avg ft/lbs tested by ASTM D2444 Standard Practice for Determination of the Impact Resistance of Thermoplastic Pipe and Fittings
- ✓ Biofilm Formation Potential of less than 120 pg ATP/cm²
- ✓ integrates specialized additives that protect the pipe from UV
- ✓ To meet the requirement of having a flame spread index of 0-25 and a smoke developed index of 0-50 (25/50 rating) when tested in accordance with ASTM E84/UL723

Item	Parameter	Required
A	Material	Chlorinated Polyvinyl Chloride
B	Tensile Strength (MPa at 23°C)	High.55 MPa
C	Flow Rate	High due to higher ID
D	Jointing	cold fusion as done by solvent joint
E	Scale Formation/Calcination	No scale formation, pitting and corrosion
F	Fire Retardance	LOI = 60%. Self extinguishes
G	Bacterial Growth	Less than 5000Kbe/cm
H	Thermal Conductivity	0.14W/MK Less energy loss
I	Coefficient of Thermal expansion	0.7x10 mm/mk less supports, less snaking.
J	Effect of UV	Dehydrochlorination reaction. Temp and pressure bearing capacity remains unaffected
K	Oxygen Permeation	Less than 1 cm ³ /m day atmosphere (at 70°C) No corrosion risk
L	Reliability	Being in production for at least 20 years
M	Maximum Temperature	93 degrees centigrade
N	Resistance to water disinfectant (Chlorine)	Not affected by chlorine in water supply or by pH of Water

Certified to

- ✓ EN ISO 15877, which specifies the material is approved for use in hot and cold water distribution systems
- ✓ ASTM F656, standard for using a primer for potable water and sewer pipe
- ✓ NSF-61 Annex G certification, which verifies the material leaches almost no lead into the water.

PIPE SCHEDULE**Temperature and Pressure Tolerance**

Item	Temperature (degrees centigrade)	Working Pressure for PN16(bar)	Working Pressure for PN20(bar)	Working Pressure for PN25(bar)
A	20	16	20	25
B	40	11	14	17
C	60	6	8	10
D	80	4	5	6
E	95	2	3	4

HANGERS AND SUPPORT

- ✓ Piping should not be anchored tightly to supports, but rather secured with smooth straps or hangers that allow for movement caused by expansion and contraction.
- ✓ Hangers should not have rough or sharp edges which come in contact with the tubing.

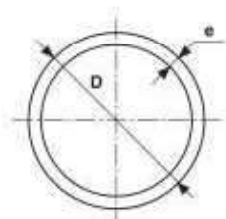
Item	Pipe size(mm)	Hangers Spacing			
		Horizontal			Vertical
		20 ° C	60 ° C	80 ° C	
A	16	850	700	600	1000
B	20	950	850	750	1200
C	25	1050	950	850	1300
D	32	1200	1100	1000	1400
E	40	1300	1150	1150	1500
F	50	1500	1450	1350	1700
G	63	1700	1650	1550	2000

PIPES

CPVC pipes SDR-11 for 15 mm ($\frac{1}{2}$ ") to 50 mm (2")

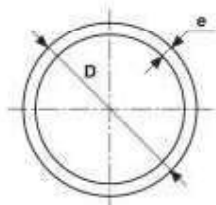
CPVC Schedule 40 pipes to ASTM F-441

PN 16



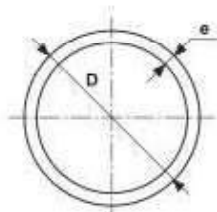
Diameter D	e/mm	PN	Description	Unit	Weight per meter (Kg)	Internal Diameter (mm)
16	1,4	16	TUBE CPVC	ML	0,111	13,20
20	1,5	16	TUBE CPVC	ML	0,151	17,00
25	1,9	16	TUBE CPVC	ML	0,234	21,20
32	2,4	16	TUBE CPVC	ML	0,379	27,20
40	3	16	TUBE CPVC	ML	0,590	34,00
50	3,7	16	TUBE CPVC	ML	0,910	42,60
63	4,7	16	TUBE CPVC	ML	1,460	53,60
75	5,6	16	TUBE CPVC	ML	2,100	63,80
90	6,7	16	TUBE CPVC	ML	2,900	76,60
110	8,1	16	TUBE CPVC	ML	4,310	93,80
125	9,2	16	TUBE CPVC	ML	5,460	106,60
140	10,3	16	TUBE CPVC	ML	6,850	119,40
160	11,8	16	TUBE CPVC	ML	9,070	136,40

PN 20



Diameter D	e/mm	PN	Description	Unit	Weight per meter (Kg)	Internal Diameter (mm)
16	1,5	20	TUBE CPVC	ML	0,115	13,00
20	1,9	20	TUBE CPVC	ML	0,187	16,20
25	2,3	20	TUBE CPVC	ML	0,270	20,40
32	2,9	20	TUBE CPVC	ML	0,470	26,20
40	3,7	20	TUBE CPVC	ML	0,701	32,60
50	4,6	20	TUBE CPVC	ML	1,090	40,80
63	5,8	20	TUBE CPVC	ML	1,720	51,40
75	6,8	20	TUBE CPVC	ML	2,420	61,40
90	8,2	20	TUBE CPVC	ML	3,750	73,60
110	10	20	TUBE CPVC	ML	5,130	90,00
125	11,4	20	TUBE CPVC	ML	6,620	102,20
140	12,7	20	TUBE CPVC	ML	8,200	114,60
160	14,6	20	TUBE CPVC	ML	10,800	130,80

PN 25

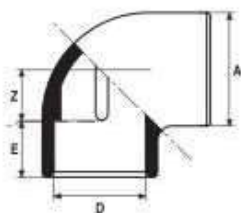


Diameter D	e/mm	PN	Description	Unit	Weight per meter (Kg)	Internal Diameter (mm)
16	1,8	25	TUBE CPVC	ML	0,140	12,40
20	2,3	25	TUBE CPVC	ML	0,220	15,40
25	2,8	25	TUBE CPVC	ML	0,330	19,40
32	3,6	25	TUBE CPVC	ML	0,490	24,80
40	4,5	25	TUBE CPVC	ML	0,830	31,00
50	5,6	25	TUBE CPVC	ML	1,290	38,80
63	7,1	25	TUBE CPVC	ML	2,020	48,80
75	8,4	25	TUBE CPVC	ML	2,880	58,20
90	10,1	25	TUBE CPVC	ML	4,250	69,80
110	12,3	25	TUBE CPVC	ML	6,160	85,40
125	14	25	TUBE CPVC	ML	7,90	97,00
140	15,7	25	TUBE CPVC	ML	9,920	108,60
160	17,9	25	TUBE CPVC	ML	12,910	124,20

PIPE FITTINGS

- CPVC pipes SDR-11 fittings to per ASTM D2846 for pipes Sizes 15 mm ($\frac{1}{2}$ "") to 50 mm (2")
- Schedule 40 fittings to ASTM F-438 for pipe Sizes above 50 mm (2")

Elbow 90°



Dn	Reference	A(min)	D(avg)	Z(avg)	E(min)
16	GIC 16	21,2	16,2	9,0	14,0
20	GIC 20	26,6	20,2	11,0	16,0
25	GIC 25	32,95	25,35	13,5	25,0
32	GIC 32	40,35	32,35	17,0	30,0
40	GIC 40	50,35	40,35	21,0	35,0
50	GIC 50	62,95	50,35	26,0	41,0
63	GIC 63	76,15	63,35	32,5	50,0
75	GIC 75	90,65	75,45	38,5	60,0
90	GIC 90	108,65	90,45	46,0	72,0
110	GIC 110	132,45	110,45	56,0	88,0

Notes: All dimensions are in mm

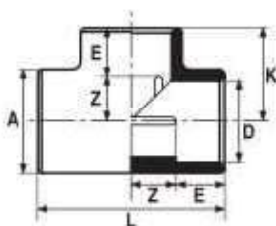
Elbow 45°



Dn	Reference	A(min)	D(avg)	Z(avg)	E(min)
16	HIC 16	21,2	16,2	4,5	14,0
20	HIC 20	26,6	20,2	5,0	16,0
25	HIC 25	32,8	25,2	6,0	18,5
32	HIC 32	40,35	32,35	7,5	30,0
40	HIC 40	50,35	40,35	9,5	35,0
50	HIC 50	60,35	50,35	11,5	41,0
63	HIC 63	76,15	63,35	14,0	50,0
75	HIC 75	90,65	75,45	16,5	60,0
90	HIC 90	108,65	90,45	19,5	72,0
110	HIC 110	132,45	110,45	24,0	88,0

Notes: All dimensions are in mm

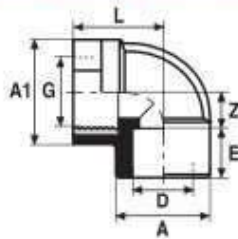
Tee 90°



Dn	Reference	A(min)	D(avg)	Z(avg)	E(min)	K	L
16	TIC 16	21,2	16,2	9,0	14,0	23,0	46,0
20	TIC 20	26,6	20,2	11,0	16,0	27,0	54,0
25	TIC 25	32,95	25,35	13,5	25,0	38,5	77,0
32	TIC 32	40,35	32,35	17,0	30,0	47,0	94,0
40	TIC 40	50,35	40,35	21,0	35,0	56,0	112,0
50	TIC 50	62,95	50,35	26,0	41,0	67,0	134,0
63	TIC 63	76,15	63,35	32,5	50,0	82,5	165,0
75	TIC 75	90,65	75,45	38,5	60,0	98,5	197,0
90	TIC 90	108,65	90,45	46,0	72,0	118,0	236,0
110	TIC 110	132,45	110,45	56,0	88,0	144,0	288,0

Notes: All dimensions are in mm

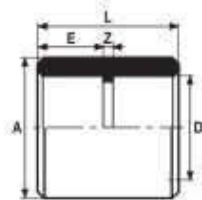
Elbow Metal Reduced and Threaded



Dn	Reference	A(min)	D(avg)	Z(avg)	E(min)	G	A1	L
16x1/2"	GIRC 16x1/2"	21,2	16,2	9,0	14,0	1/2"	39,8	28,5
20x1/2"	GIRC 20x1/2"	26,75	20,35	11,0	20,0	1/2"	42,0	27,5
25x3/4"	GIRC 25x3/4"	32,95	25,35	13,5	25,0	3/4"	43,0	33,8
32x1"	GIRC 32x1"	40,35	32,35	17,0	30,0	1"	49,3	39,7

Notes: All dimensions are in mm

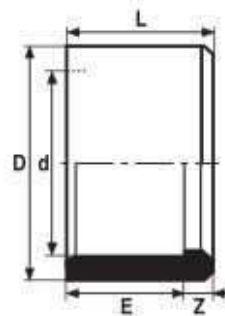
Sleeves



Dn	Reference	A(min)	D(avg)	Z(avg)	E(min)	L
16	MIC 16	21,2	16,2	3,0	14,0	31,0
20	MIC 20	26,6	20,2	3,0	16,0	35,0
25	MIC 25	32,95	25,35	3,0	25,0	53,0
32	MIC 32	40,35	32,35	3,0	30,0	63,0
40	MIC 40	50,35	40,35	3,0	35,0	73,0
50	MIC 50	62,95	50,35	3,0	41,0	85,0
63	MIC 63	76,15	63,35	3,0	50,0	103,0
75	MIC 75	90,65	75,45	4,0	60,0	124,0
90	MIC 90	108,65	90,45	5,0	72,0	149,0
110	MIC 110	132,45	110,45	6,0	88,0	182,0

Notes: All dimensions are in mm

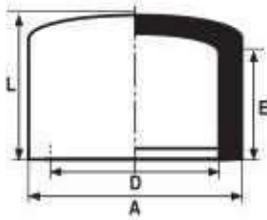
Reduction



Dn	Reference	D(min)	d(avg)	Z(avg)	E(min)	L(min)
20/16	DIC 20/16	20,0	16,35	4,0	16,0	20,0
25/20	DIC 25/20	25,0	20,35	5,0	20,0	25,0
32/20	DIC 32/20	32,0	20,35	10,0	20,0	30,0
32/25	DIC 32/25	32,0	25,35	5,0	25,0	30,0
40/20	DIC 40/20	40,0	20,35	15,0	20,0	35,0
40/25	DIC 40/25	40,0	25,35	10,0	25,0	35,0
40/32	DIC 40/32	40,0	32,35	5,0	30,0	35,0
50/20	DIC 50/20	50,0	20,35	15,0	20,0	35,0
50/25	DIC 50/25	50,0	25,35	16,0	25,0	41,0
50/32	DIC 50/32	50,0	32,35	11,0	30,0	41,0
50/40	DIC 50/40	50,0	40,35	6,0	35,0	41,0
63/32	DIC 63/32	63,0	32,35	20,0	30,0	50,0
63/40	DIC 63/40	63,0	40,35	15,0	35,0	50,0
63/50	DIC 63/50	63,0	50,35	9,0	41,0	50,0
75/50	DIC 75/50	75,0	50,35	19,0	41,0	60,0
75/63	DIC 75/63	75,0	63,35	10,0	50,0	60,0
90/75	DIC 90/75	90,0	75,45	12,0	60,0	72,0
110/90	DIC 110/90	110,0	90,45	16,0	72,0	88,0

Notes: All dimensions are in mm

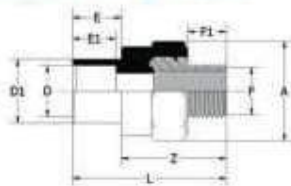
End Cap



Dn	Reference	A(min)	D(Avg)	E(min)	L(min)
16	CIC 16	21,2	16,2	14,0	19,5
20	CIC 20	26,6	20,2	16,0	22,2
25	CIC 25	32,8	25,2	18,5	25,3
32	CIC 32	40,35	32,35	30,0	37,0
40	CIC 40	50,35	40,35	35,0	43,0
50	CIC 50	62,95	50,35	41,0	50,3
63	CIC 63	79,15	63,35	50,0	60,9
75	CIC 75	93,85	75,45	60,0	73,2
90	CIC 90	112,65	90,45	72,0	88,1
110	CIC 110	137,45	110,45	88,0	107,5

Notes: All dimensions are in mm.

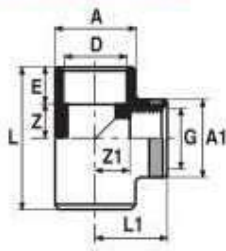
Reduced Metal Sleeve



Dn	Reference	D1(min)	D(Avg)	A	E1	E	F	F1	L	Z
25x1/8"	KRG-C 25x1/8"	32,95	25,35	40,8	25,0	28,0	1/8"	13,7	59,5	43,0
32x1/4"	KRG-C 32x1/4"	40,35	32,35	47,5	30,0	33,0	1/4"	16,6	65,0	47,5

Notes: All dimensions are in mm.

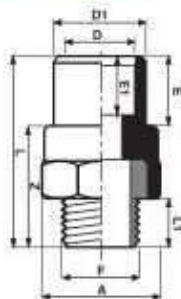
Tee Metal Threaded



Dn	Reference	A(min)	D(Avg)	Z(Avg)	E(min)	L	G	A1	Z1	L1
16x1/8"	TIRC 16x1/8"	21,2	16,2	9,0	14,0	46,0	1/8"	39,5	15,0	30,0
20x1/8"	TIRC 20x1/8"	24,75	20,35	11,0	20,0	62,0	1/8"	42,5	13,5	30,0
25x1/4"	TIRC 25x1/4"	32,95	25,35	13,5	25,0	77,0	1/4"	43,0	16,5	34,5
32x1"	TIRC 32x1"	40,35	32,35	17,0	30,0	94,0	1"	49,2	20,0	40,5

Notes: All dimensions are in mm.

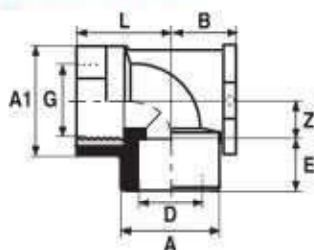
Metal Sleeves Male



Dn	Reference	D1(min)	D(Avg)	A	E1	E	F	L1	L	Z
16x1/8"	KIG-C 16x1/8"	21,2	16,2	39,5	14,0	16,0	1/8"	12,0	46,7	30,5
20x1/8"	KIG-C 20x1/8"	26,75	20,35	34,9	20,0	19,0	1/8"	12,0	48,0	29,5
25x1/4"	KIG-C 25x1/4"	31,75	25,35	40,8	25,0	15,6	1/4"	13,7	59,5	43,0
32x1"	KIG-C 32x1"	40,35	32,35	47,5	30,0	17,0	1"	16,6	65,0	47,5
40x1 1/4"	KIG-C 40x1 1/4"	48,55	40,35	59,5	35,0	19,5	1 1/4"	22,0	75,5	56,0
50x1 1/2"	KIG-C 50x1 1/2"	60,35	50,35	69,0	41,0	26,5	1 1/2"	20,0	81,0	54,5
63x2"	KIG-C 63x2"	76,15	63,35	81,0	50,0	33,7	2"	26,5	98,5	64,0

Notes: All dimensions are in mm.

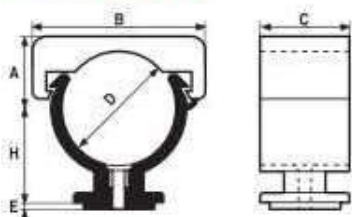
Wall Mount Elbow



Dn	Reference	A1(min)	D(avg)	Z(avg)	E(min)	G	A1	L	B
20x1/2"	20x1/2"	26.75	20.35	11.0	20.0	1/2"	42.0	27.0	12.5
25x1/2"	25x1/2"	32.95	25.35	13.5	25.0	1/2"	46.5	34.0	17.5

Notes: All dimensions are in mm

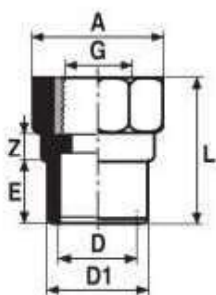
Bracket for Pipe



Dn	Reference	D	A	B	C	E	H
20	MDC 20	20.5	10.0	31.5	16.0	1.9	18.0
25	MDC 25	25.5	11.0	38.0	16.0	1.9	21.0
32	MDC 32	32.8	15.0	48.0	18.0	2.7	25.5

Notes: All dimensions are in mm

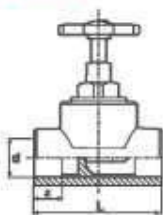
Sleeve Female Metal Threaded



Dn	Reference	D1(min)	D(avg)	A	E(min)	G	Z	L
16x1/2"	MIRC 16x1/2"	21.2	16.2	39.3	14.0	1/2"	3.0	34.5
20x1/2"	MIRC 20x1/2"	26.75	20.35	39.3	20.0	1/2"	3.0	35.2
25x1/2"	MIRC 25x1/2"	32.95	25.35	45.5	25.0	1/2"	3.0	48.0
32x1"	MIRC 32x1"	40.35	32.35	50.5	30.0	1"	3.0	48.5
40x1 1/4"	MIGC 40x1 1/4"	48.55	40.35	60.0	35.0	1 1/4"	3.0	54.5
50x1 1/2"	MIGC 50x1 1/2"	60.35	50.35	69.0	41.0	1 1/2"	3.0	61.0
63x2"	MIGC 63x2"	76.15	63.35	81.0	50.0	2"	3.0	72.0

Notes: All dimensions are in mm

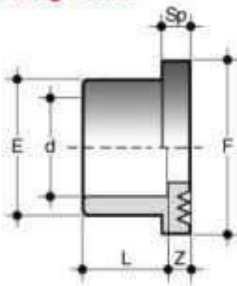
Stop Valve



Dn	Reference	d(avg)	Z(min)	L
20x1/2"	VKIK 20x1/2"	20.35	20.0	62.0
25x1/2"	VKIK 25x1/2"	25.35	25.0	77.0
32x1"	VKIK 32x1"	32.35	30.0	94.0

Notes: All dimensions are in mm

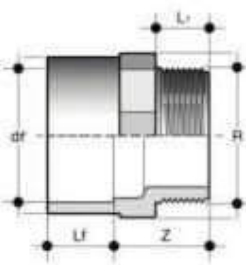
Flange Hub



Dn	Reference	d(avg)	E(min)	L	Z	SP	F
63	Colet 63	63.35	82.0	41.0	3.0	9.0	90.0
75	Colet 75	75.45	89.5	43.5	3.0	10.0	105.0
90	Colet 90	90.45	107.5	49.0	5.0	11.0	125.0
110	Colet 110	110.45	131.0	63.0	5.0	14.0	158.0

Notes: All dimensions are in mm

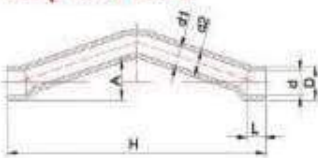
Sleeve Male Threaded



Dn	Reference	d(avg)	Lf(min)	Lr(min)	Z	R
25x1/4"	KIFC 25x1/4"	25.35	25.0	16.3	27.0	3/8"
32x1"	KIFC 32x1"	32.35	30.0	19.1	30.5	1"
40x1 1/2"	KIFC 40x1 1/2"	40.35	35.0	21.4	35.0	1 1/2"
50x1 1/2"	KIFC 50x1 1/2"	50.35	41.0	21.4	35.0	1 1/2"
63x2"	KIFC 63x2"	63.35	50.0	25.7	41.0	2"
75x3"	KIFC 75x3"	75.45	60.0	34.5	46.5	3"
90x4"	KIFC 90x4"	90.45	72.0	41.0	52.0	4"

Notes: All dimensions are in mm

Step over bend



Dn	Reference	d(avg)	Dn(min)	L(min)	Hn(min)	A	d1	d2
20	SOBC 20	20.2	28.0	16.0	160.0	26.5	14.0	21.8
25	SOBC 25	25.2	34.8	18.5	180.0	29.5	17.7	26.7
32	SOBC 32	32.2	42.0	22.0	220.0	32.5	22.2	32.0

Notes: All dimensions are in mm



Elbow 45°



Expansion Loop



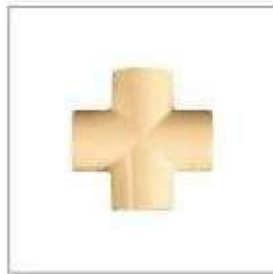
Coupler



Elbow 90°



Tee (Brass)



Cross Tee



Powder Coated
Metal Clamp



Union



Male Adaptor
Plastic Threaded
(MAPT)



Female Adaptor
Plastic Threaded
(FAPT)



End Cap



Equal Tee



Female Adaptor Brass
Threaded (FABT)



Step Over Bend



Reducer Elbow 90°



Tank Nipple



Reducer Tee



Flange Open



Flange Closed



Reducing Bush



Elbow 90° Brass



Reducer Coupler



Converter Bushing

INSTALLATION

Cutting

- ✓ CPVC pipe can be cut with a wheel-type plastic tube cutter, a hack saw or other fine toothed hand or power saw.
- ✓ Use of ratchet cutters is permitted, provided blades are sharpened regularly. A miter box should be used to ensure a square cut when using a saw.
- ✓ Pipes to be cut as squarely as possible to provide an optimal bonding area within the joint.
- ✓ If any indication of damage or cracking is evident at the pipe end, cut off at least 5 cm beyond any visible crack.

Deburring / Beveling

- ✓ Burrs and filings can prevent proper contact between pipe and fitting during assembly, and should be removed from the outside and inside of the pipe.
- ✓ A chamfering tool is preferred for this purpose. A slight bevel on the end of the pipe will ease entry of the pipe into the fitting socket and minimize the chances of pushing solvent cement to the bottom of the joint.

Fitting Preparation

- ✓ Any dirt or moisture must be wiped from the fitting socket and pipe end.
- ✓ Check the dry fit of the pipe and fitting.
- ✓ The pipe should make contact with the socket wall 1/3 to 2/3 of the way into the fitting socket.
- ✓ Pipe should not bottom out in the socket.

Solvent Cement Application

- ✓ Only CPVC approved cement to be used

Assembly

- ✓ Immediately insert the pipe into the fitting socket, rotating the pipe 1/4 to 1/2 turn while inserting. This motion ensures an even distribution of cement within the joint. Properly align the fitting. Hold the assembly for approximately 10 seconds, allowing the joint to set.
- ✓ An even bead of cement should be evident around the joint. If this bead is not continuous around the socket edge, it may indicate that insufficient cement was applied. In this case remake the joint to avoid potential leaks.

ALL PIPE AND FITTINGS TO BE AS CPVC FLOWGUARD OR EQUAL

PLUMBING PIPES SPECIFICATION

EXTERNAL PLUMBING

Item	Parameter	Required
A	Material	PE100 raw material
B	Tensile Strength	High.55 MPa
C	Flow Rate	High due to higher ID
D	Jointing	cold fusion as done by solvent joint
E	Scale Formation/ Calcination	No scale formation, pitting and corrosion
F	Fire Retardance	Less than 0.14W/MK Less energy loss
G	Bacterial Growth	Less than 5000Kbe/cm
H	Thermal Conductivity	
I	Thermal Expansion	Low. 0.7x10 mm/mk less supports, less snaking.
J	Effect of UV	Dehydrochlorination reaction. Temp and pressure bearing capacity remains unaffected
K	Oxygen Permeation	Less than 1 cm ³ /m day atmosphere (at 70°C) No corrosion risk
L	Reliability	Being in production for at least 20 years
	Maximum Temperature	93 degrees centigrade
	Jointing	Fittings can be fabricated for butt welding, extrusion welding (butt fusion) and electrofusion welding.

- ✓ Manufactured to ISO 4427 standards, and carry the KEBS KS-ISO 4427
- ✓ Fittings can be fabricated for butt welding, extrusion welding (butt fusion) and electrofusion welding.

HDPE COMPRESSION FITTINGS

Polypropylene (PP) Compression fittings are approved for use in contact with drinking water. These fittings offer joint security for metric OD polyethylene (PE) pipes and form a seal without distorting the pipe or restricting the pipe bore. The PP Compression fittings range is suitable for potable water distribution mains and irrigation systems

- ✓ Joints Body: black Polypropylene
- ✓ Lock-nut: blue Polypropylene (RAL 5012)
- ✓ Gasket: 75 Shore (NBR) nitric rubber
- ✓ Locking ring: white polyacetale
- ✓ Reinforced rings: Stainless steel AISI 430
- ✓ Clamp Saddles Body and gasket: black Polypropylene

COUPLING



Size (mm)
16
20
25
32
40
50
63
75
90
110

FLANGED JOINT WITH METAL FLANGE



Size (mm)
50
63
75
90
110

FEMALE ADAPTOR



Size (mm)
16
20
25
32
40
50
63
75
90
110

45° ELBOW WITH THREADED MALE OFFTAKE



Size (mm)
25
32
40
50
63
120

END CAP



Size (mm)
16
20
25
32
40
50
63
75
90
110

90° REDUCING ELBOW



Size (mm)
20 - 15
25 - 20

MALE ADAPTOR WITH THREADED METAL-GI



Size(mm)
20
25
32
40
50
63

MALE ADAPTOR WITH THREADED METAL-BRASS



Size(mm)
20
25
32
40
50
63

45° ELBOW



Size(mm)
20
25
32
40
50
63

FEMALE ADAPTOR WITH METAL OFFTAKE (BRASS)



Size (mm)
20
25
32
40
50
63

90° MALE ELBOW WITH THREADED METAL (NICKELLED BRASS)



Size(mm)
20
25
32
40

FEMALE ADAPTOR WITH METAL- (NICKELLED BRASS)



Size(mm)
20
25
32
40
50
63

BLANKING PLUG



Size (mm)
20
25
32
40
50

METAL TIGHTENING WRENCH



Size(mm)
16 - 32
40 - 63
75 - 110

90° MALE ELBOW WITH THREADED METAL (BRASS)



Size(mm)
20
25
32
40
50
63

90° TEE



Size
16
20
25
32
40
50
63
75
90
110

REPAIRING COUPLING(WITHOUT PIPE STOP)



Size
120
25
32
40
50
63
75
90
110

MALE ADAPTOR



Size
16
20
25
32
40
50
63
75
90
110

90° TEE WITH THREADED FEMALE OFFTAKE



Size
16
20
25
32
40
50
63
75
90
110

90° REDUCING-INCREASING TEE



Size
20 - 16 - 20
20 - 25 - 20
25 - 20 - 25
25 - 32 - 25
32 - 25 - 32
40 - 32 - 40
50 - 32 - 50
50 - 40 - 50
63 - 32 - 63
63 - 50 - 63

REDUCING COUPLING



Size
20 - 16
25 - 16
25 - 20
32 - 20
32 - 25
40 - 25
40 - 32
50 - 32
50 - 40
63 - 50
110 - 90

90° ELBOW WITH THREADED FEMALE OFFTAKE



Size
16
20
25
32
40
50
63
75
90
110

90° ELBOW WITH THREADED MALE OFFTAKE



Size
16
20
25
32
40
50
63
75
90
110

90° ELBOW



Size
16
20
25
32
40
50
63
75
90
110



Specifications Size
63 x 1/2"
63 x 3/4"
63 x 1"
63 x 1 1/2"
63 x 1 1/2"
75 x 1/2"
75 x 3/4"
75 x 1"
75 x 1 1/4"
75 x 1 1/2"
75 x 2"

Specifications Size
90 x 1/2"
90 x 3/4"
90 x 1"
90 x 1 1/4"
90 x 1 1/2"
90 x 2"
110 x 1/2"
110 x 3/4"
110 x 1"
110 x 1 1/4"
110 x 1 1/2"

Mechanical joint

PRESSURE TEST RECORD

Site name

Date

Address

Contractor Name

Plumber Name

Floor level

Floor/Wing

Room/Office

Starting Time of the Procedure.....

