



Geothermal Development Company Ltd (GDC)

P.O. Box 100746 – 00101

NAIROBI, KENYA

Tel: 0719037000/0719036000

**TENDER DOCUMENT FOR THE PROCUREMENT OF WORKS
(BUILDING AND ASSOCIATED CIVIL ENGINEERING WORKS)**

TENDER NUMBER: GDC/GRA/OT/056/2024-2025

**TENDER NAME: PROPOSED LABORATORIES AND OFFICES AT
GDC KABARAK YARD IN NAKURU**

CLOSING DATE AND TIME: 9TH JULY 2025 AT 11:00 AM

ISSUE DATE: 17/06/2025

TABLE OF CONTENTS	PAGE NO.
INVITATION TO TENDER	3
PART I: TENDERING PROCEDURES	5
SECTION I: INSTRUCTIONS TO TENDERERS	6
SECTION II: TENDER DATA SHEET	24
SECTION III: EVALUATION AND QUALIFICATION CRITERIA	29
SECTION IV: TENDERING FORMS	38
PART II: CONDITIONS OF CONTRACT	77
SECTION V: GENERAL CONDITIONS	78
SECTION VI: SPECIAL CONDITIONS OF CONTRACT	139
SECTION VII: CONTRACT FORMS	145
PART III: WORKS REQUIREMENTS	160
SECTION VIII: MAIN WORKS	
MAIN WORKS PREAMBLES AND SPECIFICATIONS	161-167
PRELIMINARIES	1-20
LABORATORIES AND OFFICES BLOCK	1-26
EXTERNAL WORKS	1-5
SECTION IX: ELECTRICAL WORKS	
ELECTRICAL STANDARD SPECIFICATIONS	1-39
ELECTRICAL PARTICULAR SPECIFICATIONS	1-7
ELECTRICAL WORKS QUANTITIES	1-5
SECTION X: PLUMBING, DRAINAGE, FIRE FIGHTING AND SOLAR WATER HEATING	
MECHANICAL AND PLUMBING GENERAL SPECIFICATIONS	A/1-A/6, B/1-B/26
PLUMBING PARTICULAR SPECIFICATIONS	C/1-C/6
SOLAR WATER HEATING PARTICULAR SPECIFICATIONS	C/7-C/11
PLUMBING, DRAINAGE, FIRE FIGHTING AND SOLAR WATER HEATING QUANTITIES	1-35
SECTION XI: TABLE OF PRICE ADJUSTMENT DATA	1-2
SECTION XII: PROVISIONAL SUMS AND GRAND SUMMARY	1-3
SECTION XIII: DRAWINGS (MAY BE IN SEPARATE FOLDER)	

INVITATION TO TENDER

PROCURING ENTITY: GEOTHERMAL DEVELOPMENT COMPANY LIMITED

P.O BOX 100746-00101 NAIROBI

CONTRACT NAME AND DESCRIPTION: PROPOSED LABORATORIES AND OFFICES AT GDC KABARAK YARD IN NAKURU

1. **The Geothermal Development Company Limited invites sealed tenders for the PROPOSED LABORATORIES AND OFFICES AT GDC KABARAK YARD IN NAKURU, the works consist of Erection and completion of new building (2 Storey offices and laboratories block) and associated external works and services. The intended completion date for the works shall be 130 weeks from date of possession. The site is located at Kabarak Nakuru.**
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 from the office of **Manager, Supply Chain at Kawi House Office, located at South C Bellevue, Off Mombasa Road, Red Cross Road** during office hours (*0800hours to 1630hours*) 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 (*Kenya Shillings 1,000.00*) in cash or Banker's Cheque and payable to **GDC accounts**. Tender documents may be obtained electronically from the Website www.gdc.go.ke or the PPIP tender portal: www.tenders.go.ke. Tender documents obtained electronically will be free of charge.
5. Tender documents may be viewed and downloaded for free from the website www.gdc.go.ke or the PPIP tender portal: www.tenders.go.ke. Tenderers who download the tender document must forward their particulars immediately to procurement@gdc.go.ke **0719037000 and P.O. Box 100746-00101** 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 **One Hundred and Twenty (120)** days from the date of opening of tenders.
7. All Tenders must be accompanied by a *tender security of Ksh 6,000,000.00 valid for 150 days starting from the date of tender closing*.
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 **11.00AM, on 9th July 2025**. 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 specified later. Tenders will be publicly opened in the presence of the Tenderers' designated representatives who choose to attend at the address below.
11. Late tenders will be rejected.
12. The addresses referred to above are:

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

- (1) Name of Procuring Entity: **Geothermal Development Company Limited**
 - (2) Physical address for hand Courier Delivery to an office or Tender Box: **GDC Kawi House Office Ground Floor, located at South C Bellevue, off Mombasa Road, Red Cross Road, Nairobi.**
 - (3) Postal Address: **P.O Box 410746-00101 Nairobi.**
- B. Insert name, telephone number and e-mail address of the officer to be contacted: **Manager, Supply Chain Management, 0719 037000** Email: **procurement@gdc.go.ke****
- C. Address for Submission of Tenders.**

**THE MANAGING DIRECTOR
GEOHERMAL DEVELOPMENT COMPANY LIMITED
P.O BOX 100746-00101
NAIROBI**

D. Address for Opening of Tenders.

**GEOHERMAL DEVELOPMENT COMPANY LIMITED
GDC KAWI HOUSE OFFICE GROUND FLOOR, LOCATED AT SOUTH C BELLEVUE, OFF
MOMBASA ROAD, RED CROSS ROAD, NAIROBI**

MANAGER SUPPLY CHAIN MANAGEMENT

PART 1: 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**.

- 32 Public Officers of the Procuring Entity, their Spouses, Child, Parent, Brothers or Sister. Child, Parent, Brother or Sister of a Spouse, their business associates or agents and firms/organizations in which they have a substantial or controlling interest shall not be eligible to tender or be awarded a contract. Public Officers are also not allowed to participate in any procurement proceedings.**
- 33** A Tenderer shall not have a conflict of interest. Any tenderer found to have a conflict of interest shall be disqualified. A tenderer may be considered to have a conflict of interest for the purpose of this tendering process, if the tenderer:
- a) Directly or indirectly controls, is controlled by or is under common control with 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.
- 34** A tenderer shall not be involved in corrupt, coercive, obstructive or fraudulent practice. A tenderer that is proven to have been involved in any of these practices shall be automatically disqualified
- 35** A Tenderer (either individually or as a JV member) shall not participate in more than one Tender, except for permitted alternative tenders. This includes participation as a subcontractor in other Tenders. Such participation shall result in the disqualification of all Tenders in which the firm is involved. Members of a joint venture may not also make an individual tender, be a sub-contractor in a separate tender or be part of another joint venture for the purposes of the same Tender. A firm that is not a tenderer or a JV member may participate as a subcontractor in more than one tender.
- 36** A Tenderer may have the nationality of any country, subject to the restrictions pursuant to ITT 3.9. A Tenderer shall be deemed to have the nationality of a country if the Tenderer is constituted, incorporated or registered in and operates in conformity with the provisions of the laws of that country, as evidenced by its articles of incorporation (or equivalent documents of constitution or association) and its registration documents, as the case may be. This criterion also shall apply to the determination of the nationality of proposed sub-contractors or sub-consultants for any part of the Contract including related Services.
- 37** A Tenderer that has been debarred from participating in public procurement shall be ineligible to tender or be awarded a contract. The list of debarred firms and individuals is available from the website of PPRA www.ppra.go.ke.
- 38** A Tenderer that is a state-owned enterprise or a public institution in Kenya may be eligible to tender and be awarded Contract(s) only if it is determined by the Procuring Entity to meet the following conditions, i.e. if it is:

- i) A legal public entity of Government and/or public administration,
- ii) financially autonomous and not receiving any significant subsidies or budget support from any public entity or Government, and;
- (iii) operating under commercial law and vested with legal rights and liabilities similar to any commercial enterprise to enable it compete with firms in the private sector on an equal basis.

39 Firms and individuals shall be ineligible if their countries of origin are:

- (a) As a matter of law or official regulations, Kenya prohibits commercial relations with that country;
- (b) By an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, Kenya prohibits any import of goods or contracting of works or services from that country, or any payments to any country, person, or entity in that country.

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

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

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

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

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

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.

40 *Eligible goods, equipment, and services*

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

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

50 *Tenderer's responsibilities*

- 51** The tenderer shall bear all costs associated with the preparation and submission of his/her tender, and the Procuring Entity will in no case be responsible or liable for those costs.
- 52** The tenderer, at the tenderer's own responsibility and risk, is encouraged to visit and examine and inspect the Site of the Works and its surroundings and obtain all information that may be necessary for preparing the tender and entering into a contract for construction of the Works. The costs of visiting the Site shall be the tenderer's own expense.
- 53** The Tenderer and any of its personnel or agents will be granted permission by the Procuring Entity to enter upon its premises and lands for the purpose of such visit. The Tenderer shall indemnify the Procuring Entity against liability arising from death or personal injury, loss of or damage to property, and any other losses and expenses incurred as a result of the examination and inspection.
- 54** The tenderer shall provide in the Form of Tender and Qualification Information, a preliminary description of the proposed work method and schedule, including charts, as necessary or required.

B. CONTENTS OF TENDER DOCUMENTS

60 *Sections of Tender Document (IGNORE AND REFER TO CONTENTS PAGE)*

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

PART 1: Tendering Procedures

Section I – Instructions to Tenderers

Section II – Tender Data Sheet (TDS)

Section III- Evaluation and Qualification

Criteria Section IV – Tendering Forms

PART 2: Works'

Requirements Section V -

Bills of Quantities Section VI

- Specifications Section VII -

Drawings

PART 3: Conditions of Contract and Contract Forms

Section VIII - General Conditions (GCC)

Section IX - Special Conditions of Contract

Section X- Contract Forms

- 62** The Invitation to Tender Notice issued by the Procuring Entity is not part of the Contract documents. Unless obtained directly from the Procuring Entity, the Procuring Entity is not responsible for the completeness of the Tender document, responses to requests for clarification, the minutes of a pre-arranged site visit and those of the pre-Tender meeting (if any), or Addenda to the Tender document in accordance with ITT 10. In case of any contradiction, documents obtained directly from the Procuring Entity shall prevail.
- 63** The Tenderer is expected to examine all instructions, forms, terms, and specifications in the Tender Document and to furnish with its Tender all information and documentation as is required by the Tender document.

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

- 71** A Tenderer requiring any clarification of the Tender Document shall contact the Procuring Entity in writing at the Procuring Entity's address specified in the **TDS** or raise its enquiries during the pre-Tender meeting if provided for in accordance with ITT 7.2. The Procuring Entity will respond in writing to any request for clarification, provided that such request is received no later than the period specified in the **TDS** prior to the deadline for submission of tenders. The Procuring Entity shall forward copies of its response to all tenderers who have acquired the Tender documents in accordance with ITT 7.4, including a description of the inquiry but without identifying its source. If so specified in the **TDS**, the Procuring Entity shall also promptly publish its response at the web page identified in the **TDS**. Should the clarification result in changes to the essential elements of the Tender Documents, the Procuring Entity shall amend the Tender Documents following the procedure under ITT 8 and ITT 22.2.
- 72** The Tenderer, at the Tenderer's own responsibility and risk, is encouraged to visit and examine and inspect the site(s) of the required contracts and obtain all information that may be necessary for preparing a tender. The costs of visiting the Site shall be at the Tenderer's own expense. The Procuring Entity shall specify in the **TDS** if a pre-arranged Site visit and or a pre-tender meeting will be held, when and where. The Tenderer's designated representative is invited to attend a pre-arranged site visit and a pre-tender meeting, as the case may be. The purpose of the site visit and the pre-tender meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.
- 73** The Tenderer is requested to submit any questions in writing, to reach the Procuring Entity not later than the period specified in the **TDS** before the meeting.
- 74** Minutes of a pre-arranged site visit and those of the pre-tender meeting, if applicable, including the text of the questions asked by Tenderers and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Tenderers who have acquired the Tender Documents. Minutes shall not identify the source of the questions asked.
- 75** The Procuring Entity shall also promptly publish anonymized (*no names*) Minutes of the pre-arranged site visit and those of the pre-tender meeting at the web page identified in the **TDS**. Any modification to the Tender Documents that may become necessary as a result of the pre-arranged site visit and those of the pre-tender meeting shall be made by the Procuring Entity exclusively through the issue of an Addendum pursuant to ITT 8 and not through the minutes of the pre-Tender meeting. Non-attendance at the pre-arranged site visit and the pre-tender meeting will not be a cause for disqualification of a Tenderer.

80 Amendment of Tender Documents

- 81** At any time prior to the deadline for submission of Tenders, the Procuring Entity may amend the Tender Documents by issuing addenda.
- 82** Any addendum issued shall be part of the Tender Documents and shall be communicated in writing to all who have obtained the Tender Documents from the Procuring Entity. The Procuring Entity shall also promptly publish the addendum on the Procuring Entity's website in accordance with ITT 7.5.
- 83** To give Tenderers reasonable time in which to take an addendum into account in preparing their Tenders, the Procuring Entity should extend the dead line for the submission of Tenders, pursuant to ITT 22.2.

C. PREPARATION OF TENDERS

9. Cost of Tendering

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

10.0 Language of Tender

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

11.0 Documents Comprising the Tender

11.1 The Tender shall comprise the following:

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

11.2 In addition to the requirements under ITT 11.1, Tenders submitted by a JV shall include a copy of the Joint Venture Agreement entered into by all members. Alternatively, a letter of intent to execute a Joint Venture Agreement in the event of a successful Tender shall be signed by all members and submitted with the Tender, together with a copy of the proposed JV Agreement. Change of membership and conditions of the JV prior to contract signature will render the tenderer liable for disqualification.

12.0 Form of Tender and Schedules

12.1 The Form of Tender and Schedules, including the Bill of Quantities, shall be prepared using the relevant forms furnished in Section IV, Tendering Forms. The forms must be completed without any alterations to the text, and no substitutes shall be accepted except as provided under ITT 20.3. All blank spaces shall be filled in with the information requested. The Tenderer shall chronologically serialize all pages of the tender documents submitted.

12.2 The Tenderer shall furnish in the Form of Tender information on commissions and gratuities, if any, paid or to be paid to agents or any other party relating to this Tender.

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.

- 134 When specified in the **TDS**, Tenderers are permitted to submit alternative technical solutions for specified parts of the Works, and such parts will be identified in the **TDS**, as will the method for their evaluating, and described in Section VII, Works' Requirements.

140 Tender Prices and Discounts

- 141 The prices and discounts (including any price reduction) quoted by the Tenderer in the Form of Tender and in the Bill of Quantities shall conform to the requirements specified below.
- 142 The Tenderer shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by the Tenderer shall be deemed covered by the rates for other items in the Bill of Quantities and will not be paid for separately by the Procuring Entity. An item not listed in the priced Bill of Quantities shall be assumed to be not included in the Tender, and provided that the Tender is determined substantially responsive notwithstanding this omission, the average price of the item quoted by substantially responsive Tenderers will be added to the Tender price and the equivalent total cost of the Tender so determined will be used for price comparison.
- 143 The price to be quoted in the Form of Tender, in accordance with ITT 12.1, shall be the total price of the Tender, including any discounts offered.
- 144 The Tenderer shall quote any discounts and the methodology for their application in the Form of Tender, in accordance with ITT 12.1.
- 145 It will be specified in the **TDS** if the rates and prices quoted by the Tenderer are or are not subject to adjustment during the performance of the Contract in accordance with the provisions of the Conditions of Contract, except in cases where the contract is subject to fluctuations and adjustments, not fixed price. In such a case, the Tenderer shall furnish the indices and weightings for the price adjustment formulae in the Schedule of Adjustment Data and the Procuring Entity may require the Tenderer to justify its proposed indices and weightings.
- 146 Where tenders are being invited for individual lots (contracts) or for any combination of lots (packages), tenderers wishing to offer discounts for the award of more than one Contract shall specify in their Tender the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Discounts shall be submitted in accordance with ITT 14.4, provided the Tenders for all lots (contracts) are opened at the same time.
- 147 All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 30 days prior to the deadline for submission of Tenders, shall be included in the rates and prices and the total Tender Price submitted by the Tenderer.

150 Currencies of Tender and Payment

- 151 The currency(ies) of the Tender and the currency(ies) of payments shall be the same.
- 152 Tenderers shall quote entirely in **Kenya Shillings**. The unit rates and the prices shall be quoted by the Tenderer in the Bill of Quantities, entirely in **Kenya shillings**.
- a) A Tenderer expecting to incur expenditures in other currencies for inputs to the Works supplied from outside Kenya (referred to as "the foreign currency requirements") shall (if so allowed in the **TDS**) indicate in the Appendix to Tender the percentage(s) of the Tender Price (excluding Provisional Sums), needed by the Tenderer for the payment of such foreign currency requirements, limited to no more than two foreign currencies.
- b) The rates of exchange to be used by the Tenderer in arriving at the local currency equivalent and the percentage(s) mentioned in (a) above shall be specified by the Tenderer in the Appendix to Tender and shall be based on the exchange rate provided by the Central Bank of Kenya on the date 30 days prior

to the actual date of tender opening. Such exchange rate shall apply for all foreign payments under the Contract.

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

- 171** Tenderers shall complete the Form of Tender, included in Section IV, Tender Forms, to establish Tenderer's eligibility in accordance with ITT 4.
- 172** In accordance with Section III, Evaluation and Qualification Criteria, to establish its qualifications to perform the Contract the Tenderer shall provide the information requested in the corresponding information sheets included in Section IV, Tender Forms.
- 173** If a margin of preference applies as specified in accordance with ITT 33.1, national tenderers, individually or in joint ventures, applying for eligibility for national preference shall supply all information required to satisfy the criteria for eligibility specified in accordance with ITT 33.1.
- 174** Tenderers shall be asked to provide, as part of the data for qualification, such information, including details of ownership, as shall be required to determine whether, according to the classification established by the Procuring Entity, a particular contractor or group of contractors qualifies for a margin of preference. Further the information will enable the Procuring Entity identify any actual or potential conflict of interest in relation to the procurement and/or contract management processes, or a possibility of collusion between tenderers, and thereby help to prevent any corrupt influence in relation to the procurement process or contract management.
- 175** The purpose of the information described in **ITT 17.4** above overrides any claims to confidentiality which a tenderer may have. There can be no circumstances in which it would be justified for a tenderer to keep information relating to its ownership and control confidential where it is tendering to undertake public sector work and receive public sector funds. Thus, confidentiality will not be accepted by the Procuring Entity as a justification for a Tenderer's failure to disclose, or failure to provide required information on its ownership and control.
- 176** The Tenderer shall provide further documentary proof, information or authorizations that the Procuring Entity may request in relation to ownership and control which information on any changes to the information which was provided by the tenderer under ITT 6.4. The obligations to require this information shall continue for the duration of the procurement process and contract performance and after completion of the contract, if any change to the information previously provided may reveal a conflict of interest in relation to the award or management of the contract.
- 177** All information provided by the tenderer pursuant to these requirements must be complete, current and accurate as at the date of provision to the Procuring Entity. In submitting the information required pursuant to these requirements, the Tenderer shall warrant that the information submitted is complete, current and accurate as at the date of submission to the Procuring Entity.
- 178** 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.
- 179** If information submitted by a tenderer pursuant to these requirements, or obtained by the Procuring Entity (whether through its own enquiries, through notification by the public or otherwise), shows any conflict of

interest which could materially and improperly benefit the tenderer in relation to the procurement or contract management process, then:

- i) If the procurement process is still ongoing, the tenderer will be disqualified from the procurement process,
- ii) if the contract has been awarded to that tenderer, the contract award will be set aside pending the outcome of (iii),
- iii) the tenderer will be referred to the relevant law enforcement authorities for investigation of whether the tenderer or any other person have committed any criminal offence.

17.10 If a tenderer submits information pursuant to these requirements that is incomplete, inaccurate or out-of-date, or attempts to obstruct the verification process, then the consequences of ITT 17.8 will ensue unless the tenderer can show to the reasonable satisfaction of the Procuring Entity that any such act was not material, or was due to genuine error which was not attributable to the intentional act, negligence or recklessness of the tenderer.

18.0 Period of Validity of Tenders

18.1. Tenders shall remain valid for the Tender Validity period specified in the **TDS**. The Tender Validity period starts from the date fixed for the Tender submission deadline (as prescribed by the Procuring Entity in accordance with ITT 22). A tender valid for a shorter period shall be rejected by the Procuring Entity as non-responsive.

18.2 In exceptional circumstances, prior to the expiration of the Tender validity period, the Procuring Entity may request Tenderers to extend the period of validity of their Tenders. The request and the 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.

- 196** The Tender Security of the successful Tenderer shall be returned as promptly as possible once the successful Tenderer has signed the Contract and furnished the required Performance Security, and any other documents required in the TDS.
- 197** The Tender Security may be forfeited or the Tender-Securing Declaration executed:
- a) if a Tenderer withdraws its Tender during the period of Tender validity specified by the Tenderer on the Form of Tender, or any extension there to provided by the Tenderer; or
 - b) if the successful Tenderer fails to:
 - i) sign the Contract in accordance with ITT 47; or
 - ii) furnish a Performance Security and if required in the TDS, and any other documents required in the TDS.
- 198** Where tender securing declaration is executed, the Procuring Entity shall recommend to the PPRA to debar the Tenderer from participating in public procurement as provided in the law.
- 199** The Tender Security or the Tender-Securing Declaration of a JV shall be in the name of the JV that submits the Tender. If the JV has not been legally constituted into a legally enforceable JV at the time of tendering, the Tender Security or the Tender-Securing Declaration shall be in the names of all future members as named in the letter of intent referred to in ITT 4.1 and ITT 11.2.
- 19.10** A tenderer shall not issue a tender security to guarantee itself.

200 *Format and Signing of Tender*

- 201** The Tenderer shall prepare one original of the documents comprising the Tender as described in ITT 11 and clearly mark it “ORIGINAL.” Alternative Tenders, if permitted in accordance with ITT 13, shall be clearly marked “ALTERNATIVE.” In addition, the Tenderer shall submit copies of the Tender, in the number specified in the **TDS** and clearly mark them “COPY.” In the event of any discrepancy between the original and the copies, the original shall prevail.
- 202** Tenderers shall mark as “CONFIDENTIAL” all information in their Tenders which is confidential to their business. This may include proprietary information, trade secrets, or commercial or financially sensitive information.
- 203** The original and all copies of the Tender shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Tenderer. This authorization shall consist of a written confirmation as specified in the **TDS** and shall be attached to the Tender. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the Tender where entries or amendments have been made shall be signed or initialed by the person signing the Tender.
- 204** 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.
- 205** Any inter-lineation, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the Tender.