Testing Pressure

Duration	Time	Recorded Pressure Readings (Bar)	Comment
Starting Time			
1 hour			
2 hours			
4 Hours			
6 Hours			
8 Hours			
12 Hours			
24 Hours			

Certification

Plumber Name.....Date.....

Engineers Rep (COW) Name.....Date.....

Testing Procedure

- ✓ Disconnect ancillary equipment that may not be designed to withstand test pressures, e.g. shower, boiler, etc. Manufacturer's data should be consulted.
- ✓ Check all system high points for location of air vents.
- ✓ Blank or plug any open ends including float valves. Close valves where sub-sections only are being tested.
- ✓ Open all valves in the enclosed section under test.
- ✓ Attach test pump to a convenient point with non-return valve and testing gate valve
- ✓ Start filling the system by pump priming and replenishing the pump water reservoir.
- ✓ Ventilate air from high points until water shows.
- ✓ When the system is full, raise the pressure as required.
- ✓ Remove the pump and leave the system primed
- ✓ If pressure falls, check joints, valves, etc. for leakage.
- ✓ When the test is satisfied, ensure the appropriate documentation is signed.
- ✓ Physical examination of the system for any leakages

Test requirements

Test required test pressure is applied and maintained for initial 30 minutes for bleeding air out of the pipeline/system.

Test is satisfied if: there is no visible leakage and the pressure drop is a maximum of 5% of the start testing pressure.

Testing Notes

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 or the design pressure. Testing shall be carried out as soon as practical after laying and when the pipeline is adequately 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. 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 to design working pressure.

If preferred, the Sub-contractor may test the pipelines in sections. 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.

The test pressure shall be applied by means of a manually operated test pump or, in the case of long main or mains of 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 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.

Note: If further testing is required, it should be done in intervals of 1 hour up to 8 hours (working hours). For overnight testing, the last recorded pressure before close of business and the first reading in the morning should be captured.






DRAINAGE PIPING

- ✓ Drainage Piping shall be with specifications as follows
 - Raw material - **100% VIRGIN Polyvinyl chloride (PVC-U)**
 - Stabilizers - Non-lead/ Organic
 - Jointing method - Rubber ring or Solvent Weld
 - Density (g/cm³) - 1.40
 - Yield strength (N/mm²) - 50 – 55
 - E-modulus (N/mm²) - 3000
 - Melting point - Ca. 90°C
 - Vicat softening point - 80°C
 - Specific heat - 1.00 kJ/kg • K
 - Colour Light Grey to BS EN 1329-1:2000 and quality to BS 5255
 - Colour Brown to BS EN 1401-1:1998 and quality to BS 4660
 - Coefficient of heat conduction - 0.16 W/mK
 - Tensile Strength : Min. 45 N/mm²
- ✓ Jointing by Rubber Ring/Solvent Weld
- ✓ With all associated fittings
 - WC Connectors
 - Vent pipes and caps
 - Air admittance valves
 - Traps/siphons
 - Floor gullies
 - Access fittings
 - Connectors and reducers
- ✓ 15° chamfer is applied to all spigot ends for rubber ring pipe.

Item	Parameter	Value	Test method
A	Impact Resistance	$TIR \leq 10\%$	EN 744
B	Vicat Softening	$\geq 79^{\circ}\text{C}$	EN 727
C	Longitudinal Reversion	$\leq 5\%$	EN 743
D	Dichloromethane Acid Resistance	No attack	EN 580
E	Water Tightness of Rubber Ring Joint	No leakage	EN 1277
F	Elevated Temp. Cycling	No leakage	EN 1055
G	Long Term Performance of TPE Seals	90 days ≥ 1.3 bar	EN 1989
		100 years ≥ 0.6 bar	EN 1989
H	Resistance to Internal Pressure	No failure during the test 10.0MPa for 1000 hours, at 60°C	EN 921

Item	Pipe Size (mm)	Mean outside diameter(mm)	Wall thickness (mm)
A	36	36.5	3.5
B	43	43.1	3.5
C	56	56.1	3.5
D	82	82.3	3.5
E	110	110.3	3.5
F	160	160.4	3.8

PIPE FITTINGS

				
BEND 90° - SWR	BEND 45° - SWR	REDUCING BUSH - SWR	W.C. CONNECTOR - SWR	SHOWER TRAP - SWR
Sizes	Sizes	Sizes	Sizes	Sizes
1 1/4"	4" (110mm)	1 1/4"	W.C. Connector	4" (110mm) Tee
1 1/2"	Bend 45°	1 1/2"	Straight 4" (110mm)	
2"		2"		
3" (82mm)		3" (82mm)		
				
BOSS CONNECTOR - SWR	FLOOR TRAP - SWR	INSPECTION BEND 90° - SWR	VENT COWL - SWR	
Sizes	Description	Sizes	Description	
4" (110mm) x 1 1/4"	Complete with Grill and Tile	4" (110mm) Inspection	4" (110mm)	
4" (110mm) x 1 1/2"	Grill and Tile (inlet)	Bend 90°		
4" (110mm) x 2"	Main Trap			
	Grill			
				
ACCESS PLUG - SWR	TEE SWR	TEE SWR	INSPECTION TEE	
Sizes	Sizes	Sizes	Sizes	
1 1/4"	1 1/4"	4" (110mm) Tee	4" (110mm) Bend 90°	
1 1/2"	1 1/2"			
2"	2"			
	3" (82mm)			

SECTION NAME:

FIRE FIGHTING SPECIFICATIONS

FIRE HOSEREEL SPECIFICATION

<u>CLAUSE</u>	<u>DESCRIPTION</u>
1.01	GENERAL
1.02	SCOPE OF WORKS
1.03	WATER/CO2 EXTINGUISHERS
1.04	CARBON DIOXIDE FIRE EXTINGUISHERS
1.05	DRY CHEMICAL POWDER PORTABLE FIRE EXTINGUISHER
1.06	SITE SUPERVISION
1.07	INSTALLATION
1.08	TESTING
1.09	COLOUR CODING
1.10	WELDING

PARTICULAR SPECIFICATIONS FOR PORTABLE FIRE EXTINGUISHER AND HOSE REEL INSTALLATIONS

1.0.1 GENERAL

The particular specification details the requirements for the supply and installation and commissioning of the Portable Fire Extinguishers and Boosted Hose Reel System.

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.

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.

1.0.2 SCOPE OF WORKS

The Sub-contractor shall supply, deliver, erect, test and commission all the portable fire extinguishers and Hose Reel which are called for in these Specifications, Bills of quantities and as shown on the Contract Drawings.

1.0.3 WATER/CO2 EXTINGUISHERS

These shall be 9-litre water filled CO2 cartridge operated portable fire extinguishers and shall comply with B.S. 1382: 1948 and to the requirements of B.S.4523: 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 manufacturer 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 24.1 bar (350 psi.).
- h) The number of British Standard 'B.S' 1382 or B.S. 5423: 1977.

1.0.4 CARBON DIOXIDE FIRE EXTINGUISHERS

These shall be portable carbon dioxide fire extinguishers and shall comply with B.S. 3326: 1960 and B.S. 5423: 1977.

The body of extinguisher shall be a seamless steel cylinder manufactured to one of the following British Standards; B.S. 401 or B.S. 1288.

The filling ratio shall comply with B.S. 5355 with valves fittings for compressed gas cylinders to B.S.341. Where a hose is fitted it shall be flexible and have a minimum working pressure of 206.85 bar (3000 p.s.i.). 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 discharge horn shall be designed and constructed so as to direct the discharge and limit the entrainment of air. It shall be constructed of electrically non-conductive material.

The following markings shall be applied to the extinguishers:-

- a) The words “Carbon Dioxide Fire Extinguisher” and to include the appropriate nominal gas content.
- b) Method of operation.
- c) The words “Re-charge immediately after use”.
- d) Instructions for periodic checking.
- e) The number of the British Standard B.S. 3326: 1960 or B.S. 5423.
- f) The manufacturers name or identification markings

1.0.5 _ DRY CHEMICAL POWDER PORTABLE FIRE EXTINGUISHER

The portable dry powder fire extinguishers shall comply with BS3465: 1962 and BS 5423. The body shall be constructed to 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 not-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 1,060mm 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 word “Dry Powder Fire Extinguisher”
- b) Method of operation in prominent letters.
- c) The working pressure and the weight of the powder charge in Kilogramme.
- 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.

1.0.6 AIR FOAM FIRE EXTINGUISHER

These shall be of 9 litres capacity complete with refills cartridges and wall fixing brackets and complying with B.S. 5423 with the following specifications:-

Cylinder: to B.S. 1449

Necking: to be 76mm outside diameter steel EN 3A 2³/₄ X 8TPI female thread.

Head cap: to be plastic moulding acetyl resin.

CO₂ Cylinder: to be 75gm P.V.C coated.

Internal Finish: to be polythene lining on phosphate coating.

External finish: to be phosphated - One coat primer paint and one coat stove enamel B.S. 381 C.

1.0.7 FIRE BLANKET

The fire blanket shall be made from cloth woven with pre-asbestos yarn or any other fire proof material and to measure 1800 x 1210 mm and shall be fitted with special tapes folded so as to offer instantaneous single action to release blanket from storing jacket.

1.0.8 BOOSTED HOSE REEL SYSTEM

1.0.8.1 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: 1976, B.S 5041 and B.S 5274. The System shall comprise of a pumped system.

1.0.8.2 Hose Reel Pumps

The fire hose reel pumps shall consist of a duplicate set of multi-line centrifugal pumps from approved manufacturers. The pumps shall be capable of delivering **AS PER THE SPECIFICATIONS**.

The pump casing shall be of cast iron construction with the impeller shaft of stainless steel with mechanical seal.

1.0.8.3 Control Panel

The control panel shall be constructed of mild steel 1.0mm thick sheet, be moisture, insect and rodent proof and shall be provided complete with circuit breakers and a wiring diagram enclosed in plastic laminate.

The pump shall be controlled by a flow switch therefore, the control panel shall include the following facilities:

- (a) 'On' push button for setting the control panel to live.
- (b) Green indicator light for indicating control panel live.
- (c) Duty / Stand-by pump auto change over.
- (d) Duty pump run green indicator light.
- (e) Stand-by pump run green indicator light.
- (f) Duty pump fail red indicator light.
- (g) Stand-by pump fail red indicator light.
- (h) Low water condition pump cut-out with red indicator light.

The pumps are to be protected by a low level cut-out switch to prevent dry pump run when low level water conditions occur in the water storage tank.

1.0.8.4 Hose Reel

The hose reel to the installation shall consist of a recessed, swing-type hose reel as Angus Fire Armour Model III or from other approved manufacturers.

The hose reel shall comply with B.S. 5274: 1975 and B.S 3161: 1970 and is to be installed to the requirements of C.P. 5306 Part 1: 1976.

The hose reel shall be supplied and installed complete with a first-aid Non-kinking hose 30 meters long with a nylon spray / jet / shut-off nozzle fitted. A screw down chrome - plated globe valve to B.S 1010 to the inlet to the reel is to be supplied.

The orifice to the nozzle is to be not less than 4.8mm to maintain a minimum flow of 0.4 lit / sec to jet.

The hose reels shall be installed complete with electro-galvanised cabinet recessed on the wall.

The hose reels shall be installed at 1.5 metres centre above the finished floor level in locations shown in the contract drawings.

1.0.8.5 Pipe Work

The pipe work for the hose reel installation shall be galvanised wrought steel tubing heavy grade Class C to B.S 1387: 1967 with pipe threads to B.S 21. The pipe work and all associated fittings shall be in approved colour for fire fittings.

1.0.8.6 Pipe Fittings

The pipe fittings shall be wrought steel pipe fittings, welded or seamless fittings conforming to B.S. 1740 or malleable iron fittings to B.S 143.

All changes in direction will be with standard bends or long radius fittings. No elbows will be provided.

1.0.8.7 Non-return Valves

The non-return valves up to and including 80mm diameter shall be to B.S. 5153: 1974.

The valves shall be of cast iron construction with gunmetal seat and bronze hinge pin.

1.0.8.8 Gate Valves

The gate valves up to and including 80mm diameter shall be non-rising stem and wedge disc to B.S 5154: 1974 with screwed threads to B.S. 21 tapes thread

1.0.8.9 Sleeves

Where pipe work passes through walls, floors or ceilings, a sleeve shall be provided one diameter larger than the diameter of the pipe, the space between them to be packed with mineral wool, to the Engineer's approval.

1.0.8.10 Earthing

The hose reel installation shall be electrically earthed by a direct earth connection. The installation of the earthing shall be carried out by the Electrical Sub- contractor.

1.0.8.11 Finish Painting

Upon completion of testing and commissioning the hose reel installation, the pipework shall be primed and finish painted with 2 No. coats of paints to the Engineer's requirements.

1.0.8.12 Testing and Commissioning

The hose reel installation shall be flushed out before testing to ensure that no builder's debris has entered the system. The installation is to be then tested to one and half times the working pressure of the installation to the approval of the Engineer. Simulated fault conditions of the pumping equipment are to be carried out before acceptance of the System by the Engineer.

1.0.8.13 Instruction Period

The Sub-contractor shall allow in his contract sum for instructing of the use of the equipment to the Client's 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 Client's staff shall be instructed on the operation and maintenance of the equipment.

1.0.8.14 Signage-Fire Instruction /Fire Exit

10.8.1 Fire Instruction Notice

Print fire instruction on the Perspex plates with White Colour Background measuring 510mm length x 380mm width x 4mm thick as follows;

FIRE INSTRUCTION NOTICE

In the event of fire;

1. Raise the alarm by actuating the nearest alarm system point, Sound Siren /gong or **Shout Fire**
2. Attack fire using the nearest available equipment
3. Call nearest fire Brigade or Police 999 and inform your switchboard (PABX) Operator
4. Ensure that all personnel not involved in fire fighting evacuation to safety outside the building.
5. Close but **DO NOT LOCK** doors behind as you leave.
6. Evacuate the building using stairs or fire escapes. Do not use Lifts/escalators. Walk calmly. Avoid panic. Do not stop or return for personal belongings.
7. Assemble as per floor outside the building for roll call.

10.8.2 Fire Exit Sign

Print Fire Exit signs on the Perspex plate, 4mm thick, with white colour background as follows:-

1. Lettering **IN RED COLOUR** of not less than 50mm in height.
2. A pendant sign bearing words, **FIRE EXIT** and with a directional arrow.

The sign must be capable of being read from both approaches to exit and so is double sided.

10.8.3 Hose Reel Label

Print Fire Exit signs on the Perspex plate, 4mm thick, with white colour background as follows:-

1. Lettering **IN RED COLOUR** of not less than 50mm in height.
2. A pendant sign bearing words, **HOSE REEL** and with a directional arrow.

The sign must be capable of being read from both approaches to exit and so is double sided.

10.8.4 Cabinets

FIRE EXTINGUISHER CABINET

- ✓ Size of 560mm width by 710mm high and 260mm deep
- ✓ Surface Mounted
- ✓ Paint Finish in epoxy powder red (Minimum 70 micron)
- ✓ To host 2No.Portable 9kg Extinguisher
- ✓ Material Mild steel minimum 0.9mm thick



TO BE AS SRI FEX145-MS-090-RD

FIRE HOSEREEL CABINET

- ✓ Size of 1050mm width by 800mm high and 400mm deep
- ✓ Surface Mounted
- ✓ Paint Finish in epoxy powder red (Minimum 70 micron)
- ✓ To host Swing Type Hosereel and 1No.Portable 9kg Extinguisher



TO BE AS SRI HRS003-MS-400RD

GENERAL SPECIFICATION FOR THE FIRE HYDRANT AND FIRE HYDRANT PUMP

1.1 FIRE HYDRANT DETAILS

1.1.1 Definition

The fire hydrant is a system which is installed along the water mains to be used as a means of providing water to the fire brigades through the connection of the hose from a stand pipe.

1.1.2 Installation

The fire hydrants are installed along the water mains with the first hydrant at a location which is not more than 60 m from the entry of any building and they should not be more than 120 m apart.

1.1.3 Hydrant body

The body of the hydrant shall be made of grey cast iron complying with the requirements of BS 1452 having a tensile strength not less than that given for grade 14.

1.1.4 Hydrant Valve

The valve shall be faced with suitable resilient material. The threaded part of the valve, which engages with the spindle, shall be of bronze.

Body seating for the valves shall be of copper alloy complying with the requirements of BS 1400 (KS 06 – 744 – 1:1991) or high tensile brass complying with the requirements of BS 2872 or BS 2874.

Turning the spindle cap in a clockwise direction when viewed from above shall close valves and the direction of opening shall be permanently marked on the gland.

1.1.5 Spindle & Spindle Cap

The spindle nut shall be either of the same material as the spindle, or of copper alloy complying with the requirements of BS 1400 (KS 06 – 744 – 1:1991). It shall have a squared top formed to receive either a cast iron spindle cap.

The spindle shall be made of copper alloy complying with the requirements of BS 2874 (KS 06 – 744 – 1:1991), and it shall have a threaded machined of trapezoidal form. The spindle cap shall be of a cast iron secured to the spindle by on M12 hexagon socket set screw conforming to BS 4168.

1.1.6 Hydrant outlet

The outlet flange of the hydrant shall have above nominal diameter 65mm, and shall be fitted with a screwed outlet – Both flanges shall be 50 mm conforming to BS 4504: Part 1: 1969.

The screwed outlet shall be provided with a cap of cast iron or other suitable material. The cap shall cover the outlet thread completely and shall be attached to the hydrant by a chain.

The distance between the axis of the outlet and the nearest point on the spindle fitting shall be not less than 100 mm.

The screwed outlet shall be made of Copper alloy to BS 1400 (KS 06 – 744 – 1:1991), or Copper alloy to BS 2872, or Suitable Spheroidal graphite iron to BS 2789 protected against corrosion accordance with CP 2008.

1.1.7 Drain Boss

Each shall be provided with a suitable drain boss on the outlet side. This shall be located at the lowest practical point which will permit the filling of self-operating a drilled drip plug.

1.1.8 Jointing

The hydrants shall have machined joint faces throughout and the fitting of adjoining parts shall be such as to make sound joints, corresponding parts of hydrants of the same design and manufacture shall be interchangeable.

1.1.9 Hydrant coating

The hydrant shall be coated in accordance to BS. 4164.

1.1.10 Fire Hydrant Box

Fire Hydrant box: Weather proof standard fire hose cabinet (1700 mm x 750 mm x 250 mm) made of 16 SWG powder coated M.S sheet cabinets of approved type, stove enameled Fire red finish, suitable for housing 2 nos. Hose pipe, 1 No. branch pipe & nozzle spanner. The Box shall be painted with two coats of red oxide primer and two coats of synthetic enamel paint of Fire red shade (Conforming to relevant BS standard) approved shade complete as required. The cabinet and required accessories shall be provided with each stand-post type hydrant. The mounting arrangement of cabinets for stand type hydrants shall be as shown in Plant detail drawings & coordinated with Architecture.

a. Hydrant Key: Aluminum alloy hydrant key, length as required.

1.1.11 Marking

Surface box covers shall be clearly marked by having the words '**FIRE HYDRANT**' in letter not less than 30mm high, or the initials '**FH**' in letters not less than 75mm high cost into the cover.

1.1.12 Testing

The hydrants shall be deemed to have undergone the necessary hydrostatic and flow test at time of manufacture. Necessary test certificates from the manufacturer shall be needed. The test, to conform to BS 750: 1977:

1.2 STAND PIPES

One end of these shall have internal threads to couple with the 80mm diameter external threads of the screw down type or above ground fire Hydrant (BS 750 type 2 hydrants) outlet.

1.3 HOSE PIPE

Each cotton synthetic fibre rubberized fire hosepipe to be at least 25 metres long with 65mm diameter female instantaneous type connector.

1.4 FIRE HYDRANT PUMP

2 No. electrically operated pumps capable of pumping **11.7 Litres per second of water against 60 metres (6bar)** head shall be installed. The pumps to be as GRUNDFOS MODEL CR – 45-3 or equal and approved.

1 No. electrically **Jockey pump** capable of pumping **1.17 Litres per second** of water against 60 metres (6bar) head shall be installed. The pumps to be as GRUNDFOS or equal and approved.

Each pump shall be directly driven by a three-phase motor; the pump motor being mounted on a common base.

Pump casing shall be manufactured from good quality cast iron and impellers, shafts and other material in contact with water shall be of corrosion resistant metal. The pumps shall be suitable for pumping filtered water treated for human consumption.

The motor shall be completely protected against possible damage due to entry of water, dust etc. The motor shall be fitted with glands for the entry of PVC armoured cables with overall PVC sheath. The completed cable connection to the motor terminal box shall be proof against ingress of water or dust.

The pump shall be mounted on concrete plinth which shall be constructed by the main contractor in accordance with specifications from the sub-contractor.

Holes for holding down bolts shall be left in concrete and after the concrete has cured the pumps shall be placed in position and bolts grounded into position. A grout shall be floated under pump motor base to ensure an even surface for the pump to rest upon.

1.4.1 Electrical works

It shall be the responsibility of the sub-contractor to provide all electrical wiring between all items of his sub-contract works to ensure the correct functioning of his equipment. The sub-contractor's electric works shall start from nearest electrical isolator.

1.4.2 Control panel

The sub-contractor shall provide an electric control panel and shall be responsible for its fixing and satisfactory operation. The panel shall be fabricated from minimum thickness. 1.2mm steel sheet and finished grey stoved enamel. The panel shall be wall mounted with a removable hinged front access panel. Motor control switch gear shall be of approved type. The panel shall have an integral isolator

Pump changeover shall be automatic alternating after each duty cycle. A green 'running' red 'trip' lamp shall be provided for each pump. The control system (float switches etc) shall be energized when a pump is started.

The motor system shall be wired so that they operate only automatically as called for by the switches except that starter push button shall be connected so as to enable the pumps to be started and run and cease to run when the push button is allowed to its normal position.

An emergency stop button shall be located adjacent to each pump.

The level regulator/float switches shall be wired and set in such a manner that the duty pumps shall stop and or will not come on when the tanks are empty to avoid dry runs.

Where a three-phase motor is used, a single phasing protector shall be provided if the motor does not have one.

A phase failure relay shall be installed in 3 phase – operated pumps.

The pump set shall be supplied complete with all tools and spares as recommended.

SECTION NAME

SOLAR HOT WATER HEATING SPECIFICATIONS

GENERAL SOLAR WATER HEATING SPECIFICATIONS

1.1.0 QUALITY OF MATERIALS AND WORKMANSHIP

1.1.1 General

All materials, equipment and accessories are to be new and in accordance with the requirements of the current rules and regulations where such exist, or in their absence with the relevant British/European standard.

Uniformity of type and manufacture of equipment or accessories is to be preserved as far as practicable throughout the whole work.

If in this specification, the practice is adopted of specifying a particular item as “similar” to that of a particular firm’s product, it is to be clearly understood that this is to indicate the type and quality of the equipment required. No attempt is being made to give preference to the equipment supplied by a firm whose name or products is being quoted.

Where particular manufacturers are specified herein, alternative makes will be considered, and the Engineer shall be allowed to reject any other makes.

The tenderer will be entirely responsible for all the materials, apparatus, equipment, etc in connection to his work, and shall take special care to protect all parts of finished work from damage until handed over to the Employer.

The work shall be carried out by competent workmen under skilled supervision. The Engineer shall have authority to have any of the work taken down or changed, which is executed in any unsatisfactory manner.

The works shall be carried out strictly in accordance with:

- a) British Standard B.S. 5918, Domestic hot water supply and solar water heating system
- b) “British code of Practice” C.P. 310: Water Supply
- c) British Standard code of Practice” C.P. 342: Centralized hot water supply
- d) All other relevant British standard Specifications and Codes of Practice (herein after referred to as B.S and C.P respectively.)
- e) By-Laws of the Local Authority
- f) The “Specification” and the “Particular Specification”
- g) The tender/working drawings
- h) The engineer’s Instructions.

The drawings and specifications are to be read as a whole and are to explain each other. Work shown on the drawings and not described in the specifications or vice versa shall be duly executed under the contract.

1.1.2 Solar Panel – Construction

Solar panels shall be flat plate solar collectors. The structure of the collector and its components must withstand local extreme environmental conditions including winds, storm etc.

1.1.2.1 Solar Panel – External Construction

- a) Glazing material shall be transparent and non-reflective to solar radiation. Total surface heating area of the solar panel shall be as specified elsewhere. The top of the panel shall be a single transparent glazed glass sheet. The glazed glass shall be as low-iron tempered glass or equivalent. The thickness of the glazed glass shall be 3 mm.

The glazing and the holding construction shall have thermal characteristics to withstand extreme local temperatures and also thermal shock due to storms etc. Gasket for the glazing shall be EPDM gasket or similar.

During accidental breakage of the glazing, the glazed glass sheet shall be replaceable at site.

- b) Solar panel collector casement shall be rigid, structurally sound and corrosion resistant. Sides and bottom of panel shall be 24 gauge galvanized mild steel sheet or 2mm aluminium sheet.

Galvanized mild steel sheet shall be etched primed and applied with two coats of approved oil-base paint. 4 mm to 6 mm breathing hole shall be provided on the galvanized mild steel casing for the removal of moisture content formed due to condensation within the panel.

- c) The panel/glass construction shall be weather proof. Pipework joints and collector interconnection shall be water proof. Approved silicone gasket or similar to be used at the panel connections.

1.1.2.2 Solar Panel - Internal Construction

- a) **Absorber** - Shall be located directly beneath the glass sheet and fully cover the internal area of the panel.

Absorber shall be made of copper sheet or aluminium with a selective surface chemically treated similar to the black chrome finish or similar. The selective surface shall achieve 95% absorptivity of solar radiation and 15 to 20% emissivity of infra-red radiation. The absorber and the selective surface shall not be affected during life span of the absorber.

b) Heat Exchanger

Copper tubes and fittings shall be utilized for internal panel pipe work and in accordance with B.S. 2871 or similar. All joints and connections between the riser and header tubing's shall be leak proof and stand to hydraulic pressure tests.

The collector to be pressure tested to withstand a pressure of 8 kg/cm². In general, collectors shall be pressure tested at 15 times the rated operating gauge pressure of 8kg/cm².

A certificate of pressure testing to be issued when required and requested by the Engineers.

c) Insulation

The underside of the absorber, inclusive headers and the outer casing internal sides shall be insulated with 50 mm fibre glass insulation, minimum density 64 kg/m³. The insulation shall be non-combustible and shall withstand maximum continuous operating temperature of 200°C (and minimum operating temperature of -50°C).

1.1.2.3 Hot Water Solar Cylinder

- a) The hot water solar cylinder shall have a nominal capacity as specified on the contract drawing and particular specification to the designed highest water level. The hot water cylinder shall have a separate feed tank attached to it.
- b) The cylinders and the feed tanks shall comply with B.S. 417, 699, 2777, 4214, 1565, 1566 and 3198. Refer also Water Storage tanks as specified elsewhere. The Cylinder and tanks shall be supplied complete with screwed BSPF parallel thread flanged connections for flow, return, vent, overflow and drain pipes.
- c) Cylinder shall be provided with a magnesium electrode as corrosion protection, weight: minimum 1.5 kg. and have an inspection cover to facilitate renewal of the electrode.
- d) The cylinder shall be galvanized, after manufacture in accordance with the requirements of BS. 729 Part 1 and pressure tested in accordance with the above B.S.

A certificate of pressure testing to be issued when required and requested by the Engineers/Project Manager's Representative. Refer also to "Protection of Metal surface" as specified elsewhere in the specification.

e) **Insulation**

The cylinder shall be insulated on all the sides with 100 mm fiberglass, or 100 mm thick foam injected polyurethane. At the inspection cover the insulation shall be easily removable.

f) **Cladding**

The insulation shall be fully laded with 24 gauge galvanized M.S. Sheet.

1.1.2.4 Flow and Return Pipework

Pipework shall be galvanized mild steel medium duty and in accordance with BS. 1387 and insulated as specified.

1.1.3 INSTALLATION

1.1.3.1 Solar panel

a) **Location**

The solar panel shall where physically possible be installed facing south. Where it is not practical for the solar panel to face due south, the maximum allowance variation shall be 45°.

b) **Angle of Inclination**

The solar panels for maximum efficiency should be fitted at an angle equal to the latitude of the installation area. Minimum angle of inclination should be 5°.

c) **Solar panel shall be mounted on angle frame and rise to flow outlet according to manufacturer's specifications.**

1.1.3.2 Solar Cylinder

a) **For Standard Thermo-syphon**

The solar cylinder shall maintain a minimum horizontal distance of 300 mm above the highest point of the solar panel installation

b) **For low Thermo-syphon**

The solar cylinder shall maintain a flow line up grade of 1:20 minimums where the low profile thermo-syphon system is utilized.

1.1.3.3 Flow and Return Pipework

(a) **Joints**

All joints between ferrous and copper piping shall be made with dielectric pipe unions for the prevention of electrolytic corrosion.

(b) Penetration through Roof decking.

Where pipes penetrate the roof decking, they shall be provided with a sleeve that fits around the pipe making a weather proof joint between roof and pipe.

(c) Insulation

All pipework between solar panel and storing tank to be insulated with 25 mm fibreglass where exposed to weather, covered with 24 gauges galvanized M.S. sheet cladding and weather proofed.

All insulation for supply and return pipework in roof space shall be covered with cotton canvas.

All insulation shall be in accordance with BS. 1334 unless otherwise specified.

1.1.3.4 Drain, overflow and Vent Pipework

- (a) The drain and overflow pipework from the solar cylinder shall terminate approximately 75 mm away from the nearest drain outlet.
- (b) Vent pipe from the solar cylinder shall terminate approximately 150 mm over the top water level in the solar cylinder feed tank.
- (c) Provided drain valve for the solar panel. Drain valve shall be firmly clamped in order to avoid leaks at the joints during operation

1.1.3.5 Valves

- (a) Copper alloy gate valves complying with BS.1952 shall be installed on flow and return pipework prior to it being connected to the solar cylinder.
- (b) The solar cylinder and panel shall be supplied with stop valves for draining and to comply with BS 1010.

1.1.3.6 Inter connection of solar panels

It shall be done utilizing Neoprene tubing or Stainless Steel connector or equivalent, fitted with clamps and able to withstand the working pressure.

1.1.3.7 Precaution

Solar panel glass shall be adequately protected against cracking and the protection removed only when the solar system is commissioned.

1.1.4 Alternate Solar Heating System

Should the contractor intend utilizing an alternate equivalent solar heating system to the one specified under this contract, he shall when submitting his tender provide the Engineer with all necessary information such as material used, construction detail, installation procedure etc. for his approval.

1.1.5 Test and Efficiency Certificates

The Contractor shall provide test and efficiency certificates for the solar panels proposed for the installation in accordance with methods outlined in ASHRAE 2377.

Certificates for the following tests shall be provided:

1. No flow 30 day exposure
2. Peak exposure test
3. Solar collector Thermal Shock/Water spray test
4. Solar Collector Thermal Shock/Cold Fill test
5. Solar Collector leak and pressure test
6. Thermal efficiency/performance test.

The Contractor shall also provide documentary evidence regarding the absorber sheet, the selective coatings and its optical performances (absorptivity and emissivity factors).

1.1.6 Pipework above Ground

Before any joint is made, the pipes shall be hung in their supports and adjusted to ensure that the joining faces are parallel and any falls which shall 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 lines of the building.

All water systems shall be provided with sufficient drain points and automatic air vents to enable them to function correctly. Valves and other user 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 a position as to be difficult to reach from a short step ladder, extension spindles with floor or wall pedestals shall be provided.

Screwed piping shall be installed with a sufficient number of unions to facilitate easy removal of valves and fittings, and to enable alterations to the 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 made to ensure that any forces produced by pipe movements are not transmitted to valves, equipment or plant.

All tubing exposed on faces of walls shall, unless otherwise specified, be fixed at least 25mm clear of adjacent surfaces with approved holder bats built into the walls, cut and pinned to walls in cement mortar. Where fixed to woodwork, suitable clips shall be used.

All tubing specified as chased into walls shall have the wall face neatly cut and chased, the tubing wedged and fixed and plastered over.

All tubing specified as fixed to ceilings, roofs or roof structures shall be fixed with approved mild steel hangers cut and pinned to ceilings, roofs or roof structures.

Where three or more tubes are fixed to the ceilings, roofs or roof structures close to each other, they shall be fixed in positions, which leave the lower surfaces at the same horizontal level, unless otherwise specified.

Tubes fixed to steel work shall be fixed with clips and tap screws. Tubes shall be fixed to true lines parallel to adjacent lines of the building unless otherwise specified.

Where insulated, tubing shall be fixed with the insulation at least 25mm clear of the adjacent surfaces.

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 the pipe clips without prior approval of the Engineer.

An approximate guide to the maximum permissible supports spacing in meters for the steel and copper pipe is given in the following table for horizontal runs.

<u>Size</u>	<u>Maximum support</u>
<u>Nominal Bores</u>	<u>Spacing</u>
15mm	2.0m
20mm	2.5m
25mm	2.5m
32mm	3.0m
40mm	3.0m
50mm	3.0m
65mm	3.5m
80mm	3.5m
100mm	4.0m

Each support shall take its due proportion of the weight of the pipe and shall allow free movement for expansion and contraction.

The support spacing for vertical runs shall not exceed one and a half times the distances given for the horizontal runs.

Sleeves shall be provided where pipes pass through walls and solid floors to allow movement of the pipes without damage to the structure. The overall length of the sleeve shall be such that it projects at least 2mm beyond the finished thickness of the wall or partition.

Sleeves passing through the structure shall be of mild steel. Elsewhere they shall be of PVC. The sleeves shall have 5-15mm clearance all round the pipe, or for insulated pipework, all round the insulation. The sleeves shall be packed with slag wool or similar.

Unless anything else is stated in the specification, the tenderer must include in his tender for all protective and finish painting of the works including colour coding of special requirements, if any, are specified in the text of the particular specification. The painting shall be carried out by skilled painters.

1.1.6.1 Galvanised Mild steel Tubing

Galvanized mild steel tubing shall be in accordance with B.S 1387 with screwed and socketed joints. Fittings for the same shall be galvanized malleable iron to B.S 143 & 1256 threads to BS 21.

Joints shall be made with fine hemp and an approved jointing compound or with Teflon sealing tape. Compound containing red lead must be used, unless otherwise specified

All changes of direction shall be obtained by use of proper fittings. Formed bends shall not be accepted.

Long screw connectors and flat-faced unions shall not be used, unless otherwise specified. Where chased into walls or cast in concrete, galvanized mild steel tubing carrying hot water shall be wrapped with hair felt secured by copper wire.

The fixing of galvanized mild steel tubing shall be done using:

- a) Malleable iron "school board" pattern brackets for building in or screwing to structure or
- b) Malleable pipe rings, with either back plate, plugs or girder clips or
- c) Purpose made straps to Engineer's Approval.

1.1.6.2 Copper Tubing

Copper tubing shall be light gauge conforming to B.S. 2871 and the fittings shall be capillary or compression fittings to B.S. 864 of approved manufacture. Joints on tubing up to and including 50 mm diameter shall be compression or capillary joints or direct joints using zinc-free self-fluxing silver brazing alloys. Joints on tubing above 50 mm diameter shall be welded or blazed joints.

Copper tubing shall be jointed to steel cisterns by the use of copper-alloy connector having a shoulder to bear on the outside of the cistern and secured by a back nut inside. Washers shall be used both inside the cistern.

Where chased into walls or cast in concrete, copper tubing shall be wrapped with corrugated cardboard or hair felt secured by copper wire.

The fixing of copper tubing shall be done by using:-

- a) Copper-alloy holder bats for building in, or screwing to structure.
or
- b) Strap clips of copper, copper-alloy or other suitable material.
or
- c) Gunmetal holder bats similar to “YORKSHIRE”,

Iron or steel supports shall not be used for copper tubing.

All bends and sets shall be formed without diminishing the internal diameter in any part or causing fracture or weakness of the tube walls.

1.1.6.3 Valves, Cocks, Taps etc.

a) Gate Valves

All gate valves up to and including 65mm nominal bore and above, other than those required for fitting to be buried. Water mains shall be of bronze construction in accordance with the requirements of B.S. 5154. The pressure classification of all gate valves shall depend upon the pressure conditions pertaining to the site of the works.

The pressure classification of all gate valves shall depend upon the pressure conditions pertaining to the Site of Works.

b) Globe Valves

All globe valves up to and including 65 mm nominal bore shall be of bronze construction in accordance with B.S. 2060.

All globe valve 80 mm nominal bore and above shall be of cast iron construction in accordance with the requirements of B.S. 3961.

The pressure classification of all globe valves shall depend upon the pressure conditions pertaining to the Site of Works.

c) Check or Non-Return Valves

All check or non-return valves up to and including 65 mm nominal bore shall be of the swing check type of bronze construction in accordance with B.S. 1953.

All check or non-return valves 80 mm nominal bore and above shall be of the swing check type of cast iron construction in accordance with the requirements of B.S. 4090.

The pressure classification of all check or non-return valves shall depend on the pressure conditions pertaining to the Site of work

d) Ball Float 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 classification as follows:-

- (i) Low pressure – 3.588 bar maximum
- (ii) Medium pressure – 7. 725 bar maximum.
- (iii) High pressure – 12. 620 bar maximum.

The pressure Classification required for each ball valve will be designated in the description of its associated equipment.

e) Safety Valves

Safety valves for thermal storage water heaters shall comply with B.S. 759

Draw-Off Taps and Stop Valves (up to 50 mm nominal bore)

Draw-off taps and stop valves up to 50 mm nominal bore, unless otherwise stated or specified, for attachment or connection to sanitary fittings shall be manufactured in accordance with the requirements of B.S. 1010.

Mixing valves for shower fittings and other appliances shall be manufactured in accordance with the requirements of B.S. 1415 from bronze or other corrosion resistant materials

1.1.6.4 Thermal Insulation

Insulation shall be installed by tenderer specializing in this type of work.

All primary hot (flow and return pipes) and secondary hot water and circulation pipes shall be insulated. Thermal insulating material for hot water supply insulation shall conform to B.S. 1334 unless otherwise specified. Materials shall have fire retardant qualities. Insulation shall be fiberglass, minimum density 64 kg/m^3 . Pre-moulded fittings shall be used, or if unavailable, metered sections or built-up blanket insulation shall be used. Insulation shall be fastened in concealed locations with aluminium bands or soft annealed wires and shall be fastened in exposed locations with aluminium bands, 30 cm. (12 inches).

Each pipe item shall be insulated separately. Insulation must be carried through or around hangers. All insulating materials, however fixed, shall be in close contact with the surface to which it is applied and all joints shall be sealed after ensuring that edges or ends of any section built up close to one another. Edges or ends shall be cut or sharpened on site as necessary. All surfaces to be insulated shall be cleaned carefully before fixing the insulating material. Whereby, subject to outside weather or other potentially damp or wet conditions, the insulation shall be adequately protected against moisture pick-up with weather proof jacketing. Elsewhere, the insulation shall be finished with open weave glass cloth and finish coats of adhesive or paint to approval.

Fixing of insulating material shall suit the progress of other installation works in the building.

All thermal insulating materials shall be delivered to the site in a dry condition and housed in a store until drawn upon for use. If nothing else is specified, the minimum thickness of insulating material for hot water pipes shall be 25 mm.

Equipment, such as tanks, shall be insulated with 50 mm fibre glass board and finished with open weave glass cloth and finish coats of adhesive or paint to approval.

1.1.7 Water Storage Tanks

1.1.7.1 Cold Water Storage Tanks

Where specified as galvanized mild steel, water storage tanks shall comply with B.S. 417. Galvanizing shall take place after manufacture.

Pressed steel sectional water storage tanks shall comply with B.S. 1564, and shall be similar in manufacture to "BRAITH-WAITE".

Water storage tanks shall be mosquito proofed by means of well fitting bolted cover bedded on a thick gasket of felt or bitumen.

Overflow pipes from tanks shall discharge into air or floor gullies where nearby positioned, with splay cut ends mosquito proofed by means of wire gauze tightly bound on with stout galvanized wire or soldered on.

1.1.7.2 Thermal Storage Water Heaters

The pressure and low pressure type's domestic electric water heaters shall comply with B. S. 843; 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 50 mm thick fibre glass lagging.

Electric thermostatically controlled immersion heaters shall comply with B.S. 3456: Section 2:21 and C.P. 324.202.

Purpose made storage water heaters of the specified size 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.

1.1.7.3 Pressure Vessels

Pressure vessels shall be manufactured in accordance with B.S. 1500 A for the specified pressure and be fitted with all necessary openings and connections.

1.1.8 Protection of metal surfaces

Machinery, equipment, etc. shall be tropicalized and with protective treatment fully suitable for application and in the prevailing climatic conditions.

Full details of tropicalization and comprehensive paint treatments, to a dry film thickness of nowhere less than 200 microns, shall be submitted for the approval of the Consultant.

All metalwork shall be protected by either:-

- (a) Hot dip galvanizing; where painted treatment shall be 50 microns epoxy primer or 5-10 microns wash-primer; 30 microns modified alkyd undercoat and 30 microns enamel finish or,
- (b) Metallic lead epoxy primer, epoxy micaceous iron oxide, micaceous iron oxide modified alkyd undercoat and enamel finish, layers minimum 30 microns each.

Surfaces of metalwork shall be thoroughly brushed down with wire brushes to remove all scale, rust, etc., and structural steelwork shall be grit blasted before protective treatment. All paint shall be applied fully in accordance with the manufacturer's instructions.

All water tanks inclusive covers, machinery casings, claddings and whosoever specified shall be protected by hot dip galvanizing.

Hot dip galvanized coatings shall be executed in accordance with British Standard BS 729. The values for coating weight shall be as follows to B.S 729:-

5 mm thick and over	- 610 to 630 g/m (87 –90 um)
Under 5 mm but not less than 2 mm	- 460 to 490 g/m (66 – 70 um)
Under 2 mm but not less than 1 mm	- 335 to 350 g/m (48 – 50 um)
Grey and malleable iron castings	- 610 to 630 g/m (87 – 90 um)
Threaded work and other articles which are centrifuged	- 305 to 315 g/m (44 –45 um)

For conversion to coating thickness unit weight of zinc shall be assumed 7 g/cm³. The values stated shall be taken as minimum average values for a set of samples. Individual minimum values shall be introduced as the above mentioned minus 10%.

When galvanized coats are damaged, e.g. threaded pipe connections made on site, the exposed parts shall be repaired with same paints as for additional coating. Colour grey.

1.1.9 Instrumentation

Instrumentation shall be provided as indicated on the drawings and specified in the specifications.

Pressure gauges shall be installed on the pipe at both sides of pumps.

Pressure gauges shall be fitted with shutoff cock, read in the pressure range of system, minim 12 cm. (4 1/2 inch) dial, adjustable angle face, white face with black figures and pointer.

Thermometers shall be installed with separable sockets. Bronze sockets shall be used in nonferrous systems and stainless steel in ferrous systems. Thermometers shall be mercury actuated, 12 cm (4 1/2 inch) dial, adjustable angle face with black figures and pointer.

Where recording thermometers are required, they shall have chart 25 cm.(10 inches) in diameter, shall operate with one pen on 24 hour charts, with a range 10°C to 105°C (50°F to 220°F).

1.2 COMMISSIONING AND MAINTENANCE

1.2.1 Commissioning and Testing

The tenderer for solar heating system shall be responsible for testing and commissioning of the solar installation. The testing and commissioning shall be done in the presence of the Engineer. The tenderer shall be held responsible for any damage to the builder's work, during the installation, initial system testing etc. When installation is completed, an acceptance test shall be carried out on the tenderer's own expense.

All hot water pipes, including flow and return, solar absorbers, cylinders, cisterns, tanks, calorifiers, pumps, etc. shall be thoroughly sterilized and flushed out after the completion of all tests and before being fully commissioned for handover. The sterilization procedure shall be carried out by the tenderer or specialists employed by the tenderer in accordance with the requirements of B.S. Code of Practice 310, Clause 409, to the approval of the Engineer.

Before handing over, the tenderer shall confirm that the installation has been examined, tested, is ready for use, that it will operate and can be maintained efficiently. The whole of the solar heating installation shall be tested to the satisfaction of the Engineer and the Local Authority.

The tenderer shall provide all necessary testing apparatus and facilities for testing the installations and any defective work shall be replaced immediately and shall be the subject of re-testing until found satisfactory.

Where pipes are to be lagged, chased into walls or otherwise concealed, the work shall be tested prior to lagging, making good chases, etc. The complete solar heating installations, including flow and return pipes shall, if nothing else is specified, be tested to a cold water pressure of not less than 1.5 times the working pressure, minimum 8 kg/cm². The test pressure shall be applied by means of a manually operated test pump or, by a power-driven test pump. Pressure gauges shall be recalibrated before the test. The test pressure shall be maintained by the pump for about one hour and a leakage as specified in C.P 310, Section 502 J shall be approved, but any visible individual leak shall be repaired.

Valves, cocks and taps shall be absolutely tight under the test pressure for the corresponding pipes as well as under a small pressure. Upon completion of the work, including re-testing if necessary, the installations shall be thoroughly flushed out and water pipes refilled with clean water ready for use. Any defects revealed by the tests shall be made good by the tenderer and the test repeated to the approval of the Engineer. In all other respects, test shall comply with the requirements of B.S. Code of Practice 304.

Following satisfactory pressure tests on the pipework system, operational tests shall be carried out in accordance with the relevant B.S. Codes of practice on the systems as a whole to establish that special valves, gauges, controls, fittings, equipment and plant are functioning correctly to the satisfaction of the Engineer.

1.2.2 Spare Parts

The tenderer shall submit with the tender a guarantee that he will hold a sufficient number of spare parts for the maintenance of the equipment.

If specific requirements for supply of spare parts are specified in the bill of quantities or schedule of prices, these spare parts shall be supplied to the client/employer, when the installations are handed over.

The tenderer shall submit with his tender a priced list of any optional extras, which he recommends should be purchased for the plants and are not supplied as standard with the unit.

1.2.3 Defects Liability and Contractual Maintenance Period

The tenderer shall maintain the complete installation in the total defects liability period and shall be responsible for the initiation and execution of the clients/employer planned programme of maintenance during this period.

During this maintenance period the tenderer shall carry out all necessary adjustments and repairs, cleaning and lubricating, etc. A report of any work shall be submitted to the Client and incorporated in the maintenance records.

The tenderer shall be held responsible for and shall make good all defects in materials that appear during the maintenance period; he shall supply expendable items, such as gaskets, filters, indicator lamps, etc. The period of liability shall not end until all defects which appear during the maintenance period have been rectified.

The tenderer shall allow in his Contract price for this maintenance and inspection 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 whether they are normal maintenance materials such as oils, greases, sandpaper, etc. and parts which are periodically renewed such as relay contracts or parts which are faulty for any reason whatsoever excepting always Acts of God such as a storm, tempest or flood, lightning and earthquake; civil revolt, acts of war and vandalism.

1.2.4 Maintenance Manual

Upon completion the tenderer shall furnish to the Client four copies of a manual size A4 of loose leaf type containing all the following items:-

- a. Description of equipment
- b. Full operation and maintenance instructions
- c. Valve operation
- d. Fault-finding chart
- e. Emergency procedure

- f. Maintenance and service periods
- g. Lubricating instruction
- h. Colour code legend
- i. Schedule of primary and secondary spares
- j. Record drawing – Folded to size A4.

The manual must be specially written and not standard manufacturers manual unless approved by the Engineer.

Tags giving instructions are not permitted. All instructions must be written into the manual with reference to the drawings.

All valves, terminals and controls on the plant shall be labelled to correspond with the maintenance and operation manuals.

1.2.5 Maintenance and Service After Expirations of the Contractual Maintenance Period

The tenderer shall if required, enter into a maintenance and service agreement with the employer for the complete installation, for a period of up to five years from the day of expiration of the contractual maintenance period.

The terms of any such agreement shall not be less beneficial to the Client, than the terms of agreement for other similar installations

PARTICULAR SPECIFICATIONS FOR SOLAR SYSTEMS

Products to have Solar Key mark certification mark for solar thermal products

SPECIFICATION FOR SOLAR PANEL

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>VALUE</u>
A	Gross Area	2.51 m ²
B	Clearing	2.34 m ²
C	Absorbing Surface Area	2.34 m ²
D	Absorbing Surface Type	Aluminum
E	Absorbing Surface Coating Type	Selective
F	Transmittance	95 %
G	Emission / Reflection	Less than 6 %
H	Chassis	Black Anodized Aluminum
I	Glass Type	Low-Iron, Tempered, Sandy Patterned Solar Glass
J	Glass Thickness	4 mm
K	Daylight Transmittance	At least 91.6 %
L	Solar Energy Transmittance	At least 90.5 %
M	Glass Seal	Vulcanized EPDM
N	Isolation	Rockwool (40 mm)
O	Back Plate	Aluminum
P	Number of Riser Pipes	12
Q	Riser Pipe Diameter Ø mm	10 mm
R	Manifold Diameter Ø mm	18 mm (3/4")
S	Connection Type	Compression Fitting
T	Water Volume	At least 2 liter
U	Working Pressure	Can absorb 10 bar
V	Test Pressure	Minimum 15 bar
V	Maximum Temperature	Upto 200 °C
X	Stagnation Temperature	Upto 163 °C
Y	Length	1500mm-2500mm(2180 mm)
Z	Width	800-1200mm(1150 mm)

AA	Height	60-90mm(80 mm)
AB	Weight	Maximum 50 kg
AC	Efficiency	Above 80 %



AS BAYMAK ESSENTIAL BLACK XL SERIES OR EQUIVALENT

SPECIFICATION FOR CALORIFIER

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>VALUE</u>
A	Capacity	2000 litres
B	Height	Maximum 2.5m
U	Working Pressure	Minimum 8 bar
V	Test Pressure	Minimum 13 bar
V	Maximum Temperature	Upto 200 °C
X	Stagnation Temperature	Upto 163 °C
Y	Coil	Double Serpentine

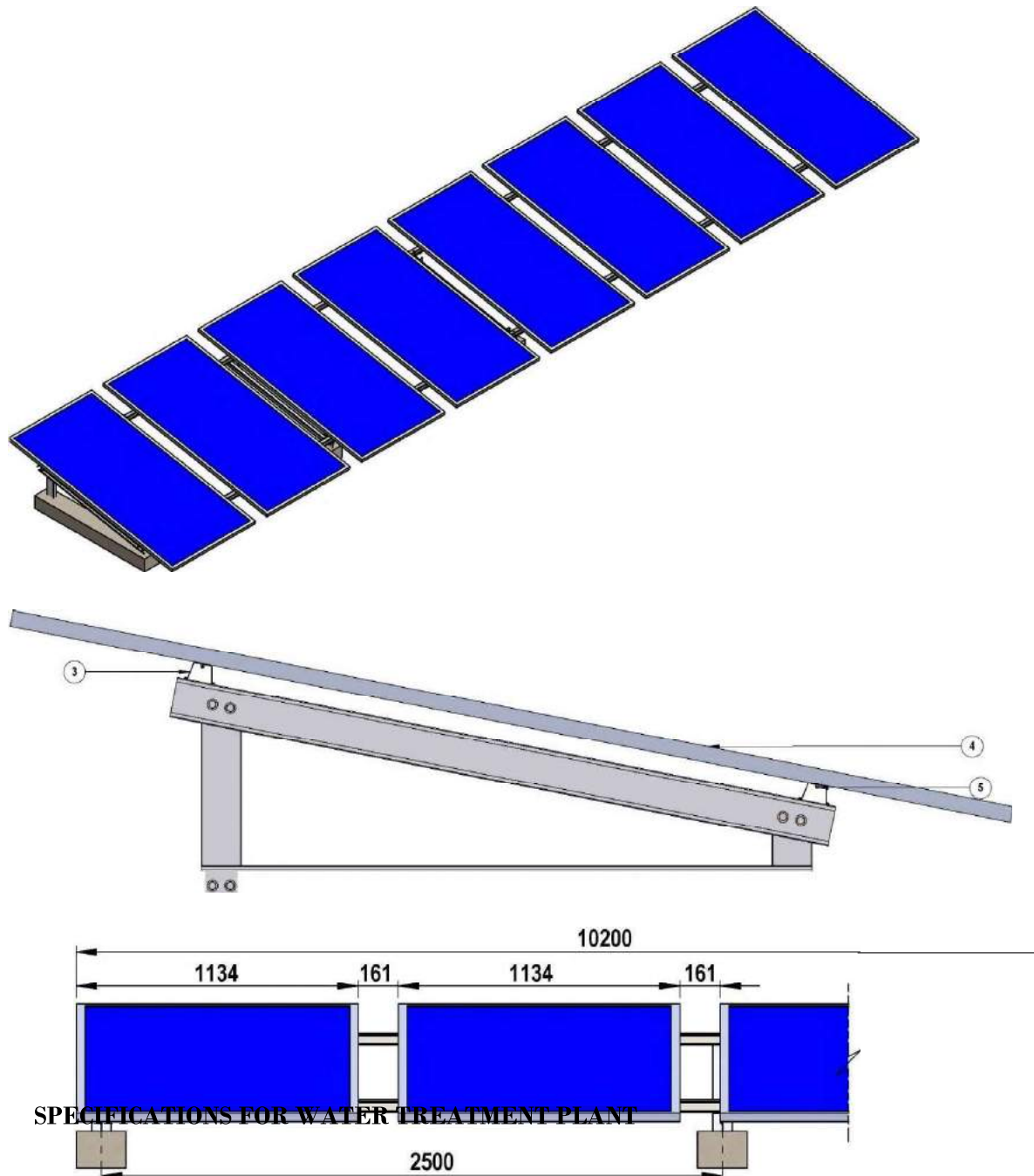
- Protected against corrosion by magnesium oxide
- Interior with high tech titanium doped with enamel coating
- With external coating Capable of withstanding unsheltered weather

TO BE AS BAYMAK AQUA DOUBLE COIL HOT WATER STORAGE TANK MODEL T2000L WITH CUSTOM EXTERIOR COVER.