D. SUBMISSION AND OPENING OF TENDERS

210 *Sealing and Marking of Tenders*

- 211** The Tenderer shall deliver the Tender in a single sealed envelope, or in a single sealed package, or in a single sealed container bearing the name and Reference number of the Tender, addressed to the Procuring Entity and a warning not to open before the time and date for Tender opening date. Within the single envelope, package or container, the Tenderer shall place the following separate, sealed envelopes:
- a) in an envelope or package or container marked “ORIGINAL”, all documents comprising the Tender, as described in ITT 11; and
 - b) in an envelope or package or container marked “COPIES”, all required copies of the Tender; and
 - c) if alternative Tenders are permitted in accordance with ITT 13, and if relevant:

- i) in an envelope or package or container marked “ORIGINAL –ALTERNATIVE TENDER”, the alternative Tender; and
- ii) in the envelope or package or container marked “COPIES- ALTERNATIVE TENDER”, all required copies of the alternative Tender.

The inner envelopes or packages or containers shall:

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

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

22.0 *Deadline for Submission of Tenders*

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

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

23.0 *Late Tenders*

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

24.0 *Withdrawal, Substitution, and Modification of Tenders*

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

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

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

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

25. *Tender Opening*

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

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

E. EVALUATION AND COMPARISON OF TENDERS

26 Confidentiality

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

27.0 Clarification of Tenders

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

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

28.0 *Deviations, Reservations, and Omissions*

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

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

29.0 *Determination of Responsiveness*

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

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

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

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

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

30.0 *Non-material Non-conformities*

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

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

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

31.0 *Arithmetical Errors*

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

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

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

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

32.0 *Conversion to Single Currency*

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

330 *Margin of Preference and Reservations*

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

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

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

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

340 *Nominated Subcontractors*

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

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

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

35. *Evaluation of Tenders*

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.

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

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

36.0 Comparison of tenders

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

37.0 Abnormally low tenders and abnormally high tenders

Abnormally Low Tenders

371 An Abnormally Low Tender is one where the Tender price, in combination with other elements of the Tender, appears so low that it raises material concerns as to the capability of the Tenderer in regards to the Tenderer's ability to perform the Contract for the offered Tender Price or that genuine competition between Tenderers is compromised.

372 In the event of identification of a potentially Abnormally Low Tender, the Procuring Entity shall seek written clarifications from the Tenderer, including detailed price analyses of its Tender price in relation to the subject matter of the contract, scope, proposed methodology, schedule, allocation of risks and responsibilities and any other requirements of the Tender document.

373 After evaluation of the price analyses, in the event that the Procuring Entity determines that the Tenderer has failed to demonstrate its capability to perform the Contract for the offered Tender Price, the Procuring Entity shall reject the Tender.

Abnormally high tenders

374 An abnormally high tender price is one where the tender price, in combination with other constituent elements of the Tender, appears unreasonably too high to the extent that the Procuring Entity is concerned that it (the Procuring Entity) may not be getting value for money or it may be paying too high a price for the contract compared with market prices or that genuine competition between Tenderers is compromised.

375 In case of a normally high price, the Procuring Entity shall make a survey of the market prices, check if the estimated cost of the contract is correct and review the Tender Documents to check if the specifications, scope of work and conditions of contract are contributory to the abnormally high tenders. The Procuring Entity may also seek written clarification from the tenderer on the reason for the high tender price. The Procuring Entity shall proceed as follows:

- i) If the tender price is abnormally high based on wrong estimated cost of the contract, the Procuring Entity may accept or not accept the tender depending on the Procuring Entity's budget considerations.
- ii) If specifications, scope of work and/or conditions of contract are contributory to the abnormally high tender prices, the Procuring Entity shall reject all tenders and may retender for the contract based on revised estimates, specifications, scope of work and conditions of contract, as the case may be.

376 If the Procuring Entity determines that the Tender Price is abnormally too high because genuine competition between tenderers is compromised (*often due to collusion, corruption or other manipulations*), the

Procuring Entity shall reject all Tenders and shall institute or cause competent Government Agencies to institute an investigation on the cause of the compromise, before retendering.

38.0 *Unbalanced and/ or front-loaded tenders*

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 it 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	The name of the contract is PROPOSED LABORATORIES AND OFFICES AT GDC KABARAK YARD IN NAKURU The reference number of the Contract is GDC/GRA/OT/056/2024-2025
ITT 2.4	The Information made available on competing firms is as follows: NOT APPLICABLE
ITT 2.4	The firms that provided consulting services for the contract being tendered for are: JKUATES LTD
ITT 3.1	Maximum number of members in the Joint Venture (JV) shall be: Not applicable.
B. Contents of Tender Document	
ITT 7.1	(i) The Tenderer will submit any request for clarifications in writing at the Address below: Manager, Supply Chain Management Geothermal Development Company Limited, Kawi House, South C, Bellevue Off Mombasa Road, Red Cross Road P.O. Box 100746 – 00101 NAIROBI, KENYA E-mail: procurement@gdc.co.ke; copy to pkapto@gdc.co.ke And copy to: - General Manager, Geothermal Resource Development Geothermal Development Company Ltd, P.O Box 100746 – 00101, Nairobi-Kenya E-mail: cofowona@gdc.co.ke copy awamalwa@gdc.co.ke to reach the Procuring Entity not later than: Seven (7) days before tender opening date. (ii) The Procuring Entity shall publish it's response at the website: www.gdc.go.ke . and www.tenders.go.ke
ITT 7.2	(A) A Mandatory Site Visit shall take place at the following date, time and place: Date: Wednesday 25th June 2025 Time: 11:00am Place: Kabarak Yard in Nakuru

Reference to ITC Clause	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
	<p>Notes for the Mandatory Site Visit:</p> <ul style="list-style-type: none"> i. Bidders are required to Assemble at GDC Polo Centre Office by 9:30am and thereafter by 10:00am to proceed to Kabarak yard for the Site visit) ii. Site Visit shall be held strictly on the specified date and time only iii. Site Visit certificate shall be issued to tenderers present iv. Tenderers or their representative present must sign off the attendance register v. Tenderers should arrange for their own transport and accommodation during the site visit. <p>(B) Pre-Tender meeting shall be N/A.</p> <p>Tenderers are advised to familiarize themselves with the site and take into account all relevant information when preparing their tenders.</p>
ITT 7.3	The Tenderer will submit any questions in writing, to reach the Procuring Entity not later than Seven (7) days before the tender closing date.
ITT 7.5	The Procuring Entity’s website where Minutes of the pre-Tender meeting and the pre-arranged pretender will be published is _____
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> <ul style="list-style-type: none"> (1) Name of Procuring Entity: Geothermal Development Company Limited (2) Physical address for hand Courier Delivery to an office or Tender Box: Kawi House, South C, Red Cross Road, Off Popo Road, Nairobi (3) Postal Address :P. O. Box 100746-00101 Nairobi. (4) Insert name, telephone number and e-mail address of the officer to be contacted : Manager, Supply Chain, Tel: 0719-037000, Email: procurement@gdc.go.ke copy to pkapto@gdc.co.ke
C. Preparation of Tenders	
ITT 11.1 (h)	<p>The Tenderer shall submit the following additional documents in its Tender: <i>[list any additional document not already listed in ITT 11.1 that must be submitted with the Tender. The list of additional documents should include the following:]</i></p> <p>All other documents required under “Evaluation and pre-qualification criteria” section</p>
ITT 13.1	Alternative Tenders <i>shall not be</i> considered.
ITT 13.2	Alternative times for completion <i>shall not be permitted.</i>
ITT 13.4	Alternative technical solutions <i>shall not be</i> permitted for the following parts of the Works: <i>All works except where otherwise indicated in the item description.</i>
ITT 14.5	The prices quoted by the Tenderer shall be: <i>Subject to adjustment as provided for in the contract.</i>
ITT 15.2 (a)	Foreign currency requirements: Not allowed.
ITT 18.1	The Tender validity period shall be <i>120 days from the date of tender opening.</i>

Reference to ITC Clause	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
ITT 18.3	N/A
ITT 19.1	<p>Tender shall provide a Tender Security</p> <p>Bidders are required to Provide tender security of Kshs. 6,000,000.00 valid for 150 days from the date of tender opening in the following form;</p> <p>(a) cash;</p> <p>(b) a bank guarantee;</p> <p>(c) a guarantee by an insurance company registered and licensed by the Insurance Regulatory Authority listed by the Public Procurement Regulatory Authority</p> <p>(d) a guarantee issued by a financial institution approved and licensed by the Central Bank of Kenya</p> <p>NB: Electronic tender securities are acceptable and shall be authenticated using the QR scanner or via the issuing institution's online portal.</p> <p>The hard copy of the Original Tender Security/ E- Tender securities clearly labeled with tender name and tender description should be attached to the bid document.</p> <p>Bidders that intend to pay using cash must pay at any GDC Cash office (Nairobi, Nakuru and Baringo). The receipt must be attached with the submitted bid.</p>
ITT 20.1	In addition to the original of the Tender, the number of copies is: 1 Copy
ITT 20.3	The written confirmation of authorization to sign on behalf of the Tenderer shall consist of: Provide a Power of Attorney in Company's letterhead nominating a person to transact on behalf of the company duly signed by the Company's Director/s and witnessed by an advocate.
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 style="text-align: center;">Managing Director & CEO</p> <p style="text-align: center;">Geothermal Development Company Ltd – Kawi House, South C,</p> <p style="text-align: center;">Red Cross Road, off Popo Road</p> <p style="text-align: center;">P.O Box 100746-00101, NAIROBI</p> <p>Bid document to be deposited in the Tender Box located at Geothermal Development Company Limited Kawi House, South C, Red Cross Road, Off Popo Road, Nairobi.</p> <p>Date and time for submission of Tenders Wednesday 9th July 2025 at 11:00Am</p> <p>Tenders 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>Kawi house, South C GDC Offices ground floor board room on Wednesday 9th July 2025 at 11:00am</p> <p>DATE AND TIME AS PER ITT 22.1 ABOVE</p>

Reference to ITC Clause	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
ITT 25.1	If Tenderers are allowed to submit Tenders electronically, they shall follow the electronic tender submission procedures specified : N/A _____ _____
E. Evaluation, and Comparison of Tenders	
ITT 30.3	The adjustment shall be based on the _____ “average” price of the item or component as quoted in other substantially responsive Tenders. If the price of the item or component cannot be derived from the price of other substantially responsive Tenders, the Procuring Entity shall use its best estimate.
TT 32.1	The currency that shall be used for Tender evaluation and comparison purposes only to convert at the selling exchange rate all Tender prices expressed in various currencies into a single currency is: _____ <i>N/A</i> The source of exchange rate shall be: The Central bank of Kenya (mean rate) The date for the exchange rate shall be: the deadline date for Submission of the Tenders. <i>N/A</i> Tenderers shall quote entirely in Kenya Shillings Only.
ITT 33.2	A margin of preference “shall not” apply. <i>[If a margin of preference applies, the application methodology shall be defined in <u>Section III – Evaluation and Qualification Criteria.</u>]</i>
ITT 33.4	The invitation to tender is extended to the following group that qualify for Reservations: <i>N/A</i>
ITT 34.1	At this time, the Procuring Entity “does not intend” to execute the following specific parts of the Works by nominated separate contractors: <i>None</i>
ITT 34.2	Contractor’s may propose subcontracting: Maximum percentage of subcontracting permitted is: <u>30</u> % of the total contract amount. Tenderers planning to subcontract more than 10% of total volume of work shall specify, in the Form of Tender, the activity (ies) or parts of the Works to be subcontracted along with complete details of the subcontractors and their qualification and experience.
ITT 34.3	The parts of the Works for which the Procuring Entity permits Tenderers to propose Specialized Subcontractors are designated as follows: <i>N/A</i>

Reference to ITC Clause	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
	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 N/A
ITT 35.2 (e)	Additional requirements apply. These are detailed in the evaluation criteria in Section III, Evaluation and Qualification Criteria.
ITT 48.1	<p>Other documents required in addition to the Performance Security are:</p> <p><i>Valid Contractor’s All Risks Insurance</i></p> <p><i>Valid Third party insurance</i></p> <p><i>Valid WIBA insurance</i></p>
ITT 50.1	<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:</p> <p>For the attention: <i>The Managing Director</i></p> <p>Title/position: <i>The Managing Director</i></p> <p>Procuring Entity: <i>Geothermal Development Company Limited</i></p> <p>Email address: <i>md@gdc.go.ke</i></p> <p>In summary, a Procurement-related Complaint may challenge any of the following (among others):</p> <p>(i) the terms of the Tender Documents; and</p> <p>(ii) the Procuring Entity’s decision to award the contract.</p>

SECTION III - EVALUATION AND QUALIFICATION CRITERIA

10 GENERAL PROVISIONS

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

13 EVALUATION AND CONTRACT AWARD CRITERIA

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

2.0 PRELIMINARY EXAMINATION FOR DETERMINATION OF RESPONSIVENESS

Preliminary examination for Determination of Responsiveness

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

Preliminary evaluation (Mandatory requirements)

To be deemed as responsive, tenders shall be checked for the following mandatory requirements

Item	Description	Remark (×/√)
A	In relation to Tenderer/ Main contractor	
1	Dully filled forms (Original): a) Form of tender, b) Confidential business questionnaire, c) Certificate of independent tender determination, d) Self-declaration forms SD1 and SD2 and e) Declaration and commitment to the code of ethics	
2	<p>Bidders are required to Provide tender security of Kshs. 6,000,000.00 valid for 150 days from the date of tender opening in the following form;</p> <p>(a) cash;</p> <p>(b) a bank guarantee;</p> <p>(c) a guarantee by an insurance company registered and licensed by the Insurance Regulatory Authority listed by the Public Procurement Regulatory Authority</p> <p>(d) a guarantee issued by a financial institution approved and licensed by the Central Bank of Kenya</p> <p>NB: Electronic tender securities are acceptable and shall be authenticated using the QR scanner or via the issuing institution's online portal.</p> <p>The hard copy of the Original Tender Security/ E- Tender securities clearly labeled with tender name and tender description should be attached to the bid document.</p> <p>Bidders that intend to pay using cash must pay at any GDC Cash office (Nairobi, Nakuru and Baringo). The receipt must be attached with the submitted bid.</p>	
3	Company certificate of registration or incorporation (Provide Copy certified by an advocate)	
4	Current registration certificate and annual practicing license with National Construction Authority (NCA) for Building Works Category NCA1 (Provide copies of Current NCA registration and annual license)	
5	VAT/PIN registration certificate (Copy)	
6	Power of attorney of the signatory witnessed by an advocate (Copy)	
7	Copy of Certificate of Confirmation of Directors and Shareholding (CR12 for companies) issued within the last twelve (12) months for limited companies and identity documents (National ID's or Passports) for the directors/proprietor certified by an advocate	
8	All the pages in the tender document including all attachments must be serially numbered and the document should be bound	
9	Details of proposed electrical sub-contractor: Attach letter introducing the proposed sub-contractor, the sub-contractors certificate of registration/incorporation and their current registration and license by NCA for electrical works (Minimum category NCA 3)	

10	Details of proposed plumbing sub-contractor: Attach letter introducing the proposed sub-contractor, the sub-contractors certificate of registration/incorporation and their current registration and license by NCA for plumbing works (Minimum category NCA 3)	
11	Tenderer must have attended the pre-tender site visit and meeting. Attach original attendance certificate.	
	CONCLUSIVE REMARK (RESPONSIVE OR NON-RESPONSIVE)	

30 TENDER EVALUATION (ITT 35); NB-NOT APPLICABLE

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 ITT 13.2, 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):
.....

40 MULTIPLE CONTRACTS; NB-NOT APPLICABLE

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

OPTION 1

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

OPTION2

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): NB- NOT APPLICABLE.

Alternative Tenders (ITT 13.1)

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

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

60 MARGIN OF PREFERENCE: NB- NOT APPLICABLE.

- 61** If the TDS so specifies, the Procuring Entity will grant a margin of preference of fifteen percent (15%) to be loaded on evaluated prices of the foreign tenderers, where the percentage of 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: REFER TO QUALIFICATION TABLE

IN THE NEXT PAGE

- a) In case the tender was subject to post-qualification, the contract shall be awarded to the lowest evaluated tenderer, subject to confirmation of pre-qualification data, if so required.
- b) In case the tender was not subject to post-qualification, the tender that has been determined to be the lowest evaluated tenderer shall be considered for contract award, subject to meeting each of the following conditions.
 - i) The Tenderer shall demonstrate that it has access to, or has available, liquid assets, unencumbered real assets, lines of credit, and other financial means (independent of any contractual advance payment) sufficient to meet the construction cash flow of Kenya Shillings _____
 - ii) Minimum average annual construction turnover of Kenya Shillings _____ *[insert amount]*, equivalent calculated as total certified payments received for contracts in progress and/or completed within the last _____ *[insert of year]* years.
 - iii) At least _____ *(insert number)* 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 _____ equivalent.
 - iv) Contractor's Representative and Key Personnel, which are specified as _____
 - v) Contractors key equipment listed on the table "Contractor's Equipment" below and more specifically listed as *[specify requirements for each lot as applicable]* _____
 - iv) 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 _____ (*specify 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 _____ (*specify 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.

QUALIFICATION FORM (TECHNICAL EVALUATION)

1	2	3	4	5	6
Item No.	Qualification Subject	Qualification Requirement	Document To be Completed by Tenderer	Met or not met / score	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	<i>Must meet requirement</i>	
2	Tax Obligations for Kenyan Tenderers	Has produced a current tax clearance certificate or tax exemption certificate issued by Kenya Revenue Authority in accordance with ITT 3.14.	Attachment	<i>Must meet requirement</i>	
3	Conflict of Interest	No conflicts of interest in accordance with ITT 3.3	Form of Tender	<i>Must meet requirement</i>	
4	PPRA Eligibility	Not having been declared ineligible by the PPRA as described in ITT 3.7	Form of Tender	<i>Must meet requirement</i>	
5	State- owned Enterprise	Meets conditions of ITT 3.8	Forms ELI – 1.1 and 1.2, with attachments	<i>Must meet requirement</i>	
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	<i>Must meet requirement</i>	
7	History of Non-Performing Contracts	Non-performance of a contract did not occur as a result of contractor default since 1 st January [2020].	Form CON-2	<i>Must meet requirement</i>	
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	<i>Must meet requirement</i>	
9	Pending Litigation	Tender's financial position and prospective long-term profitability still sound according to criteria	Form CON – 2	<i>5 Points</i>	

1	2	3	4	5	6
Item No.	Qualification Subject	Qualification Requirement	Document To be Completed by Tenderer	Met or not met / score	For Procuring Entity's Use (Qualification met or Not Met)
		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 1st January 2017	Form CON – 2 and attach affidavit	5 Points	
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 (15% of the tender sum) 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 [Three years certified and complete Audited accounts i.e 2021,2022,2023] years shall be submitted and must demonstrate the current soundness of the Tenderer's financial position and indicate its prospective long-term profitability. (should have made profits in at least two years requested above)</p>	Form FIN – 3.1, with attachments	5 Points 2 Points 3 points	

1	2	3	4	5	6
Item No.	Qualification Subject	Qualification Requirement	Document To be Completed by Tenderer	Met or not met / score	For Procuring Entity's Use (Qualification met or Not Met)
12	Average Annual Construction Turnover	<p>Minimum average annual construction turnover of Kenya Shillings <i>[as a % of tender sum]</i>, equivalent calculated as total certified payments received for contracts in progress and/or completed within the last <i>(Three)</i> years, divided by <i>[Three]</i> years</p> <ul style="list-style-type: none"> • <i>None or lower turnover than 25% of tender sum ...0 points</i> • <i>25% of tender sum ---- 5 points</i> • <i>50% of tender sum ---- 10 points</i> • <i>100% of tender sum ----- 15 points</i> 	Form FIN – 3.2	10 Points	
13	General Construction Experience	<p>Experience under construction contracts in the role of prime contractor, JV member, sub-contractor, or management contractor for at least the last <i>[Three]</i> years, starting 1st January 2022.</p> <ul style="list-style-type: none"> • <i>One year experience - 3 points</i> • <i>Two years' experience - 6 points</i> • <i>Three years' experience - 10 points</i> 	Form EXP – 4.1 and attach evidence	10 Points	
14	Specific Construction & Contract Management Experience	<p>A minimum number of <i>[Three]</i> 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 <i>[2020]</i> and tender submission deadline i.e. Three (3) contracts, each of minimum value Kenya shillings.....33% of tender sum equivalent.</p> <p>The similarity of the contracts shall be based on the following: <i>(Type of work and value)</i></p> <ul style="list-style-type: none"> • <i>10 points per project</i> 	<p>Form EXP 4.2(a)</p> <p>Attach completion certificate</p> <p>or</p> <p>The contracts with recommendation letters from by Project Manager/s showing satisfactory performance and completion</p>	30 Points	

1	2	3	4	5	6
Item No.	Qualification Subject	Qualification Requirement	Document To be Completed by Tenderer	Met or not met / score	For Procuring Entity's Use (Qualification met or Not Met)
15	Contractor's Equipment	<p>Schedule of contractors equipment (NB: Full score for owned equipment and 50% score for leased equipment)</p> <ul style="list-style-type: none"> • Transport equipment (5 points for a truck of at least 14 tons to a maximum of 1 trucks) -5 points • Excavation equipment (5 points for excavation equipment (360° crawler excavator) to a maximum of 1 excavator)-5 points • Concrete mixer/batching plant of minimum 30m3/Hr to a maximum of 1 mixer -5 points • Concrete pump of minimum 30m3/Hr to a maximum of 1 pump -5 points 	<p>Form Equ</p> <p><i>log books for vehicles, purchase receipts for equipment or lease agreements to be attached</i></p> <p><i>(Lease agreements must be current and specific)</i></p>	20 points	
16	Contractor's Personnel	<p>Qualifications and experience of key personnel</p> <ul style="list-style-type: none"> • Director of the firm/C.E.O who is a holder of degree or diploma in relevant building and/or construction discipline- 4 points • Site agent or site manager ditto- 3 points • Site foremen (at least 1) holders of diploma-3 points each 	<p>FORMS PER 1 AND PER 2 with CVs and certificates attached (NB: The CVs must be signed by the proposed personnel)</p>	10 points	

Only tenders that meet the requirements in item number 1-8 and score 70 points and above in item numbers 9-16 shall proceed to the next stage (Financial evaluation).