SOLARIZATION OF THE WATER BOOSTER PUMP

The system shall be complete with hybrid control panel, solar inverter, electric wiring, solar panel models. All as described in Bill of Quantities.

The panel mounting structure shall be as indicated below.



The Bioliff Enpura Wastewater Treatment plant, employing Moving Bed Bioreactor (MBBR) technology, was chosen for this project because it constitutes a simple but extremely versatile technology.

The Enpura MBBR is a biological sewage treatment plant that offers advanced black and gray wastewater treatment solutions. It allows operation in environmentally sensitive areas, treating and discharging all wastewater generated without threat to health or the environment.

Benefits:

- ✓ Smallest footprint and tank requirement over all other options. Major project cost saving.
- ✓ Proven technology with very low sludge production
- ✓ Low running costs and minimal energy consumption
- ✓ MBBR Media has an expected lifetime of over 20 years and is resistant to clogging & fouling
- ✓ No continual chemical consumption

Basis of Design

Bioliff is proposing a Moving Bed Biofilm Reactor (MBBR) process be used for treatment of wastewater sources due its high volumetric efficiency, proven performance, and minimum maintenance.

The MBBR process shall provide high-rate soluble organic reduction (BOD/COD), and Secondary clarification will separate solids to meet effluent objectives detailed herein. Nitrogen and Phosphorous will be used as nutrients for cell growth, thus meeting effluent objectives.

Return Activated Sludge (RAS) is not required and will simplify process operations.

Final effluent is sanitized to ensure public health & safety compliance.

Design Requirements/Assumptions:

- The information provided is assumed to be the maximum design values.

In the absence of information, it is assumed that the water quality is sufficient for biological treatment including, but not limited to the following requirements: *Sufficient micronutrient is available to satisfy minimum biological requirements, as follows: 100 BOD : 5 N : 1 P*

pH is stabilized between 6.8-8

BOD and COD are readily biodegradable

No toxic or inhibitory compounds present

All values are assumed to be 24-composite, filtered samples

FOG must be <30mg/l – Good grease traps on all kitchen that are well maintained



1. PRIMARY SETTLER TANK

Here solids separation & settling occurs. Other beneficial processes, including Hydrolysis & Anaerobic digestion, takes place which aid secondary treatment. Stored organic sludge undergoes anaerobic digestion and thus volume is reduced over time. The primary tank also receives waste sludge from the secondary biological treatment stage, captured in the lamella settler clarifier, which also undergoes anaerobic digestion.

The Primary Tank outlet is fitted with Polylok Effluent Filters. Polylock Effluent Filters - Here fine solids larger than 1.5mm, such as hair, fibers & small plastics are caught and removed so as to protect downstream process & equipment.

2. EQUALISATION

The Equalisation Chamber buffers the peak flows and regulates the feed rate of effluent fed into the Bioreactor. The Feed pumps are program controlled and setup as Duplex (Duty/Standby) for best reliability. A level float switch monitors levels, alarms, and emergency override.

3. MBBR BIOREACTOR

Organic Carbon & Nitrification - Inside the Reactors, millions of bacteria grow on the carrier MBBR media which has a huge surface area. The bacteria and microorganisms rapidly feed on the waste in the water. The oxygen needed by the bacteria is provided by an aeration blower and fine bubble diffusers. The aeration also provides mixing of the water to ensure proper contact between waste, oxygen and bacteria. And additional benefit of this mixing action is the media is scoured as it comes into contact with other media – thereby keeping the media free from fouling.

4. LAMELLA CLARIFIER

The effluent then passes into the Clarifier where the sludge settles at the bottom and the clear water separates at the top. A high quality chevron shape tube settler media is used to significantly improve efficiency and performance of settling. In this case the accumulated sludge at the bottom of the clarifier will be sent to the Primary Settler Tank for storage and anaerobic digestion

KEY EQUIPMENT & PROCESSES

CONTROLS

The plant will be fully automated and will use a PLC to control the process system. Minimal operator attention will be required. The Process Control Center (PCC) is the “intelligence” unit behind the process and is designed to open and close valves, start and stop pumps, adjust the output of the aeration blowers and control the process cycle times.

Alarm, fault and process indicators will be displayed on the process control panel through a Human Machine Interface (HMI) unit

The PCC and MCC (motor control center - equipment starters and switches etc) are hard wired so that in the event of a PLC failure, the system can be operated in hand (ie manual operation). All the motors and equipment are provided with HOA (Hand-Off-Auto) selector switches.

The MCC / PCC are integrally fabricated as a combined unit with all internal wiring completed and programmed prior to delivery on site. This minimizes site works, allows full factory testing before shipping, and minimizes integration problems with MCC's and panels supplied “by others”.

TRAINING PROGRAM

A start-up and operator training program enables the operator to learn about the process and the equipment used in the process. Start-up involves pre-commissioning checks of the process mechanical and electrical equipment. After wet-testing procedures, maintenance and servicing requirements are given.

When the process has been commissioned, operator training will take place so that the operator can learn operational monitoring, process cycle changes, and troubleshooting.

All Operation & Maintenance Manuals covering the equipment are included in the supply of the process unless otherwise specified.

The operator training program includes the following:

- General description of MBBR
- MBBR Process
- Fundamental Process Reactions including aerobic, anoxic, anaerobic and endogenous respiration
- Analysis and sampling
- Principles of operation
- Process Control, cycle time
- Solids retention time and sludge age
- SVI and Sludge Bulking Control
- Equipment and equipment operation and maintenance
- Troubleshooting.

The water from the treatment plant shall be used to irrigate the lawn area and green landscaping area.

PARTICULAR SPECIFICATIONS FOR BOREHOLE DRILLING AND EQUIPPING

1. Purpose

The borehole to be drilled, constructed, test pumped and equipped with a submersible pump under this contract will be to provide water intended for domestic use. The maximum ground water abstraction permitted from the borehole shall be as specified by the engineer with the maximum abstraction period not exceeding 10 hours per day.

The execution of the works shall be in full compliance with relevant provisions of the Water Act.

The proposed drilling site will be at *Maasai Mara University in Narok County*. The Contractor is deemed to have visited the site, and if unable to locate it or its details apply to the client *Vice Chancellor Maasai Mara University*

No claims will be allowed for the traveling or other expenses, which may be incurred by the contractor's works.

2. Scope of the Work

The works included in the contract consist of:-

- (i) The drilling of one borehole of sufficient diameter to provide for a finished cased and screened borehole of 200mm diameter to the provisional depth of about 300metres.
- (ii) The provision and installation of steel casings, steel screens, and gravel pack, borehole cap, together with cementation works necessary.
- (iii) The collection of formation samples at 2 meter interval of drilling progress to the bottom and also water sample at every aquifer struck and at the beginning and at the end of test pumping operation for both chemical and biological analysis.

NOTE: - These depths and any other works can be varied by the Engineer depending on the actual conditions encountered in the process of executing of the works.

- (iv) The supply and installation of 1No. Submersible borehole pump, complete with the necessary controls.
- (v) Connection of the water from the borehole to the water storage tank.

3. Local Conditions

The borehole will be drilled, constructed and test pump in both unconsolidated and consolidated formation and the contractor must be prepared to carry out the required work through any type of formation in the project area.

4. Borehole Data

- (a) Total depth – 300m of 200mm diameter from surface (**Provisional**)
- (b) Casings to be 152mm diameter and screened depth to be determined after borehole construction.
- (c) Static water level – not known
- (d) Dynamic water level – not known
- (e) Recommended pumping rate – 8m³/hr (for the purpose of quotation but to be confirmed after testing)
- (f) (Pump) setting level – 200m (for the purpose of quotation but to be confirmed after testing)
- (g) Total dynamic head to be determined on site

5. Casings

- (a) Casings to be used as part of the permanent borehole structure shall be black steel pipe conforming to BS 1387 and having nominal diameter of 200mm.
- (b) If any casing other than that to be left permanently in the borehole is required temporarily for execution of work, it shall be supplied by the contractor at the borehole free of charge.

6. Screens

The screens to be furnished and installed shall be of the pipe size variety having a minimum nominal diameter of 152mm and can be fabricated in three meter lengths. The screens shall be of continuous slot type and constructed entirely of stainless steel. The screen shall have slot size opening of 1.4m.

7. Grouting

Grouting shall be done by either cement or bentonite to seal off unwanted upper aquifers under direction of the Engineer.

8. Construction Method

The borehole to be constructed shall be drilled by cable-tool percussion method or the combination air/ hydraulic rotary method. The method of drilling shall be left to the discretion of the Contractor. After drilling to the final depth the Contractor shall proceed to insert permanent casings and screens as directed by the Engineer.

9. Gravel Pack

If filter gravel will be necessary, it will consist of durable, naturally rounded quartzitic particles properly washed and cleaned prior to insertion in the borehole. The gravel shall be introduced in the annular space between the wall of the borehole and the 200mm casing from the bottom to about 2 meters below surface. The final casing and screens must be centralized before gravel back and the Contractor must supply suitable equipment for lowering of gravel pack.

10. Cementation

The space above the gravel pack shall be grouted with a mix of one part of cement to two parts of sand and two parts of ballast, in order of 1:2:2 concrete may be used near the surface to form an annular plug around the casing of dimensions 1.0 x 1.0 x 1.0 meters. There shall be 2000mm diameter concrete plinth on top of the borehole and shall be constructed as shall be directed by the Project Engineer and the Structural Engineer.

Any other cementation works to be done as directed by the Project Engineer.

11. Development

The Contractor shall furnish all necessary pumps, compressor, plungers, bailing or other needed equipment and shall develop the borehole by such approved methods as shall be necessary to give the maximum yield of water per increment of drawdown and extract from the formation of maximum practical quality of such sands as may, during the life of the borehole, be drawn through the screens when the borehole is operating under maximum conditions of draw down.

12. Test Pumping

After the borehole has been completed, constructed and developed, the subcontractor shall make necessary arrangements for conducting a 24 hour continuous test pumping up to a maximum of 30hr and 12 hour recovery test under the supervision of the Engineer. Where the Engineer or his representative cannot be present on such pumping test, the Contractor may continue without him keeping accurate records of the test in terms of discharge and drawn down but must seek permission from the Project Engineer. Should the Contractor fail to keep such records, the Engineer shall order the test to be repeated at no extra cost.

13. Sample Formation

The Contractor shall keep an accurate record of the top and bottom of each stratum penetrated and shall save and deliver to the Engineer a sample of materials taken from each 1m of formation, or at every change of formation and at such other intervals as may be ordered by the Engineer. Those samples shall be placed in approved Contractor supplied containers with labels which indicate the depth at which the sample was obtained.

14. Water Samples

Water samples shall be collected at every water struck while drilling and also shall be collected at the start of every test and toward the end of the test in a three litre sterilized plastic container for both chemical and bacteriological analysis and submitted in a competent laboratory for analysis.

15. Reports

The contractor shall submit to the Engineer daily progress reports showing:-

- (i) The depth each day indicating drilling in meters per hour with comments on degree of hardness of materials being penetrated.
- (ii) Depth at which each water bearing zone is encountered and the rise and fall of water level in different formations.
- (iii) The full details of work carried out in respect of operations which are paid for at hourly rate.
- (iv) The full details of the number of hours worked each day.

16. Cessation of Work

The Engineer reserves the rights to stop drilling operations if in his opinion:-

- (a) A sufficient supply of water has been obtained.
- (b) The work is not being carried out in a satisfactory manner or
- (c) Further drilling is unlikely to be advantageous or for any other reason

In this event, payment shall be made only for the amount of work done up to the date of stoppage.

17. Retention Time

Waiting time shall be such time as the whole of the drilling equipment and staff is on site and is available for use, and all the operation connected with the Contact are at a standstill due to the absence of instructions from the Engineer. The request for the necessary instructions and/ or guidance to the Project Manager by the Contractor shall be within 48 hours, provided that the Project Manager does not delay the said instructions/ or guidance to the Contractor unnecessarily. All claims for waiting time shall be made on the basis of a normal 8 hour day, including Sundays and Public holidays.

18. Supply and Installation of Pump

The Contractor shall supply and install:-

- (a) One electric submersible pump which will conform to the specification stated, for operation on 415 volt, 3-phase.
- (b) All necessary electrical equipment for the pump such as control panel with starter, ammeter, single phasing cut-out, low voltage cut-out and all necessary cables for connection.
- (c) Suitable diameter Galvanized Steel pipe class 'C' to carry water to the surface/ to water storage tank
- (d) Low level cut-out switch
- (e) Airline 20mm galvanized steel pipe for water level measurements
- (f) Pressure gauge
- (g) The gate valves, non-return valves before the master meter
- (h) Master meter for measuring the water from the borehole.
- (i) The pump shall be solar powered and with hybrid control panel

In addition the Contractor shall carry out 24 hours test run at the completion of the works. This test has to be certified by the Project Manager.

Note on Pump Installation

The Contractor shall make the necessary electrical connections and include in his prices all cable, starter-panel, switches etc. required to put the pump in operation while tendering for this part of the document and return it with full description literature and performance curves for the proposed equipment together with the tender for drilling works.

The installation of the submersible pump into the borehole shall be done immediately the borehole drilling is completed, test pumped and water analysed for suitability for human consumption.

The final production pump to be installed in the newly drilled borehole shall be determined and installed as per the actual conditions encountered on completion of the drilling works. Hence the specifications given under the section of 'borehole data' are only for the purpose of quotation. After establishing the actual conditions of the drilled borehole, only the engineer's approved submersible pump shall be installed.

19. Electrical works

It shall be the responsibility of the Contractor to provide all electrical wiring between all items of his Contract to ensure the correct function of his equipment. The Contractor's electrical works shall start from the nearest electrical isolator which will be supplied by others within five metres.

SECTION NAME:

BILLS OF QUANTITIES

BILLS OF QUANTITIES AND SCHEDULE OF UNIT RATES

CONTENTS

<u>ITEM.</u>	<u>PAGE</u>
1. GENERAL NOTES TO TENDERERS.....	(ii)
2. STATEMENT OF COMPLIANCE.....	(iii)
3. PRICING OF ITEMS.....	(iii)
3. BILLS OF QUANTITIES	BOQ /1 to BOQ /62
4. SUMMARY PAGE.....	Summary Page – BOQ 63
5. SCHEDULE OF UNIT RATES.....	SU-1
6. TECHICAL SCHEDULE	TS-1
7. SCHEDULE OF CONTRACT DRAWINGS.....	SC-1

GENERAL NOTES TO TENDERERS

1. The Bills of Quantities form part of the contract documents and are to be read in conjunction with the contract drawings and general specifications of materials and works.
2. The prices quoted shall be deemed to include for all obligations under the sub-contract including but not limited to supply of materials, labour, delivery to site, storage on site, installation, testing, commissioning and all taxes (**including 16% VAT**). In accordance with Government policy, the **3% Withholding Tax shall be deducted** from all payments made to the Tenderer, and the same shall be forwarded to the **Kenya Revenue Authority (KRA)**.
3. All prices omitted from any item, section or part of the Bills of Quantities shall be deemed to have been included to another item, section or part thereof.
4. The brief description of the items given in the Bills of Quantities are for the purpose of establishing a standard to which the sub-contractor shall adhere. Otherwise, alternative brands of **equal** and **approved** quality will be accepted

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

5. The grand total of prices in the price summary page must be carried forward to the **Form of Tender for the tender to be deemed valid**.

Statement of Compliance

a) I confirm compliance of all clauses of the General Conditions, General Specifications and Particular Specifications in this tender.

b) I confirm I have not made and will not make any payment to any person, which can be perceived as an inducement to win this tender.

Signed: *for and on behalf of the Tenderer*

Date:

Official Rubber Stamp:

PRICING OF ITEMS.

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

Preliminaries Section

Prices will be inserted against item of preliminaries in the sub-contractor's Bills of Quantities and specification. These Bills are designated as Bill 1 in this Section. Where the sub-contractor fails to insert his price in any item he shall be deemed to have made adequate provision for this on various items in the Bills of Quantities. The preliminaries form part of this contract and together with other Bills of Quantities covers for the costs involved in complying with all the requirements for the proper execution of the whole of the works in the contract

Sub-contractors preliminaries are as per those described in section C – sub-contractor preliminaries and conditions of contractor.

The sub-contractor shall study the conditions and make provision to cover their cost in this Bill. The number of preliminary items to be priced by the Tenderer have been limited to tangible items such as site office, temporary works and others.

However the Tenderer is free to include and price any other items he deems necessary taking into consideration conditions he is likely to encounter on site.

Mechanical installation Items Section

The brief description of the items in these Bills of Quantities should in no way modify or supersede the detailed descriptions in the contract Drawings, conditions of contract and specifications.

Summary Section

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

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

BILL NO.1 SUBCONTRACT PRELIMINARIES					
Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	<p>PRELIMINARIES</p> <p>Scope of Contract Works</p> <p>The contractor shall supply, deliver, unload, hoist, fix, test, commission and hand-over in satisfactory working order the complete installations specified hereinafter and/or as shown on the Contract Drawings attached hereto, including the provision of labour, transport and plant for unloading material and storage, and handling into position and fixing, also the supply of ladders, scaffolding the other mechanical devices to plant, installation, painting, testing, setting to work, the removal from site from time to time of all superfluous material and rubbish caused by the works.</p> <p>Firm price contract</p> <p>This is a firm-price Contract and the contractor must allow in his tender for the increase in the cost of labour and/or materials during the duration of the contract. No claims will be allowed for increased costs arising from the fluctuations in duties and/or day to day currency fluctuations. The Sub-contractor will be deemed to have allowed in his tender for any increase in the cost of materials, which may arise as a result of currency fluctuation during the contract period.</p> <p>Bond</p> <p>The tenderer must submit with his tender the name of one Surety who must be an established Bank only who will be willing to be bound to the Government for an amount equal to 5 % of the Contract amount</p> <p>Government Legislation and Regulations</p> <p>The Contractor's attention is called to the provision of the Factory Act 1972 and subsequent amendments and revisions, and allowance must be made in his tender for compliance therewith, in so far as they are applicable. The Contractor must also make himself acquainted with current legislation and any Government regulations regarding the movement, housing, security and control of labour, labour camps, passes for transport, etc.</p>	1	Item		
A		1	Item		
B		1	Item		
C		1	Item		
D		1	Item		
Total carried forward to Collection Page					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
A	<p>Import Duty and Value Added Tax</p> <p>The contractor will be required to pay full Import Duty and Value Added Tax on all items of equipment, fittings and plant, whether imported or locally manufactured. The tenderer shall make full allowance in his tender for all such taxes.</p>	1	Item		
B	<p>Insurance Company Fees</p> <p>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.</p>	1	Item		
C	<p>Samples and Materials Generally</p> <p>The Contractor shall, when required, provide for approval at no extra cost, samples of all materials to be incorporated in the works. Such samples, when approved, shall be retained by the Engineer and shall form the standard for all such materials incorporated.</p>	1	Item		
D	<p>Builder's Work</p> <p>All chasing, cutting away and making good will be done by the Contractor. The Contractor shall mark out in advance and shall be responsible for accuracy of the size and position of all holes and chases required.</p> <p>The Contractor shall drill and plug holes in floors, walls, ceiling and roof for securing services and equipment requiring screw or bolt fixings.</p> <p>Any purpose made fixing brackets shall be provided and installed by the Contractor</p>	1	Item		
	Total carried forward to Collection Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
A	<p>Position of Services, Plant, Equipment, Fittings and Apparatus</p> <p>The Contract Drawings give a general indication of the intended layout. The position of the equipment and apparatus, and also the exact routes of the ducts, main and distribution pipework shall be confirmed before installation is commenced. The exact sitting of appliances, pipework, etc., may vary from that indicated.</p>	1	Item		
	<p>The contractor shall be deemed to have allowed in his Contract Sum for locating terminal points of services (e.g. lighting, switches, socket outlets, lighting points, control switches, thermostats and other initiating devices, taps, stop cocks) in positions plus or minus 1.2m horizontally and vertically from the locations shown on Contract Drawings.</p> <p>Setting to Work and Regulating System</p> <p>B The Contractor shall carry out such tests of the Contract Works as required by British Standard Specifications, or equal and approved codes as specified hereinafter and as customary.</p> <p>No testing or commissioning shall be undertaken except in the presence of and to the satisfaction of the Engineer unless otherwise stated by him (Contractor's own preliminary and proving tests excepted).</p>	1	Item		
	<p>It will be deemed that the Contractor has included in the Contract Sum for the costs of all fuel, power, water and the like, for testing and commissioning as required as part of the Contract Works. He shall submit for approval to the Engineer a suitable programme for testing and commissioning. The Engineer and Employer shall be given ample warning in writing, as to the date on which testing and commissioning will take place.</p>				
	Total carried forward to Collection Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
A	<p>Working Drawings</p> <p>The Contractor shall allow for Working Drawings as may be necessary. The Working Drawings shall be complete in such detail not only that the Contract Works can be executed on site but also that the Engineer can approve the Contractor's proposals, detailed designs and intentions in the execution of the Contract Works.</p> <p>Two copies of all Working Drawings shall be submitted to the Engineer for approval. One copy of the Working Drawings submitted to the Engineer for approval shall be returned to the Contractor indicating approval or amendment therein.</p>	1	Item		
B	<p>Record Drawings (As Installed) and Instructions</p> <p>The Contractor shall allow for Record Drawings of the installed Contract Works.</p> <p>Three copies of all Record Drawing shall be submitted to the Engineer for approval.</p>	1	Item		
C	<p>Maintenance Manual</p> <p>The Contractor shall allow for furnishing the Engineer four copies of a Maintenance Manual relating to the installation forming part of all of the Contract Works.</p> <p>The manual shall be loose-leaf type, International A4 size with stiff covers and cloth bound. It may be in several volumes and shall be sub-divided into sections, each section covering one Engineering service system. It shall have a ready means of reference and a detailed index.</p>	1	Item		
	Total carried forward to Collection Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
A	<p>Mobilization and Demobilization</p> <p>The Contractor shall allow for mobilization of labour plant and equipment to site according to his programme and schedule of work. He shall ensure optimum presence and utilization of labour, plant and equipment. He should not pay and maintain unnecessary labour force or maintain and service idle plant and equipment. Where necessary he shall demobilize and mobilize the labour, plant and equipment, as he deems fit to ensure optimum progress of the works and this shall be considered to be a continuous process as works progress. He shall make provision for this item in his tender. No claim will be entertained where the contractor has not made any provision for mobilization and demobilization of labour, plant and equipment in the preliminary bills of quantities or elsewhere in this tender.</p>	1	Item		
B	<p>Contractor Obligation</p> <p>The contractor will finance all activities as part of his obligation to this contract. The employer shall pay interim payment for materials and work completed on site as his obligation in this contract, as the works progresses. No claims will be entertained for pre-financing of the project by the sub-contractor, or for loss of profit (expectation loss) in case of premature termination, reduction or increase of works as the sub-contractor shall be deemed to have taken adequate measures in programming his works and expenditure and taken necessary financial precaution while executing the works.</p>	1	Item		
C	<p>Validation</p> <p>Allow for engineers facilitation cost in approval of sample and equipment fittings and pumps and casings which cannot be vailed on site office</p>	1	Item		
D	<p>Any other Preliminaries</p> <p>The contractor to allow for any other preliminaries necessary for him to complete all the works</p>	1	Item		
Total Carried Forward to Collection Page					

COLLECTION PAGE

Item	Description	Amount (Kshs)
A	Total cost carried forward from Page BoQ 1	
B	Total cost carried forward from Page BoQ 2	
C	Total cost carried forward from Page BoQ 3	
D	Total cost carried forward from Page BoQ 4	
E	Total cost carried forward from Page BoQ 5	
Total Amount Carried to Summary Page BoQ-62		

BILL NO.2 SANITARY FITTINGS

- (i) ALL ITEMS SHALL BE SUPPLY,DELIVER,INSTALL,TEST AND COMMISSION
- (ii) ALL ITEMS SHALL BE COMPLETE WITH ALL ACCESSORIES INCLUDING CONNECTIONS TO THE SERVICES,JOINTING TO WATER SUPPLY OVERFLOWS AND SUPPORTS
- (iii) ALL ITEMS SHALL BE COMPLETE WITH ALLPLUGGING AND SCREWING TO WALLS AND FLOORS
- (iv) ALL ITEMS SHALL BE AS PER PARTICULAR SPECIFICATIONS

Lower Ground floor

	No fittings at this lower ground floor for phase 1
--	--

Ground floor(Typical up to Third floor)