FINANCIAL EVALUATION

Determination of the **lowest evaluated bidder** shall be done in accordance with ITT 31 and ITT 36-40. The procuring entity may also carry out due diligence/post qualification relating to confirmation of information submitted by the bidder. Any bidder found to have supplied forged documents, or false or misleading information shall be disqualified. Bidders must quote for schedules/BQ in completeness

Note: No correction of arithmetic errors - 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.

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				

ITEM	Description of Work Item	Describe location of Source	COST in K. shillings	Comments, if any
E	Add any other items			
1				
2				
3				
4				
5				
6				
	TOTAL COST LOCAL CONTENT		XXXXX	
	PERCENTAGE OF CONTRACT PRICE			

2. 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
	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	

3. FORM PER -1

Contractor's Representative and Key Personnel Schedule

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

Contractor' Representative and Key Personnel

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

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

4. FORM PER - 2:

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

Name of Tenderer

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

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

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

Declaration

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

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

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

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

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

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

Signature: _____

Date: (day month year): _____

Countersignature of authorized representative of the Tenderer:

Signature: _____

Date: (day month year): _____

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.

51 FORM ELI -1.1

Tenderer Information Form

Date: _____

ITT No. and title: _____

Tenderer's name
In case of Joint Venture (JV), name of each member:
Tenderer's actual or intended country of registration: <i>[indicate country of Constitution]</i>
Tenderer's actual or intended year of incorporation:
Tenderer's legal address [in country of registration]:
Tenderer's authorized representative information Name: _____ Address: _____ Telephone/Fax numbers: _____ E-mail address: _____
1. Attached are copies of original documents of <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 <input type="checkbox"/> In case of JV, letter of intent to form JV or JV agreement, in accordance with ITT 3.5 <input type="checkbox"/> In case of state-owned enterprise or institution, in accordance with ITT 3.8, documents establishing: <ul style="list-style-type: none">• Legal and financial autonomy• Operation under commercial law <ol style="list-style-type: none">1. Establishing that the Tenderer is not under the supervision of the Procuring Entity2. Included are the organizational chart and a list of Board of Directors

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

Date: _____

ITT No. and title: _____

Tenderer's JV name:
JV member's name:
JV member's country of registration:
JV member's year of constitution:
JV member's legal address in country of constitution:
JV member's authorized representative information Name: _____ Address: _____ Telephone/Fax numbers: _____ E-mail address: _____
1. Attached are copies of original documents of <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. <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.
2. Included are the organizational chart and a list of Board of Directors.

Historical Contract Non-Performance, Pending Litigation and Litigation History

Tenderer's Name: _____
 Date: _____
 JV Member's Name _____
 ITT No. and title: _____

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

- Contract non-performance did not occur since 1st January [*insert year*] specified in Section III, Evaluation and Qualification Criteria, Sub-Factor 2.1.
- Contract(s) not performed since 1st January [*insert year*] specified in Section III, Evaluation and Qualification Criteria, requirement 2.1
- Contract(s) withdrawn since 1st January [*insert year*] specified in Section III, Evaluation and Qualification Criteria, requirement 2.1

Year	Non- performed portion of contract	Contract Identification	Total Contract Amount (current value, currency, exchange rate and Kenya Shilling equivalent)
[<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 Amount Kenya Equivalent (rate)	Contract (currency), Shilling (exchange rate)
		Contract Identification: _____ Name of Procuring Entity: _____ Address of Procuring Entity: _____ Matter in dispute: _____ Party who initiated the dispute: _____ Status of dispute: _____		
		Contract Identification: Name of Procuring Entity: Address of Procuring Entity: Matter in dispute: Party who initiated the dispute: Status of dispute:		
Litigation History in accordance with Section III, Evaluation and Qualification Criteria				
<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: <i>[indicate complete contract name, number, and any other identification]</i> Name of Procuring Entity: <i>[insert full name]</i> Address of Procuring Entity: <i>[insert street/city/country]</i> Matter in dispute: <i>[indicate main issues in dispute]</i> Party who initiated the dispute: <i>[indicate "Procuring Entity" or "Contractor"]</i> Reason(s) for Litigation and award decision <i>[indicate main reason(s)]</i>	<i>[insert amount]</i>	

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

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.

5.6 FORM FIN – 3.3:

Financial Resources

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

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

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:	

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

Specific Construction and Contract Management Experience (cont.)

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

5.10 FORM EXP - 4.2(b)

Construction Experience in Key Activities

Tenderer's Name: _____

Date: _____

Tenderer's JV Member Name: _____

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

ITT No. and title: _____

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

1. Key Activity No One: _

Information				
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor <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.

OTHER FORMS

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:

Request for Tender No.: *GDC/GRA/OT/056/2024-2025*

Name and description of Tender *PROPOSED LABORATORIES AND OFFICES AT GDC YARD IN KABARAK NAKURU*

To: *GEOTHERMAL DEVELOPMENT COMPANY LIMITED*

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

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

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

- ii) Eligibility: We meet the eligibility requirements and have no conflict of interest in accordance with ITT 3 and 4;
- iii) Tender - Securing Declaration: We have not been suspended nor declared ineligible by the Procuring Entity based on execution of a Tender-Securing or Proposal-Securing Declaration in the Procuring Entity's Country in accordance with ITT 19.8;
- iv) Conformity: We offer to execute in conformity with the tendering documents and in accordance with the implementation and completion specified in the construction schedule, the following Works: *[insert a brief description of the Works]*;
- v) Tender Price: The total price of our Tender, excluding any discounts offered in item 1 above is: *[Insert one of the options below as appropriate]*
- vi) Option 1, incase 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, Project Manager, 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 www.ppra.go.ke during the procurement process and the execution of any resulting contract.
- xxi) **Beneficial Ownership Information:** We commit to provide to the procuring entity the Beneficial Ownership Information in conformity with the Beneficial Ownership Disclosure Form upon receipt of notification of intention to enter into a contract in the event we are the successful tenderer in this subject procurement proceeding.
- xxii) We, the Tenderer, have duly completed, signed and stamped the following Forms as part of our Tender:
 - a) Tenderer's Eligibility; Confidential Business Questionnaire - to establish we are no tin any conflict to interest.
 - (b) Certificate of Independent Tender Determination - to declare that we completed the tender without colluding with other tenderers.
 - (a) Self-Declaration of the Tenderer - to declare that we will, if awarded a contract, not engage in any form of fraud and corruption.
 - (d) Declaration and commitment to the Code of Ethics for Persons Participating in Public Procurement and Asset Disposal.

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

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

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

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

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

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

Date signed _____ day of _____, _____

Notes

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

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

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

Instruction to Tenderer

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

(a) ***Tenderer's details***

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

General and Specific Details

(b) **Sole Proprietor**, provide the following details.

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

(c) **Partnership**, provide the following details.

	Names of Partners	Nationality	Citizenship	% Shares owned
1				
2				
3				

(d) **Registered Company**, provide the following details.

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

Nominal Kenya Shillings (Equivalent).....

Issued Kenya Shillings (Equivalent).....

- iii) Give details of Directors as follows.

	Names of Director	Nationality	Citizenship	% Shares owned
1				
2				
3				

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

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

If yes, provide details as follows.

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

(iii) *Conflict of interest disclosure*

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

	Type of Conflict	Disclosure YES OR NO	If YES provide details of the relationship with Tenderer
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]: TICK A OR B BELOW;**
 - 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 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.

.....
(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.....

PROPOSED LABORATORIES AND OFFICES AT GDC KABARAK YARD IN NAKURU

PRE-TENDER SITE VISIT CERTIFICATE

Date _____

This is to confirm that (name and address of tenderer) _____

has attended the pre tender site visit.

Name of tenderer's representative

Signature

Name of Authorized Officer of Procurement Entity

Signature

Stamp

(To be signed by authorized representative of procuring entity and officially stamped)

(d) APPENDIX 1 - FRAUD AND CORRUPTION

(Appendix 1 shall not be modified)

1. Purpose

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

2. Requirements

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

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

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

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

- a) Defines broadly, for the purposes of the above provisions, the terms set forth below as follows:
- i) “corrupt practice” is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;
 - ii) “fraudulent practice” is any act or omission, including is representation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain financial or other benefit or to avoid an obligation;
 - iii) “collusive practice” is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party; “coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
 - iv) “obstructive practice” is:
 - Deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede investigation by Public Procurement Regulatory Authority (PPRA) or any other appropriate authority appointed by Government of Kenya into allegations of a corrupt, fraudulent, coercive, or collusive practice; and/or threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or
 - acts intended to materially impede the exercise of the PPRA's or the appointed authority's inspection and audit rights provided for under paragraph 2.3 e. below.
- b) Defines more specifically, in accordance with the above procurement Act provisions set forth for fraudulent and collusive practices as follows:

"fraudulent practice" includes a misrepresentation of fact in order to influence a procurement or disposal process or the exercise of a contract to the detriment of the procuring entity or the tenderer or the contractor, and includes collusive practices amongst tenderers prior to or after tender submission designed to establish tender prices at artificial non-competitive levels and to deprive the procuring entity of the benefits of free and open competition.

- c) Rejects a proposal for award¹ of a contract if PPRA determines that the firm or individual recommended for award, any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/ or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;
- d) Pursuant to the Kenya's above stated Acts and Regulations, may recommend to appropriate authority(ies) for sanctioning and debarment of a firm or individual, as applicable under the Acts and Regulations;
- e) Requires that a clause be included in Tender documents and Request for Proposal documents requiring(i) Tenderers (applicants/proposers), Consultants, Contractors, and Suppliers, and their Sub-contractors, Sub-consultants, Service providers, Suppliers, Agents personnel, permit the PPRA or any other appropriate authority appointed by Government of Kenya to inspect² all accounts, records and other documents relating to the procurement process, selection and/or contract execution, and to have them audited by auditors appointed by the PPRA or any other appropriate authority appointed by Government of Kenya; and
- f) Pursuant to Section 62 of the above Act, requires Applicants/Tenderers to submit along with their Applications/Tenders/Proposals a “Self-Declaration Form” as included in the procurement document declaring that they and all parties involved in the procurement process and contract execution have not engaged/will not engage in any corrupt or fraudulent practices.

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- THE CONDITIONS OF CONTRACT AND CONTRACT

SECTION V - GENERAL CONDITIONS OF CONTRACT (GCC)

PROCURING ENTITY: GEOTHERMAL DEVELOPMENT COMPANY LTD

CONTRACT: PROPOSED LABORATORIES AND OFFICES AT KABARAK NAKURU

**CONSULTANT: JKUATES LTD
P.O BOX 62000-00200
NAIROBI**

General Conditions of Contract

1 GENERAL PROVISIONS

1.1 Definitions

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

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

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

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

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

“**Contract Price**” means the price defined in the contract and 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 are actual and interpretative about the surface and sub-surface condition at 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 made, and resulting in a permanent record; and

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

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 for 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

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

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

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

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 assign the whole or any part with the prior consent of the Procuring Entity, and

- b) may, as security in favor of a bank or financial institution, assign its right to moneys due, or to become due, under the Contract.

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

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

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

1.13 Compliance with Laws

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

- a) The Procuring Entity shall have obtained (or shall obtain) the planning, zoning, building permit or similar permission for the Permanent Works, and any other permissions described in the Specifications as having been (or to be) obtained by the Procuring Entity; and the Procuring Entity shall indemnify and hold the Contractor harmless against and from the consequences of any failure to do so; and
- b) the Contractor shall give all notices, pay all taxes, duties and fees, and obtain all permits, licenses and approvals, as required by the Laws in relation to the execution and completion of the Works and the remedying of any defects; and the Contractor shall indemnify and hold the Procuring Entity harmless against and from the consequences of any failure to do so, unless the Contractor is impeded to accomplish these actions and shows evidence of its diligence.

1.14 Joint and Several Liability

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

- a) These persons shall be deemed to be jointly and severally liable to the Procuring Entity for the performance of the Contract;
- b) these persons shall notify the Procuring Entity of their leader who shall have authority to bind the Contractor and each of these persons; and

- c) the Contractor shall not alter its composition or legal status without the prior consent of the Procuring Entity.

1.15 Inspections and Audit by the Procuring Entity

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

2 THE PROCURING ENTITY

21 Right of Access to the Site

- 21.1 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.
- 21.2 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].
- 21.3 If the Contractor suffers delay and/or incurs Cost as a result of a failure by the Procuring Entity to give any such right or possession within such time, the Contractor shall give notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
 - a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
 - b) payment of any such Cost-plus profit, which shall be included in the Contract Price.
- 21.4 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.
- 21.5 However, if and to the extent that the Procuring Entity's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time, Cost or profit.

22 Permits, Licenses or Approvals

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

23 *Procuring Entity's Personnel*

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

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

24 *Procuring Entity's Financial Arrangements*

The Procuring Entity shall make and maintain all necessary financial arrangements which will enable the Procuring Entity to pay the Contract Price punctually (as estimated at that time) in accordance with Clause 14 [Contract Price and Payment].

3 *THE ENGINEER*

3.1 *Architect Duties and Authority*

3.1.1 The Procuring Entity shall appoint the Architect who shall carry out the duties as signed to him in the Contract. The Architect staff shall include suitably qualified Assistants and other professionals who are competent to carry out these duties. The Architect Name and Address shall be provided in the **Special Conditions of Contract**.

3.1.2 The Architect shall have no authority to amend the Contract.

3.1.3 The Architect May exercise the authority attributable to the Architect as specified in or necessarily to be implied from the Contract. If the Architect is required to obtain the approval of the Procuring Entity before exercising a specified authority, the requirements shall be as stated in the **Special Conditions of Contract**. The Procuring Entity shall promptly inform the Contractor of any change to the authority attributed to the Engineer.

3.1.4 However, whenever the Architect exercises a specified authority for which the Procuring Entity's approval is required, then (for the purposes of the Contract) the contractor shall require the Architect to provide evidence of such approval before complying with the instruction.

3.1.5 Except as otherwise stated in these Conditions:

- a) Whenever carrying out duties or exercising authority, specified in or implied by the Contract, the Architect shall be deemed to act for the Procuring Entity;
- b) the Architect has no authority to relieve either Party of any duties, obligations or responsibilities under the Contract;
- c) any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by the Architect (including absence of disapproval) shall not relieve the Contractor from any responsibility he has under the Contract, including responsibility for errors, omissions, discrepancies and non-compliances; and
- d) any act by the Architect in response to a Contractor's request shall be notified in writing to the Contractor within 14 days of receipt.

3.1.6 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.
- 3.1.7 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

- 3.2.1 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].
- 3.2.2 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

- 3.3.1 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.
- 3.3.2 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,
 - b) receives a written confirmation of the instruction, from (or on behalf of) the Contractor, within two working days after giving the instruction, and
 - c) does not reply by issuing a written rejection and/or instruction within two working days after receiving the confirmation,

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

3.4 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.

3.5 Determinations

3.5.1 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].

4 THE CONTRACTOR

4.1 Contractor's General Obligations

4.1.1 The Contractor shall design (to the extent specified in the Contract), execute and complete the Works in accordance with the Contract and with the Architect instructions, and shall remedy any defects in the Works.

4.1.2 The Contractor shall provide the Plant and Contractor's Documents specified in the Contract, and all Contractor's Personnel, Goods, consumables and other things and services, whether of a temporary or permanent nature, required in and for this design, execution, completion and remedying of defects.

4.1.3 All equipment, material, and services to be incorporated in or required for the Works shall have their origin in any eligible source country.

4.1.4 The Contractor shall be responsible for the adequacy, stability and safety of all Site operations and of all methods of construction. Except to the extent specified in the Contract, the Contractor (i) shall be responsible for all Contractor's Documents, Temporary Works, and such design of each item of Plant and Materials as is required for the item to be in accordance with the Contract, and (ii) shall not otherwise be responsible for the design or specification of the Permanent Works.

4.1.5 The Contractor shall, whenever required by the Engineer, submit details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works. No significant alteration to these arrangements and methods shall be made without this having previously been notified to the Engineer.

4.1.6 If the Contract specifies that the Contractor shall design any part of the Permanent Works, then unless otherwise stated in the Special Conditions:

- a) The Contractor shall submit to the Architect the Contractor's Documents for this part in accordance with the procedures specified in the Contract;
- b) these Contractor's Documents shall be in accordance with the Specification and Drawings, shall be written in the language for communications defined in Sub-Clause 1.4 [Law and Language], and shall include additional information required by the Architect to add to the Drawings for co-ordination of each Party's designs;
- c) the Contractor shall be responsible for this part and it shall, when the Works are completed, befit for such purposes for which the part is intended as are specified in the Contract; and
- d) prior to the commencement of the Tests on Completion, the Contractor shall submit to the Architect the "as-built" documents and, if applicable, operation and maintenance manuals in accordance with the Specification and in sufficient detail for the Procuring Entity to operate, maintain, dismantle, reassemble, adjust and repair this part of the Works. Such part shall not be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [Taking Over of the Works and Sections] until these documents and manuals have been submitted to the Engineer.

42 *Performance Security*

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

43 *Contractor's Representative*

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

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

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

44 Sub-contractors

44.1 The Contractor shall not subcontract the whole of the Works. The contractor may however subcontract the works as provided in Clause 34.2.

44.2 The Contractor shall be responsible for the acts or defaults of any Subcontractor, his agents or employees, as if they were the acts or defaults of the Contractor. Unless otherwise stated in the Special Conditions:

- a) The Contractor shall not be required to obtain consent to suppliers solely of Materials, or to a subcontract for which the Subcontractor is named in the Contract;
- b) The prior consent of the Procuring Entity shall be obtained to other proposed Subcontractors;
- c) the Contractor shall give the Procuring Entity not less than 14 days' notice of the intended date of the commencement of each Subcontractor's work, and of the commencement of such work on the Site; and
- d) each subcontract shall include provisions which would entitle the Procuring Entity to require the subcontract to be assigned to the Procuring Entity under Sub-Clause 4.5 [Assignment of Benefit of Subcontract] (if or when applicable) or in the event of termination under Sub-Clause 15.2 [Termination by Procuring Entity].

44.3 The Contractor shall ensure that the requirements imposed on the Contractor by Sub-Clause 1.12 [Confidential Details] apply equally to each Subcontractor.

44.4 Where practicable, the Contractor shall give fair and reasonable opportunity for contractors from Kenya to be appointed as Subcontractors.

45 Assignment of Benefit of Subcontract

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

46 Co-operation

46.1 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.

46.2 Any such instruction shall constitute a Variation if and to the extent that it causes the Contractor to suffer delays and/or to incur Unforeseeable Cost. Services for these personnel and other contractors may include the use of Contractor's Equipment, Temporary Works or access arrangements which are the responsibility of the Contractor.

46.3 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.

47 *Setting Out of the Works*

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

48 *Safety Procedures*

The Contractor shall:

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

49 *Quality Assurance*

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

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

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.

- 4.102 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.

4.125 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.

4.126 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.

4.127 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 out side the Site which he may require for the purposes of the Works.

4.14 *Avoidance of Interference*

4.14.1 The Contractor shall not interfere unnecessarily or improperly with:

- a) The convenience of the public, or
- b) The access to and use and occupation of all roads and foot paths, irrespective of whether they are public or in the possession of the Procuring Entity or of others.

4.14.2 The Contractor shall indemnify and hold the Procuring Entity harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from any such unnecessary or improper interference.

4.15 *Access Route*

4.15.1 The Contractor shall be deemed to have been satisfied as to the suitability and availability of access routes to the Site at Base Date. The Contractor shall use reasonable efforts to prevent any road or bridge from being damaged by the Contractor's traffic or by the Contractor's Personnel. These efforts shall include the proper use of appropriate vehicles and routes.

4.15.2 Except as otherwise stated in these Conditions:

- a) The Contractor shall (as between the Parties) be responsible for any maintenance which may be required for his use of access routes;
- b) the Contractor shall provide all necessary signs or directions along access routes, and shall obtain any permission which may be required from the relevant authorities for his use of routes, signs and directions;
- c) the Procuring Entity shall not be responsible for any claims which may arise from the use or otherwise of any access route;
- d) the Procuring Entity does not guarantee the suitability or availability of particular access routes; and
- e) Costs due to non-suitability or non-availability, for the use required by the Contractor, of access routes shall be borne by the Contractor.

4.16 *Transport of Goods*

Unless otherwise stated in the Special Conditions:

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

4.17 *Contractor's Equipment*

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

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, surface 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.

- 4.192 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.
- 4.193 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, defector 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 Sub-contractors]),

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

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

423.1 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 adjacent land.

423.2 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.

423.3 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

424.1 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-Clause 3.5 [Determinations] to agree or determine these matters.

5 NOMINATED SUBCONTRACTORS

5.1 Definition of “nominated Subcontractor”

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

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

5.2 Objection to Nomination

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

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

5.3 Payments to nominated Subcontractors

The Contractor shall pay to the nominated Subcontractor the amounts shown on the nominated Subcontractor's invoices approved by the Contractor which the Architect certifies to be due in accordance with the subcontract. These amounts plus other charges shall be included in the Contract Price in accordance

with sub-paragraph (b) of Sub-Clause 13.5 [Provisional Sums], except as stated in Sub-Clause 5.4 [Evidence of Payments].

5.4 Evidence of Payments

- 5.4.1 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, direct to the nominated Subcontractor, part or all of such amounts previously certified (less applicable deductions) as are due to the nominated Subcontractor and for which the Contractor has failed to submit the evidence described in sub-paragraphs (a) or (b) above. The Contractor shall then repay, to the Procuring Entity, the amount which the nominated Subcontractor was directly paid by the Procuring Entity.

6 STAFF AND LABOR

6.1 Engagement of Staff and Labor

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

6.2 Rates of Wages and Conditions of Labor

- 6.2.1 The Contractor shall pay rates of wages, and observe conditions of labor, which are not lower than those established for the trade or industry where the work is carried out. If no established rates or conditions are applicable, the Contractor shall pay rates of wages and observe conditions which are not lower than the general level of wages and conditions observed locally by Procuring Entity's whose trade or industry is similar to that of the Contractor.
- 6.2.2 The Contractor shall inform the Contractor's Personnel about their liability to pay personal income taxes in Kenya in respect of such of their salaries, wages, allowances and any benefits as are subject to tax under the Laws of Kenya for the time being in force, and the Contractor shall perform such duties in regard to such deductions there of as may be imposed on him by such Laws.

6.3 Persons in the Service of Procuring Entity

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

6.4 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.

65 Working Hours

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

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

66 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.

67 Health and Safety

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

68 Contractor's Superintendence

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

69 Contractor's Personnel

69.1 The Contractor's Personnel shall be appropriately qualified, skilled and experienced in their respective trades or occupations. The 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:

- a) Persists in any misconduct or lack of care,
- b) Carries out duties in competently or negligently,
- c) fails to conform with any provisions of the Contract,
- d) persists in any conduct which is prejudicial to safety, health, or the protection of the environment, or
- e) based on reasonable evidence, is determined to have engaged in Fraud and Corruption during the execution of the Works.