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
A	Water Closet (WC) pan Rimless, Floor standing and back to wall WC bowl with 'P'-trap in approved white colour complete with horizontal outlet to BS 3402, Material as Ceramic and of Dimensions: (W)365 x (D)520 x (H)400mm approximately. All to be as Duravit – D-Neo code 2003090000 or equal and approved.	9	No.		
B	Heavy duty soft close heavy plastic seat, cover and ring with stainless steel hinges or approved equivalent. To be as Duravit D-Neo Toilet seat White 376x441x43 mm of code 0021690000 or approved equivalent	9	No.		
C	Vario connector set of code #001422 and/or outlet bow of code #001462	9	No.		
	Sanitary bin				
D	Floor standing 17.5litre Capacity sanitary bin, Dimensions: H 499mm x W 394mm x D 165mm and with Integral anti-bacterial technology built into the unit prevents the spread of bacteria. All to be as Initial or equal and approved.	5	No.		
Total carried to collection page					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Water closet Flush Valves				
A	40mm water closet flush valve for the above water Closet pan complete with, back entry with integral vacuum breaker, non-hold-open features and non-return valve, inlet control stop and comprising flush valve, bent chrome plated flush pipe and rubber pipe connector. The flush valve to be push button type. The fittings shall be as Jaguar or equal and approved.	9	No		
B	Water closet flush valve wall plate. To have a round wall flange. To be as per Jaguar code FLV-CHR-1093NSQ or equal and approved	9	No		
	Countertop Wash hand basin(WHB)				
C	Drop in counter top Wash hand basin size 550mm with one tap hole, overflow, 32mm diameter chrome plated chain waste, chain stay hole as Geberit Variform code 500705012 or equal and approved by the project engineer.	11	No		
	Pressmatic Wash hand basin taps				
D	Self-closing and press type pillar tap DN 15 for sanitary facilities with piston-free design, self-closing, stepless adjustment of flow duration. Pillar Cock Auto Closing System with 65mm Extension Body. Casing, high-polished chromium-plated brass. Aerator with an integrated flow regulator 3.0 l/min as Jaguar PRS-CHR-031 or approved equivalent	11	No		
Total carried to collection page					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
A	Wash hand basin on two drawer vanity unit 60cm slim basin and two drawer vanity unit of dimension W 60 / D 50.2 /H 65.2cm & of approved colour. The set to come complete with ceramic wash hand basin, one hole drain, Self-closing pillar tap DN 15 for sanitary facilities with Self-closing cartridge, hydraulically controlled, piston-free design, self-closing, stepless adjustment of flow duration. Connection to pre-mixed hot water or cold water. Casing, high-polished chromium-plated brass. All to be ideal standard or equal and approved	0	No		
B	Robe Hook Stainless steel robe hook mounted with concealed screws. To be as AGUA code AMB-04.	9	No.		
C	Toilet Roll Holder Jumbo toilet roll holder in approved colour as Mediclinic or equal and approved. To be supplied with initial toilet paper as Velvex.	2	No.		
D	Chrome plated toilet roll holder, the roll holder hook to be 165mm in length as Grohe Atro accessories or equal and approved. To be supplied with initial toilet paper as Velvex.	2	No.		
E	Toilet Brush and Holder Wall mounted toilet brush holder and brush of approved colour as AGUA code AMB-01 or approved equivalent.	9	No.		
F	Toilet Shattaf/Health Faucet Toilet Spray Shattaf as PEX Economy kit chrome No PEX-SHATTAF-B-CP. To have Interface of 1/2". An hose length of 1.5m 59". The t-adaptor material of Copper. To be as JAQUAR HEALTH KIT ALE-ESS-593 OR EQUIVALENT or approved equivalent	2	No.		
H	Angle valve complete with its flange as Pex angle regulating valve No. PEX-225-C/P	2	No.		
Total carried to collection page					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Mirror				
A	6mm thick polished plate glass silver backed mirror with bevelled edges, size 610 x 610mm, Plugged and screwed to wall with 4No. chrome plated dome capped screws. The mirror shall rest against a layer of 5mm thick foam.	11	No.		
B	Ditto but size 810 x 610mm	24	No.		
	Soap Dispenser				
C	Wall mounted soap dispenser with a capacity of about 1.5 litre having a press action soap release mechanism complete with fixing screws. Allow for initial soap supply. To be as Mediclinic soap dispenser.	4	No.		
	Hand Driers				
D	Automatic hand drier in white colour, operating on an infra-red automatic sensing system with heating element safety cut-out complete with a 30 seconds safety timer, plastic rawl plugs and fixing screws. The hand drier to have a heating capacity of 2.1kw and performance flow rate of 135cfm (3.82m3/min) and to be of size 270x264x143mm deep It shall have a noise level below 72.5 dBA at	2	No.		
	Kitchen Sink (DBSD)				
E	DOUBLE bowl, single drainer single bowl stainless steel kitchen sink of size 1000 x 500mm as manufactured by FRANKE regatta or equal and approved. The bowl size to be 420 x 355 x 150mm deep complete with chrome plated 40mm waste fittings, plugs, chain stays, overflow, 1No. 15mm diameter chrome plated sink bib tap as TAPIS , chrome plated bottle trap with 75mm deep seal and chain waste fitting.	0	No		
	Bathroom signs				
F	Womens Washroom Sign	1	No		
G	Men Washroom Sign	1	No		
H	Aceesible Washroom Sign	1	No		
Total carried to collection page					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
A	Urinal Bowl Rimless, back inlet urinal bowl with concealed bowl bottle trap and grating firmly fixed on the wall with chrome plated screws. The bowl to be of ceramic material. The fittings shall be as duravit code 2809300000 or equal and approved.	3	No		
B	Urinal bowl trap. E6227(67) Concealed Urinal syphon connector with 75mm water seal, and 40mm outlet. To be as ideal standard or equal and approved.	3	No		
C	Urinal bowl spreader. Stainless steel urinal bowl sprader for above urinal bowls. To be as ideal standard or equal and approved.	3	No		
D	Urinal Connecting set. To be as ideal standard product code K7106(67) or equal and approved	3	No		
	Urinal Bowl Flush Valves				
E	25mm urinal bowl press type flush valve for the above urinal bowls complete with, back entry with integral vacuum breaker, self closing mechanism, non-hold-open features and non-return valve, inlet control stop and wall plate. The fittings shall be as Jaguar or equal and approved.	3	No		
	Urinal divisions				
F	Ceramic urinal bowl divisions separating the above described urinal bowls fixed firmly on the wall. The fittings shall be as ideal standard or equal and approved.	3	No		
	Fittings approval				
G	Allow for approved factory/showroom visit with 2No.client representatives and 2No. Project mechanical engineers for selection and approval of all fittings samples. Total sum Kshs. 150,000. Include taxes.	1	No		
Total carried to collection page					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
A	<p>Accessible Water Closet and Wash Hand Basin</p> <p>Wheel chair accessible facility Comprising of the following:-</p> <p>i) Close coupled W.C with 7.5 litre cistern with bottom inlet and overflow.The bowl shall be of size 375x560x420mm high.The bowl and cistern shall be manufactured from vitreous china complying with B.S 3402 .The unit shall be complete with valveless cistern fittings including syphon, 1 /2" side inlet ballvalve, 3 /4" side overflow, plastics flushbend, inlet connector and reversible metallic chrome plated cistern lever.There shall also be a heavy duty seat(25mmhigh) and cover with chrome plated metal hinges, toilet roll holder, 610 x 610 x 6mm thick mirror and robe hook.</p> <p>ii) Semi pedestal wall mounted W.H.B of size 600x500x545mm high with flexible connectors to waste and taps.The basin shall be manufactured from vitreous china complying with B.S 3402.It shall have one L/H tap hole with 1/2" chrome plated lever action pillar tap, chrome plated waste with height adjustable trap, pedestal and wall fixing bolts.</p> <p>iii) Wall mounted soap dispenser with a capacity of about one litre having a press action soap release mechanism complete with fixing screws. Allow for initial soap supply. To be as Mediclinic soap dispenser or approved equivalent.</p> <p>iv) Hinged support rail with toilet roll holder 770mm long manufactured in nylon coated aluminium and mounted on a wall fixing plate size 230x100 mm, 4No 600mm grab rails with covered wall plates.</p> <p>The set shall be as Twyfords DOC.M wheelchair accessible W.C. facility.</p>	2	Set		
Total carried to collection page					

COLLECTION PAGE FOR SANITARY FITTINGS- LIBRARY BLOCK PHASE 1

Item	Description	Amount (Kshs)
A	Total carried forward from Page BoQ 7	
B	Total carried forward from Page BoQ 8	
C	Total carried forward from Page BoQ 9	
D	Total carried forward from Page BoQ 10	
E	Total carried forward from Page BoQ 11	
F	Total carried forward from Page BoQ 12	
Total Sanitary Fittings Installations Works at Ground Floor		
Multiply above Sum by 4, No of typical floors. (i.e Ground, 1st, 2nd and 3rd floors)		X 4
Total for Typical floors Sanitary Fittings Installations Works Carried to Mechanical Works Summary Page BoQ-56		

ABLUTION BLOCK

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Squatting Water Closet (WC)				
A	Squatting water closet pan in white vitreous china comprising of wc bowl with top plate and integral foot threads, S trap connector, All to be as ORIENT or approved equivalent.	8	No		
B	Outlet/vertical bend 90° to convert P-trap into S trap.	8	No.		
	Sanitary bin				
C	Floor standing 17.5litre Capacity sanitary bin, Dimensions: H 499mm x W 394mm x D 165mm and with Integral anti-bacterial technology built into the unit prevents the spread of bacteria. All to be as Initial or equal and approved.	1	No.		
	Water closet Flush Valves				
D	40mm water closet flush valve for the above water Closet pan complete with, back entry with integral vacuum breaker, non-hold-open features and non-return valve, inlet control stop and comprising flush valve, bent chrome plated flush pipe and rubber pipe connector. The flush valve to be push button type. The fittings shall be as Jaguar or equal and approved.	8	No		
E	Water closet flush valve wall plate. To have a round wall flange. To be as per Jaguar code FLV-CHR-1093NSQ or equal and approved	8	No		
	Countertop Wash hand basin(WHB)				
F	Drop in counter top Wash hand basin size 550mm with one tap hole, overflow, 32mm diameter chrome plated chain waste, chain stay hole as Geberit Variform code 500705012 or equal and approved by the project engineer.	9	No		
Total carried to collection page					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
A	Pressmatic Wash hand basin taps Self-closing and press type pillar tap DN 15 for sanitary facilities with piston-free design, self-closing, stepless adjustment of flow duration. Pillar Cock Auto Closing System with 65mm Extension Body. Casing, high-polished chromium-plated brass. Aerator with an integrated flow regulator 3.0 l/min as Jaguar PRS-CHR-031 or approved equivalent	9	No		
B	Toilet Shattaf and its components Toilet Spray Shattaf as PEX Economy kit chrome No PEX-SHATTAF-B-CP. To have Interface of 1/2". An hose length of 1.5m 59". The t-adapter material of Copper. To be as PEX UK or approved equivalent	8	No.		
C	Angle valve complete with its flange as Pex angle regulating valve No. PEX-225-C/P	8	No.		
D	Robe Hook Stainless steel robe hook mounted with concealed screws. To be as AGUA code AMB-04.	8	No.		
D	Toilet Roll Holder Jumbo toilet roll holder in approved colour as Mediclinic or equal and approved. To be supplied with initial toilet paper as Velvex.	2	No.		
E	Chrome plated toilet roll holder, the roll holder hook to be 165mm in length as Grohe Atro accessories or equal and approved. To be supplied with initial toilet paper as Velvex.	0	No.		
F	Toilet Brush and Holder Wall mounted toilet brush holder and brush of approved colour as AGUA code AMB-01 or approved equivalent.	8	No.		
Total carried to collection page					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Mirror				
A	6mm thick polished plate glass silver backed mirror with bevelled edges, size 610 x 610mm, Plugged and screwed to wall with 4No. chrome plated dome capped screws. The mirror shall rest against a layer of 5mm thick foam.	9	No.		
B	Ditto but size 810 x 610mm	0	No.		
	Soap Dispenser				
C	Wall mounted soap dispenser with a capacity of about 1.5 litre having a press action soap release mechanism complete with fixing screws. Allow for initial soap supply. To be as Mediclinic soap dispenser.	2	No.		
	Hand Driers				
D	Automatic hand drier in white colour, operating on an infra-red automatic sensing system with heating element safety cut-out complete with a 30 seconds safety timer, plastic rawl plugs and fixing screws. The hand drier to have a heating capacity of 2.1kw and performance flow rate of 135cfm (3.82m ³ /min) and to be of size 270x264x143mm deep It shall have a noise level below 72.5 dBA at 1.5m. It shall be as Mediclinic handdrier .	2	No.		
	Bathroom signs				
F	Womens Washroom Sign	1	No		
G	Men Washroom Sign	1	No		
H	Aceesible Washroom Sign	0	No		
Total carried to collection page					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
A	Urinal Slab Floor-standing slab urinal pack manufactured from 1.2mm thick stainless steel 304 with a removable access panel for above floor waste plumbing. complete with exposed vitraeous china cistern, downpipe, 50mm domed waste, flushpipe and spargepipe, wall fixing bracket and fixing kit, satin polish finish of size 6400mm length and height 2200mm with 13.5 ltr cistern and flushpipe as TWYFORD model or equal and approved	1	No.		
B	Stainless steel flush pipe and downpipe from cistern, with stainless steel spreaders attached to the urinal slab wall at a distance of 200mm from each.	1	Item		
Total carried to collection page					

COLLECTION PAGE FOR SANITARY FITTINGS-ABLUTION BLOCK

Item	Description	Amount (Kshs)
A	Total carried forward from Page BoQ 14	
B	Total carried forward from Page BoQ 15	
C	Total carried forward from Page BoQ 16	
D	Total carried forward from Page BoQ 17	
Total for Ablution Block Sanitary Fittings Installations Works Carried to Summary Page BoQ-62		

BILL NO 3: INTERNAL PLUMBING

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	<p>CPVC Pipes Supply, deliver and install chlorinated polyvinyl chloride (CPVC) pipes, tubing and fittings as described and shown on the drawings. The pipes and fittings shall be produced as per SDR 11 and shall meet or exceed the requirements of ASTM D 2846, current European standards for CPVC installations and to the Engineers approval. All joints shall be assembled employing solvent cements that meet or exceed the requirements of ASTM F442 and ASTM F441 . Rates must allow for all Metal/plastic threaded adaptors where required for the connection of sanitary fixtures, valves, sockets, sliding and fixed joints, support raceways, supporting brackets, isolating sheaths, elastic materials, expansion arms and bends, crossovers, couplings, clippings, connectors, joints etc. as required in the running lengths of pipework and also where necessary, for pipe fixing clips, holder bats plugged and screwed for the proper and satisfactory functioning of the system. The pipes will be pressure tested before the plastering of wall commences and as per the manufacturers recommended testing pressures.</p> <p>PIPEWORK-CPVC PIPES</p> <p>A 20mm diameter pipework</p> <p>B 25mm diameter pipework</p> <p>C 32mm diameter pipework</p> <p>D 40mm diameter pipework</p> <p>E 50mm diameter pipework</p> <p>F 65mm diameter pipework</p> <p>G 75mm diameter pipework</p>	44	Lm		
		92	Lm		
		156	Lm		
		124	Lm		
		102	Lm		
		60	Lm		
		124	Lm		
Total carried to collection page					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Bends				
A	20mm diameter bend	48	No.		
B	25mm diameter bend	60	No.		
C	32mm diameter bend	84	No.		
D	40mm diameter bend	56	No.		
E	50mm diameter bend	52	No.		
F	65mm diameter bend	28	No.		
F	75mm diameter bend	16	No.		
	Tees				
G	25mm equal tee	36	No.		
H	32mm equal tee	40	No.		
I	40mm equal tee	62	No.		
J	50mm equal tee	32	No.		
K	65mm equal tee	24	No.		
K	75mm equal tee	24	No.		
	Reducers				
L	25 x 20mm diameter reducer	30	No.		
M	32 x 20mm diameter reducer	40	No.		
N	32 x 25mm diameter reducer	42	No.		
O	50 x 32mm diameter reducer	70	No.		
P	50 x 32mm diameter reducer	80	No.		
Q	50 x 40mm diameter reducer	12	No.		
R	65 x 50mm diameter reducer	4	No.		
R	75 x 50mm diameter reducer	12	No.		
R	75 x 65mm diameter reducer	8	No.		
Total carried to collection page					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Unions				
A	25mm diameter pipe unions	10	No.		
B	32mm diameter pipe unions	10	No.		
C	40mm diameter pipe unions	12	No.		
D	50mm diameter pipe unions	8	No.		
E	65mm diameter pipe unions	8	No.		
F	75mm diameter pipe unions	8	No.		
	Shut off angle valve				
G	Supply, deliver, install and test 15mm shut off angle valves as PEX CP model	12	No.		
	Isolation Valves.				
	Supply, deliver, install, test and commission DZR brass isolation valves as PEX model or equal and approved by the project mechanical engineer				
H	25mm isolation valve	12	No.		
J	32mm isolation valve	12	No.		
K	40mm isolation valve	8	No.		
L	50mm isolation valve	8	No.		
M	75mm isolation valve	2	No.		
	Gate Valves.				
	Supply, deliver, install, test and commission DZR brass gate valves as PEX model				
N	25mm DZR brass gate valve	12	No.		
P	32mm DZR brass gate valve	12	No.		
Q	40mm DZR brass gate valve	8	No.		
R	50mm DZR brass gate valve	8	No.		
S	65mm DZR brass gate valve	4	No.		
T	75mm DZR brass gate valve	2	No.		
	Male/Female Adapters (Brass threaded)				
U	20mmx1/2 brass threaded adapter	28	No.		
	Adaptor Union / Brass Female Threaded				
V	25mmX3/4" threaded brass coupling	22	No.		
	Flexible Tubing				
W	15mm diameter x 300mm long flexible connectors complete with integral chrome plated angle valve as Cobra .	12	No.		
	Pipe Sleeves				
X	50mm diameter heavy duty PVC pipe sleeves for crossing over columns and beams.	48	Lm		
Total carried to Collection Page					

COLLECTION PAGE

Item	Description	Amount (Kshs)
A	Total carried forward from Page BoQ 19	
B	Total carried forward from Page BoQ 20	
C	Total carried forward from Page BoQ 21	
Total for Plumbing installation Works Carried forward to Summary Page BoQ-62		

BILL NO 4:DRAINAGE PIPEWORK					
Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	FOUL WATER INTERNAL DRAINAGE				
	Supply ,deliver and install the following UPVC, MUPVC, soil and waste systems respectively to B.S 5255 with fittings fixed to Manufactures Printed instructions and manufactured by reputable manufacturers. Tenderers must allow in their pipework prices for all the couplings, clippings, connectors, joints etc. as required in the running lengths of pipework and also where necessary, for pipe fixing clips, holder bats plugged and screwed for the proper and satisfactory functioning of the system.				
	MuPVC and uPVC Waste and Soil pipework				
A	100mm diameter heavy gauge golden brown UPVC pipe	108	Lm		
B	100mm diameter heavy gauge grey mUPVC pipe	138	Lm		
C	50mm diameter waste pipe	76	Lm		
D	40mm diameter waste pipe	78	Lm		
E	32mm diameter waste pipe	82	Lm		
	Bends				
F	100mm diameter long radius bend	32	No.		
G	100mm diameter short radius bend	28	No.		
H	100mm diameter bend with access	16	No.		
I	100mm diameter sweep bend	20	No.		
J	50mm diameter sweep bend	38	No.		
K	40mm diameter sweep bend	12	No.		
L	32mm diameter sweep bend	15	No.		
	Total Carried to Collection Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Tees				
A	100mm diameter sweep tee	28	No.		
B	50mm diameter sweep tee	20	No.		
C	40mm diameter sweep tee	12	No.		
D	32mm diameter sweep tee	26	No.		
	Access Caps				
E	100mm diameter access cap	20	No.		
F	50mm diameter access cap	28	No.		
G	40mm diameter access cap	22	No.		
H	32mm diameter access cap	18	No.		
	Boss Connectors				
I	100 x 50mm diameter boss connector	20	No.		
J	100 x 40mm diameter boss connector	12	No.		
	Single Branches				
K	100mm diameter single branch	16	No.		
	WC Connectors				
L	100mm diameter WC connector	44	No.		
	Traps				
M	100 x 50mm diameter floor trap and grating	38	No.		
N	Allow for a standard grease trap 2800 x 850 x 450mm with three chambers manhole trap complete with cover and 3No.stainless steel tray of 400mmx400mm with handle.	0	No.		
P	300 x 300mm diameter gulley floor trap and grating	6	No.		
Q	Allow for a standard 600 x 450mm manhole complete with hardened plastic grey cover.	15	No.		
R	Stainless steel kitchen floor drains of size 300 x 300mm	0	Item		
	Total Carried to Collection Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Weathering Slates and Vent Cows				
A	100mm diameter weathering slate and apron.	12	No.		
B	100mm diameter vent cowl	12	No.		
C	100mm diameter heavy gauge grey mUPVC pipe DROP	12	Lm		
	Rain water Drainage Pipework				
D	100mm diameter heavy gauge golden brown UPVC pipe	300	Lm		
E	100mm diameter long radius bend	20	No.		
F	100mm diameter bend with access	20	No.		
G	100mm diameter sweep bend	20	No.		
H	100mm diameter access cap	20	No.		
I	floor drains 300x300 fulbora	5	Item		
	Supporting Brackets				
J	Allow for suitable supporting steel brackets for anchoring and supporting drainage pipes bends on the lower floor. To be painted to match the walling colour.	100	No.		
	BASEMENT DRAINAGE				
K	150mm diameter heavy gauge golden brown UPVC pipe	0	Lm		
L	150mm diameter long radius bend	0	No.		
M	150mm diameter bend with access	0	No.		
N	150mm diameter sweep bend	0	No.		
P	150mm diameter access cap	0	No.		
Q	300 x 300mm diameter floor trap and grating	0	No.		
R	Allow for a standard 600 x 450mm manhole complete with hardened plastic grey cover.	0	No.		
	Total carried to collection page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Weathering Slates and Vent Cowls				
A	150mm diameter weathering slate and apron.	0	No.		
B	150mm diameter vent cowl	0	No.		
C	100mm diameter weathering slate and apron.	0	No.		
D	100mm diameter vent cowl	0	No.		
E	150mm diameter heavy gauge grey mUPVC pipe Drop	0	Lm		
	Lift pit Submersible Pump				
M	A submersible pump capable of delivering 5.5m ³ /hr against 10M head, power rating 0.55KW, single phase, 50HZ as Pedrollo model Top 2 or equal and approved complete with control panel, associated electrical works, protection against dry run, on/off neon lights, control/pump status display panel, audio alarm with manual silencer to indicate when the pump is faulty, float switch and all necessary controls.	1	No.		
	Total carried to collection page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
A	Electrical Works Allow for electrical works wiring and fitting to all pumps, control panel and float switches, from isolator provided by others with 3 metres distance.	0	Item		
B	Petrol Interceptor 2700 x 900 x 600mm deep concrete three chamber petrol interceptor trap complete with all the fittings including the 50mm diameter vent pipe, interconnecting pipes, gulley traps and 3No. heavy duty manhole covers. It shall be constructed with 125mm thick reinforced concrete and water proofed.	0	No		
C	Sump Allow for construction of waste water sump size: 3600mmx1200x1200mm deep.	1	No		
D	Allow for water proofing of the sump hole as shall be done by others	1	Sum		
E	Gratings Allow for open channel grating 350x450 deep fabricated from 12"x 10mm thick flat bar MS laid to 1;100 gradient to the satisfaction of the Engineer	0	LM		
F	Sump Drainage pipework 50mm diameter grey UPVC pipework from the basement sumps to storm water drain.	32	No		
G	50mm diameter grey UPVC bend	8	No		
H	50mm diameter DZR brass gate valve	1	No		
J	50mm diameter DZR brass non-return valve	1	No		
K	Allow for sleeves, puddle flanges & bends for suction pipes passing through walls of the tanks	Item	Sum		
	Total carried to collection page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
A	Supporting Brackets Allow for suitable supporting steel brackets for anchoring and supporting drainage pipes bends on the lower floor. To be painted to match the walling colour.	20	No.		
B	Pipe Sleeves 100mm diameter heavy duty PVC pipe sleeves for crossing over columns and beams.	10	Lm		
C	Sterilization Allow for flushing out and sterilizing the whole system with chlorine to the satisfaction of the Project Engineer.	1	Item		
D	Testing and commisioning Allow for testing and commissioning to the satisfaction of the engineer.	1	Item		
Total Carried Forward					

COLLECTION PAGE FOR DRAINAGE PIPING		
Item	Description	Amount (Kshs)
A	Total carried forward from Page BoQ 23	
B	Total carried forward from Page BoQ 24	
C	Total carried forward from Page BoQ 25	
D	Total carried forward from Page BoQ 26	
E	Total carried forward from Page BoQ 27	
F	Total carried forward from Page BoQ 28	
	Total Carried to Summary Page BoQ-62	

BILL NO.5 RAINWATER DRAINAGE

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	RAIN WATER DRAINAGE Supply and fix uPVC pipes to BS 4660 and BS 4515 and MuPVC pipes to BS 5255 with screwed and socketed joints to BS 21. Solvent welded joints shall be as per the system's manufacturer's written instructions. Tenderers must allow in their pipework prices for all the couplings, clippings, connectors, joints etc. as required in the running lengths of pipework and also where necessary, for pipe fixing clips, holder bats plugged and screwed for the proper and satisfactory functioning of the system.				
	Pipes				
A	150mm diameter heavy gauge grey mUPVC down pipes	148	Lm		
B	100mm diameter heavy gauge grey mUPVC down pipes	160	Lm		
C	50mm dia heavy gauge grey mUPVC down pipes	84	No.		
	Bends				
D	150mm diameter bend	18	No.		
E	100mm diameter 45° bend	41	No.		
F	100mm diameter bend	82	No.		
G	50mm diameter bend	24	No.		
	Tees				
H	150mm diameter tee	18	No.		
I	100mm diameter tee	18	No.		
	Others				
J	100mm dia single branch with 50mm boss adaptor	18	No.		
K	150 x 100mm diameter reducing socket	18	No.		
L	150mm outlet dia cast iron fulbora floor drain	12	No.		
M	100 x 100mm diameter floor drain with grating	10	No.		
	Access plugs				
N	100mm diameter access bends	18	No.		
	Drain Shoetrap				
P	100mm diameter Drain Shoe for rain pipe	18	No.		
	Rain water Drainage Manholes				
Q	Allow for a standard 600 x 450mm manhole complete with hardened plastic grey cover.	0	No.		
	Gutter sediment trap				
R	durable polyethylene gutter sediment trap with 110mm outlet. Dimensions: Height: 195 mm, Length: 300 mm, Width: 166 mm	18	Item		
Total Carried Forward to summary Page BoQ-62					

BILL NO 6:WATER TANKS ,PUMPS, WATER RETICULATION AND ASSOCIATED INSTALLATION WORKS					
Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	All GALVANIZATION SHALL BE HOT DIPPED AND DONE AS PER ISO 1461 AND APPLICABLE KS STANDARDS TO AT LEAST 85 MICRONS WITH A MINIMUM 25 YEAR GUARANTEE ISSUED.				
	Roof level Tank				
A	Supply, deliver and assemble a high level water tanks, made of pressed Galvanized steel sectional tank plates 6mm thick plates (type 1 and 4) and of size 1000mm x 1000mm capacity of tank to be 24,000 litres and of preferred dimensions 4000mm x 3000mm x 2000mm. The tank to come complete with tank cover, mosquito proof inspection vent, internal stays, jointing material, bolts and nuts.The tank shall be complete with the following pipe connections:-- -100mm GMS diameter overflow -Stainless steel internall ladder -100mm GMS diameter outlets -100mm GMS diameter inlet -100mm GMS diameter washout with gate valve	2	No.		
B	Allow for lightining arrester installed at the elevated pressed steel tank	2	No.		
C	Conductor cable from lightining arrestor to the ground	36	Lm		
D	Allow Kshs. 150,000.00 for factory visit by the project engineers and client representatives during Galvanization process of the tank steel plates. Include taxes	1	Item		
	CPVC Pipe work				
E	32mm diameter CPVC pipe	24	Lm		
F	50mm diameter CPVC pipe	90	Lm		
G	65mm diameter CPVC pipe	44	Lm		
H	75mm diameter CPVC pipe	54	Lm		
Total Carried Forward to Collection Page for Water tanks & Pumps					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Bends				
A	50mm diameter bend	15	No		
B	65mm diameter bend	6	No		
B	75mm diameter bend	6	No		
	Tees				
C	50mm diameter tee	4	No		
D	65mm diameter tee	2	No		
E	75mm diameter tee	5	No		
	Reducers				
F	100 x 65mm diameter	6	No		
G	100 x 50mm diameter	6	No		
H	50 x 32mm diameter reducer	4	No		
J	50 x 40mm diameter reducer	4	No		
K	65 x 50mm diameter reducer	2	No		
L	75 x 50mm diameter reducer	4	No		
	Valves				
M	50mm diameter gate valve	8	No		
N	65mm diameter gate valve	4	No		
P	75mm diameter gate valve	6	No		
	Unions				
Q	32mm diameter pipe union	1	No		
R	40mm diameter pipe union	1	No		
S	50mm diameter pipe union	8	No		
T	65mm diameter pipe union	4	No		
U	75mm diameter pipe union	12	No		
	Flanged Coupling				
V	50mm diameter flanged coupling	2	No		
W	65mm diameter flanged coupling	2	No		
X	75mm diameter flanged coupling	2	No		
	Total Carried Forward to Collection Page for Water tanks & Pumps				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
A	Pipe Sleeves 100mm diameter heavy duty PVC (class 41, 2.5mm thick) pipe sleeves for crossing over columns and beams.	24	Lm		
B	Lift Sump Drainage 50mm diameter CPVC pipework from the basement sumps to storm water drain.	36	No		
C	50mm diameter CPVC bend	8	No		
D	50mm diameter gate valve	1	No		
E	50mm diameter non-return valve	1	No		
F	Water Booster Pumpset Set of automatic electrically driven twin booster pump. One duty and the other one standby with automatic changeover, capable of delivering 12.0m ³ per hour against a head of 40 meters with a three phase power source. It will be multistage centrifugal pump. The pump shall be complete manifold with NR, Gate Valves and, with 1No. Float valve in the reservoir tank for other run dry protection and PM1 Controller for automatic operation and other accessories. It includes pressure switches, time delay switch, a switch to protect against dry run, timer, gate valves, non-return valves, water level indicator, float level regulator, 65mm diameter foot valve and strainer. The pump shall have over and under voltage protection from unstable power conditions, overload and high temperature conditions. The pump to be as Grundfos model CR15-3 or approved equivalent. Pump to be installed on mild steel frame with approved paint.	1	set		
G	Sand filter Supply, install and commission the filter media described below. c/w filter sand, activated carbon, softening resin and any other accessories to make it fully operational. Make: Dayliff, Model: CX500, Flow rate: 5m/hr, Head: 3.5 bars	1	No		
Total Carried Forward to Collection Page for Water tanks & Pumps					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
A	Pressure Vessel tank Supply, install and commission the vessel tank Make: Dayliff, Model: VT100	1	No		
B	Hybrid Control Panel Hybrid Control panel for above pumps with contactors, over voltage and under voltage protection relays, MCBs, phase failure protection, timer, 180 meters long float switch control cable to the roof tanks, start/stop push buttons and indicator lights. All these shall be housed in a lockable cabinet (with integral isolator) made from SWG 18 mild steel sheet that is oven powder coated. There shall also be an adjustable time delay switch to ensure pumping cycles are controlled to not more than 6 per hour. It should include a change-over switch to enable the pumps to work alternately. The control panel to have a pre-selector switch for auto/manual positions, contact relay arrangement for alternate running, Thermal overload relays, display lamps and level control and all the necessary electrical connection from the local isolator	1	Item		
	Solarisation of the booster pump Allow for solarization of the water booster pump with 10 no. solar panels with absorbing area of 2 square meter and hybrid control panel solar panels and mounting structures				
C	Dayliff 545W 24V Crystalline Solar Modules	10	No		
D	Dayliff 5.5kW,3-Phase Solar Pumping Inverter	1	Item		
E	Idayliff Remote Monitoring Unit	1	Item		
F	Float Swicth Cabling - To overhead Tank	1	Item		
G	Installation Fittings, Cabling and Sundries	1	Item		
H	PV Disconnect Switch	1	No		
J	Solar PV Cable 6mm2, 1-Core	65	Lm		
K	Float Cable	40	Lm		
L	Inverter Enclosure	1	Item		
M	Lightning Arrestor	1	No		
B	Copper Earth Cable 6mm	40	Lm		
P	mounting brackets for the solar panels. To be made of galvanised mild steel	10	No		
W	Earthrod with Clamp	1	Item		
Total Carried Forward to Collection Page for Water tanks & Pumps					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
A	Ground Level Water Tank & Fittings Supply, deliver and assemble a ground level water tanks, made of GALVANIZED pressed steel sectional tank plates 6mm thick plates (type 1 and 4) and of size 1000mm x 1000mm, capacity of tank to be 72,000 litres and of preferred dimensions 6000mm x 4000mm x 3000mm. The tank to come complete with tank cover, mosquito proof inspection vent, internal stays, jointing material, bolts and nuts. The tank shall be complete with the following pipe connections:- <ul style="list-style-type: none"> -100mm GMS diameter overflow -100mm GMS diameter outlets -100mm diameter inlet -100mm GMS diameter washout with gate Provide the following connections for the water tank. Connections to be in stainless steel puddle flanges:	2	No.		
B	1NO. 100mm diameter inlet pipes	2	Item		
C	1NO. 200mm diameter inlet pipe from Rain water harvesting	2	Item		
D	100mm diameter outlet pipe for domestic booster pumpset	2	Item		
E	50mm diameter outlet pipe for hosereel	2	Item		
F	100mm diameter for vent/overflow pipe	2	Item		
G	20mm diameter for level indicator on the side of the tank with well calibrated scale.	2	Item		
H	50mm diameter high pressure ball valve for fitting for the groundlevel tank.	2	No		
J	50mm diameter high pressure ball valve for fitting for the roof tank.	2	No		
Total Carried Forward to Collection Page for Water tanks & Pumps					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
A	Valves 25mm diameter approved medium pressure screw down full way non-rising stem wedge gate valve to BS 5154 PN 20 for series B rating, with wheel and head joints to steel tubing and complete with round male threaded transition fittings. The gate valve to be as PEGLER or approved equivalent.	8	No.		
B	ditto but 50mm diameter gate valve	8	No.		
	Unions				
C	25mm diameter pipe union	6	No.		
D	50mm diameter pipe union	4	No.		
	Stand Pipe				
E	15mm diameter bib tap suitable for connecting hose pipe complete with threaded adaptors. The tap to be complete with 5meter long 20mm diameter pipe, bends etc. The chrome plated bib tap to be as Cobra ref.107EC taps or equal and approved.	8	No		
	Pipe Sleeves				
F	75mm diameter heavy duty PVC Class 41 pipe sleeves for crossing over pathways and driveways. The sleeves will be encased in 75mm concrete surround.	18	Lm		
	Sterilization				
G	Allow for flushing out and sterilizing the whole system with chlorine to the satisfaction of the Engineer.	1	Item		
	Pipe Sleeves				
H	75mm diameter heavy duty PVC Class 41 pipe sleeves for crossing over pathways and driveways. The sleeves be encased in 75mm concrete surround.	10	Lm		
Total carried to collection page for Water tanks & Pumps					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	WATER RETICULATION Supply, deliver and install High-density polyethylene (HDPE) PN25 in PE100.pipework to ISO 4427 (with KEBS Mark) with joints, couplings, reducers, tees, adaptors, pipe fixing clips .Pipe jointing shall only be by Butt-Fusion Jointing,Electro-Fusion Jointing, or Non-permanent jointing involves the using of mechanical fittings including compession fittings, flanging and clamping. HDPE PN 16 PIPEWORK 65mm diameter pipework from existing water tower to ground level water in the proposed Building.	500	Lm		
A	65mm diameter pipework from roof tank to Ablutions block	180	Lm		
B	65mm dia pipework from borehole roof tank	200	Lm		
	Excavations Excavate trench from water line tee of to the site in hard soil/murram 600mm wide and depth not exceeding 1000mm deep and average 850mm deep	500	LM		
D	Ditto but from Ablution Block to the Main Block	180	LM		
	Bends 65mm Bend/mm HDPE Bend	12	No.		
F	Allow 65mm end plugs for future expansion	5	No.		
G	Gate Valve Indicator Plates Standard precast concrete Sluice valve marker post marked 'GV' set in concrete (1:3:6) base	12	No		
H	Tees 65mm Equal Tee/110mm HDPE Tee	20	No.		
J	Reducer 65x50mm /63x50mm HDPE Reducer	18	No.		
K	Mechanical Joint 65x63mm Mechanical Joint	10	No.		
L	Adaptor 65mm HDPE Male Adaptors	15	No.		
M	Air release valve 65mm air release valve	12	No.		
N	Valves 65mm HDPE Ball cork	8	No.		
P					
Total carried to collection page for Water tanks & Pumps					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	CPVC PIPEWORK				
	Supply, deliver and install CPVC pipework to DIN 8077 with joints, couplings, reducers, tees, adaptors, pipe fixing clips etc all to DIN 16962 and DIN 16928 .Pipe jointing shall be by polyfusion or use of electric coupling.				
A	50mm diameter pipework from pump house to the roof tanks	35	Lm		
	Testing and Commissioning				
B	Allow for pressure testing and commissioning of the plumbing installation to the satisfaction of the Engineer with provision of pressure testing certificates of minimum 5 Bar	1	Item		
C	1 TB portable harddisk	1	No.		
D	16gb ram HP spectre x360 laptop, corei7 8th generation, 1 TB SSD	1	No.		
E	Samsung Galaxy S21 ultra 5G 256 GB	2	No.		
F	Letter head quality paper, Blue, 500 Sheets as Classic or Conqueror or approved equivalent.	5	No.		
G	Toner Cartridge as Hp Laser Jet Pro M402dne	2	No.		
H	Letter head quality paper, size A4, 80g/cm3, White, 500 sheets	5	No.		
	Wall Mounted Drinking Water Station				
	Wall Mounted Drinking Water Station comprising of				
J	Recessed round bathroom sink without overflow, made of stainless steel AISI 304, satin finish of one-piece construction, 1.2 mm thick with 405mm bowl diameter tand. 50 mm outflow diameter as MEDICLINIC product code SN0036CS or equal and approved	0	No		
K	Horizontal Non concussive,back inlet bib tap with water saving operation complete with Back plate as SOLA SF2706CP and flow restrictor to meet with BREEAM standards as SOLA product code SF2153CP or equal and approved	0	No		
Total carried to collection page					

COLLECTION PAGE FOR WATER TANKS, PUMPS, WATER RETICULATION AND ASSOCIATED WORKS		
Item	Description	Amount (Kshs)
A	Total carried forward from Page BoQ 31	
B	Total carried forward from Page BoQ 32	
C	Total carried forward from Page BoQ 33	
D	Total carried forward from Page BoQ 34	
E	Total carried forward from Page BoQ 35	
F	Total carried forward from Page BoQ 36	
G	Total carried forward from Page BoQ 37	
H	Total carried forward from Page BoQ 38	
Total Carried Forward to Summary Page BoQ-62		

BILL NO 7:FIRE PROTECTION AND ASSOCIATED INSTALLATION WORKS					
Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Hose Reel System				
A	Swinging type hosereel fitted with 30 metres long, 20mm diameter reinforced non-kink rubber hose with 5/6 mm lever operated shut-off nozzle, mild steel feed pipe, isolation valve, guide and all other accessories as 'Angus Fire Armour' or equal and approved.	10	No.		
	GMS Pipes Class B				
B	25mm diameter pipework	40	Lm		
C	50mm diameter pipework	136	Lm		
D	65mm diameter pipework	80	Lm		
	Extra Over Pipework				
	Bends				
E	25mm diameter bend	40	No.		
F	50mm diameter bend	40	No.		
G	65mm diameter bend	8	No.		
	Tees				
H	50mm diameter equal tee	24	No.		
I	65mm diameter equal tee	4	No.		
	Reducers				
J	50 x 25 mm diameter reducer	34	No.		
K	65 x 50 mm diameter reducer	8	No.		
	Valves				
L	25mm diameter approved medium pressure screw down full way non-rising stem wedge gate valve to BS 1952, with wheel and head joints to steel tubing. The gate valve to be as PEGLER or approved equivalent.	8	No.		
M	50mm diameter gate valve	10	No.		
	Others				
N	50mm dia Automatic air release valves as angus	8	No.		
P	Printed Lables for the fire cupboards and ducts	8	No.		
	Unions				
Q	25mm diameter pipe union	25	No.		
R	50mm diameter pipe union	6	No.		
S	65mm diameter pipe union	2	No.		
	Total Carried Forward to Collection Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Maintenance tools & training				
A	Allow for tool box with e.g a wrench and tools necessary for carrying out maintenance and routine testing of the system and for training of maintenance staff	1	Item		
B	100mm Discharge manifold. See specifications	1	Item		
	Hosereel Pumpset				
C	Hose reel pumpset, one duty, the other standby mounted on a frame with a mild steel base plate. Each pump shall have a duty 5m ³ /hr against 65m head as Grundfos model CHV 4 - 100 or approved equivalent. In addition, there shall be a 100 litres diaphragm pressure vessel (as Varem or approved equivalent), pressure switches, a switch to protect dry run, 65mm foot valve and strainer, tank connections, gate valves and non-return valves. The pressure set to be as Dayliff or equal and approved. Control shall be effected via a pressure switch through a pre-wired control panel which shall give automatic change-over from duty to standby pump within 5 seconds should the duty pump fail to deliver for any reason. The pumpset shall include all non-returns valves, timer, isolating valves and pipe connections.	1	Set		
	Control Panel				
D	Control panel for above pumps with contactors, over voltage and under voltage protection relays, MCBs, phase failure protection, timer, 120 meters long float switch control 4-core cable to the roof tanks, start/stop push buttons and indicator lights. All these shall be housed in a lockable cabinet (with integral isolator) made from SWG 18 mild steel sheet that is oven powder coated. There shall also be an adjustable time delay switch to ensure pumping cycles are controlled to not more than 6 per hour. It should include a change-over switch to enable the pumps to work alternately.	1	Item		
	Painting				
E	Allow for painting of the hose reel pipework as per particular specifications.	1	Item		
Total Carried Forward to Collection Page					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Portable Fire Extinguishers Supply, deliver, install, test and commission the following portable fire extinguishers and conforming to BS EN 3 / BS 1449.				
A	Water/Carbon Dioxide Gas Fire Extinguisher 9 litres water/carbon dioxide gas portable fire extinguisher complete with pressure gauge, initial charge and mounting brackets.	10	No		
B	Carbon Dioxide Gas Fire Extinguisher 5 Kg carbon dioxide gas portable fire extinguisher complete with pressure gauge, initial charge and mounting brackets.	10	No		
C	Dry Chemical Powder Fire Extinguisher 6kg dry chemical powder portable fire extinguisher complete with pressure gauge, initial charge and mounting brackets.	10	No		
D	Manual Alarm Bell 9" (225mm) manual operated alarm bell (Gong)	10	No		
E	Automatic Dry Chemical Powder Fire Extinguisher 10kg automatic dry chemical powder fire extinguisher complete with pressure gauge, initial charge, glass bulb, sprinkler head and mounting base. The operating temperature of the bulb shall be 68°C. The unit shall be mounted on the concrete slab ceiling using purpose-made screws and to be as Germania, model GD 25 or equal and approved.	20	No		
F	Automatic Dry Chemical Powder Fire Extinguisher 10kg automatic dry chemical powder fire extinguisher complete with pressure gauge, initial charge, glass bulb, sprinkler head and mounting base. The operating temperature of the bulb shall be 79°C. The unit shall be mounted on the concrete slab ceiling using purpose-made screws and to be as Germania, model GD 25 or equal and approved.	4	No		
G	Fire Notices Allow for fire signage for the hose reel system, fire exits and fire instructions as directed by the	10	No		
	Total Carried Forward to Collection Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	DRY RISER INSTALLATION				
	Supply and installation the following fittings for dry riser				
	Sheet Metal Box				
A	Inlet breeching sheet metal box with wired glass door secured with spring locks openable from inside by smashing the glass and releasing the locking devices on the lock. Approximate size to be 595 x 295 x 395mm high.	1	No.		
	Fire Brigade Breeching Inlet				
B	100mm diameter inlet breeching with twin inlets, each inlet consisting of a 65mm diameter male instantaneous coupling with a non-return valve and black cap secured with a short length of chain.	1	No.		
	Landing Valve				
C	65 mm diameter, gunmetal gate pattern landing valve with flanged inlet and female instantaneous outlet fitted with plug secured by short chains and fixed on 100mm diameter dry riser pipe.	12	No.		
	Fire Hose				
D	65mm diameter, 30 metres long canvas fire hose complete with branch pipe, nozzle, female instantaneous coupling head, hanging hook and other associated fittings for its proper functioning.	10	No.		
	Fire Hydrant				
E	65mm diameter inlet fire hydrant	1	No.		
	Associated Pipework				
F	Supply and installation of Galvanized mild steel piping and fittings with screwed & socketed joint to medium grade class "B" to BS. 1387.				
	GMS Pipework				
G	100mm diameter pipe	88	Lm		
H	65mm diameter ditto	64	Lm		
J	50mm diameter ditto	30	Lm		
	Extra over Pipework				
	Bends/Elbows				
K	100mm diameter bends/elbows	12	No.		
L	65mm diameter bends/elbows	20	No.		
	Total Carried Forward to Collection Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Tees				
A	100 x 100 x 100mm tee	12	No.		
B	100 x 100 x 65mm tee	16	No.		
C	100 x 100 x 50mm tee	12	No.		
	Reducers				
D	100 x 65mm reducer	18	No.		
E	100 x 50mm reducer	12	No.		
	Valves				
F	65mm isolating valve with its associated unions	8	No.		
G	65mm diameter flange	10	No.		
H	50mm automatic air release valve	4	No.		
J	Allow for kshs 500,000 for IEK international convention by project engineers. To be paid to IEK under approval of Chief Mechanical Engineer State Department of Public Works. Include taxes	1	Item		
	Working and Record (As-installed) Drawings				
K	Prepare and submit three sets of working drawings before commencement of works and record (as-installed) plan and isometric layout drawings after completion of works to easily readable scale, A1 or A0 paper size format as follows; i) general arrangement drawings of all equipment, plant etc. ii) routes - types and sizes and arrangement of all pipework iii) wiring (electrical & control) details iv) any other details as per specifications Drawings are to be submitted in soft copy (AutoCAD 2004 format) & hard copy to the client, the Architect and the Engineer. The soft copies to be stored in CD and 4GB flash disk. .	1	Item		
	Total Carried Forward to Collection Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	FIRE BARRIERS <i>Fire barriers to be in accordance with BS 476</i>				
A	Supply and install fire rated boards measuring 1200 x 800mm with a FR of 2 hours to floor openings including provisions for fire rated acrylic intumescent mastic to cover pipe surround to service pipes of OD 75mm, 50mm and power cables to penetrate through each floor.	16	No.		
B	Pipe collars to be carried out in accordance with BS 476 part 20 Supply and install pipe collars containing heat reactive intumescant material to provide up to 2 hours of fire resistance.	8	Item		
C	Allow for painting on electrical cables / busbars across fire zones with intumescent material to provide up to 2 hours of fire resistance.	1	Item		
Total carried to collection page					

COLLECTION PAGE FOR FIRE PROTECTION INSTALLATION WORKS		
Item	Description	Amount (Kshs)
A	Total carried forward from Page BoQ-40	
B	Total carried forward from Page BoQ-41	
C	Total carried forward from Page BoQ-42	
D	Total carried forward from Page BoQ-43	
E	Total carried forward from Page BoQ-44	
F	Total carried forward from Page BoQ-45	
Total Carried Forward to Summary Page BoQ-62		

BILL NO 8: FIRE SUPPRESSION SYSTEM INSTALLATION WORKS					
Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Supply and install fire suppression system with the following items to the satisfaction of the Engineer. The tenderer to submit the technical brochures and working calculations together with the tender for evaluation. Alternative and approved systems utilising inert gases or a mixture of such gases may be provided.				
A	80litre (32.1Kg) normal charged capacity Argonite specified containers charged with Argonite gas at 300bar with dimensions 267mm diameter and 1910mm high when fitted with valve cylinders to be complete with discharge valves gauges and hoses for connection to the manifold. All to be as "Fike" or approved equivalent.	2	No.		
B	Normally charged Test Argonite specified containers charged with Argonite gas for testing.	1	No		
C	Cylinder support bracket system	1	Item		
D	50mm schedule 40 discharge manifold kit with 2 No. ports complete with end caps and a threaded port for pressure switch. All to be as "Fike" or approved equivalent.	1	Item		
E	25mm selector switch	1	No		
F	Actuation package	1	Item		
	Total Carried to Collection Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
A	Solenoid valve/ manual release valve assembly inclusive of hoses, connectors etc.	1	Item		
B	50mm pressure reducing valve	1	No.		
C	15mm Argonite discharge Nozzles V type 6 orifice, Nozzle coverage 360 degrees pattern and a radius of 3M. The Nozzle will be located less than 300mm below the ceiling as “Fike” or approved equivalent.	8	No.		
D	Relief valve	1	No		
E	Check valve	1	No		
F	Pressure gauge	1	No		
G	Pressure relief/vent	1	No		
H	Discharge pressure switch	1	No.		
I	Flexible discharge hose	1	No.		
J	Controls, addressable Control panel and wiring complete with standby batteries	1	Item		
K	Maintenance switch	1	No.		
L	16gb ram HP spectre x360 laptop, corei7 8th generation, 1 TB SSD	1	No.		
M	Double Action manual /electric releasing switch	1	No.		
N	Abort switch	1	No.		
P	Ionization sensors	8	No.		
Q	Photo electric sensors	8	No.		
R	Audible alarms	1	No.		
S	Visual alarm	1	No.		
	Total Carried to Collection Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Pipework				
A	25mm diameter seamless black pipe Schedule 40	6	LM		
B	20mm diameter seamless black pipe Schedule 40	10	LM		
C	15mm diameter seamless black pipe Schedule 40	10	LM		
D	20mm diameter pipe bend/elbow	2	No		
E	15mm diameter pipe bend/elbow	4	No		
F	25mmX20mm pipe reducer	2	No		
G	25mmX15mm pipe reducer	2	No		
H	20mmX15mm pipe reducer	2	No		
I	25mm equal tee	2	No		
J	20mm equal tee	1	No		
K	Allow for associated Builders work	1	Item		
L	Allow for pipework anchorage/hangers	1	Item		
M	Allow for painting system pipework	1	Item		
N	Electrical works and earthing	1	Item		
O	Labelling and warning signs inside and outside the rooms	2	No		
	Total Carried to Collection Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
A	Allow for all costs for inspection for the fire system unit before delivery to site. The contractor to allow for all associated equipment catalogues and pre and during construction as installed layout for the server room systems.	1	No.		
	Dry Chemical Powder Fire Extinguisher				
B	6kg dry chemical powder portable fire extinguisher complete with pressure gauge, initial charge and mounting brackets.	2	No		
	Total Carried to Collection Page				

COLLECTION PAGE FOR FIRE SUPPRESSION WORKS

Item	Description	Total Amount
A	Total carried forward from Page BoQ-47	
B	Total carried forward from Page BoQ-48	
C	Total carried forward from Page BoQ-49	
D	Total carried forward from Page BoQ-50	
E	Allow for working drawings in both soft and hard copies. Three copies of the working drawing shall be submitted in A1 paper in a scale of 1:50 or in any other bigger scale.	
F	Allow for as-built drawing, maintenance and operation manuals in both soft and hard copies. Three copies of the as-built drawing shall be submitted in A1 paper in a scale of 1:50 or in any other bigger scale.	
	Total Amount for Fire Suppression System carried to summary Page BoQ-62	

BILL NO 9: WATER FOUNTAIN INSTALLATION WORKS					
Supply, deliver and install , test and commission the following fountain pumps, jets, associated pipework and fittings					
Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
A	PUMP AND ACCESSORIES Circulation pump c/w large pre-filter with see through lid, ultra silent (67 dBA) , high efficiency motor with reinforced inlet and outlet parts. Pump components made from corrosion restant technopolmer plastic reinforced with glass fibre. The motor to incorporate a TEFC motor with inbuilt thermal overload protection. The pump to have a power supply of 2.2Kw, 240V, 1ph Complete with ON/OFF switch located at the control room about 35 metres away. The pump and sand filter to be in a cage which will be supported in the basement floor slab. Pump to be As LEADER EUROSWM SPP 300M or equal and approved.	2	No.		
B	Presure sand filter as Dayliff DX 500	1	No		
C	Cast bronze, cast brass and machined brass Fountain Jets c/w 1" F connection, nozzle height of 152mm, jet height of 4000mm, flow rate of 9m3/hr and pressure of 9m. To be as "AQUASCAPE FOUNTAIN NOZZLES" - VULKAN JET	8	No		
D	Certikin eyeball inlets c/w water bar	1	No		
E	Certikin vacuum point c/w water bar	1	No		
F	Certikin underwater lights deck boxes	12	No		
G	Certikin 300 watts, 12V underwater lights	12	No		
H	240/12V pool lights double transformer for the lights	12	No.		
	Total Carried to Collection Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
A	450* 450 GRP suction grating	12	No		
B	245mm deck level channel grillies, sand brown colours	12	Lm		
C	90° standard GRP corner spacers	12	No.		
D	Ecomatic M4920 570W salt water chlorinator	2	No		
E	Chemicals Start Kit Comprising:- Granular Calcium Hypochlorite (65%) Pool Chlorine in 45kg pack and Granular Calcium Hypochlorite (90%) Pool Chlorine in 40kg pack, HTH Sparkle IT granules, p.H minus 5kg	1	Item		
F	Ecomatic M4920 570W salt water chlorinator	2	No		
G	Allow for piping, fittings and accessories associated with the water feature	1	Item		
H	Allow for Electrical works associated with installation for full operation of the water fountain	1	Item		
	Total Carried to Collection Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Pressure Pipes Supply & install PVC pipes Class D of 12454 per ASTM D1784 compliance with ASTM D1785 cell classification as flowguard or equal and approved and Grade 1 Polyvynil Chloride compounds with a test pressure of 6 bars with connections to the balance tank. Tenderers must allow in their prices for all couplings, connectors, unions, expansion loops, jointing materials etc as required in the running lengths of pipework and where necessary for piping clips, holderbats plugged and screwed, and brackets to the structural members.				
	Straight Run Pipes				
A	Ø110mm PVC Class D Pipes	44	Lm		
B	Ø50mm ditto"	64	Lm		
	Bends				
D	Ø110mm PVC Class D bends	12	No		
E	Ø50mm ditto"	14	No		
	Equal Tees				
F	Ø110mm PVC Class D Equal Tee	44	No		
G	Ø50mm ditto"	92	No		
	Reducing Sockets				
H	Ø110*50mm Reducers	20	No		
	PVC Control Valves				
J	Ø110mm PVC Ball Valve	4	No		
K	Ø50mm Balance tank Foot Valve as "Pegler"	5	No		
L	Ø50mm NR Valve as "Pegler"	2	No		
Total carried to collection page					

Collection Page

Item	Description	Total Amount
A	Total carried forward from Page BoQ-52	
B	Total carried forward from Page BoQ-53	
C	Total carried forward from Page BoQ-54	
D	Allow for working drawings in both soft and hard copies. Three copies of the working drawing shall be submitted in A1 paper in a scale of 1:50 or in any other bigger scale.	
E	Allow for as-built drawing, maintenance and operation manuals in both soft and hard copies. Three copies of the as-built drawing shall be submitted in A1 paper in a scale of 1:50 or in any other bigger scale.	
F	Any other item for full functionality of the water fountain sytem. Specify.	
	Total Amount for Water Fountain carried to summary Page BoQ-62	

BILL NO.10 WASTE WATER TREATMENT SYSTEM

(i) ALL ITEMS SHALL BE SUPPLY, DELIVER, INSTALL, TEST AND COMMISSION

(ii) THE MAIN CONTRACTOR SHALL CARRY OUT BUILDERS WORKS FOR THE TREATMENT PLANT

(iii) ALL ITEMS SHALL HAVE A VALID WARRANTY

(iv) ALL ITEMS SHALL BE AS PER PARTICULAR SPECIFICATIONS

(v) ALL ITEMS SHALL BE SUBJECT TO CLIENT/PROJECT MANAGER APPROVAL

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	ALLOW FOR ALL NECESSARY TAXES				
	ALLOW FOR ALL REQUIRED LICENSING AND CERTIFICATIONS AND COSTS OF ALL ANALYTICAL WORK REQUIRED DURING START UP OR COMMISSIONING INCLUDING				
A	National Environmental Management authority Licences including discharge license to the environment.	1	Item		
B	Biological Water Quality Test from WARMA or an approved laboratory	1	Item		
C	Physical Water Quality Test from WARMA or an approved laboratory	1	Item		
D	Chemical Water Quality Test from WARMA or an approved laboratory	1	Item		
E	Allow for spare parts which would be required within one year of operation.	1	Item		
	Total Carried Forward to Collection Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
A	<p>Waste Water Treatment Packaged System</p> <p>Supply, deliver to site, install, inter-connect, wire and test a waste treatment plant including: Submersible feed pumpset(duty and standby)Fine bubble air dffuser Submersible treated water discharge pump Wall mounted PLC driven electrical control panel Chlorine solution dosing pump Air Blower to sludge digester</p> <p>The entire plant shall be fitted with integrated process piping and mechanical equipment, mounting brackets, waranty issued andelectrical power.</p> <p>Allow for all LABOUR and TRANSPORT noting the site is in Maasai Mara University, Narok</p> <p>Allow for all loading,offloading,training are captured within your cost.</p> <p>Allow for Pump hoists and lifting devices if required</p> <p>Allow for a set of neccesary spare parts-Provide this schedule.</p> <p>The system to be a plant including Wastewater Treatment Plant Equipment including Feed/return Pumps, Controls, Fixed-Film Media, Air Blowers, Aeration Diffuser & Manifolds, lamella Media, Pipes, Fittings & Fixtures CAPABLE OF 3000 PERSONS PER DAY with traffic applicable for Library facility. To beAS Bioliff Enpura 800PE Wastewater Treatment plant or Equivalent from Davis and Shirtliff</p>	1	Item		
B	Allow NEMA certification to dispose the water to the storm drain,if need be.	1	Item		
C	Allow for pipe works and 20no. irrigation lawn sprinklers for lawn areas using the water from the treatment plant	1	Item		
	HDPE PN 16 PIPEWORK				
D	40mm diameter pipework from the treatment plant to temporary water tank storage and from the tank to lawn areas for irrigation.	250	Lm		
E	Lawn irrigation sprinklers as hunter brand	20	No		
	Excavations				
F	Excavate trench from water line tee of to the site in hard soil/murram 600mm wide and depth not exceeding 1000mm deep and average 850mm deep	300	LM		
	Water storage				
G	10,000L clyndrical plastic water to temporary hold water from the STP for irrigation. To be complete with shade and base structure & all piping connections	1	No		
	Testing and commisioning				
H	Allow for testing and commissioning .	1	Item		
	Total Carried Forward to Collection Page				