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

6.10 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.

6.11 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.

6.12 Foreign Personnel

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

6.12.2 The Contractor shall be responsible for the return of any foreign personnel to the place where they were recruited or to their domicile. In the event of the death in Kenya of any of these personnel or members of their families, the Contractor shall similarly be responsible for making the appropriate arrangements for their return or burial.

6.13 Supply of Water

The Contractor shall, having regard to local conditions, provide on the Site an adequate supply of drinking and other water for the use of the Contractor's Personnel.

6.14 Measures against Insect and Pest Nuisance

The Contractor shall at all times take the necessary precautions to protect the Contractor's Personnel employed on the Site from insect and pest nuisance, and to reduce the danger to their health. The Contractor shall comply with all the regulations of the local health authorities, including use of appropriate insecticide.

6.15 Alcoholic Liquor or Drugs

The Contractor shall not, otherwise than in accordance with the Laws of Kenya, onsite, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or allow importation, sale, gift, barter or disposal thereof by Contractor's Personnel.

6.16 *Prohibition of Forced or Compulsory Labour*

The Contractor shall not employ forced labor, which consists of any work or service, not voluntarily performed, that is exacted from an individual under threat of force or penalty, and includes any kind of involuntary or compulsory labor, such as indentured labor, bonded labor or similar labor-contracting arrangements.

6.17 *Prohibition of Harmful Child Labor*

The Contractor shall not employ children in a manner that is economically exploitative, or is likely to be hazardous, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development. Where the relevant labour laws of Kenya have provisions for employment of minors, the Contractor shall follow those laws applicable to the Contractor. Children below the age of 18 years shall not be employed in dangerous work.

6.18 *Employment Records of Workers*

The Contractor shall keep complete and accurate records of the employment of labour at the Site. The records shall include the names, ages, genders, hours worked and wages paid to all workers. These records shall be summarized on a monthly basis and submitted to the Engineer. These records shall be included in the details to be submitted by the Contractor under Sub-Clause 6.10 [Records of Contractor's Personnel and Equipment].

6.19 *Workers' Organizations*

The Contractor shall comply with the relevant labor laws that recognize workers' rights to form and to join workers' organizations of their choosing without interference.

6.20 *Non-Discrimination and Equal Opportunity*

The Contractor shall base the labour employment on the principle of equal opportunity and fair treatment and shall not discriminate with respect to aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, promotion, termination of employment, retirement, and discipline.

7 *PLANT, MATERIALS AND WORKMANSHIP*

7.1 *Manner of Execution*

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

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

7.2 *Samples*

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

7.3 Inspection

- 7.3.1 The Procuring Entity's Personnel shall at all reasonable times:
- a) Have full access to all parts of the Site and to all places from which natural Materials are being obtained, and
 - b) during production, manufacture and construction (at the Site and elsewhere), be entitled to examine, inspect, measure and test the materials and workmanship, and to check the progress of manufacture of Plant and production and manufacture of Materials.
- 7.3.2 The Contractor shall give the Procuring Entity's Personnel full opportunity to carry out these activities, including providing access, facilities, permissions and safety equipment. No such activity shall relieve the Contractor from any obligation or responsibility.
- 7.3.3 The Contractor shall give notice to the Architect whenever any work is ready and before it is covered up, put out of sight, or packaged for storage or transport. The Architect shall then either carry out the examination, inspection, measurement or testing without unreasonable delay, or promptly give notice to the Contractor that the Architect does not require to do so. If the Contractor fails to give the notice, he shall, if and when required by the Engineer, uncover the work and there after reinstate and make good, all at the Contractor's cost.

7.4 Testing

- 7.4.1 This Sub-Clause shall apply to all tests specified in the Contract.
- 7.4.2 Except as otherwise specified in the Contract, the Contractor shall provide all apparatus, assistance, documents and other information, electricity, equipment, fuel, consumables, instruments, labor, materials, and suitably qualified and experienced staff, as are necessary to carry out the specified tests efficiently. The Contractor shall agree, with the Engineer, the time and place for the specified testing of any Plant, Materials and other parts of the Works.
- 7.4.3 The Architect may, under Clause 13 [Variations and Adjustments], vary the location or details of specified tests, or instruct the Contractor to carry out additional tests. If these varied or additional tests show that the tested Plant, Materials or workmanship is not in accordance with the Contract, the cost of carrying out this Variation shall be borne by the Contractor, notwithstanding other provisions of the Contract.
- 7.4.4 The Architect shall give the Contractor not less than 24 hours' notice of the Architect intention to attend the tests. If the Architect does not attend at the time and place agreed, the Contractor may proceed with the tests, unless otherwise instructed by the Engineer, and the tests shall then be deemed to have been made in the Architect presence.
- 7.4.5 If the Contractor suffers delay and/ or incurs Cost from complying with these instructions or as a result of a delay for which the Procuring Entity is responsible, the Contractor shall give notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
 - b) payment of any such Cost-plus profit, which shall be included in the Contract Price.
- 7.4.6 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.
- 7.4.7 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.

7.5 Rejection

- 7.5.1 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.
- 7.5.2 If the Architect requires this Plant, Materials or workmanship to be retested, the tests shall be repeated under the same terms and conditions. If the rejection and retesting cause the Procuring Entity to incur additional costs, the Contractor shall subject to Sub-Clause 2.5 [Procuring Entity's Claims] pay these costs to the Procuring Entity.

7.6 Remedial Work

- 7.6.1 Notwithstanding any previous test or certification, the Architect may instruct the Contractor to:
- a) Remove from the Site and replace any Plant or Materials which is not in accordance with the Contract,
 - b) remove and re-execute any other work which is not in accordance with the Contract, and
 - c) execute any work which is urgently required for the safety of the Works, whether because of an accident, unforeseen able event or otherwise.
- 7.6.2 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 sub-paragraph (c).
- 7.6.3 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.
- 7.6.4 If the contractor repeatedly delivers defective work, the Procuring Entity may consider termination in accordance with Clause 15.

7.7 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:

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

7.8 Royalties

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

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

8 COMMENCEMENT, DELAYS AND SUSPENSION

8.1 Commencement of Works

- 8.1.1 Except as otherwise specified in the Special Conditions of Contract, the Commencement Date shall be the date at which the following precedent condition shave all been fulfilled and the Architect notification

recording the agreement of both Parties on such fulfilment and instructing to commence the Work is received by the Contractor:

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

8.12 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 16.2 [Termination by Contractor].

8.13 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.

8.2 *Time for Completion*

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

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

8.3 *Programme*

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

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

- 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 Sub-Clause 8.4 [Extension of Time for Completion], and
- 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].

9 TESTS ON COMPLETION

9.1 Contractor's Obligations

- 9.1.1 The Contractor shall carry out the Tests on Completion in accordance with this Clause and Sub-Clause 7.4 [Testing], after providing the documents in accordance with sub-paragraph (d) of Sub-Clause 4.1 [Contractor's General Obligations].
- 9.1.2 The Contractor shall give to the Architect not less than 21 days' notice of the date after which the Contractor will be ready to carry out each of the Tests on Completion. Unless otherwise agreed, Tests on Completion shall be carried out within 14 days after this date, on such day or days as the Architect shall instruct.
- 9.1.3 In considering the results of the Tests on Completion, the Architect shall make allowances for the effect of any use of the Works by the Procuring Entity on the performance or other characteristics of the Works. As soon as the Works, or a Section, have passed any Tests on Completion, the Contractor shall submit a certified report of the results of these Tests to the Engineer.

9.2 Delayed Tests

- 9.2.1 If the Tests on Completion are being unduly delayed by the Procuring Entity, Sub-Clause 7.4 [Testing] (fifth paragraph) and/ or Sub-Clause 10.3 [Interference with Tests on Completion] shall be applicable.
- 9.2.2 If the Tests on Completion are being unduly delayed by the Contractor, the Architect may by notice require the Contractor to carry out the Tests within 21 days after receiving the notice. The Contractor shall carry out the Tests on such day or days within that period as the Contractor may fix and of which he shall give notice to the Engineer.
- 9.2.3 If the Contractor fails to carry out the Tests on Completion within the period of 21 days, the Procuring Entity's Personnel may proceed with the Test at the risk and cost of the Contractor. The Tests on Completion shall then be deemed to have been carried out in the presence of the Contractor and the results of the Tests shall be accepted as accurate.

9.3 Retesting of related works

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

9.4 Failure to Pass Tests on Completion

- 9.4.1 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:

- a) Order further repetition of Tests on Completion under Sub-Clause 9.3; or
- b) if the failure deprives the Procuring Entity of substantially the whole benefit of the Works or Section, reject the Works or Section (as the case may be), in which event the Procuring Entity shall have the same remedies as are provided in sub-paragraph (c) of Sub-Clause 1.1.4 [Failure to Remedy Defects].

10 PROCURING ENTITY'S TAKING OVER

10.1 Taking Over of the Works and Sections

- 10.1.1 Except as stated in Sub-Clause 9.4 [Failure to Pass Tests on Completion], the Works shall be taken over by the Procuring Entity when (i) the Works have been completed in accordance with the Contract, including the matters described in Sub-Clause 8.2 [Time for Completion] and except as allowed in sub-paragraph (a) below, and (ii) a Taking-Over Certificate for the Works has been issued, or is deemed to have been issued in accordance with this Sub-Clause.
- 10.1.2 The Contractor may apply by notice to the Architect for a Taking-Over Certificate not earlier than 14 days before the Works will, in the Contractor's opinion, be complete and ready for taking over. If the Works are divided into Sections, the Contractor may similarly apply for a Taking-Over Certificate for each Section.
- 10.1.3 The Architect shall, within 30 days after receiving the Contractor's application:
 - a) Issue the Taking-Over Certificate to the Contractor, stating the date on which the Works or Section were completed in accordance with the Contract, except for any minor outstanding work and defects which will not substantially affect the use of the Works or Section for their intended purpose (either until or whilst this work is completed and these defects are remedied); or
 - b) reject the application, giving reasons and specifying the work required to be done by the Contractor to enable the Taking-Over Certificate to be issued. The Contractor shall then complete this work before issuing a further notice under this Sub-Clause.
- 10.1.4 If the Architect fails either to issue the Taking-Over Certificate or to reject the Contractor's application within the period of 30 days, and if the Works or Section (as the case may be) are substantially in accordance with the Contract, the Taking-Over Certificate shall be deemed to have been issued on the last day of that period.

10.2 Taking Over of Parts of the Works

- 10.2.1 The Architect may, at the sole discretion of the Procuring Entity, issue a Taking-Over Certificate for any part of the Permanent Works.
- 10.2.2 The Procuring Entity shall not use any part of the Works (other than as a temporary measure which is either specified in the Contract or agreed by both Parties) unless and until the Architect has issued a Taking-Over Certificate for this part. However, if the Procuring Entity does use any part of the Works before the Taking-Over Certificate is issued:
 - a) The part which is used shall be deemed to have been taken over as from the date on which it is used,
 - b) the Contractor shall cease to be liable for the care of such part as from this date, when responsibility shall pass to the Procuring Entity, and
 - c) if requested by the Contractor, the Architect shall issue a Taking-Over Certificate for this part.
- 10.2.3 After the Architect has issued a Taking-Over Certificate for a part of the Works, the Contractor shall be given the earliest opportunity to take such steps as may be necessary to carry out any outstanding Tests on Completion. The Contractor shall carry out these Tests on Completion as soon as practicable before the expiry date of the relevant Defects Notification Period.
- 10.2.4 If the Contractor incurs Cost as a result of the Procuring Entity taking over and/or using a part of the Works, other than such use as is specified in the Contract 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.
- 10.2.5 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.

10.3 Interference with Tests on Completion

- 103.1 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.
- 103.2 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.
- 103.3 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 entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
 - b) payment of any such accrued costs, which shall be included in the Contract Price.
- 103.4 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

10.4 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.

II. DEFECTS LIABILITY

11.1 Completion of Outstanding Work and Remedying Defects

- 11.1.1 In order that the Works and Contractor's Documents, and each Section, shall be in the condition required by the Contract (fair wear and tear excepted) by the expiry date of the relevant Defects Notification Period or as soon as practicable 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).
- 11.1.2 If a defect appears or damage occurs, the Contractor shall be notified accordingly by the Engineer.

11.2 Cost of Remedying Defects

- 11.2.1 All work referred to in sub-paragraph (b) of Sub-Clause 11.1 [Completion of Outstanding Work and Remedying Defects] shall be executed at the risk and cost of the Contractor, if and to the extent that the work is attributable to:
- a) Any design for which the Contractor is responsible,
 - b) Plant, Materials or workmanship not being in accordance with the Contract, or

c) Failure by the Contractor to comply with any other obligation.

11.2.2 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.

11.3 Extension of Defects Notification Period

11.3.1 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.

11.3.2 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 defects or damage occurring more than two years after the Defects Notification Period for the Plant and/ or Materials would otherwise have expired.

11.4 Failure to Remedy Defects

11.4.1 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.

11.4.2 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 Contract 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.

11.5 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.

11.6 Further Tests

11.6.1 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.

11.6.2 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.

11.7 *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.

11.8 *Contractor to Search*

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

11.9 *Completion Certificate*

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

11.10 *Unfulfilled Obligations*

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

11.11 *Clearance of Site*

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

12 *MEASUREMENT AND DEVALUATION*

12.1 *Works to be Measured*

- 12.1.1 The Works shall be measured, and valued for payment, in accordance with this Clause. The Contractor shall show in each application under Sub-Clauses 14.3 [Application for Interim Payment Certificates], 14.10 [Statement on Completion] and 14.11 [Application for Final Payment Certificate] the quantities and other particulars detailing the amounts which he considers to be entitled under the Contract.
- 12.1.2 Whenever the Architect requires any part of the Works to be measured, reasonable notice shall be given to the Contractor's Representative, who shall:
- a) promptly either attend or send another qualified representative to assist the Architect in making the measurement, and

- b) supply any particulars requested by the Engineer.
- 12.13 If the Contractor fails to attend or send a representative, the measurement made by the Architect shall be accepted as accurate.
- 12.14 Except as otherwise stated in the Contract, wherever any Permanent Works are to be measured from records, these shall be prepared by the Engineer. The Contractor shall, as and when requested, attend to examine and agree the records with the Engineer, and shall sign the same when agreed. If the Contractor does not attend, the records shall be accepted as accurate.
- 12.15 If the Contractor examines and disagrees the records, and/ or does not sign them as agreed, then the Contractor shall give notice to the Architect of the respects in which the records are asserted to be inaccurate. After receiving this notice, the Architect shall review the records and either confirm or vary them and certify the payment of the undisputed part. If the Contractor does not so give notice to the Architect within 14 days after being requested to examine the records, they shall be accepted as accurate.

12.2 Method of Measurement

Except as otherwise stated in the Contract:

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

12.3 Evaluation

- 12.3.1 Except as otherwise stated in the Contract, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the value of work done by evaluating each item of work, applying the measurement agreed or determined in accordance with the above Sub-Clauses 12.1 and 12.2 and the appropriate rate or price for the item.
- 12.3.2 For each item of work, the appropriate rate or price for the item shall be the rate or price specified for such item in the Contractor, if there is no such item, specified for similar work.
- 12.3.3 Any item of work included in the Bill of Quantities for which no rate or price was specified shall be considered as included in other rates and prices in the Bill of Quantities and will not be paid for separately.
- 12.3.4 However, for a new item of work, a new rate or price shall be appropriate for such item of work if:
- a) The work is instructed under Clause 13 [Variations and Adjustments],
- b) no rate or price is specified in the Contract for this item, and
- c) no specified rate or price is appropriate because the item of work is not of similar character, or is not executed under similar conditions, as any item in the Contract.
- 12.3.5 Each new rate or price shall be derived from any relevant rates or prices in the Contract. If no rates or prices are relevant for the new item of work, it shall be derived from the reasonable Cost of executing such work, prevailing market rates, together with profit, taking account of any other relevant matters.
- 12.3.6 Until such time as an appropriate rate or price is agreed or determined, the Architect shall determine a provisional rate or price for the purposes of Interim Payment Certificates as soon as the concerned work commences.
- 12.3.7 Where the contract price is different from the corrected tender price, in order to ensure the contractor is not paid less or more relative to the contract price (*which would be the tender price*), payment valuation certificates and variation orders on omissions and additions valued based on rates in the Bill of Quantities or schedule of rates in the Tender, will be adjusted by a plus or minus percentage. The percentage already worked out during tender evaluation is worked out as follows: $(\text{corrected tender price} - \text{tender price}) / \text{tender price} \times 100$.

12.4 Omissions

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

- a) The Contractor will incur (or has incurred) cost which, if the work had not been omitted, would have been deemed to be covered by a sum forming part of the Accepted Contract Amount;

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

B VARIATIONS AND ADJUSTMENTS

13.1 Right to Vary

- 13.1.1 Variations may be initiated by the Architect at any time prior to issuing the Taking-Over Certificate for the Works, either by an instruction or by a request for the Contractor to submit a proposal. No Variation instructed by the Architect under this Clause shall in any way vitiate or invalidate the Contract.
- 13.1.2 The Contractor shall execute and be bound by each Variation, unless the Contractor promptly gives notice to the Architect stating (with supporting particulars) that (i) the Contractor cannot readily obtain the Goods required for the Variation, or (ii) such Variation triggers a substantial change in the sequence or progress of the Works. Upon receiving this notice, the Architect shall cancel, confirm or vary the instruction.
- 13.1.3 Each Variation may include:
 - a) changes to the quantities of any item of work included in the Contract (however, such changes do not necessarily constitute a Variation),
 - b) changes to the quality and other characteristics of any item of work,
 - c) changes to the levels, positions and/ or dimensions of any part of the Works,
 - d) omission of any work unless it is to be carried out by others,
 - e) any additional work, Plant, Materials or services necessary for the Permanent Works, including any associated Tests on Completion, boreholes and other testing and exploratory work, or
 - f) changes to the sequence or timing of the execution of the Works.
- 13.1.4 The Contractor shall not make any alteration and/or modification of the Permanent Works, unless and until the Architect instructs after obtaining approval of the Procuring Entity.

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

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

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].
- 13.3.3 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 behalf (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 a 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 of Contract** shall be applied.
- 136.2 The Contractor shall, when required by the Engineer, produce quotations, invoices, vouchers and accounts or receipts in substantiation.

137 Dayworks

- 137.1 For work of a minor or incidental nature, the Architect may instruct that a Variation shall be executed on a daywork basis. The work shall then be valued in accordance with the Daywork Schedule included in the Contract, and the following procedure shall apply. If a Daywork Schedule is not included in the Contract, this Sub-Clause shall not apply.
- 137.2 Before ordering Goods for the work, the Contractor shall submit quotations to the Engineer. When applying for payment, the Contractor shall submit invoices, vouchers and accounts or receipts for any Goods.
- 137.3 Except for any items for which the Daywork Schedule specifies that payment is not due, the Contractor shall deliver each day to the Architect accurate statements induplicate which shall include the following details of the resources used in executing the previous day's work:

- a) The names, occupations and time of Contractor's Personnel,
- b) the identification, type and time of Contractor's Equipment and Temporary Works, and
- c) the quantities and types of Plant and Materials used.

13.7.4 One copy of each statement will, if correct, or when agreed, be signed by the Architect and returned to the Contractor. The Contractor shall then submit priced statements of these resources to the Engineer, prior to their inclusion in the next Statement under Sub-Clause 14.3 [Application for Interim Payment Certificates].

13.8 Adjustments for Changes in Legislation

13.8.1 The Contract Price shall be adjusted to take account of any increase or decrease in Cost resulting from a change in the Laws of Kenya (including the introduction of new Laws and the repeal or modification of existing Laws) or in the judicial or official governmental interpretation of such Laws, made after the Base Date, which affect the Contractor in the performance of obligations under the Contract.

13.8.2 If the Contractor suffers (or will suffer) delay and/or incurs (or will incur) additional Cost as a result of these changes in the Laws or in such interpretations, made after the Base Date, the Contractor shall give notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

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

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

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

13.9 Adjustments for Changes in Cost

13.9.1 In this Sub-Clause, "table of adjustment data" means the completed table of adjustment data for local and foreign currencies included in the Schedules. If there is no such table of adjustment data, this Sub-Clause shall not apply.

13.9.2 If this Sub-Clause applies, the amounts payable to the Contractor shall be adjusted for rises or falls in the cost of labor, Goods and other inputs to the Works, by the addition or deduction of the amounts determined by the formulae prescribed in this Sub-Clause. To the extent that full compensation for any rise or fall in Costs is not covered by the provisions of this or other Clauses, the Accepted Contract Amount shall be deemed to have included amounts to cover the contingency of other rises and falls in costs.

13.9.3 The adjustment to be applied to the amount otherwise payable to the Contractor, as valued in accordance with the appropriate Schedule and certified in Payment Certificates, shall be determined from formulae for each of the currencies in which the Contract Price is payable. No adjustment is to be applied to work valued on the basis of Cost or current prices. The formulae shall be of the following general type:

Price Adjustment Formula

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

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

where:

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

A and **B** are coefficients **specified in the SCC**, representing the non 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.

- 1394 The cost indices or reference prices stated in the table of adjustment data shall be used. If their source is in doubt, it shall be determined by the Engineer. Forth is purpose, reference shall be made to the values of the indices at stated dates (quoted in the fourth and fifth columns respectively of the table) for the purposes of clarification of the source; although these dates (and thus these values) may not correspond to the base cost indices.
- 1395 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.
- 1396 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.
- 1397 If the Contractor fails to complete the Works within the Time for Completion, adjustment of prices there after shall be made using either (i) each index or price applicable on the date 49 days prior to the expiry of the Time for Completion of the Works, or (ii) the current index or price, whichever is more favorable to the Procuring Entity.
- 1398 The weightings (coefficients) for each of the factors of cost stated in the table(s) of adjustment data shall only be adjusted if they have been rendered unreasonable, unbalanced or in applicable, as a result of Variations.

14 CONTRACT PRICE AND PAYMENT

14.1 The Contract Price

14.1.1 Unless otherwise stated in the Special Conditions:

- a) The value of the payment certificate shall be agreed or determined under Sub-Clause 12.3 [Evaluation] and be subject to adjustments in accordance with the Contract;

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

14.2 Advance Payment

14.2.1 The Procuring Entity shall make an advance payment, as an interest-free loan for mobilization and cashflow support, when the Contractor submits a guarantee in accordance with this Clause. The total advance payment, the number and timing of instalments (if more than one), and the applicable currencies and proportions, shall be as stated in the **Special Conditions of Contract**.

14.2.2 Unless and until the Procuring Entity receives this guarantee, or if the total advance payment is not stated in the Special Conditions of Contract, this Sub-Clause shall not apply.

14.2.3 The Architect shall deliver to the Procuring Entity and to the Contractor an Interim Payment Certificate for the advance payment or its first instalment after receiving a Statement (under Sub-Clause 14.3 [Application for Interim Payment Certificates]) and after the Procuring Entity receives (i) the Performance Security in accordance with Sub-Clause 4.2 [Performance Security] and (ii) a guarantee in amounts and currencies equal to the advance payment. This guarantee shall be issued by a reputable bank or financial institutions elected by the Contractor and shall be in the form annexed to the Special Conditions or in another form approved by the Procuring Entity.

14.2.4 The Contractor shall ensure that the guarantee is valid and enforceable until the advance payment has been repaid, but its amount shall be progressively reduced by the amount repaid by the Contractor as indicated in the Payment Certificates. If the terms of the guarantee specify its expiry date, and the advance payment has not been repaid by the date 30 days prior to the expiry date, the Contractor shall extend the validity of the guarantee until the advance payment has been repaid.

14.2.5 Unless stated otherwise in **the Special Conditions of Contract**, the advance payment shall be repaid through percentage deductions from the interim payments determined by the Architect in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates], as follows:

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

payment until such time as the advance payment has been repaid; provided that the advance payment shall be completely repaid prior to the time when 90 percent (90%) of the Accepted Contract Amount less Provisional Sums has been certified for payment.

- 14.2.6 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.

14.3 Application for Interim Payment Certificates

- 14.3.1 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 the report on the progress during this month in accordance with Sub-Clause 4.21 [Progress Reports].

- 14.3.2 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.

14.4 Schedule of Payments

- 14.4.1 If the Contract includes a schedule of payments specifying the instalments in which the Contract Price will be paid, then unless otherwise stated in this schedule:
- a) The instalments quoted in this schedule of payments shall be the estimated contract values for the purposes of sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates];
 - b) Sub-Clause 14.5 [Plant and Materials intended for the Works] shall not apply; and
 - c) If these instalments are not defined by reference to the actual progress achieved in executing the Works, and if actual progress is found to be less or more than that on which this schedule of payments was based, then the Architect may proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or

determine revised instalments, which shall take account of the extent to which progress is less or more than that on which the instalments were previously based.

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

145 *Plant and Materials intended for the Works*

145.1 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].

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

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

- a) The Contractor has:
 - i) kept satisfactory records (including the orders, receipts, Costs and use of Plant and Materials) which are available for inspection, and
 - (ii) submitted statement of the Cost of acquiring and delivering the Plant and Materials to the Site, supported by satisfactory evidence;

and either:

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

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

1455 The currencies for this additional amount shall be the same as those in which payment will become due when the contract value is included under sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment

Certificates]. At that time, the Payment Certificate shall include the applicable reduction which shall be equivalent to, and in the same currencies and proportions as, this additional amount for the relevant Plant and Materials.

14.6 Issue of Interim Payment Certificates

14.6.1 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.

14.6.2 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.

14.6.3 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

14.7.1 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].

14.7.2 Payment of the amount due in each currency shall be made into the bank account, nominated by the Contractor, in the payment country (forth is currency) specified in the Contract.

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 interbank 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 Architects 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 application within a period of 30 days, the Architect shall issue the Final Payment Certificate for such amount as he fairly determines to be due.

14.14 Cessation of Procuring Entity's Liability

14.14.1 The Procuring Entity shall not be liable to the Contractor for any matter or thing under or in connection with the Contract or execution of the Works, except to the extent that the Contractor shall have included an amount expressly for it:

- a) in the Final Statement and also,
- b) (except for matters or things arising after the issue of the Taking-Over Certificate for the Works) in the Statement at completion described in Sub-Clause 14.10 [Statement at Completion].

14.14.2 However, this Sub-Clause shall not limit the Procuring Entity's liability under his indemnification obligations, or the Procuring Entity's liability in any case of fraud, deliberate default or reckless misconduct by the Procuring Entity.

14.15 Currencies of Payment

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

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

15 TERMINATION BY PROCURING ENTITY

15.1 Notice to correct any defects or failures

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

15.2 Termination by Procuring Entity

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

Procuring Entity, these items may be sold by the Procuring Entity in order to recover this payment. Any balance of the proceeds shall then be paid to the Contractor.

15.3 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.

15.4 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.

15.5 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].

15.6 Fraud and Corruption

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

15.7 Corrupt gifts and payments of commission

15.7.1 The Contractor shall not;

- a) Offer or give or agree to give to any person in the service of the Procuring Entity any gift or consideration of any kind as an inducement or reward for doing or for bearing to door 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.

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

16 SUSPENSION AND TERMINATION BY CONTRACTOR

16.1 Contractor's Entitlement to Suspend Work

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

16.1.2 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].

16.1.3 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.

16.1.4 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.

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

16.3 Termination by Contractor

16.3.1 The Contractor shall be entitled to terminate the Contract if:

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

16.3.2 In any of these events or circumstances, the Contractor may, upon giving 14 days' notice to the Procuring Entity, terminate the Contract. However, in the case of sub-paragraph (f) or (g), the Contractor may by notice terminate the Contract immediately.

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

16.4 Cessation of Work and Removal of Contractor's Equipment

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

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

16.5 Payment on Termination

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

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

17. RISK AND RESPONSIBILITY

17.1 Indemnities

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

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

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

17.2 Contractor's Care of the Works

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

the Procuring Entity. If a Taking-Over Certificate is issued (or is so deemed to be issued) for any Section or part of the Works, responsibility for the care of the Section or part shall then pass to the Procuring Entity.

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

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

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

17.3 Procuring Entity's Risks

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

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

17.4 Consequences of Procuring Entity's Risks

17.4.1 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.

17.4.2 If the Contractor suffers delay and/ or incurs Cost from rectifying this loss or damage, the Contractor shall give a further notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- (a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- (b) Payment of any such Cost, which shall be included in the Contract Price. In the case of sub-paragraphs (e) and (g) of Sub-Clause 17.3 [Procuring Entity's Risks], Accrued Costs shall be payable.

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

17.5 Intellectual and Industrial Property Rights

17.5.1 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.

1752 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.

1753 The Procuring Entity shall indemnify and hold the Contractor harmless against and from any claim alleging an infringement which is or was:

- a) An unavoidable result of the Contractor's compliance with the Contract, or
- b) A result of any Works being used by the Procuring Entity:
 - i) for a purpose other than that indicated by, or reasonably to be inferred from, the Contract, or
 - ii) in conjunction with anything not supplied by the Contractor, unless such use was disclosed to the Contractor prior to the Base Date or is stated in the Contract.

1754 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.

1755 If a Party is entitled to be indemnified under this Sub-Clause, the indemnifying Party may (at its cost) conduct negotiations for the settlement of the claim, and any litigation or arbitration which may arise from it. The other Party shall, at the request and cost of the indemnifying Party, assist in contesting the claim. This other Party (and its Personnel) shall not make any admission which might be prejudicial to the indemnifying Party, unless the indemnifying Party failed to take over the conduct of any negotiations, litigation or arbitration upon being requested to do so by such other Party.

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

17.6 Limitation of Liability

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

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

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

17.7 Use of Procuring Entity's Accommodation/Facilities

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

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

18 INSURANCE

18.1 General Requirements for Insurances

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

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

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

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

18.1.5 Each policy insuring against loss or damage shall provide for payments to be made in the currencies required to rectify the loss or damage. Payments received from insurers shall be used for the rectification of the loss or damage.

18.1.6 The relevant insuring Party shall, within the respective periods stated in **the Special Conditions of Contract** (calculated from the Commencement Date), submit to the other Party:

- a) Evidence that the insurances described in this Clause have been affected, and
- b) copies of the policies for the insurances described in Sub-Clause 18.2 [Insurance for Works and Contractor's Equipment] and Sub-Clause 18.3 [Insurance against Injury to Persons and Damage to Property].

18.1.7 When each premium is paid, the insuring Party shall submit evidence of payment to the other Party. Whenever evidence or policies are submitted, the insuring Party shall also give notice to the Engineer.

18.1.8 Each Party shall comply with the conditions stipulated in each of the insurance policies. The insuring Party shall keep the insurers informed of any relevant changes to the execution of the Works and ensure that insurance is maintained in accordance with this Clause.

18.1.9 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.

18.1.10 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.

18.1.11 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.

18.1.12 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.

18.1.13 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.

18.1.14 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.

18.2 Insurance for Works and Contractor's Equipment

18.2.1 The insuring Party shall insure the Works, Plant, Material and Contractor's Documents for not less than the full reinstatement cost including the costs of demolition, removal of debris and professional fees and profit. This insurance shall be effective from the date by which the evidence is to be submitted under 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.

18.2.2 The insuring Party shall maintain this insurance to provide cover until the date of issue of the Performance Certificate, for loss or damage for which the Contractor is liable arising from a cause occurring prior to the issue of the Taking-Over Certificate, and for loss or damage caused by the Contractor in the course of any other operations (including those under Clause 11 [Defects Liability]).

18.2.3 The insuring Party shall insure the Contractor's Equipment for not less than the full replacement value, including delivery to Site. For each item of Contractor's Equipment, the insurance shall be effective while it is being transported to the Site and until it is no longer required as Contractor's Equipment.

18.2.4 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].

18.2.5 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].

18.3 Insurance against Injury to Persons and Damage to Property

- 183.1 The insuring Party shall insure against each Party's liability for any loss, damage, death or bodily injury which may occur to any physical property (except things insured under Sub-Clause 18.2 [Insurance for Works and Contractor's Equipment]) or to any person (except persons insured under Sub-Clause 18.4 [Insurance for Contractor's Personnel]), which may arise out of the Contractor's performance of the Contract and occurring before the issue of the Performance Certificate.
- 183.2 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.
- 183.3 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.

18.4 Insurance for Contractor's Personnel

- 184.1 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.
- 184.2 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 Contract 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.
- 184.3 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.

19. FORCE MAJEURE

19.1 Definition of Force Majeure

- 19.1.1 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.
- 19.1.2 Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied:
- 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.

19.2 Notice of Force Majeure

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

19.3 Duty to Minimize Delay

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

19.4 Consequences of Force Majeure

- 19.4.1 If the Contractor is prevented from performing his substantial obligations under the Contract by Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], and suffers delay and/ or incurs Cost by reason of such Force Majeure, the Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
- 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].
- 19.4.2 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

19.5 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.

19.6 Optional Termination, Payment and Release

- 19.6.1 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].

19.6.2 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.

19.7 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.

20 SETTLEMENT OF CLAIMS AND DISPUTES

20.1 Contractor's Claims

- 20.1.1 If the Contractor considers itself to be entitled to any extension of the Time for Completion and/or any additional payment, under any Clause of these Conditions or otherwise in connection with the Contract, the Contractor shall give Notice to the Engineer, describing the event or circumstance giving rise to the claim. The notice shall be given as soon as practicable, and not later than 30 days after the Contractor became aware, or should have become aware, of the event or circumstance.
- 20.1.2 If the Contractor fails to give notice of a claim within such period of 30 days, the Time for Completion shall not be extended, the Contractor shall not be entitled to additional payment, and the Procuring Entity shall be discharged from all liability in connection with the claim. Otherwise, the following provisions of this Sub-Clause shall apply.
- 20.1.3 The Contractor shall also submit any other notices which are required by the Contract, and supporting particulars for the claim, all as relevant to such event or circumstance.
- 20.1.4 The Contractor shall keep such contemporary records as may be necessary to substantiate any claim, either on the Site or at another location acceptable to the Engineer. Without admitting the Procuring Entity's liability, the Architect may, after receiving any notice under this Sub-Clause, monitor the record-keeping and/or instruct the Contractor to keep further contemporary records. The Contractor shall permit the Architect to inspect all these records and shall (if instructed) submit copies to the Engineer.
- 20.1.5 Within 42 days after the Contractor became aware (or should have become aware) of the event or circumstance giving rise to the claim, or within such other period as may be proposed by the Contractor and approved by the Engineer, the Contractor shall send to the Architect fully detailed claim which includes full supporting particulars of the basis of the claim and of the extension of time and/ or additional payment claimed. If the event or circumstance giving rise to the claim has a continuing effect:
 - a) This fully detailed claim shall be considered as interim;

- b) The Contractor shall send further interim claims at monthly intervals, giving the accumulated delay and/or amount claimed, and such further particulars as the Architect may reasonably require; and
 - c) The Contractor shall send a final claim within 30 days after the end of the effects resulting from the event or circumstance, or within such other period as may be proposed by the Contractor and approved by the Engineer.
- 20.1.6 Within 42 days after receiving a Notice of a claim or any further particulars supporting a previous claim, or within such other period as may be proposed by the Architect and approved by the Contractor, the Architect shall respond with approval, or with disapproval and detailed comments. He may also request any necessary further particulars but shall nevertheless give his response on the principles of the claim within the above defined time period.
- 20.1.7 Within the above defined period of 42 days, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) the extension (if any) of the Time for Completion (before or after its expiry) in accordance with Sub-Clause 8.4 [Extension of Time for Completion], and/or (ii) the additional payment (if any) to which the Contractor is entitled under the Contract.
- 20.1.8 Each Payment Certificate shall include such additional payment for any claim as has been reasonably substantiated as due under the relevant provision of the Contract. Unless and until the particulars supplied are sufficient to substantiate the whole of the claim, the Contractor shall only be entitled to payment for such part of the claim as he has been able to substantiate.
- 20.1.9 If the Architect does not respond within the time frame defined in this Clause, either Party may consider that the claim is rejected by the Architect and any of the Parties may refer the dispute for amicable settlement in accordance with Clause 20.3.
- 20.1.10 The requirements of this Sub-Clause are in addition to those of any other Sub-Clause which may apply to a claim. If the Contractor fails to comply with this or another Sub-Clause in relation to any claim, any extension of time and/ or additional payment shall take account of the extent (if any) to which the failure has prevented or prejudiced proper investigation of the claim, unless the claim is excluded under the second paragraph of this Sub-Clause 20.3.

20.2 *Procuring Entity's Claims*

- 20.2.1 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.
- 20.2.2 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.
- 20.2.3 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].
- 20.2.4 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.

20.3 *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.

20.4 *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.

20.5 *Arbitration*

205.1 Any claim or dispute between the Parties arising out of or in connection with the Contract not settled amicably in accordance with Sub-Clause 20.3 shall be finally settled by arbitration.

205.2 No arbitration proceedings shall be commenced on any claim or dispute where notice of a claim or dispute has not been given by the applying party within ninety days of the occurrence or discovery of the matter or issue giving rise to the dispute.

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

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

205.5 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.

205.6 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.

205.7 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

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

20.7 *Arbitration with Foreign Contractors*

207.1 Arbitration with foreign contractors shall be conducted in accordance with the arbitration rules of the United Nations Commission on International Trade Law (UNCITRAL); or with proceedings administered by the International Chamber of Commerce (ICC) and conducted under the ICC Rules of Arbitration; by one or more arbitrators appointed in accordance with said arbitration rules.

207.2 The place of arbitration shall be a location specified in the **SCC**; and the arbitration shall be conducted in the language for communications defined in Sub-Clause 1.4 [Law and Language].

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*

209.1 The award of such Arbitrator shall be final and binding up on the parties.

209.2 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

1.1.2 the Procuring Entity shall pay the Contractor any monies due the Contractor.

Section VI - 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	<i>GEOHERMAL DEVELOPMENT COMPANY LIMITED</i> <i>P.O BOX 100746-00101</i> <i>NAIROBI</i>
Name and Reference No. of the Contract	Heading and 1.1	<i>PROPOSED LABORATORIES AND OFFICES</i> <i>GDC/GRA/OT/056/2024-2025</i>
Project Manager's Name and address	Heading and 3.1.1	<i>PROJECT MANAGER - SAMUEL KIGONDU</i> <i>JKUATES LTD</i> <i>P.O BOX 62000-00200</i> <i>NAIROBI</i>
Contractor's Representative's name	4.3.1
Key Personnel names	16.9.1As per the Organogram to be provided by the Contractor at bidding stage.....
Time for Completion	1.1.	<u>130</u> <i>Weeks</i>
Defects Notification Period	1.1	<u>Six (6) Months</u> days for the rest of the Works and 365 days for items covered by warranty (under HVAC and; Structured Cabling, CCTV and Access Control, Generator, Lift)
Sections	1.1	<i>N/A</i>
Electronic transmission systems	1.3	<i>N/A</i>
Time for the Parties entering into a Contract Agreement	1.6	<i>Within 30 days of the Effective Date of the Contract.</i>
Commencement Date	8.1.1Immediately upon satisfaction of the conditions precedents listed in 8.1.1.
Time for access to the Site	2.1.1	Within Seven (7) days of the Commencement Date.
Project Manager Duties and Authority	3.1.6 (b) (ii)	All Variations resulting in an increase of the Accepted Contract Amount shall require approval of the Procuring Entity <u>in accordance with the provisions of</u>

Conditions	Sub- Clause	Data
		<u>the Public Procurement and Asset Disposal Act (2015) as read together with its Regulations (2020), as may be amended from time to time.</u>
Performance Security	4.2.1	The performance security will be in the form of a <i>Unconditional demand bank guarantee</i> in the amount 10% percent of the Accepted Contract Amount and in the same currency(ies) of the Accepted Contract Amount.
Normal working hours	6.5	<i>0800HRS-1700HRS</i>
Delay damages for the Works	8.7 & 14.15(b)	0.01 % of the Contract Price per day. <i>If Sections are to be used, refer to Table: Summary of Sections below – Sections not applicable</i>
Maximum amount of delay damages	8.7.1	<u>10</u> % of the final Contract Price.
Currencies of payment	13.5	Not applicable. All payments shall be in Kshs
Provisional Sums	13.6. (b)(ii)	Not Applicable.
Adjustments for Changes in Legislation	13.8	This shall only apply to changes in VAT.
Adjustments for Changes in cost	13.9	This shall only be applicable for changes that affect work done from 1 year from contract signing date.
Total advance payment	14.2.1	Advance payment shall not be applicable.
Repayment amortization rate of advance payment	14.2.5 (b)	Not Applicable.
Percentage of Retention	14.3.2 (c)	<u>10</u> % of the Accepted Contract Price.
Limit of Retention Money	14.3.2 (c)	<u>5</u> % of the Accepted Contract Amount
Plant and Materials	14.5.3(b)(i)	<i>N/A</i>
	14.5.3(c)(i)	<i>N/A</i>
Minimum Amount of Interim Payment Certificates	14.6.2	All payment certificates to be certified by the Project Manager.
Publishing source of commercial interest rates for financial charges in case of delayed payment	14.8	Not Applicable. Delayed payments shall not attract interest.
Maximum total liability of the Contractor to the Procuring Entity	17.6.2	<i>[Select one of the two options below as appropriate]</i> The product of <u>10</u> % of the Accepted Contract Amount.

Conditions	Sub- Clause	Data
Periods for submission of insurance: a. evidence of insurance. b. relevant policies	18.1.6	<i>[Insert period for submission of evidence of insurance and policy. Period may be from 14 days to 30 days.]</i> _14_ days of the Effective Date of Contract. ___14__ days of the Effective Date of Contract.
Maximum amount of deductibles for insurance of the Procuring Entity's risks	18.2.4 (d)	<i>As per the terms of the insurance policies issued for such nature of Works.</i>
Minimum amount of third-party insurance	18.3.2	<i>KSH 10,000,000.00</i>

Arbitration	20.4-20.10	<p><i>Sub-clauses 20.4 to 20.10 are omitted and replace with the following:</i></p> <p><i>Arbitration shall not be applicable to this Contract.</i></p> <p><i>If any question, dispute or claim arises out of or in connection with this Contract, including any question regarding its existence, validity, performance or termination (a dispute) which either party has notified to the other senior management personnel of each party shall meet and diligently attempt in good faith to resolve the dispute for a period of sixty (60) days following one party’s written request to the other party for such a meeting.</i></p> <p><i>Resolution of Technical and Related Disputes</i></p> <p><i>Any dispute or difference of a technical nature arising out of or in connection with this Agreement, including without limitation those relating to design, engineering, construction methods, quality of materials or workmanship, or technical interpretation of specifications ("Technical Disputes"), shall be referred to a Dispute Resolution Board (“DRB”) for resolution.</i></p> <p><i>Appointment of the Dispute Resolution Board (DRB)</i></p> <p><i>The DRB shall be established within fourteen (14) days of the occurrence of failure by senior management of both parties to resolve the dispute. The DRB shall comprise three (3) members:</i></p> <ul style="list-style-type: none"> <i>i. One member nominated by the Employer and approved by the Contractor;</i> <i>ii. One member nominated by the Contractor and approved by the Employer; and</i> <i>iii. A third member, who shall act as the Chairperson, jointly selected by the two appointed members within fourteen (14) days of their appointment, approved by the Employer and the Contractor</i> <p><i>c. If the two appointed members fail to agree on the Chairperson within the stipulated period, either party may request the President of the Institution of Engineers, Kenya to nominate the Chairperson.</i></p> <p><i>Qualification of Members</i></p> <p><i>All DRB members shall be independent, impartial, and possess not less than ten (10) years of experience</i></p>
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in engineering, construction, or technical dispute resolution relevant to the subject matter of this Contract.

Functioning of the DRB

- a) The DRB shall establish its own procedures consistent with principles of natural justice and shall conduct hearings in a fair, impartial, and efficient manner.*
- b) The DRB may, with the Parties mutual approval, conduct site visits, request documentation, or call expert witnesses as necessary to resolve the dispute.*
- c) The DRB shall make a reasoned recommendation or determination in writing within thirty (30) days of the conclusion of its hearings or submissions.*

Binding Nature of DRB Decision

The DRB's decision shall be binding on the parties, unless and until either dissatisfied party makes an application in a Court of competent jurisdiction to revoke such a decision.

Costs

All Costs and disbursements of the DRB, shall be shared equally between the Employer and the Contractor

Confidentiality

All proceedings and documentation relating to the DRB process shall be treated as confidential and shall not be disclosed to third parties without the written consent of both parties, unless required by law or for purposes of enforcement.

Non-Exclusivity

Referral of a dispute to the DRB shall not preclude either party from seeking urgent interim relief from a court of competent jurisdiction where such relief is necessary to preserve rights or prevent irreparable harm.

Resolution of other Disputes

In the event the senior management of the parties are not able to resolve the dispute, the matter may be referred to a Court of competent jurisdiction for determination.