COLLECTION PAGE

Item	Description	Amount (Kshs)
A	Total carried forward Page BoQ-56	
B	Total carried forward Page BoQ-57	
Total for Mechanical Ventilation Installation Works Carried to Summary Page 62		

BILL. NO.11 BOREHOLE DRILLING AND EQUIPPING INSTALLATION WORKS					
	<u>PART 1:Licences and Reports</u>				
Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
A	Allow for application and acquisition of Permit for Drilling and Extraction from relevant authorities including NEMA approvals before commencing the works (Note: No payments to be made before the permits are acquired and submitted to the Client)	1	Item		
B	Allow for a Hydrological Survey Report on site and submission of the same to WARMA and the client before commencing the works	1	Item		
Total Carried Forward to Borehole Drilling and Equipping Collection Page for Part 1					
	<u>PART 2:Borehole Drilling</u>				
Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
C	Mobilization/ demobilization of drilling unit, equipment materials, personnel and all other required supplies. It shall include erecting / dismantling of drilling unit.	1	Item		
D	Drilling 200mm diameter borehole from 0-100m below surface.	100	LM		
E	Drilling 200mm diameter borehole from 101-200m below surface	100	LM		
F	Drilling 200mm diameter borehole from 201-300m below surface	100	LM		
G	Supply and installation of 152mm diameter hardened plastic casing.	200	LM		
H	Supply and installation of 152mm diameter slotted hardened plastic casing.	100	LM		
J	Supply and installation of filter gravel pack	10	Ton		
Total Carried Forward to Borehole Drilling and Equipping Collection Page for Part 2					

<u>PART 3:Borehole Development</u>					
Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
A	Development works	12	Hrs		
B	Test pumping and recovery measurements to ascertain borehole yield for at least 24 hours including installation and withdrawal of pumping unit and recovery measurements for 12hrs	1	Item		
C	Construction of concrete plinth size 1.5mx1.5mx1.0m around well head.	1	No		
D	Place bentonite sanitary seal 10m deep below surface.	1	Item		
E	152mm diameter borehole capping	1	No		
F	Allow costs for collecting formation samples and prepare Geological logging chart for the borehole.	1	No		
G	Allow for all costs involved in providing water for all requirements of the contractor drilling field camp etc.	1	Item		
Q	Water chemical analyses and borehole completion report.	1	Item		
H	Allow for Borehole project supervsion by project mechanical engineer durng test pumping and drilling process.	1	Item		
Total Carried Forward to Borehole Drilling and Equipping Collection Page for Part 3					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	<u>PART 4:Borehole Equipping</u>				
A	Supply and install high quality pressure gauge as Kent or equivalent range 0-7kgf/cm ² complete with accessories for mounting on galvanised pipe.	1	No		
B	Supply and install single orifice air valve, complete with pipe mounting accessories.	1	Item		
C	Supply and install 50mm dia HDPE water pipe	300	Lm		
D	50mm diameter gate valve as 'pegler' or approved equivalent	1	No		
E	50mm dia non-return valve as pegler or approved equivalent.	2	No		
F	50mm diameter galvanised HDPE bend	6	No		
G	50mm diameter water meter as 'Kent' or approved equivalent	1	No		
H	Hybrid Control panel to be mounted off the wall. The control panel shall be water tight with corrosion resistant from hinged lockable door metal enclosure and have Merlin Gerin switch-gear and Telemechanique control gear. The control panel shall have star-delta starter, phase failure, surge protector, isolator, voltemeter, ammeter, MCBs, 150m long float switch cable, float switch and any other necessary controls.	1	Item		
J	6mm ² 4-core PVC round hardened PVC submersible electric cable. Waterproof.	300	LM		
K	2.5mm ² 4-core PVC round hardened PVC	500	LM		
L	2.5mm ² 4-core PVC/SWA/PVC cable from control panel to water tanks.	90	LM		
M	25mm diameter heavy gauge PVC ducts.	90	LM		
N	10mm ² x3 core underground cable	90	LM		
P	1.5mm ² x 2 core underground cable	60	LM		
Q	Excavate trench of dimensions 300mm x 500mm to invert to lay cables. The laid cable to be covered with 50mm thick layer of fine soil, covered with tiles as "Hatari" then back fill and ram and dispose of excess	120	LM		
R	Electrode pair & Level regulator complete with mounting box	2	No.		
Total Carried Forward to next page					

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
Total Carried Forward from Previous Page					0.00
S	Allow for field labour and transport and also for the borehole equipment transport.	1	Item		
T	Allow for 3-phase electric power to conduct the necessary tests for the borehole equipment on site.	1	Item		
U	Supply and install centrifugal multistage borehole pump, continuously rated and capable of pumping 10m ³ /hr of water against a total head of 350m. The entire pump-set body, impellers, shaft etc shall be made of heavy duty stainless steel material. The pump shall have inbuilt non-return valve, tail strainer and cable guard. The pump shall be suitable for 3- phase 415V. The pump shall be as 'GRUNDFOS SP17-27' or equal and approved.	1	No.		
V	Allow kshs 1,200,000 for solarization of the borehole pump. This shall include solar modules, inverter, panels, electric cables and any other item for such.	1	Item	1,200,000	1,200,000.00
W	Complete the prescribed WARMA Borehole drilling completion report and submit to WARMA with a copy to the client.	1	Item		
V	Complete the prescribed NEMA Borehole drilling Licence and submit to NEMA with a copy to the client.	1	Item		
X	Allow for testing and commissioning of the borehole	1	Item		
Total Carried Forward to Borehole Drilling and Equipping Collection Page for Part 4					

SUMMARY PAGE FOR BOREHOLE DRILLING AND EQUIPPING WORKS

Item	Description	Amount (Kshs)
A	Total carried forward from part 1	
B	Total carried forward from part 2	
C	Total carried forward from part 3	
D	Total carried forward from part 4	
Total for Borehole Drilling and Equipping Installation Works Carried to Summary Page 62		

SUMMARY PAGE FOR PLUMBING AND DRAINAGE WORKS

Item	Description	Amount (Ksh)
A	Total for Sanitary Fittings installation Works-Library Block Phase 1	
B	Total for Sanitary Fittings installation Works- Ablution Block	
C	Total for Plumbing installation Works	
D	Total for Drainage installation Works	
E	Total for Rain Water Drainage installation Works	
F	Total for Water Tanks, pumps and reticulation installation Works	
G	Total for Fire Protection installation Works	
H	Total for Fire Suppression installation Works	
J	Total for Water Fountain/Feature installation Works	
K	Total for Waste water treatment Plant installation Works	
L	Total for Borehole Drilling and Equipping Installation Works	
	Totals Carried to the Final Summary Page For Plumbing and Drainage Installation Works Page BoQ-63	

PROPOSED MAASAI MARA LIBRARY BLOCK-PHASE 1

**FINAL SUMMARY PAGE FOR PLUMBING AND DRAINAGE INSTALLATION
WORKS**

Item	Description	Amount (Ksh)
A	Total for Preliminaries and General Items	
B	Total for Plumbing and Drainage Installation Works	
C	Provide a Provisional Sum of Kshs. 3,000,000.00 for Contingency Sum to be used at the discretion of the Project Engineer via Project Manager	3,000,000.00
	Total for Plumbing and Drainage installation Works Carried to Grand Summary Page	

Amount in Words:

.....

Tenderer's Name and

Stamp.....

Postal Address:

Sub Contract

Period.....

Signature:

Date:

.....

Tel No:

Mobile No:

.....

Pin No.....

VAT Certificate:

.....

Witness:

Date:

.....

Signature:

Address:

.....

SECTION NAME:

SCHEDULE OF UNIT RATES

SCHEDULE OF UNIT RATES

1. The tenderer shall insert unit rates against the items in the following schedules and may add such other items as he considers appropriate.
2. The unit rates shall include for supply, transport, insurance, delivery to site, storage as necessary, assembling, cleaning, installing, connecting, profit and maintenance in defects liability and any other obligation under this contract.
3. The unit rates will be used to assess the value of additions or omissions arising from authorized variations to the contract works.
4. Where trade names or manufacturer's catalogue numbers are mentioned in the specification, the reference is intended as a guide to the type of article or quality of material required. Alternative brands of **equal** and **approved** quality will be accepted

ITEM	DESCRIPTION	UNIT	RATE (Kshs)
1.	Cleaners sink	No.	
2.	Schedule 40 pipe of diamter 25mm	LM.	
3.	Fire Extuingisher cabinet 300X800X800mm	No.	
4.	5,000L plastic tank as Ken tank	No.	
5.	Fire hydrant pump	No.	
6.	Wall hung, Rimless Water Closet	No.	
7.	Stainless Steel Step Bin; 20lts, Satin	No.	

SECTION NAME:

TECHNICAL SCHEDULE

TECHNICAL SCHEDULE

1. The technical schedule shall be submitted by tenderers to facilitate and enable the Project Manager to evaluate the tenders, especially where the tenderer intends to supply or has based his tender sum on equipment which differs in manufacture, type or performance from the specifications indicated by the Project Manager/Engineer.
2. This schedule shall form part of the technical evaluation criterion, and tenderers are therefore advised to complete the schedule as they shall be considered non responsive.

NB. The tenderer must complete in full the technical schedule. Apart from the information required in the technical schedule, the tenderer **MUST SUBMIT LEGIBLE** comprehensive manufacturer's technical brochures and performance details for all items listed in this schedule and **CLEARLY HIGHLIGHT THE SPECIFIC REQUIRED ITEM ONLY.**

		MANUFACTURER	COUNTRY OF ORIGIN	REMARKS (Catalogue No. etc.)
A	WC flush valve			
B	Water closets			
C	Accesible Washroom fittings			
D	Counter top washhand basin			
E	Waste water treatment equipment			
F	Wash Hand Basin Mixer Tap			
G	Server room fire suppression			
H	Water booster pump			
I	Solarization of the water booster system i.e inverter, solar			
J	modules etc			
K	Water fountain			
L	Pressure pipes-pvc			
M	CPVC pipes and fittings			

Catalogue must be attached for all the items in the schedule of material above

SCHEDULE OF CONTRACT DRAWING**SCHEDULE OF CONTRACT DRAWINGS**

DRAWING NO.	DRAWING TITLE
As shall be issued by the Engineer	

NOTE:

Tenderers are advised to inspect the mechanical drawings at the office of the **Chief Engineer (Mechanical) – State Department for Public Works**, at Chief Engineer's (mechanical) Office, Hill Plaza Building, Community area, Nairobi along Ngong road, during normal working hours.

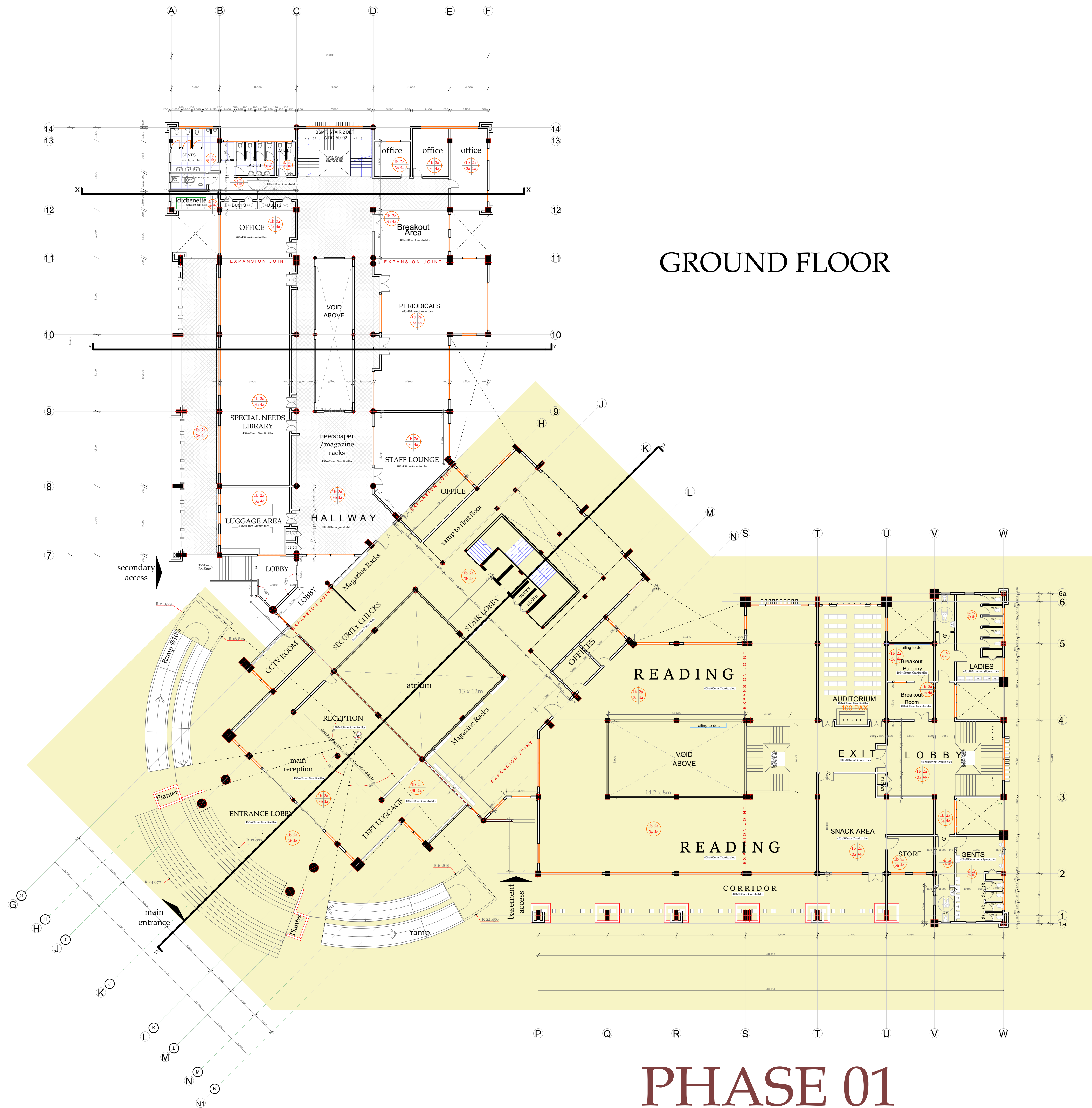
BILL NO.8
PROVISIONAL SUMS

Item	Description	Unit	Rate	Amount (Kshs)
	<u>PROVISIONAL SUMS</u>			
	The following provisional sums to be spent/deducted in whole or in part at the discretion of the Project Manager			
A	Allow a provisional sum of Kenya Shillings One Hundred Thousand (Kshs 100,000.00) only for demolition works to be determined on site.		Item	100,000.00
B	Allow a provisional sum of Kenya Shillings One Million (Kshs 1,000,000.00) only for relocation of transformer, electric supply line and any other related services to be described by the Project Manager.		Item	1,000,000.00
C	Allow PROVISIONAL SUM of Kenya Shillings Ten Million (KShs 10,000,000.00) only for Price Fluctuations	ITEM		10,000,000.00
D	Allow PROVISIONAL SUM of Kenya Shillings Two Million (KShs 2,000,000.00) only for Furnishing Project Managers Office	ITEM		2,000,000.00
E	Allow PROVISIONAL SUM of Kenya Shillings Eight Million (KShs 8,000,000.00) only for Supply delivery of Block Making Machine as directed by the client	ITEM		8,000,000.00
F	Allow PROVISIONAL SUM of Kenya Shillings Twenty Million (KShs 20,000,000.00) only for Contingencies	ITEM		20,000,000.00
G	Allow PROVISIONAL SUM of Kenya Shillings One Million, Five Hundred Thousand (KShs 1,500,000.00) only for Environment Impact Assessment (EIA)	ITEM		1,500,000.00
	TOTAL PRIME COSTS AND PROVISIONAL SUMS CARRIED TO GRAND SUMMARY			42,600,000.00

GRAND SUMMARY

PROPOSED CONSTRUCTION OF LIBRARY PHASE 1 FOR MAASAI MARA UNIVERSITY, NAROK COUNTY.(W.P. ITEM NO. D1065 RV/NRK/230, JOB NO. 11217A)				
ITEM	DESCRIPTION	PAGE NO.	FOR TENDERER USE ONLY	FOR OFFICIAL USE ONLY
			KSHS.	KSHS.
	<u>GRAND SUMMARY</u>			
1	PARTICULAR PRELIMINARIES	PP/7		
2	GENERAL PRELIMINARIES	GP/19		
3	BUILDERS WORK	BWS/1		
4	CIVIL WORKS	CIV/9		
5	ELECTRICAL INSTALLATION AND STRUCTURED CABLING INSTALLATION WORKS	Elec. boqs page 62 of 62		
6	2 No. PASSENGER/GOODS LIFT	LIFT/18		
7	PLUMBING, DRAINAGE AND FIRE PROTECTION WORKS	B0Q-63		
8	PROVISIONAL SUMS	PS/1		
GRAND TOTAL CARRIED TO FORM OF TENDER (VAT INCLUSIVE)				
AMOUNT IN WORDS :CENTS TENDERER'S NAME ADDRESS DATE TENDERER'S SIGNATURE WITNESS'S NAME ADDRESS DATE WITNESS SIGNATURE				

DRAWINGS



NOTES

general

All dimensions are in mm unless otherwise specified. Drawings are not to be scaled. Only figured dimensions to be used. The contractor must check & verify all the dimensions before commencement of the work.

construction

All slabs at ground level to be laid over 1000 gauge polythene sheeting on 50mm thick murrum blinding, on well compacted hardcore. All soils under slabs & around external foundation to be posed for the termites control.

structural

All black cotton soil to be removed from below all building & paved surfaces. All paved surfaces to be clear of black cotton soil to a distance of 500m outside the edge of the surface.

For all R.C works, refer to SE's details. Foundation depths to be determined on site to the SE approval. All walls less than 200mm thick to be reinforced with hoop iron at every alternate course. All adjacent R.C work and masonry walls to be tied with strap irons at every course.

mechanical

All plumbing & drainage work to comply with P.H specifications. All surface ducts to be accessible from all floors. S.V.P denotes soil vent pipe and to be provided at the head of the drainage. Drains passing beneath buildings and driveways to be encased in 150mm concrete surround. All underground foul & waste drain pipes shall be of P.V.C. to comply with BS5255. All inspection chambers covers and framing shall be cast iron to comply with BS-497 Table 2 Grade A. The storm water drain pipes to comply with BS- 556. Minimum slope in the drain pipes to be 1%. No chases for pipes will be allowed in the slabs. Sleeves will be allowed with written approval from the SE. No cutting of concrete without express approval of the Architect or SE. All testing of pipes must be coordinated with electrical & any conflicts must be clarified before works begins. P.V denotes permanent vents.

electrical

All conduits must be laid before plastering.

fire fighting

Provide a 1130 litres reserve tank with a booster pump. Dry risers. Provide a 1x30m hydraulic Hose-real, on every floor. Provide 1x5kg dry powder fire extinguishers in each shop. Provide manual electric break glass fire alarm system. Provide 4x9kg litres water CO2 fire extinguishers on every floor.

revisions

NO.	REVISION

project

**PROPOSED LIBRARY FOR
MAASAI MARA UNIVERSITY,
NAROK COUNTY**

drawing title

GROUND FLOOR PLAN

client

MAASAI MARA UNIVERSITY
P.O. BOX 861 NAROK
info@mmarau.ac.ke

client signature

scale	1
	2
	3

project job no.

drawing no.

Project Architect:

Paul G. Ngugi

Team Leader:

Arch. S. Mbogo

Signature:

Signature:

Drawn: G. Oyugi

Date: 2023

Approved:

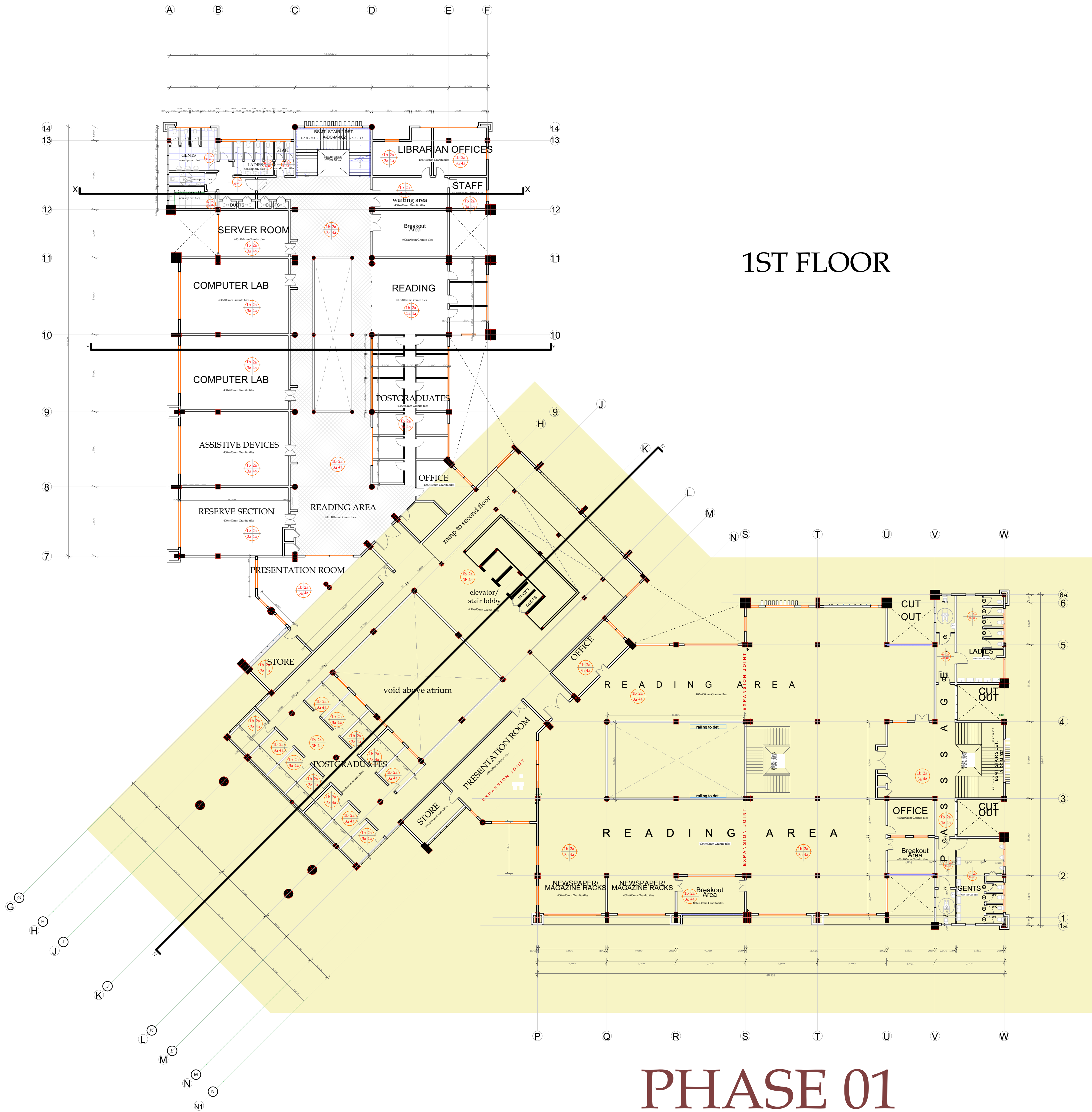
ARCH. L. M. MOCHAMA
CHIEF ARCHITECT

MINISTRY OF TRANSPORT,
INFRASTRUCTURE, HOUSING, URBAN
DEVELOPMENT & PUBLIC WORKS

STATE DEPARTMENT FOR PUBLIC WORKS
Architecture Department



FOR THE GOVERNMENT OF THE
REPUBLIC OF KENYA



NOTES

general

All dimensions are in mm unless otherwise specified. Drawings are not to be scaled. Only figured dimensions to be used. The contractor must check & verify all the dimensions before commencement of the work.

construction

All slabs at ground level to be laid over 1000 gauge polythene sheeting on 50mm thick murrum blinding, on well compacted hardcore. All soils under slabs & around external foundation to be posed for the termites control.

structural

All black cotton soil to be removed from below all building & paved surfaces. All paved surfaces to be clear of black cotton soil to a distance of 500m outside the edge of the surface.