Conditions	Sub- Clause	Data
Contract administrator	All	Wherever the word “Engineer” or “Architect” appears, it shall be deemed deleted and replaced with the word “Project Manager” who shall be the contract administrator.

SECTION VII - CONTRACT FORMS

FORM No. 1 - NOTIFICATION OF INTENTION TO AWARD

FORM NO. 2 – REQUEST FOR REVIEW

FORM No. 3-LETTER OF AWARD

FORM No. 4 - CONTRACT AGREEMENT

FORM No. 5 - PERFORMANCE SECURITY [Option 1 - Unconditional Demand Bank Guarantee]

FORM No. 6- PERFORMANCE SECURITY [Option 2– Performance Bond]

FORM No. 7 - ADVANCE PAYMENT SECURITY

FORM No. 8 - RETENTION MONEY SECURITY

FORM No 1: NOTIFICATION OF INTENTION TO AWARD OF CONTRACT

This Notification of Award shall be sent to each Tenderer that submitted a Tender and was not successful. Send this Notification to the Tenderer's Authorized Representative named in the Tender Information Form on the format below.

FORMAT

1. For the attention of Tenderer's Authorized Representative
 - i) Name: *[insert Authorized Representative's name]*
 - ii) Address: *[insert Authorized Representative's Address]*
 - iii) Telephone: *[insert Authorized Representative's telephone/fax numbers]*
 - iv) Email Address: *[insert Authorized Representative's email address]*

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

2. Date of transmission: *[email]* on *[date]* (local time)
This Notification is sent by (*Name and designation*) _____
3. Notification of Award
 - i) Procuring Entity: *[insert the name of the Procuring Entity]*
 - ii) Project: *[insert name of project]*
 - iii) Contract title: *[insert the name of the contract]*
 - iv) ITT No: *[insert ITT reference number from Procurement Plan]*

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

4. Request a debriefing in relation to the evaluation of your tender by submitting a Procurement-related Complaint in relation to the decision to award the contracts.
 - a) The successful tenderers
 - i) Name of successful Tender _____
 - ii) Address of the successful Tender _____

 - iii) Contract price of the successful Tender Kenya Shillings _____
(in words _____)
 - b) The reasons for your tender being unsuccessful are as follows:
 - c) Other Tenderers

Names of all Tenderers that submitted a Tender. If the Tender's price was evaluated include the evaluated price as well as the Tender price as read out.

SNo	Name of Tender	Tender Price as read out	Tender's evaluated price (Note a)	One Reason Why Not Evaluated
1				
2				
3				
4				
5				

(Note a) State NE if not evaluated

5. How to request a debriefing

- a) DEADLINE: The dead line to request a debriefing expires at midnight on [insert date] (local time).
- b) You may request a debriefing in relation to the results of the evaluation of your Tender. If you decide to request a debriefing your written request must be made within three (5) Business Days of receipt of this Notification of Intention to Award.
- c) Provide the contract name, reference number, name of the Tenderer, contact details; and address the request for debriefing as follows:
 - i) Attention: [insert full name of person, if applicable]
 - ii) Title/position: [insert title/position]
 - iii) Agency: [insert name of Procuring Entity]
 - iv) Email address: [insert email address]
- d) If your request for a debriefing is received within the 3 Days deadline, we will provide the debriefing within five (3) Business Days of receipt of your request. If we are unable to provide the debriefing within this period, the Standstill Period shall be extended by five (3) Days after the date that the debriefing is provided. If this happens, we will notify you and confirm the date that the extended Standstill Period will end.
- e) The debriefing may be in writing, by phone, video conference call or in person. We shall promptly advise you in writing how the debriefing will take place and confirm the date and time.
- f) If the deadline to request a debriefing has expired, you may still request a debriefing. In this case, we will provide the debriefing as soon as practicable, and normally no later than fifteen (15) Days from the date of publication of the Contract Award Notice.

6. How to make a complaint

- a) Period: Procurement-related Complaint challenging the decision to award shall be submitted by midnight, [insert date] (local time).
- b) Provide the contract name, reference number, name of the Tenderer, contact details; and address the Procurement-related Complaint as follows:
 - i) Attention: [insert full name of person, if applicable]
 - ii) Title/position: [insert title/ position]
 - iii) Agency: [insert name of Procuring Entity]
 - iv) Email address: [insert email address]
- c) At this point in the procurement process, you may submit a Procurement-related Complaint challenging the decision to award the contract. You do not need to have requested, or received, a debriefing before making this complaint. Your complaint must be submitted within the Standstill Period and received by us before the Standstill Period ends.

- d) Further information: For more information refer to the Public Procurement and Disposals Act 2015 and its 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: _____

Email: _____

FORM NO. 2- REQUEST FOR REVIEW

FORM FOR REVIEW (r.203(1))

PUBLIC PROCUREMENT ADMINISTRATIVE REVIEW BOARD

APPLICATION NO.....OF.....20.....

BETWEEN

.....**APPLICANT**

AND

.....**RESPONDENT (Procuring Entity)**

Request for review of the decision of the..... (Name of the Procuring Entity 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 it self or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.
4. This guarantee shall expire, no later than the.....Day of.....,2.....², and any demand for payment under it must be received by us at the office indicated above on or before that date.
5. The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months] [one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

[Name of Authorized Official, signature(s) and seals/stamps]

FORM No. 6- PERFORMANCE SECURITY

[Option 2– Performance Bond]

[Note: Procuring Entities a readvised to use Performance Security – Unconditional Demand Bank Guarantee instead of Performance Bond due to difficulties involved in calling Bond holder to action]

[Guarantor letterhead or SWIFT identifier code]

Beneficiary: *[insert name and Address of Procuring Entity]* **Date:** _____

_____ *[Insert date of issue]* **PERFORMANCE BOND**

No.: _____

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

1. By this Bond _____ as Principal (hereinafter called “the Contractor”) and _____] as Surety (hereinafter called “the Surety”),are held and firmly bound unto_] as Obligee (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 up to a total not exceeding the amount of this Bond.

4. The Surety shall not be liable for a greater sum than the specified penalty of this Bond.

5. Any suit under this Bond must be instituted before the expiration of one year from the date of the issuing of the Taking-Over Certificate. No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Procuring Entity named here in or the heirs, executors, administrators, successors, and assigns of the Procuring Entity.
6. In testimony whereof, the Contractor has here unto set his hand and affixed his seal, and the Surety has caused these presents to be sealed with his corporate seal duly at tested by the signature of his legal representative, this day _____ of _____ 20_____.

SIGNED ON _____ on behalf of _____

By _____ in the capacity of _____

In the presence of _____

SIGNED ON _____ on behalf of _____

By _____ in the capacity of _____

In the presence of _____

FORM NO. 7 - ADVANCE PAYMENT SECURITY (NOT APPLICABLE)

[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/stamp]

FORM NO. 8 – RETENTION MONEY SECURITY (NOT APPLICABLE)

[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 up to the limit set forth in the Contract ("the Retention Money"), and that when the Taking-Over Certificate has been issued under the Contract and the first half of the Retention Money has been certified for payment, and payment of *[insert the second half of the Retention Money]* is to be made against a Retention Money guarantee.
3. At the request of the Contractor, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]* _____ *([insert amount in words _____])*¹ upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or showgrounds for your demand or the sum specified there in.
4. A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the second half of the Retention Money as referred to above has been credited to the Contractor on its account number _____ at _____ *[insert name and address of Applicant's bank]*.
5. This guarantee shall expire no later than the.....Day of.....², 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]

FORM NO. 9 BENEFICIAL OWNERSHIP DISCLOSURE FORM

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

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

This Beneficial Ownership Disclosure Form (“Form”) is to be completed by the successful tenderer pursuant to Regulation 13 (2A) and 13 (6) of the Companies (Beneficial Ownership Information) Regulations, 2020. In case of joint venture, the tenderer must submit a separate Form for each member. The beneficial ownership information to be submitted in this Form shall be current as of the date of its submission.

For the purposes of this Form, a Beneficial Owner of a Tenderer is any natural person who ultimately owns or controls the legal person (tenderer) or arrangements or a natural person on whose behalf a transaction is conducted, and includes those persons who exercise ultimate effective control over a legal person (Tenderer) or arrangement.

Tender Reference No.: _____ [insert identification no]

Name of the Tender Title/Description: _____ [insert name of the assignment] to:
 _____ [insert complete name of Procuring Entity]

In response to the requirement in your notification of award dated ___ [insert date of notification of award] to furnish additional information on beneficial ownership: _____ [select one option as applicable and delete the options that are not applicable]

I) We here by provide the following beneficial ownership information.

Details of Beneficial ownership

	Details of all Beneficial Owners		% of shares a person holds in the company Directly or indirectly	% of voting rights a person holds in the company	Whether a person directly or indirectly holds a right to appoint or remove a member of the board of directors of the company or an equivalent governing body of the Tenderer (Yes / No)	Whether a person directly or indirectly exercises significant influence or control over the Company (tenderer) (Yes / No)
1.	Full Name		Directly----	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----	1. Exercises significant influence or control over the Company body of the Company (tenderer) Yes ----No----
	National identity card number or Passport number		----- % of shares% of voting rights		
	Personal Identification Number (where applicable)		Indirectly--	Indirectly-----	2. Is this right held directly or indirectly?:	2. Is this influence or control
	Nationality		----- % of shares	---% of voting rights		
	Date of birth [dd/mm/yyyy]					
	Postal address					

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)
Residential address				Direct.....	exercised directly or indirectly?
Telephone number					Direct.....
Email address					
Occupation or profession				Indirect.....	Indirect.....
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				
	Personal Identification Number (where applicable)	Indirectly-- ----- % of shares	Indirectly----- ---% of voting rights	2.Is this right held directly or indirectly?:	2.Is this influence or control exercised directly or indirectly?
	Nationality(ies)			Direct.....	Direct.....
	Date of birth [dd/mm/yyyy]				
	Postal address				
	Residential address				
	Telephone number				
	Email address			Indirect.....	Indirect.....
	Occupation or profession				
3.					

	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)
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

PART III - WORKS REQUIREMENTS

PART VIII: MAIN WORKS

BILLS OF QUANTITIES

(a) Preambles

1. The method of measurement of completed work for payment shall be in accordance with Standard Method of Measurement of Building Works for East Africa Second edition.
2. The Site is situated in **Kabarak Nakuru** 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 Project Manager's approval on the siting of all temporary buildings, spoil heaps, temporary access path, and storage of materials. The Contractor shall also obtain the Project Manager 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 Project Manager.
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 Project Manager 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 Project Manager. 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 in clement 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 Project Manager and no deviation from the order set out in it will be permitted without the written consent of the Project Manager. 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 Project Manager on the first day of each week or such longer period as the Project Manager from time to time direct, a Progress Report and any information for the proceeding period, showing the progress during the period and the up-to-date cumulative progress on all important items of each section or portion of the Works.
11. The Contractor shall arrange for photographs of the Site to be taken by a professional photographer approved by the Project Manager. The Photographs shall provide a record of the Site and adjacent are as prior to the commencement of the Works and shall cover such portion of the works in progress and completion as the Project Manager 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 Project Manager 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 Project Manager 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 Project Manager.
 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 instruction from the Project Manager, 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 Project Manager.
 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 Project Manager 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 area as available to the Contractor for workyards, offices and other facilities shall be directed by the Project Manager 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 own cost.
 22. The Contractor shall give the Project Manager 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 Project Manager 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.
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24. The Contractor shall take such steps and exercise such care and diligence as to minimize nuisance arising from dust, noise or any other cause to the occupiers of the existing and adjacent property. He must provide such temporary and special screens and tarpaulins or gummy bags, hoarding, barriers, warning signs etc. as he considers necessary and sufficient for the protection of the existing and adjacent property and or prevention of nuisance etc. as directed by Project Manager.
25. The Contractors attention is drawn to the standards levy order which was amended on 15th October 1998. Legal notice No.154 of 1998. The Contractor is required to pay a monthly level of 0.2% of his factory price of construction works with effect from January 1999. Tenderer shall allow for this in the build-up of his rates.
26. The Contractor shall provide temporary sheds, offices meshrooms, sanitary, accommodation and other temporary buildings for the use of the contractor and sub-contractors, including lighting furniture equipment and attendance.
27. Contractor shall provide/build labor camp sat areas to be agreed with the Project Manager. Labor camps shall be complete with sanitary accommodation and fencing gates.
28. The Contractor must provide the necessary toilet facilities to the requirement and satisfaction of the Health Authorities and maintain the same in a thoroughly clean and sanitary condition and pay all conservancy fees during the period of the Works and remove when no longer required.
29. The Contractor shall provide at his own risk and cost all watching and lighting as necessary to safeguard the Works, Plant and materials against damage and theft.
30. The Contractor shall provide all necessary hoists, tackle, plant, equipment, vehicles, tools and appliances of every description for the due and satisfactory completion of the Works and shall remove the same on completion. All such plant, tools and equipment shall comply with all regulations in force throughout the period of the Contract and shall be altered or adopted during the Contract period as may be necessary to comply with any amendments in or additions to such regulations.
31. Provide, erect and maintain all necessary scaffolding, sufficiently strong and efficient for the due performance of the works, including Sub-Contract Works, provide special scaffolding as required by Sub-Contractors, alter and adopt all scaffolding as and when required during the Works, and remove on completion. No scaffolding is measured here in after and the Contractor must allow in his rates for this.
32. The Contractor shall take all necessary precautions such as temporary fencing, hoarding fans, planked footways, guard-rails gantries screen, etc., for the safe custody of the Works, materials and public protection and adjacent properties.
33. Cover up all and protect from damage, including damage from in clement weather, all finished work and unfixed materials, including that of Sub-Contractors, etc., to the satisfaction of the Project Manager until the completion of the Contract.
34. The Contractor shall, after completion of the works, at his own expense, remove and clear away all surplus excavated demolition materials, plant, rubbish and unused materials and shall leave the whole of the Site and Works in a clean and tidy state to the satisfaction of the Project Manager, sheds, camps, etc. Particular care shall be taken to leave clean all floors and windows and to remove all paint and cement all rubbish and dirt as it accumulates. The Contractor is to find his own dump and shall pay all charges in connection there with.
35. Concrete test cubes shall be prepared in a set of three, as described including testing fees, labor and materials, making molds, transport, handling, etc. Allow in your rates for making at least four cubes on each occasion, from different batches; the concrete being taken from the point of deposit.
36. The Contractors shall furnish at the earliest possible opportunity before work commences, and at his own cost, any samples of materials and workmanship that may be called for by the Project Manager for the approval or rejection, and any further samples in the case of rejection, until such samples are approved by the Project Manager. 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 Project Manager. The Contractor shall allow in his Tender for such samples and tests, including those in connection with his Sub-Contractors work.

37. The Contractors 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 in term payments exceeding Kshs..... for work done in respect of building or civil works. The contractor shall allow for any costs arising resulting there from in the build-up of rates.
38. Blasting will only be allowed with the express permission of the 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.
39. The National Construction Authority is a state corporation established under the national construction authority Act No.14 of 2011. The broad Mandate of the Authority is to over see the construction industry and coordinate its development. The National Construction Authority Regulations 2014 with an effective date of 6th June 2014, regulation 25, - Allow 0.5% of the tender sum/contract sum for construction levy.
40. The Contractor attention is drawn to Finance Bill of 1993 where VAT was introduced in all contracts for construction services. The tenderer is also drawn to VAT Act Cap 476 clause 19(9). The tenderer must allow for VAT 1.19 as instructed else where.
41. The contractor shall allow and pay for all insurance to cover risks and indemnities required Items 17 and 18 of the Conditions of contract and also specified in the Special Conditions of Contract.

MAIN WORKS SPECIFICATIONS

GENERAL SPECIFICATIONS

The works under this contract shall be carried out in accordance with Ministry of Works General Specification 1976 Edition or as qualified or amended.

Manufacturers' Name and references are given as a guide to quality. Alternative manufacture of equal quality will be accepted at the discretion of the PROJECT MANAGER.

EXCAVATION

Prices are to include for excavating in all materials met with except Rock as specified. Prices are also to include for planking and strutting, and for destroying all white ants nests and keeping excavations free from water.

Insecticide Treatment

Treating surface of hardcore with approved insecticide shall include execution by any reputable supplier/manufacturer who shall give a ten year guarantee to the Employer.

CONCRETE WORK

Test Cubes

Allowance must be included in the tender for the preparation of concrete test cubes as required by the Project Manager.

Precast Concrete Works

Prices are to include for handling reinforcement, and for bedding in cement mortar.

WALLING

Concrete Blocks

All concrete walling blocks are to be in metric sizes and to the specified quantities.

Wall reinforcement shall be hoop iron, one layer per 90mm thickness, and placed in the bed joint of alternate courses.

Samples

Prices are to include for packing and sending sample blocks to the approved Testing Laboratory.

ROOFING

All roof materials shall be as specified in the Bills of Quantities, and laid in accordance with the manufacturer's instructions.

CARPENTRY AND JOINERY

Cypress

The grading rules for cypress shall be the same as those for podocarpus.

Laminated Plastic Sheetting

Shall be fixed with an approved waterproof adhesive.

Prices of Joinery

Shall include for pencil rounded arises; for protection against damage and for bedding frames and cills in cement mortar.

Plugged shall mean drilling walling or concrete with a drill and filling with proprietary plugs of the correct size

IRONMONGERY

Shall be as specified in the Bills of Quantities, or equal and approved.

Prices must include for removing and re-fixing during and after painting, for labeling all keys, and for fixing with matching screws.

METALWORK

Generally

All steelwork shall be cleaned free from rust and primed one coat or red lead primer before being delivered to the site.

Prices for Metal Windows

To include for assembling parts, bedding and pointing in mastic, building in fixing lugs, and plugging as necessary.

PLASTERWORK AND OTHER FINISHES

Generally

All plaster work and paving to be as described in the Specification and in the Bills of Quantities.

Paving

Prices are to include for brushing concrete clean, wetting and coating with cement and sand grout (1:1).

GLAZING

Polished Plate Glass

Shall be general Glazing Quality.

Prime Rebates

Prices are to include for priming rebates before placing putty.

Broken or Scratched Glass

The contractor will be responsible at his own cost, for replacing any broken or scatched glass and handing over in perfect condition.

PAINTING

Generally

Note that the General Contractor is to provide scaffolding for all trades including painting.

Paint Category

Painting shall be applied in accordance with the manufacturer's instructions and to the required coats.

Prices

Prices are to include for all preparatory work, priming coats and for protecting other works and for cleaning up on completion. Prices for painting on galvanized metal are to include for mordant solution as necessary.

PLUMBING AND PROJECT MANAGERING INSTALLATION INCLUDING SOLAR PANELS

Generally

All work shall be executed by an approved specialist and the General Contractor shall first obtain written approval from the Project Manager before engaging the specialist.

Description

The sizes given are the internal diameter. The words 'pipe' and 'tube' are synonymous.

Prices of Sanitary Fittings

To include for assembling and jointing parts, plugging as necessary, and all joints to services and wastes or soil pipes.

ROADS AND CAR PARKS

All work must be supervised by an experienced Road Project Manager or Foreman.

1 PRELIMINARIES		
NB: TENDERER TO PRICE FOR PRELIMINARIES FOR THE WHOLE OF THE WORKS INCLUDING BUILDING SERVICES		
Item	Description	Kshs/Cts
	<u>PARTICULAR PRELIMINARIES</u>	
A	<p><u>PRICING ITEMS OF PRELIMINARIES</u> Prices SHALL BE INSERTED against items of “preliminaries” in the tenderer’s priced Bills of Quantities. The contractor is advised to read and understand all preliminary items.</p>	
B	<p><u>DESCRIPTION OF THE WORKS</u> The works to be carried out under this contract involves : 2 storey laboratory, offices and restaurant block of approximate plinth area 5500m2, outbuilding and external works</p>	
C	<p><u>MEASUREMENTS</u> In the event of any discrepancies arising between the Bills of Quantities and the actual works, the site measurements shall generally take precedence. However, such discrepancies between any contract documents shall immediately be referred to the Architect in accordance with Clause 12 of the Conditions of Contract. The discrepancies shall then be treated as a variation and be dealt with in accordance with Clause 13 of the said Conditions.</p>	
D	<p><u>LOCATION OF SITE</u> The site of the proposed works is at Kabarak Nakuru County. The Contractor is advised to visit the site, to familiarize himself with the nature and position of the site. No claims arising from the Contractor’s failure to do so will be entertained.</p>	
E	<p><u>CLEARING AWAY</u> 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 works and stains and leave in a clean and tidy state to the reasonable satisfaction of the Architect.</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 Architect.</p>	
	Carried to collection	

PROPOSED LABORATORIES AND OFFICES FOR GDC AT KABARAK, NAKURU

Item	Description	Kshs/Cts
A	<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 Architect within 30 days after the occurrence of the event giving rise to such a claim. No claims shall be entertained upon the expiry of the said period.</p>	
B	<p><u>ADVANCE PAYMENT</u></p> <p>Not applicable</p>	
C	<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 Employer 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 Employer. The Contractor shall allow in his rates any expense he deems necessary by taking such care within the site.</p>	
D	<p><u>WORKING CONDITIONS</u></p> <p>The Contractor shall allow in his rates for any interference that he may encounter in the course of execution of the works for the Employer may in some cases ask the Contractor not to proceed with the works until some activities within the site are completed, as the premises will be operating as usual during the course of the contract.</p>	
E	<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 Architect</p>	
F	<p><u>LABOUR CAMPS</u></p> <p>The Contractor shall not be allowed to house labour on site. He/She shall allow for transporting workers to and from the site during the tenure of the contract.</p>	
	Carried to collection	

Item	Description	Kshs/Cts
A	<p><u>MATERIALS FROM DEMOLITIONS</u></p>	
	<p>Any materials arising from demolitions and not re-used shall become the property of the Employer. The Contractor shall allow in his rates the cost of transporting the demolished materials to storage places within the site as directed by the Architect.</p>	
B	<p><u>PRICING RATES</u></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>	
C	<p><u>SECURITY</u></p>	
	<p>The Contractor shall allow for providing adequate security for the works and the workers in the course of execution of this contract. No claim will be entertained from the Contractor for not maintaining adequate security for both the works and workers.</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 Architect. This is to include materials of the Contractor, nominated sub-Contractors and nominated suppliers.</p>	
E	<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 he/she shall make whatever provisions may be required by the authorities concerned for the support, maintenance and protection of such services.</p>	
F	<p><u>PERFORMANCE SECURITY</u></p>	
	<p>A performance security of 10% of the contract sum will be required on award of contract of the Instructions to Tenderers. No payment on account for the works executed will be made to the contractor until he has submitted the Performance Security to the Architect duly signed, sealed and stamped from an approved Bank. The performance security should be in the form of an Unconditional Demand Bank Guarantee as per attached standard form.</p>	
	<p>Carried to collection</p>	

Item	Description	Kshs/Cts
A	<p><u>TENDER DOCUMENTS</u></p>	
	<p>Tender documents will be as listed in Clause 11 of the Instruction to Tenderers.</p>	
B	<p><u>DELIVERY OF TENDER</u></p>	
	<p>Tenders and all documents in connection therewith, as specified above must be delivered in the addressed envelope which should be properly sealed and deposited at the offices as specified in the letter accompanying these documents or as indicated in the advertisement.</p>	
	<p>Tenders will be opened at the time specified in the letter accompanying these Tender Documents or as indicated in the advertisement. Tenders delivered/received later than the above time will not be opened.</p>	
C	<p><u>PRICE ADJUSTEMENT/FLUCTUATIONS</u></p>	
	<p>This is a fixed price contract. The tenderer should allow in his rates for any increases on the costs of materials and/or labour during the execution of the works.</p>	
D	<p><u>VALUE ADDED TAX (VAT)</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. The contractor should therefore include an allowance in his rates and prices for VAT.</p>	
	<p>The tenderer is advised that in accordance with Government public notice No. 35 & 36 Dated 11th September 2003 operational from 1st October 2003, withholding VAT will be levied against the contract sum by the Employer and remitted to the Commissioner of VAT through all interim certificates. It should however be noted that this is not additional tax but a new mode of payment for VAT, any excess payment will be refundable once the Contractor has submitted his monthly returns to the Commissioner of VAT who will do the refunds when satisfied that the VAT regulations have been complied with.</p>	
E	<p><u>WITHHOLDING INCOME TAX</u></p>	
	<p>The Contractor is advised that in accordance with Government regulations, withholding Tax will be levied against the total Contract price by the Employer and remitted to the Commissioner of Income Tax through all interim and final payments. It should however be noted that this is not additional Tax, but an advance payment of Income Tax which will be refundable once the Contractor has submitted his annual returns to the Commissioner of Income Tax, who will do the refunds when he is satisfied that all the income tax regulations have been complied with.</p>	
	<p>Carried to collection</p>	

PROPOSED LABORATORIES AND OFFICES FOR GDC AT KABARAK, NAKURU

Item	Description	Kshs/Cts
A	<p><u>NOTE ON DISBURSEMENT OF FUNDS</u></p> <p>The funds referred to in item Page 5 B to F below shall be given to the concerned officers in advance in every month by the Contractor for the duration of the Contract. The funds shall be disbursed net, and the tenderer should add any costs related to taxes, profit and incidental costs in the item that follows the provisional sum.</p> <p>The Contractor shall be reimbursed in subsequent certificates every month after claiming.</p>	
B	<p><u>PROJECT MANAGEMENT FACILITATION: COMMUNICATION</u></p> <p>1 Provide sum for mobile phone airtime for Design Team members for the duration of the contract.</p> <p>2 Include a percentage sum for Contractors' costs and profit and taxes for the above.%</p>	<p>1,080,000.00</p>
C	<p><u>PROJECT MANAGEMENT FACILITATION: SITE MEETING EXPENSES</u></p> <p>1 Provide sum for site visit expenses for Design Team members for the duration of the contract.</p> <p>2 Include a percentage sum for Contractors' costs and profit and taxes for the above.%</p>	<p>1,800,000.00</p>
D	<p><u>PPRA CAPACITY BUILDING LEVY</u></p> <p>1 The Contractor's attention is drawn to the PPRA Capacity Building Levy Order of 2023 vide legal Notice No. 206 of 2023. Allow provisional sum.</p> <p>2 Include a percentage sum for Contractors' costs and profit and taxes for the above.%</p>	<p>250,000.00</p>
E	<p><u>GEOTECHNICAL SURVEY</u></p> <p>1 Allow provisional sum for geo-technical survey</p> <p>2 Include a percentage sum for Contractors' costs and profit and taxes for the above.%</p>	<p>1,200,000.00</p>
F	<p><u>CLERK OF WORKS</u></p> <p>1 Allow provisional sum for project Clerk of Works</p> <p>2 Include a percentage sum for Contractors' costs and profit and taxes for the above.%</p>	<p>3,600,000.00</p>
	Carried to collection	

Item	Description	Kshs/Cts
A	<p><u>PROJECT VEHICLE</u></p> <p><u>Specifications and conditions</u></p> <p>The contractor shall provide one (1No.) locally purchased High roof 16 seater, 3000cc Diesel, Brand New Toyota Hiace Van (Model code KDH223R-LEMDYJ), or equal and approved, including seats made by vehicle manufacturer, together with a licensed competent driver for use and to the satisfaction of the "PROJECT MANAGER"</p> <p>The contractor shall ensure that the vehicle is properly licensed, comprehensively insured and is serviced regularly in accordance with the manufacturer's instructions and maintained in good condition throughout the entire contract period so that the vehicle is available for use in good serviceable condition at all times.</p> <p>In the event of the vehicle being unserviceable when required, the contractor shall provide an alternative vehicle of the same model or other equal and approved in compliance with the provisions of this condition.</p> <p>In the event of the driver being unavailable for whatever reasons, the contractor shall provide an alternative and equally qualified driver.</p> <p>Payments for the driver and maintenance of the vehicle shall be reimbursed as follows:</p> <p>By a rate per month for providing the driver and maintaining the vehicle which rate shall include for the first (1st) 5,000KM travelled in that month (per vehicle month).</p> <p>By a rate per KM over and above the first (1st) 5,000KM travelled in any month.</p> <p>The rates shall include for the provision of driver, fuels, lubricants and tyres, all maintenance, minor and major repairs including those occasioned by accidental damage from whatever cause arising and everything necessary to satisfy fully the requirements of this condition.</p> <p>Prior to handing over the vehicle to the Employer at the end of the contract, the engine chassis and body work of the vehicle shall be re-conditioned and no excessive wear or use shall be obvious.</p>	
	Carried to collection	

PROPOSED LABORATORIES AND OFFICES FOR GDC AT KABARAK, NAKURU

Item	Description	Kshs/Cts
	<p>The vehicle shall be deemed to be the property of the Employer during and after completion of the contract and possessions shall revert to the Employer upon completion.</p> <p>The vehicle shall be given a final check by Motor Vehicle inspection Department who shall issue certificate of road worthiness to the "PROJECT MANAGER" for approval prior to acceptance of the vehicle by the client/employer.</p> <p>The vehicle shall be fitted with five (5No) new tyres at the end of the contract. The old tyres shall remain the property of the contractor.</p> <p><u>Rates</u> Allow for providing, inspection and licensing and registering of one (1No.) van as specified.</p> <p>Maintain only one (1No.) motor vehicle with driver inclusive of the first 5,000KM travelled in any calendar month. 30 calendar months x Kshs ,.....Rate Per Vehicle Month)</p> <p>Maintain for distance in excess of the first 5,000KM travelled by the van epecified in any calendar month inclusive of driver,fuel,lubricants (provisional).</p> <p>12 calendar months x 2,000 KM xKshs..... (Rate per KM)</p>	
	Carried to collection	

Item	Description	Kshs/Cts	
A	<u>GENERAL PRELIMINARIES</u>		
	<u>PRICING OF ITEMS OF PRELIMINARIES AND PREAMBLES</u>		
	Prices will be inserted against items of Preliminaries in the Contractor's priced Bills of Quantities and Specifications.		
	The Contractor shall be deemed to have included in his prices or rates for the various items in the Bills of Quantities or Specifications for all costs involved in complying with all the requirements for the proper execution of the whole of the works in the Contract.		
	<u>ABBREVIATIONS</u>		
	Throughout these Bills, units of measurement and terms are abbreviated and shall be interpreted as follows: -		
	C.M		Shall mean Cubic --
	S.M.		Shall mean Square
	L.M.		Shall mean Linear --
	M.M.		Shall mean Millimetre
K.g	Shall mean		
No.	Shall mean Number		
Prs.	Shall mean Pairs		
B.S.	Shall mean the British		
Ditto	Shall mean the whole of the preceding description except as qualified in the description in which it occurs.		
Carried to collection			

PROPOSED LABORATORIES AND OFFICES FOR GDC AT KABARAK, NAKURU

Item	Description	Kshs/Cts
A	<p><u>ARCHITECT</u> Various roles assigned to the "Project Manager" in the contract shall be delegated to the Architect to the extent that they relate to the duties of the Architect</p>	
B	<p><u>QUANTITY SURVEYOR</u> Various roles assigned to the "Architect" in the contract shall be delegated to the Quantity Surveyor to the extent that they relate to the duties of the Quantity Surveyor</p>	
C	<p><u>ELECTRICAL ENGINEER</u> Various roles assigned to the "Project Manager" in the contract shall be delegated to the Electrical Engineer to the extent that they relate to the duties of the Electrical Engineer</p>	
D	<p><u>MECHANICAL ENGINEER</u> Various roles assigned to the "Project Manager" in the contract shall be delegated to the Mechanical Engineer to the extent that they relate to the duties of the Mechanical Engineer</p>	
E	<p><u>STRUCTURAL ENGINEER</u> Various roles assigned to the "Project Manager" in the contract shall be delegated to the Structural Engineer to the extent that they relate to the duties of the Structural Engineer</p>	
F	<p><u>FORM OF CONTRACT</u> The Form of Contract shall be as stipulated in the republic of Kenya's Standard Tender Document for procurement of Building and Associated Civil Engineering Works (2022 Edition) included herein. The Conditions of Contract are also included herein. The tenderer should also make reference to the insertions to made in the special conditions of contract and include here any cost related to adherence to the requirements of the conditions and special conditions to the extent that any requirements are not covered by any item herein.</p>	
	Carried to collection	

Item	Description	Kshs/Cts
A	<p><u>PLANT, TOOLS AND VEHICLES</u> Allow for providing all scaffolding, plant, tools and vehicles required for the works except in so far as may be stated otherwise herein and except for such items specifically and only required for 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> 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> 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 on site 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> The Contractor will be required to sign a receipt for all articles and materials supplied by the Architect 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 to articles and/or materials which will be supplied by the Architect 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 Architect.</p>	
	Carried to collection	

Item	Description	Kshs/Cts
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 Architect. 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 Architect for his approval until such samples are approved by the Architect and the Architect, may reject any materials or workmanship not in his opinion to be up to the standard of approved samples. The Architect 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 Architect. The Contractor shall pay for the testing in accordance with the current scale of testing charges laid down by the Ministry of Roads and 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 Architect. The Contractor shall allow in his tender for such samples and tests except those in connection with nominated sub-contractors' work.</p>	
C	<p><u>GOVERNMENT ACTS REGARDING</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 to the safety, health and welfare of the workpeople.</p> <p>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 organization of the works, supply and control of labour, etc., and allow accordingly in his tender. No claim in respect of want of knowledge in this connection will be entertained.</p> <p>Carried to collection</p>	

Item	Description	Kshs/Cts
A	<p><u>PUBLIC AND PRIVATE ROADS</u> 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 Architect.</p>	
B	<p><u>EXISTING PROPERTY</u> 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 Architect.</p>	
C	<p><u>VISIT SITE AND EXAMINE DRAWINGS</u> 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>	
D	<p><u>ACCESS TO SITE AND TEMPORARY ROADS</u> Means of access to the site shall be agreed with the Architect 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 and gates temporary culverts, bridges, etc., and make good and reinstate all works and surfaces disturbed to the satisfaction of the Architect.</p>	
	Carried to collection	

Item	Description	Kshs/Cts
A	<p><u>AREA TO BE OCCUPIED BY THE</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 Architect.</p>	
B	<p><u>OFFICE 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 minimum plinth size 50m² comprising tiled concrete floor, weatherboard walls with painted chipboard internal lining, glass louvre windows, GCI roof, painted chipboard ceiling, softwood panel doors and appropriate electrical installations. It shall be furnished with a conference table and chairs to fit minimum 30 pax and drawer chest sufficient for Ao dewings. 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 Architect 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 Architect a modern and accurate level together with levelling staff, ranging rods and 50 metre metallic or linen tape. The office and attendant facilities shall meet the approval of the Project Manager.</p>	
C	<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 Architect. 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>	
	Carried to collection	

Item	Description	Kshs/Cts
A	<p><u>SANITATION FOR THE WORKS</u> The Sanitation of the works shall be arranged and maintained by the Contractor to the satisfaction of the Employer and/or Local Authorities, Labour Department, the Architect and the landlord.</p>	
B	<p><u>SUPERVISION AND WORKING HOURS</u> The works shall be executed under the direction and to the entire satisfaction in all respects of the Architect 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>	
C	<p><u>PROGRESS CHART</u> The Contractor shall provide within two weeks of possession of Site and in agreement with the Architect a Progress Chart for the whole of the works including the works of Nominated Sub-Contractors; one copy to be handed to the Architect 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>	
D	<p><u>PROVISIONAL SUMS</u> 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 mentioned in Condition No. 16 of the conditions of Contract. Such sums are net and no addition shall be made to them for profit.</p>	
E	<p><u>PRIME COST (P.C.) SUMS</u> 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 mentioned in Condition No. 16 of the conditions of Contract. Persons or firms nominated by the Architect to execute work or to provide and fix materials or goods as stated in Condition No. 20 of the Conditions of Contract are described herein as Nominated Sub-Contractors. Persons or firms so nominated to supply goods or materials are described herein as Nominated Suppliers.</p>	
	Carried to collection	

Item	Description	Kshs/Cts
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 Architect,s order in respect of each of them added to the Contract sum. The Contractor shall produce to the Architect 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 if the Contractor’s priced Bill shows a percentage in the rate column in respect of them.</p> <p>Should the Contractor be permitted to tender and his tender be accepted for any work for which a P.C. Sum is included in these Bills 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>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 Architect’s order added to the Contract Sum. Such work shall be valued as described for Variations in Conditions No. 13 of the Conditions of Contract, 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 the contained in the priced Bills of Quantities for similar items added.</p>	
C	<p><u>NOMINATED SUB-CONTRACTORS</u></p> <p>When any works is ordered by the Architect to be executed by nominated sub-contractors, the Contractor shall enter into sub-contracts as described in the Conditions of Contract and shall thereafter be responsible for such sub-contractors in every respect. Unless otherwise described the Contractor is to provide for such sub-Contractors any or all 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>	
	Carried to collection	

Item	Description	Kshs/Cts
A	<p><u>DIRECT CONTRACTS</u></p> <p>Notwithstanding the foregoing conditions, the Employer reserves the right to place a "Direct Contract" for any goods or services required in the works which are covered by a P.C. Sum in the Bills of Quantities and to pay for the same direct. In any such instances, profit relative to the P.C. Sum in the priced Bills of Quantities will be adjusted as described for P.C. Sums and allowed.</p>	
B	<p><u>ATTENDANCE UPON OTHER TRADESMEN,</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 his 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 Architect and the work will be measured and paid for to the extent executed at rates provided in these Bills.</p>	
C	<p><u>INSURANCE</u></p> <p>The Contractor shall insure as required in Conditions No. 18 of the Conditions of Contract. No payment on account of the work executed will be made to the Contractor until he has satisfied the Architect either by production of an insurance Policy or an Insurance Certificate that the provision of the foregoing Insurance Clauses have been complied with in all respects. Thereafter, the Architect 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 Architect's inspection.</p>	
D	<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>	
	Carried to collection	

Item	Description	Kshs/Cts
A	<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 be left uncovered for a reasonable time to allow all measurements needed for such adjustment to be taken by the Architect.</p> <p>Immediately the work is ready for measuring, the Contractor shall give notice to the Architect. If the Contractor makes default in these respects he shall if the Architect so directs uncover the work to enable all measurements to be taken and afterwards reinstate at his own expense.</p>	
B	<p><u>BLASTING OPERATIONS</u></p> <p>Blasting will only be allowed with 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.</p>	
C	<p><u>MATERIALS ARISING FROM EXCAVATIONS</u></p> <p>Materials of any kind obtained from the excavations shall be the property of the Employer. Unless the Architect directs otherwise such materials shall be dealt with as provided in the Contract. 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 Architect. 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>	
D	<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 Architect 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 Employer.</p>	
	Carried to collection	

Item	Description	Kshs/Cts
A	<p><u>REMOVAL OF RUBBISH, ETC</u> Remove all 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>	
B	<p><u>WORKS TO BE DELIVERED UP CLEAN</u> 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 Architect.</p>	
C	<p><u>GENERAL SPECIFICATION</u> 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 Road and Public Works 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> 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 ¼% of the Contract sum on all contracts of more than kshs. 50,000.00 in value.</p>	
	Carried to collection	

Item	Description	Kshs/Cts
A	<p><u>STANDARD LEVY</u></p>	
	<p>The Contractor's attention is drawn to the Standard Levy Order which was amended on 15th October 1998 vide legal Notice No. 154 of 1998. The Contractor is required to pay a monthly levy of 0.2% of his ex-factory price of Construction works and must allow for this when tendering.</p>	
B	<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 Architect. This includes the materials of the Main Contractor, Nominated Sub-Contractors and Nominated Suppliers.</p>	
C	<p><u>HOARDING</u></p>	
	<p>The Contractor shall enclose the site of the works under construction with a hoarding 2400mm high consisting of iron sheets on 100 x 50mm timber posts firmly secured at 1800mm centres with two 75 x 50mm timber rails. 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. (Contractor to estimate extent of hoarding required).</p>	
D	<p><u>CONTRACTOR'S SUPERINTENDENCE/SITE</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 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 Architect and such directions shall be deemed to have been given to the Contractor in accordance with the Conditions of Contract.</p>	
E	<p><u>AS-BUILT DRAWINGS</u></p>	
	<p>Upon completion of the project the Contractor shall furnish the Architect with four copies of As-Built drawings for all building services works.</p>	
	<p>Carried to collection</p>	

PROPOSED LABORATORIES AND OFFICES FOR GDC AT KABARAK, NAKURU

Item	Description	Kshs/Cts
	COLLECTION	
	Brought forward from page 1	
	Brought forward from page 2	
	Brought forward from page 3	
	Brought forward from page 4	
	Brought forward from page 5	
	Brought forward from page 6	
	Brought forward from page 7	
	Brought forward from page 8	
	Brought forward from page 9	
	Brought forward from page 10	
	Brought forward from page 11	
	Brought forward from page 12	
	Brought forward from page 13	
	Brought forward from page 14	
	Brought forward from page 15	
	Brought forward from page 16	
	Brought forward from page 17	
	Brought forward from page 18	
	Brought forward from page 19	
	Brought forward from page 20	
	Brought forward from page 21	
	CARRIED TO GRAND SUMMARY	

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Qty	Unit	Rate	Kshs/Cts
<u>SUBSTRUCTURE</u>					
Excavation and earthworks					
A	Clear site of shrubs, undergrowth, small trees etc and burn on site or cart away arisings	3035	SM		
B	Oversite excavation commencing from ground level not exceeding 1.5m deep average 300mm deep	1214	CM		
C	Excavate for strip foundation not exceeding 1.5m deep from reduced levels	580	CM		
D	Ditto for column bases	1368	CM		
E	Excavate for column bases exceeding 1.5m-3.0m deep	545	CM		
F	Excavate for lift bases not exceeding 1.5m deep from reduced levels	9	CM		
G	Ditto lift bases exceeding 1.5m-3.0m deep	3	CM		
H	Extra over for excavating in rock of any class	393	CM		
I	Load and cart away surplus excavated materials	696	CM		
J	Return, fill in and ram selected excavated materials around foundations	1807	CM		
<u>Protection</u>					
K	Allow for keeping the whole of excavations free from all water including spring and running water	1	ITEM		
L	Allow for maintaining and upholding the sides of excavations and keeping excavations free from all fallen materials	1	ITEM		
<u>Filling</u>					
M	Hardcore filling in and around foundations well watered and consolidated in layers not exceeding 150mm thick to Engineers aproval (Average 550mm deep)	1669	CM		
N	Level and blind surface of hardcore with approved murrum, sand or quarry dust 50mm thick, water and roll as described to receive concrete	3035	SM		
Carried to collection					

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Qty	Unit	Rate	Kshs/Cts
	Filling ctd				
A	Termidor, 'Dagnet' ' Gladiator' or equal and approved insecticide treatment with a 10 years Minimum guarantee period to hardcore fill by aproved specialist	3035	SM		
B	1000 gauge polythene damp proof membrane laid on blinded hardcore (m.s)	3035	SM		
	Concrete work				
	<u>Insitu plain concrete class 15 mix 1:3:6 in:</u>				
C	Blinding under strip foundations	387	SM		
D	Ditto bases	912	SM		
E	Ditto lift bases	6	SM		
	<u>Insitu vibrated reinforced concrete (1:1.5:3) class 25/20 in:</u>				
F	Strip foundations	72	CM		
G	Ground beams	30	CM		
H	Column bases	545	CM		
I	Columns	19	CM		
J	150mm thick bed	3035	SM		
K	Lift base	6	CM		
L	200mm thick Lift wall	19	SM		
M	Supply and install 25mm thick styrofoam to expansion joint	86	SM		
N	Joint sealant to the expansion joint as "Kenbro" or equal and approved	70	LM		
	Carried to collection				

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Qty	Unit	Rate	Kshs/Cts
	Concrete work ctd'				
	Reinforcement				
	<u>High tensile ribbed bar reinforcement to BS 4461 including cutting, bending, tying wire and spacer blocks</u>				
A	8mm bars	6106	KG		
B	10mm bars	9159	KG		
C	12mm bars	12211	KG		
D	16mm bars	15264	KG		
E	20mm bars	7938	KG		
F	25mm bars	10380	KG		
	<u>Mesh reinforcement to BS 4483</u>				
G	Ref. A142 fabric mesh in surface bed (m.s) as described	3035	SM		
	Steel formwork or film coated ply boards to:-				
H	Vertical sides strip foundations	322	SM		
I	Ditto ground beams	379	SM		
J	Ditto columns	215	SM		
K	To vertical sides of lift base	7	SM		
L	To vertical sides of column bases	661	SM		
M	To vertical sides of lift walls	37	SM		
N	To edge of the foundation slab 75-150mm high	560	LM		
	Walling				
	<u>Natural stone walling bedded and jointed in cement sand (1:4) mortar</u>				
O	200mm thick walling reinforced as described	1728	SM		
	Carried to collection				
	COLLECTION				
	Brought forward from page 1				
	Brought forward from page 2				
	Brought down from above				
	TOTAL FOR SUBSTRUCTURE				
	CARRIED TO SUMMARY				