For all R.C works, refer to SE's details. Foundation depths to be determined on site to the SE approval. All walls less than 200mm thick to be reinforced with hoop iron at every alternate course. All adjacent R.C work and masonry walls to be tied with strap irons at every course.

mechanical

All plumbing & drainage work to comply with P.H specifications. All surface ducts to be accessible from all floors. S.V.P denotes soil vent pipe and to be provided at the head of the drainage. Drains passing beneath buildings and driveways to be encased in 150mm concrete surround. All underground foul & waste drain pipes shall be of PVC, to comply with BS5255. All inspection chambers covers and framing shall be cast iron to comply with BS-497 Table 2 Grade A. The storm water drain pipes to comply with BS. 556. Minimum slope in the drain pipes to be 1%. No chases for pipes will be allowed in the slabs. Sleeves will be allowed with written approval from the SE. No cutting of concrete without express approval of the Architect or SE. All testing of pipes must be coordinated with electrical & any conflicts must be clarified before works begins. P.V denotes permanent vents.

electrical

All conduits must be laid before plastering.

fire fighting

Provide a 1130 litres reserve tank with a booster pump. Dry risers. Provide a 1x30m hydraulic Hose-reel, on every floor. Provide 1x9kg dry powder fire extinguishers in each shop. Provide manual electric break glass fire alarm system. Provide 4x9kg litres water CO2 fire extinguishers on every floor.

revisions

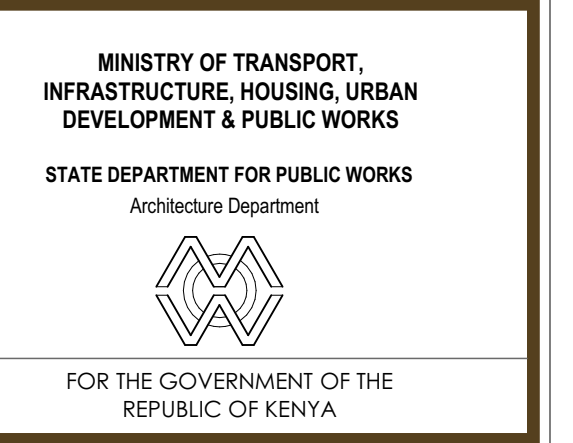
project
**PROPOSED LIBRARY FOR
MAASAI MARA UNIVERSITY,
NAROK COUNTY**

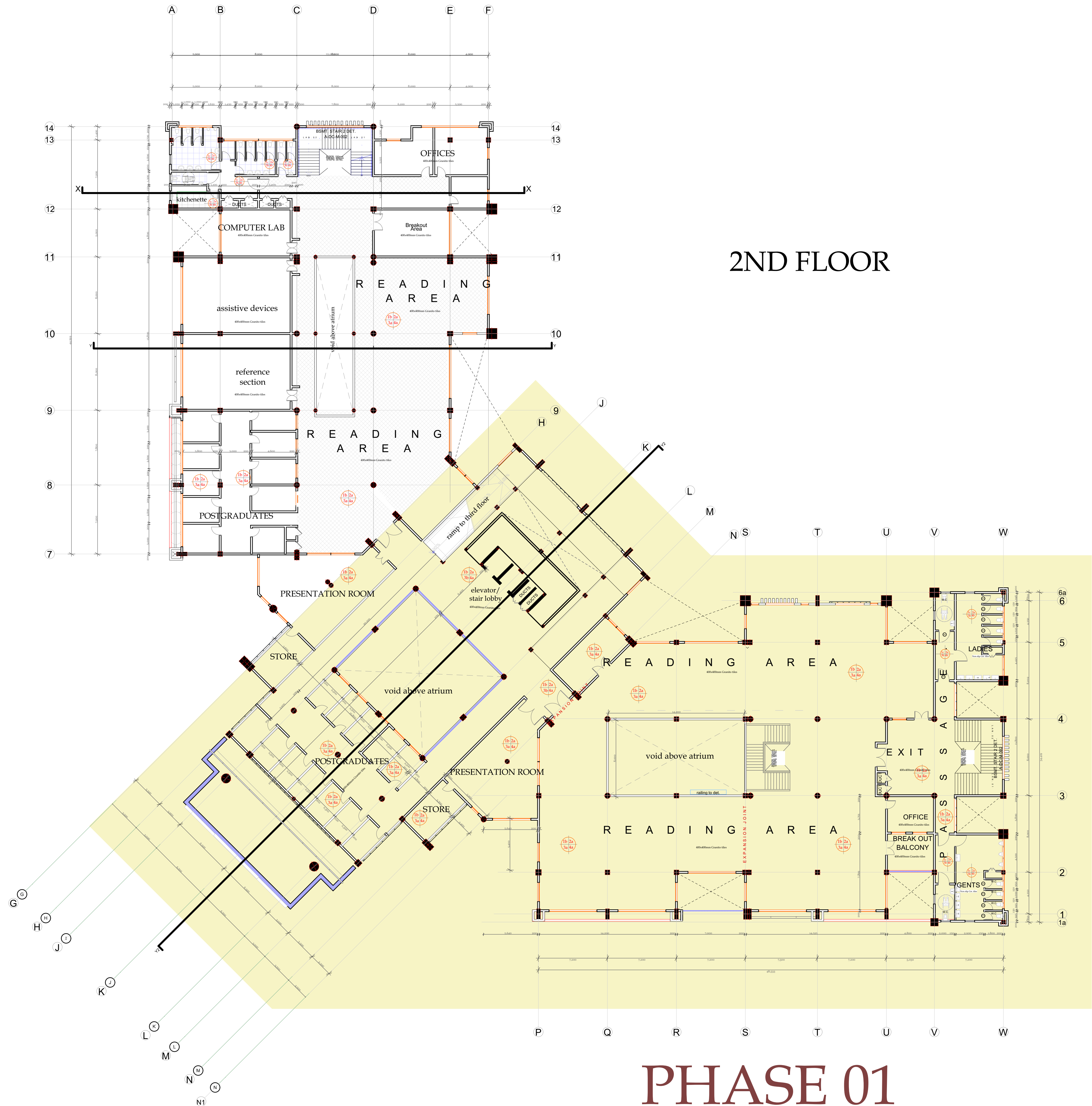
drawing title

client
MAASAI MARA UNIVERSITY
P.O. BOX 861 NAROK
info@mmarau.ac.ke

client signature
scale
1
2
3

project job no.
drawing no.
Project Architect:
Paul G. Ngugi
Signature: _____
Drawn: G. Oyugi
Approved:
ARCH. L. M. MOCHAMA
CHIEF ARCHITECT





NOTES

general

All dimensions are in mm unless otherwise specified. Drawings are not to be scaled. Only figured dimensions to be used. The contractor must check & verify all the dimensions before commencement of the work.

construction

All slabs at ground level to be laid over 1000 gauge polythene sheeting on 50mm thick murrum blinding, on well compacted hardcore. All soils under slabs & around external foundation to be poised for the termites control.

structural

All black cotton soil to be removed from below all building & paved surfaces. All paved surfaces to be clear of black cotton soil to a distance of 500m outside the edge of the surface.

For all R.C works, refer to SE's details. Foundation depths to be determined on site to the SE approval. All walls less than 200mm thick to be reinforced with hoop iron at every alternate course. All adjacent R.C work and masonry walls to be tied with strap irons at every course.

mechanical

All plumbing & drainage work to comply with P.H specifications. All surface ducts to be accessible from all floors. S.V.P denotes soil vent pipe and to be provided at the head of the drainage. Drains passing beneath buildings and driveways to be encased in 150mm concrete surround. All underground foul & waste drain pipes shall be of PVC, to comply with BS5255. All inspection chambers covers and framing shall be cast iron to comply with BS-497 Table 2 Grade A. The storm water drain pipes to comply with BS. 556. Minimum slope in the drain pipes to be 1%. No chases for pipes will be allowed in the slabs. Sleeves will be allowed with written approval from the SE. No cutting of concrete without express approval of the Architect or SE. All testing of pipes must be coordinated with electrical & any conflicts must be clarified before works begins. P.V denotes permanent vents.

electrical

All conduits must be laid before plastering.

fire fighting

Provide a 1130 litres reserve tank with a booster pump. Dry risers. Provide a 1x30m hydraulic Hose-real, on every floor. Provide 1x5kg dry powder fire extinguishers in each shop. Provide manual electric break glass fire alarm system. Provide 4x9kg litres water CO2 fire extinguishers on every floor.

revisions

project

**PROPOSED LIBRARY FOR
MAASAI MARA UNIVERSITY,
NAROK COUNTY**

drawing title

SECOND FLOOR PLAN

client

MAASAI MARA UNIVERSITY
P.O. BOX 861 NAROK
info@mmarau.ac.ke

client signature

scale

1
2
3

project job no.

drawing no.

Project Architect:

Paul G. Ngugi

Team Leader:

Arch. S. Mbogo

Signature: _____

Signature: _____

Drawn: G. Oyugi

Date: 2023

Approved:

ARCH. L. M. MOCHAMA
CHIEF ARCHITECT

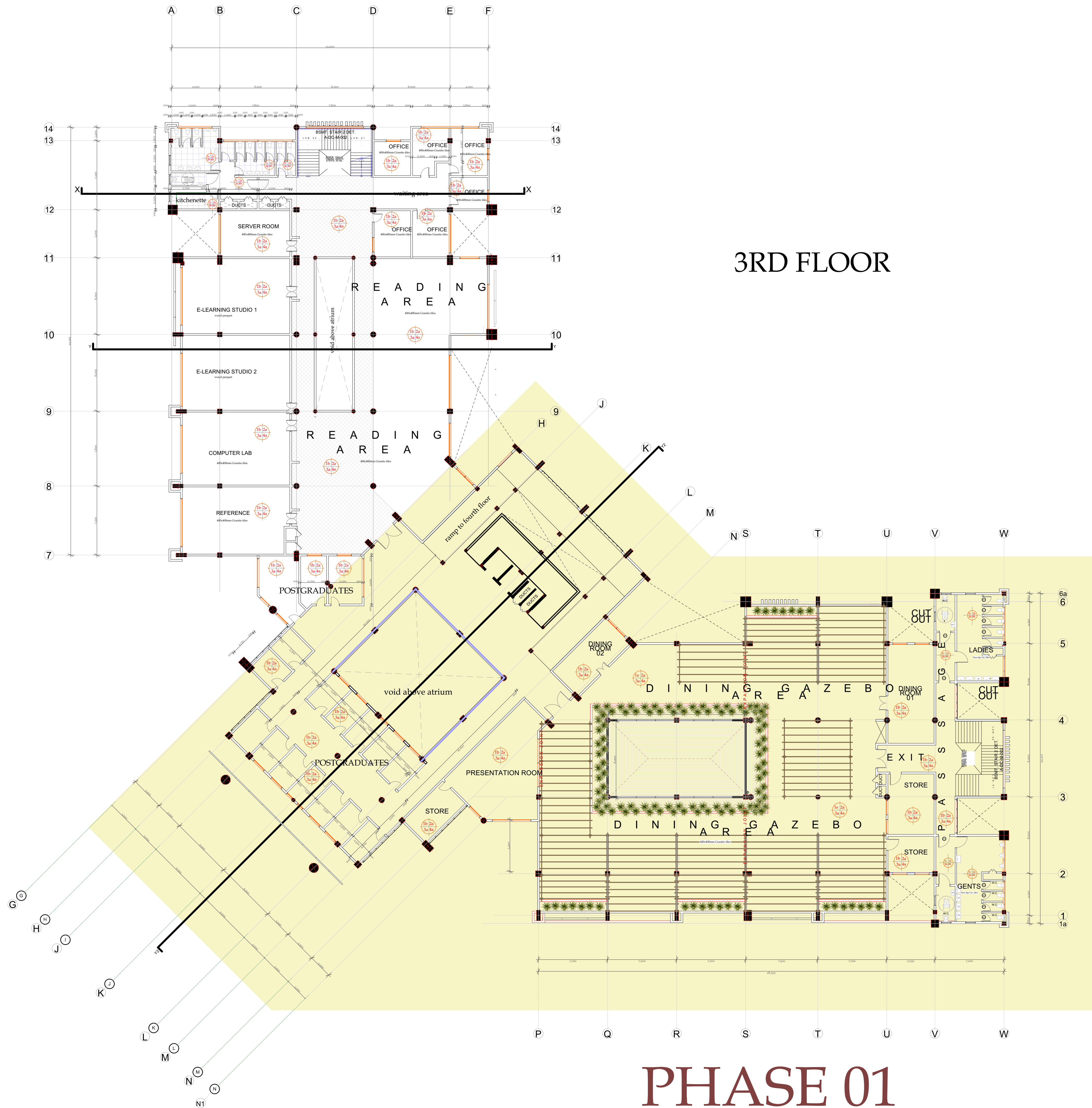
MINISTRY OF TRANSPORT,
INFRASTRUCTURE, HOUSING, URBAN
DEVELOPMENT & PUBLIC WORKS

STATE DEPARTMENT FOR PUBLIC WORKS
Architecture Department



FOR THE GOVERNMENT OF THE
REPUBLIC OF KENYA

PHASE 01



NOTES

general

All dimensions are in mm unless otherwise specified. Drawings are not to be scaled. Only figured dimensions to be used. The contractor must check & verify all the dimensions before commencement of the work.

construction

All slabs at ground level to be laid over 1000 gauge polythene sheeting on 50mm thick murrum blinding, on well compacted hardcore. All soils under slabs & around external foundation to be poised for the termites control.

structural

All black cotton soil to be removed from below all building & paved surfaces. All paved surfaces to be clear of black cotton soil to a distance of 500m outside the edge of the surface.

For all R.C works, refer to SE's details. Foundation depths to be determined on site to the SE approval. All walls less than 200mm thick to be reinforced with hoop iron at every alternate course. All adjacent R.C work and masonry walls to be tied with strap irons at every course.

mechanical

All plumbing & drainage work to comply with P.H specifications. All surface ducts to be accessible from all floors. S.V.P denotes soil vent pipe and to be provided at the head of the drainage. Drains passing beneath buildings and driveways to be encased in 150mm concrete surround. All underground foul & waste drain pipes shall be of PVC, to comply with BS2255. All inspection chambers covers and framing shall be cast iron to comply with BS-497 Table 2 Grade A. The storm water drain pipes to comply with BS. 556. Minimum slope in the drain pipes to be 1%. No chases for pipes will be allowed in the slabs. Sleeves will be allowed with written approval from the SE. No cutting of concrete without express approval of the Architect or SE. All testing of pipes must be coordinated with electrical & any conflicts must be clarified before works begins. P.V denotes permanent vents.

electrical

All conduits must be laid before plastering.

fire fighting

Provide a 1130 litres reserve tank with a booster pump. Dry risers. Provide a 1x30m hydraulic Hose-reel, on every floor. Provide 1x9kg dry powder fire extinguishers in each shop. Provide manual electric break glass fire alarm system. Provide 4x9kg litres water CO2 fire extinguishers on every floor.

revisions

project

**PROPOSED LIBRARY FOR
MAASAI MARA UNIVERSITY,
NAROK COUNTY**

drawing title

THIRD FLOOR PLAN

client

MAASAI MARA UNIVERSITY
P.O. BOX 861 NAROK
info@mmarau.ac.ke

client signature

scale

project job no.

drawing no.

Project Architect:

Paul G. Ngugi

Team Leader:

Arch. S. Mbogo

Signature:

Drawn: G. Oyugi

Signature:

Date: 2023

Approved:

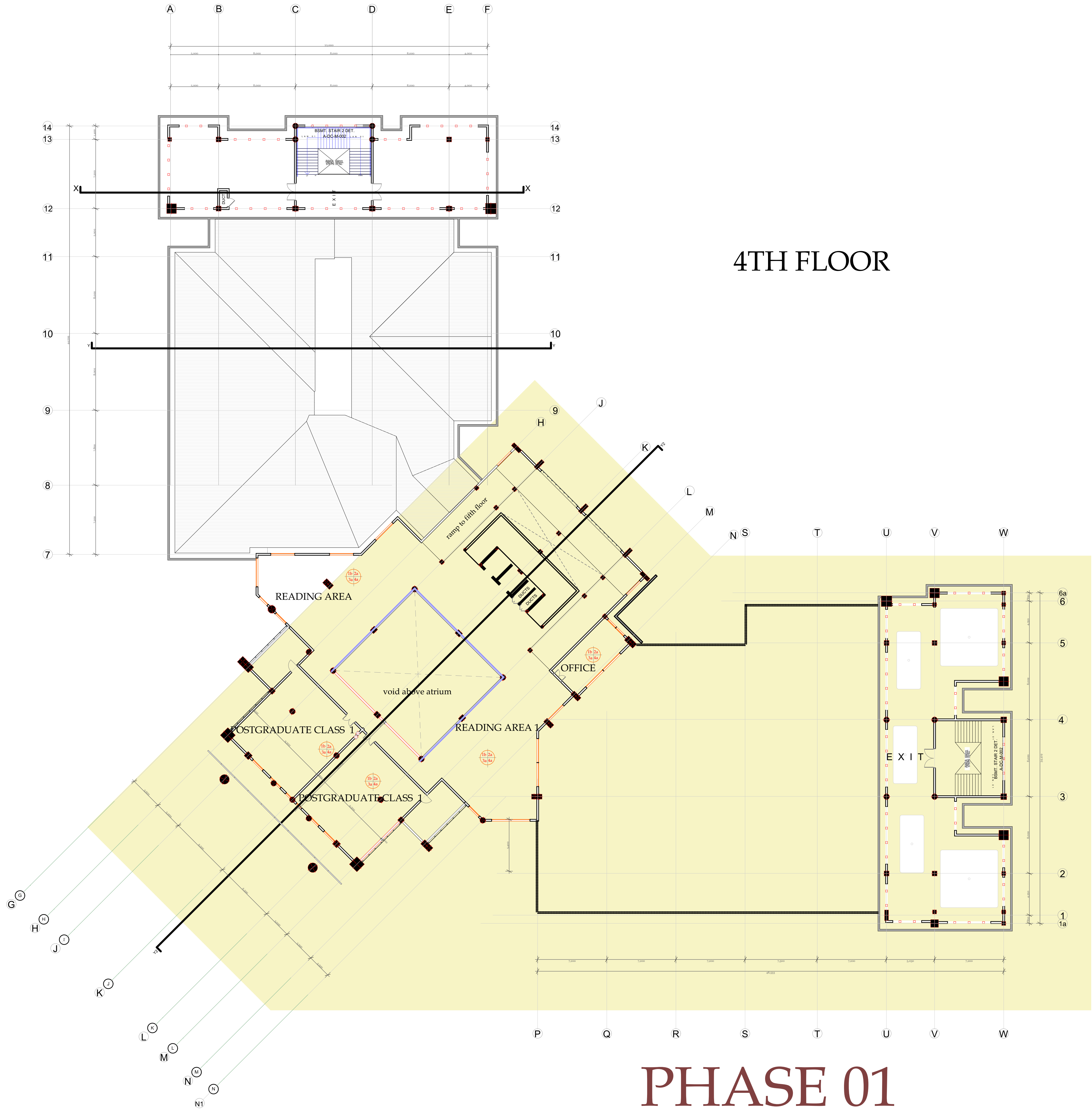
ARCH. L. M. MOCHAMA
CHIEF ARCHITECT

MINISTRY OF TRANSPORT,
INFRASTRUCTURE, HOUSING, URBAN
DEVELOPMENT & PUBLIC WORKS

STATE DEPARTMENT FOR PUBLIC WORKS
Architecture Department



FOR THE GOVERNMENT OF THE
REPUBLIC OF KENYA



NOTES

general

All dimensions are in mm unless otherwise specified. Drawings are not to be scaled. Only figured dimensions to be used. The contractor must check & verify all the dimensions before commencement of the work.

construction

All slabs at ground level to be laid over 1000 gauge polythene sheeting on 50mm thick murrum blinding, on well compacted hardcore. All soils under slabs & around external foundation to be poised for the termites control.

structural

All black cotton soil to be removed from below all building & paved surfaces. All paved surfaces to be clear of black cotton soil to a distance of 500m outside the edge of the surface.

For all R.C works, refer to SE's details. Foundation depths to be determined on site to the SE approval. All walls less than 200mm thick to be reinforced with hoop iron at every alternate course. All adjacent R.C work and masonry walls to be tied with strap irons at every course.

mechanical

All plumbing & drainage work to comply with P.H specifications. All surface ducts to be accessible from all floors. S.V.P denotes soil vent pipe and to be provided at the head of the drainage. Drains passing beneath buildings and driveways to be encased in 150mm concrete surround. All underground foul & waste drain pipes shall be of PVC, to comply with BS5255. All inspection chambers covers and framing shall be cast iron to comply with BS-497 Table 2 Grade A. The storm water drain pipes to comply with BS. 556. Minimum slope in the drain pipes to be 1%. No chases for pipes will be allowed in the slabs. Sleeves will be allowed with written approval from the SE. No cutting of concrete without express approval of the Architect or SE. All testing of pipes must be coordinated with electrical & any conflicts must be clarified before works begins. P.V denotes permanent vents.

electrical

All conduits must be laid before plastering.

fire fighting

Provide a 1130 litres reserve tank with a booster pump. Dry risers. Provide a 1x30m hydraulic Hose-real, on every floor. Provide 1x9kg dry powder fire extinguishers in each shop. Provide manual electric break glass fire alarm system. Provide 4x9kg litres water CO2 fire extinguishers on every floor.

revisions

NO.	REVISION

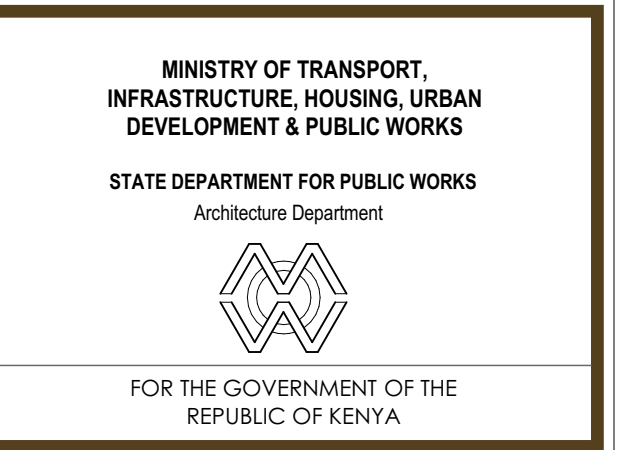
project
**PROPOSED LIBRARY FOR
MAASAI MARA UNIVERSITY,
NAROK COUNTY**

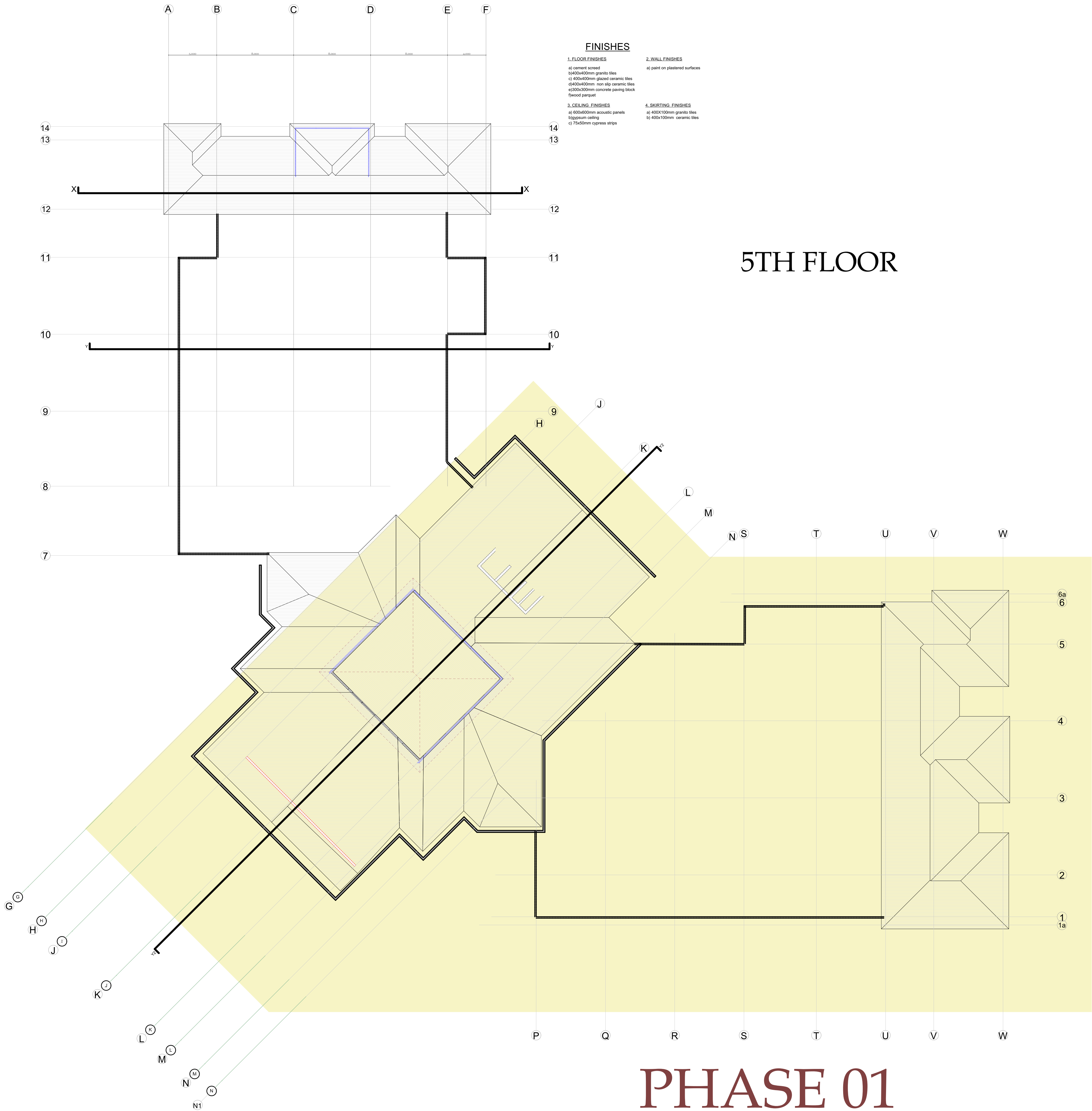
drawing title
FOURTH FLOOR PLAN

client
MAASAI MARA UNIVERSITY
P.O. BOX 861 NAROK
info@mmarau.ac.ke

client signature	_____
scale	1 2 3

project job no.	drawing no.
Project Architect: Paul G. Ngugi	Team Leader: Arch. S. Mbogo
Signature: _____	Signature: _____
Drawn: G. Oyugi	Date: 2023
Approved: ARCH. L. M. MOCHAMA CHIEF ARCHITECT	





FINISHES

1. FLOOR FINISHES

- a) cement screed
- b) 600x600mm granite tiles
- c) 400x400mm glazed ceramic tiles
- d) 600x600mm non-slip ceramic tiles
- e) 300x300mm concrete paving block
- f) wood parquet

3. CEILING FINISHES

- a) 600x600mm acoustic panels
- b) gypsum ceiling
- c) 75x50mm cypress strips

2. WALL FINISHES

- a) paint on plastered surfaces

4. SKIRTING FINISHES

- a) 400x100mm granite tiles
- b) 400x100mm ceramic tiles

5TH FLOOR

PHASE 01

NOTES

general

All dimensions are in mm unless otherwise specified. Drawings are not to be scaled. Only figured dimensions to be used. The contractor must check & verify all the dimensions before commencement of the work.

construction

All slabs at ground level to be laid over 1000 gauge polythene sheeting on 50mm thick murrum blinding, on well compacted hardcore. All soils under slabs & around external foundation to be poised for the termites control.

structural

All black cotton soil to be removed from below all building & paved surfaces. All paved surfaces to be clear of black cotton soil to a distance of 500m outside the edge of the surface.

For all R.C works, refer to SE's details. Foundation depths to be determined on site to the SE approval. All walls less than 200mm thick to be reinforced with hoop iron at every alternate course. All adjacent R.C work and masonry walls to be tied with strap irons at every course.

mechanical

All plumbing & drainage work to comply with P.H specifications. All surface ducts to be accessible from all floors. S.V.P denotes soil vent pipe and to be provided at the head of the drainage. Drains passing beneath buildings and driveways to be encased in 150mm concrete surround. All underground foul & waste drain pipes shall be of PVC, to comply with BS5255. All inspection chambers covers and framing shall be cast iron to comply with BS-497 Table 2 Grade A. The storm water drain pipes to comply with BS. 556. Minimum slope in the drain pipes to be 1%. No chases for pipes will be allowed in the slabs. Sleeves will be allowed with written approval from the SE. No cutting of concrete without express approval of the Architect or SE. All testing of pipes must be coordinated with electrical & any conflicts must be clarified before works begins. P.V denotes permanent vents.

electrical

All conduits must be laid before plastering.

fire fighting

Provide a 1130 litres reserve tank with a booster pump. Dry risers. Provide a 1x30m hydraulic Hose-real, on every floor. Provide 1x9kg dry powder fire extinguishers in each shop. Provide manual electric break glass fire alarm system. Provide 4x9kg litres water CO2 fire extinguishers on every floor.

revisions

no.	description

project
**PROPOSED LIBRARY FOR
MAASAI MARA UNIVERSITY,
NAROK COUNTY**

drawing title
5TH FLOOR PLAN

client
MAASAI MARA UNIVERSITY
P.O. BOX 861 NAROK
info@mmarau.ac.ke

client signature
scale
1
2
3

project job no.	drawing no.
Project Architect: Paul G. Ngugi	Team Leader: Arch. S. Mbogo
Signature: _____	Signature: _____
Drawn: G. Oyugi	Date: 2023
Approved: ARCH. L. M. MOCHAMA CHIEF ARCHITECT	