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Qty	Unit	Rate	Kshs/Cts
<u>WALLING</u>					
GROUND FLOOR AND FIRST FLOOR					
External wall					
<u>Approved machine cut natural stone walling bedded and jointed in cement sand (1:4) mortar and reinforced with hoop iron every alternate course</u>					
A	200mm thick stone walling	2755	SM		
<u>Slanting walls</u>					
B	200mm thick walls built with vertical offsets between courses in approved machine cut natural stone walling bedded and jointed in cement sand (1:4) mortar and reinforced with hoop iron every alternate course including dressing corners before plastering	809	SM		
<u>Damp proof course</u>					
<u>Mastic asphalt or equal and approved laid on cement sand (1:4) bed</u>					
C	200mm wide	986	LM		
Internal wall					
<u>Approved block or dressed natural stone walling bedded and jointed with cement sand (1:4) mortar and reinforced with hoop iron every alternate course</u>					
D	200mm thick stone walling	2365	SM		
E	100mm thick	237	SM		
<u>Damp proof course as described</u>					
F	200mm wide	543	LM		
G	100mm wide	77	LM		
Aluminium partitions					
<u>Anodized powder coated aluminium to Architects specified colour comprising 100x50mm frames, subframes, couplings, mullions, transoms, built in lugs, rubbers washers and fixing facilities all by specialist and to match existing and to Architects approval. Maximum frame spacing to be 1200mm horizontally and vertically.</u>					
H	Partition as described infilled with 12.5mm laminated MDF (2000mm bottom section) and infilled with 8mm clear glass including rubber washers and all fixing accessories (Top section)	727	SM		
Carried to collection					

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Qty	Unit	Rate	Kshs/Cts
A	<u>Polythene film</u> Supply and fix polythene film to glass partitions to aproved colour	432	SM		
B	<u>Doors to match partition above comprising of aluminum frames infilled with laminated MDF and 8mm clear glass glass</u> Size 900x2100mm	20	NO		
C	<u>Iron Mongery</u> <u>Supply and fix the following to 'UNION' or other equal and approved catalogue</u> 100x75mm medium duty stainless steel butts hinges	60	NO		
D	2 lever cylinder lock with chrome handles	20	NO		
E	Black rubber floor mounted doorstop	20	NO		
F	Automatic door closer	20	NO		
	Carried to collection				
	COLLECTION				
	Brought forward from page 4				
	Brought down from above				
TOTAL FOR WALLING CARRIED TO SUMMARY					

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Qty	Unit	Rate	Kshs/Cts
CONCRETE FRAME					
GROUND FLOOR AND FIRST FLOOR					
Vibrated reinforced insitu concrete (1:1.5:3) class 25/20					
in:-					
A	Columns	91	CM		
B	Floor beams including roof slab	370	CM		
C	Ring beams	6	CM		
D	200mm thick solid slab	4855	SM		
E	200mm thick lift walls	110	SM		
F	150mm stair landing	16	SM		
G	Stair thicknessing, steps and waist	5	CM		
H	Ramp thicknessing and waist	13	CM		
I	Supply and install 25mm thick styrofoam to expansion joint	511	SM		
J	Joint sealant to the expansion joint as "Kenbro" or equal and approved	57	LM		
Steel formwork or film coated ply boards to:-					
K	Vertical sides of columns	1109	SM		
L	Ditto curved to 150mm diameter radius	77	SM		
M	Sides and soffits of floor beams	3628	SM		
N	Ditto ring beams	73	SM		
O	Soffits of slabs over 3500mm high	4855	SM		
P	Edges of the solid slab 75-150mm thick	914	LM		
Carried to collection					

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Qty	Unit	Rate	Kshs/Cts
	Concrete frame ctd				
	<u>Formwork ctd</u>				
A	Horizontal soffits of staircase landing	16	SM		
B	Sloping soffits of staircase waist	28	SM		
C	Risers of staircase 150-225mm wide	94	LM		
D	Edge of staircase landings 75-150mm wide	43	LM		
E	Sloping edge of staircase 225-300mm wide	45	LM		
F	Edge of the ramp slab 75-150mm thick	48	LM		
G	Sloping soffits of ramp waist	92	SM		
	Steel reinforcement				
	<u>High tensile ribbed bar reinforcement to BS 4461 including cutting, bending, tying wire and spacer blocks</u>				
H	8mm bars	19641	KG		
I	10mm ditto	58923	KG		
J	12mm ditto	39282	KG		
K	16mm ditto	9821	KG		
L	20mm ditto	29462	KG		
M	25mm ditto	39282	KG		
	Carried to collection				
	COLLECTION				
	Brought forward from pg 6				
	Brought down from above				
	TOTAL FOR CONCRETE FRAME CARRIED TO SUMMARY				

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Qty	Unit	Rate	Kshs/Cts
	<u>ROOF CONSTRUCTION, COVERING AND RAIN WATER DISPOSAL (PROVISIONAL)</u>				
	<u>ROOF STRUCTURE</u>				
	<u>Trusses (Restaurant)</u>				
	<u>Sawn, celcured, pressure impregnated, second grade cypress in accordance with CPII2 The following in roof trusses including fabrication, hoisting and fixing in position</u>				
A	150x50mm rafters	238	LM		
B	Ditto common rafter	475	LM		
C	Ditto tie beam	234	LM		
D	Ditto King post	38	LM		
E	100X50mm struts and ties	469	LM		
F	200x50mm ridge	38	LM		
G	100x50mm wall plate	65	LM		
H	100x50mm purlins	393	LM		
I	50x25mm timber battens	44	LM		
	<u>Roof covering</u>				
	<u>Prepainted GCI sheets, fixing devices and fixing to steel structure to manufacturers instructions</u>				
J	Gauge 24 box profile pre-painted roof sheets in maximum available length including fixing accesssries and fixing to manufacturers instructions to steel structure.	302	SM		
K	Hip caps to match ditto	20	LM		
L	Valley gutters ditto minimum 1000mm wide	20	LM		
	<u>Wrot cypress</u>				
M	Ex 225x25mm prime grade fascia and barge board	20	LM		
	<u>Roof insulation</u>				
N	10mm Thick "Jumbolene" or equal and aproved heavy duty roof insulation fixed below roofing sheets (MS) to aproval	302	SM		
	<u>Preapare and apply one undercoat and three coats gloss paint to wood surfaces externally</u>				
O	Surafces 200-300mm girth	20	LM		
	Carried to main collection				

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Qty	Unit	Rate	Kshs/Cts
<u>Rain water disposal</u>					
<u>Waterproofing to gutters and roof slabs</u>					
A	50mm maximum thick cement sand mix 1:4 screed with waterproofing additive laid to fall on gutter base to receive waterproofing treatment (ms)	2432	SM		
B	20mm ditto to sides and top of parapet walls	774	SM		
C	Applied liquid chemical waterproofing as "Sika 107" or equal and aproved to concrete surfaces	2432	SM		
D	Interlocking concrete tiles including aproved adhesive and grouting fixed to concrete surfaces	2432	SM		
<u>Gutters and downpipes</u>					
E	Leave or make 150x150mm diameter hole in slab for outlets to downpipes	15	NO		
F	150x150mm diameter aproved UPVC fulbora inlets in concrete gutter including building waterproofing around fulboras	15	NO		
G	150x150mm galvanised mild steel gauge 16 rainwater machine bent gutter fixed with heavy duty steel holder butts to timber (ms) at maximum 1500mm centres	13	LM		
H	150x150mm galvanised mild steel gauge 16 rainwater machine fabricated downpipes fixed with heavy duty steel holder butts plugged to wall at maximum 2000mm centres	230	LM		
I	Extra over ditto for swanneck 600mm projection	17	NO		
J	Ditto shoe	17	NO		
<u>Painting and decoration</u>					
<u>Prepare and apply one coat red oxide primer and three coats gloss paint as "Crown Paints" or equal and aproved</u>					
K	To external surtaces of down pipes	138	SM		
L	Ditto gutters	6	SM		
<u>Coping above wall</u>					
M	Insitu concrete coping size 250x50mm weathered and throated, bedded and jointed in cement sand 1:3 mortar	645	LM		
<u>Sky light roof above courtyard</u>					
N	10mm thick clear toughened laminated glass on and including 100x50x2mm aluminium frames and all fixing accessories as "Impala Glass Ltd" or equal and aproved all fabricated and fixed to manufacturers instructions.	780	SM		
Carried to main collection					
COLLECTION					
Brought forward from page 8					
Brought down from above page					
RAIN WATER DISPOSAL CARRIED TO SUMMARY					

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Qty	Unit	Rate	Kshs/Cts
<u>WINDOWS (PROVISIONAL)</u>					
Window cill					
A	In-situ moulded concrete window cill size 250x50mm thick weathered and throated, bedded and jointed in cement sand 1:4 mortar including cement sand mix 1:4 render to exposed faces	643	LM		
Window boards					
<u>Wrot prime grade mahogany with 2 labours fixed to approval (Outer windows only excluding washrooms)</u>					
B	150x25mm thick (Other windows)	575	LM		
C	25mm quadrant bead	575	LM		
<u>CURTAIN WALLING</u>					
<u>Supply assemble and fix the following " Frameless" glazed aluminium curtain walling comprising powder coated aluminium in 100x50/ 50x50mm sections by approved manufacturer incorporating and complete with fixing lugs, plastic mosquito proofed permanent vents, 600mm long stainless stell scissor hinges, rubber washers including all cutting, 6mm thick reflective/solar glass to specified colour and ironmongery</u>					
D	Fixed to masonry/concrete structures to aproval	290	SM		
<u>Windows</u>					
<u>Aluminium Windows</u>					
<u>Supply assemble and fix the following purpose made powder coated aluminium windows in 100x50/ 50x50mm sections by approved manufacturer incorporating and complete with fixing lugs, plastic mosquito proofed permanent vents, 600mm long stainless stell scissor hinges, rubber washers including all cutting, 8mm thick laminated glazing and stainless steel ironmongery</u>					
E	Window size 4500x3000mm high	7	NO		
F	Ditto 4200x3000mm high	17	NO		
G	Ditto 3000x1800mm high	34	NO		
H	Ditto 2850x1200mm high	14	NO		
I	Ditto 1700x1200mm high	17	NO		
J	Ditto 4800x2700mm high	5	NO		
K	Ditto 1000x1200mm high	8	NO		
L	Ditto 4000x2700mm high	18	NO		
Carried to collection					

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Qty	Unit	Rate	Kshs/cts
<u>Windows ctd</u>					
A	Window size 6150x3000mm high	6	NO		
B	Ditto 4000x2700mm high	18	NO		
C	Ditto 3850x3000mm high	6	NO		
D	Ditto 1800x3000mm high	1	NO		
E	Ditto 5250x3270mm high	1	NO		
F	Ditto 5700x3000mm high	4	NO		
G	Ditto 5700x2700mm high	4	NO		
H	Ditto 5700x2400mm high	4	NO		
I	Ditto 5700x2100mm high	4	NO		
J	Ditto 5700x1800mm high	4	NO		
K	Ditto 5700x1500mm high	4	NO		
L	Ditto 5700x1200mm high	4	NO		
M	Ditto 5700x900mm high	1	NO		
N	Ditto 5700x3300mm high	1	NO		
O	Ditto 5600x1700mm high	3	NO		
P	Ditto 2400x1050mm high	1	NO		
Q	Ditto 3200x1200mm high	1	NO		
R	Ditto 4800x3600mm high	1	NO		
S	Aluminium Louvers to windows including approved aluminium framing and fixed to approval	528	SM		
<u>Double curtain rods</u>					
T	Chrome plated double curtain rails fixed to the wall with and including fixing brackets, decorative ends and curtain rings. Rods size 25 and 20mm diameter	643	LM		
	Carried to Collection				
	COLLECTION				
	Brought forward from page 10				
	Brought from above				
	TOTAL FOR WINDOWS AND CURTAIN WALLS CARRIED TO SUMMARY				

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Qty	Unit	Rate	Kshs/Cts
	<u>DOORS</u>				
	<u>Lintols</u>				
A	200x200mm precast concrete lintol reinforced with 4NO Y10 steel bars	72	LM		
	<u>Frameless doors</u>				
	<u>10mm thick clear toughened laminated frameless glass doors with stainless steel ironmongery including floor springs, handles and locks and other accessories as "Impala Glass Ltd" or equal and aproved all fabricated and fixed to manufacturers instructions. The floor springs to have capability for automatic closing and spring back and hold-open capabilities.</u>				
B	Double door size 4150x3450mm high in two equal leaves with 2400mm high opening bottom section and 600mm high fixed top section.	2	NO		
	<u>Aluminium doors</u>				
	<u>Anodized powder coated aluminium door to Architects specified colour comprising 100x50mm frames, subframes, couplings, mullions, transoms, built in lugs,rubbers washers and fixing facilities all by specialist and to match existing and to Architects aproval. Maximum frame spacing to be 1200mm horizontally and vertically.</u>				
C	Size 1005x3450mm high single swing door with laminated MDF and 8 mm thick glass infill with louvred transom	52	NO		
D	Size 1005x3450mm high single swing door with laminated MDF and 8 mm thick glass infill with glass transom	30	NO		
E	Sliding door size 5400x3450mm high	6	NO		
	<u>Wooden doors</u>				
	<u>Mahogany veneered post formed doors</u>				
F	45mm thick door single door leaf single swing size 800x2100mm high ditto	30	NO		
	<u>Mahogany veneered solid core flush doors with aluminium framing</u>				
G	45mm thick door Single door leaf size 1000x2400mm high ditto	9	NO		
	Carried to Collection				

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Qty	Unit	Rate	Kshs/Cts
	<u>Mahogany veneered solid core flush doors</u>				
A	Single door leaf size 1000x2100mm high with decorative view panel, 8mm thick laminated glass and with rebated meeting edges	17	NO		
B	Single door leaf size 900x2400mm high with decorative view panel, 8mm thick laminated glass and with rebated meeting edges	11	NO		
	Frames and finishing				
	<u>Wrot prime grade mahogany</u>				
C	250x50mm moulded door frame with 4 labours and including fixing dowels and cramps	424	LM		
D	Ditto 250x50mm transome with 4 labours	424	LM		
E	50x25mm achitrave with two labours plugged	424	LM		
F	25mm diameter quadrant plugged	424	LM		
G	25x25mm glazing beads	152	LM		
	Iron Mongery				
	<u>Supply and fix the following to 'UNION' or other equal and approved catalogue</u>				
H	100x75mm medium duty brass butts hinges	356	NO		
I	3 lever cylinder lock with polished brass handles	29	NO		
J	Aluminium indicator bolt	30	NO		
K	150mm aluminium D handle	30	NO		
L	Black rubber floor mounted doorstop	119	NO		
M	Medium duty door closer as Assa Abloy REF: DC 120 or equal and approved	113	NO		
N	Stainless steel push and pull handles	71	NO		
	<u>Glazing to fanlight</u>				
O	4mm clear glass to panes 0.1-0.5m2	28	SM		
	Carried to Collection				

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Qty	Unit	Rate	Kshs/Cts
	<u>Knot, prime, stop and apply three coats polyurethane clear varnish as "Crown Paints" or equal and approved to:</u>				
A	General surfaces of wood internally	300	SM		
B	Frames	106	SM		
C	Surfaces 100-200mm girth ditto	424	LM		
D	Surfaces 0-100mm girth	576	LM		
	Steel doors				
E	Purpose made mild steel single panel door size 1000x3450mm high overall fabricated from 75x50x3mm R.H.S frame, stiles, top, middle and bottom rails, infilled with gauge 14 panelled steel plates to 300mm wide top and bottom sections and the rest glazed (ms),including heavy duty pin and socket hinges, drop bolts and painting all round with one coat red oxide primer before fixing	11	NO		
F	Ditto double panel door size 1500x3450mm high overall	8	NO		
	Roller shutter doors				
G	Supply and fix steel roller shutter door size 5000mm x 3400mm high including multi lock security system	2	NO		
	<u>Glazing in metal putty to steel doors</u>				
H	5mm thick clear glass	5	SM		
	<u>Ironmongery as "Union catalogue" or equal and approved</u>				
I	3 lever mortise lock for steel door with brass plated handles	19	NO		
J	Black rubber floor mounted doorstop	19	NO		
K	Medium duty door closer as Assa Abloy REF: DC 120 or equal and approved	19	NO		
	<u>Painting and decoration</u>				
	<u>Prepare and apply three coat gloss oil paint as "Crown Paints" or equal and approved to :</u>				
L	General surfaces of metal doors externally	80	SM		
M	Ditto internally	80	SM		
	Carried to Collection				

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Qty	Unit	Rate	Kshs/Cts
A	Fire rated doors				
	1.5hrs. Fire rated single leaf/single swing door with 1.5 hrs. fire-rated view panel glass with intumescent lining size 1500x3450mm high including frames and ironmongery	2	NO		
B	1.5hrs. Fire rated double leaf 180 degree swing door with 1.5 hrs. fire-rated view panel glass with intumescent lining size 1500x3450mm high ditto	2	NO		
	Carried to Collection				
	COLLECTION				
	Brought forward from page 12				
	Brought forward from page 13				
	Brought forward from page 14				
	Brought down from above				
	TOTAL FOR DOORS CARRIED TO SUMMARY				

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Qty	Unit	Rate	Kshs/Cts
WALL FINISHES					
External wall finishes					
<u>Cement sand (1:4)</u>					
A	20mm render to walls externally including door and window reveals to receive other finishes	7384	SM		
<u>"Real Roc" exterior finish as "Duracoat" equal and aproved applied to manufacturers instructions to rendered surfaces</u>					
B	To rendered walls	7384	SM		
<u>Prepare and apply three coats of silicone based exterior paint as "Dura Coat" or equal and aproved to:-</u>					
C	To the real rock exterior finish	7384	SM		
Internal wall finishes					
<u>Plaster in two coats comprising first coat of cement sand (1:4) render and second skim coat to aproval</u>					
D	20mm thick to walls with steel trowelled finish to beams, walls and columns internally including door and window reveals	6669	SM		
E	Ditto wood floated to receive glazed tiles ditto	1743	SM		
<u>Approved 300x600mm coloured "Saj" or equal and aproved wall ceramic tiles in various colours to Architects patterns including approved adhesive and square aluminium corner strips to:</u>					
F	Walls and jambs	1743	SM		
G	Labour cutting and fitting tile around small pipe (provisional)	50	NO		
<u>Prepare and apply aproved skim layer, one undercoat and three coats silk vinyl emulsion paint as "Crown Paints" or equal and aproved to:-</u>					
H	Plastered walls and columns	6669	SM		
TOTAL FOR WALL FINISHES CARRIED TO SUMMARY					

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Qty	Unit	Rate	Kshs/Cts
FLOOR FINISHES					
	<u>Cement sand (1:4) screed</u>				
A	32mm thick steel trowelled smooth to receive carpet	395	SM		
B	32mm wood floated to receive ceramic tiles	544	SM		
C	32mm thick finished to receive powerfloat	56	SM		
D	32mm thick finished to receive epoxy finish	1143	SM		
E	32mm thick finished to receive granito finish	2710	SM		
F	32mm thick finished to receive terrazo finish	39	SM		
G	32mm thick finished to receive concrete tiles	56	SM		
	<u>10mm thick heavy duty executive carpet a with and including aproved underfelt laid to cement screed (ms) bedded with approved adhesive and pattern complete with nap locks, all accessories angle nap locks for cable outlets all fitted to manufacturers specifications and carry a ten year warranty on</u>				
H	To screeded (ms) floor	395	SM		
I	25x100mm high moulded wrot mahogany skirting	179	LM		
J	Knot, prime, stop and apply three coats polyurethane clear varnish to wood surfaces 100-200mm girth	179	LM		
	<u>Approved 300x600mm coloured "Saj" or equal and aproved floor ceramic tiles in various colours to Architects patterns including approved adhesive and grout to:</u>				
K	To screeded floor	544	SM		
I	100mm high skirting	414	LM		
	<u>Approved 600x600mm coloured "Saj" or equal and proved floor granito tiles in various colours to Architects patterns including approved adhesive and grouting to:</u>				
M	To screeded floor	2710	SM		
N	100mm high skirting	1361	LM		
	<u>4mm thick approved Epoxy flooring fixed to approval by a specialist</u>				
O	To screeded floors	1143	SM		
	<u>Power floating and hardener</u>				
P	Extra over ground floor slab for aproved hardener additive and power floating to smooth finish	56	SM		
	<u>Polished terrazzo in white cement coloured to approval and marble chips to approved patterns including plastic dividing strips carried out by approved specialist</u>				
Q	To screeded floor	39	SM		
	<u>20mm thick "Eurocon" or equal and aproved concrete tiles in various colours to Architects patterns including approved adhesive and grouting to:</u>				
R	To screeded floor	56	SM		
TOTAL FLOOR FINISHES CARRIED TO SUMMARY					

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Qty	Unit	Rate	Kshs/Cts
CEILING FINISHES					
A	<u>Gauged plaster in two coats as before described</u> 20mm thick ceilings applied to suspended concrete slabs	4887	SM		
B	<u>Prepare and apply aproved skim layer, one undercoat and three coats silk vinyl emulsion paint as "Crown Paints" or equal and aproved to</u> Plastered ceilings	2444	SM		
C	<u>Armstrong 'Minaboard' accessible tile system suspended ceilings; 600x600x15mm fissured mineral fibre tiles; complete with epoxy acrylic protected tee clips, pipped tabs, epoxy protected acrylic tee runners, hot dipped galvanized splice plates with edge trims; fixing with screws to backgrounds requiring plugging</u> Soffits generally to ceilings	2444	SM		
CEILING FINISHES CARRIED TO SUMMARY					

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Qty	Unit	Rate	Kshs/Cts
	<u>STAIR FINISHES</u>				
	<u>Gauged plaster in two coats as before described</u>				
A	20mm thick wood floated to horizontal soffits of landings	16	SM		
B	Ditto to slopping soffites of stairs	28	SM		
C	Edges of stairs 300mm girth	45	LM		
	<u>Cement sand 1:4 screed</u>				
D	32mm thick to landings to receive ceramic tiles	16	SM		
E	Ditto to treads 300mm wide	90	LM		
F	Ditto to risers 150mm high	94	LM		
	<u>Approved 300x600mm coloured "Saj" or equal and approved non slip floor ceramic tiles with grooved edges in various colours to Architects patterns including approved adhesive to:</u>				
G	12mm thick landings	16	SM		
H	100mm high ditto skirting at landings	43	LM		
I	Treads 300mm wide	90	LM		
J	Risers 150mm high	94	LM		
K	100mm high skirting to profile of steps	45	LM		
L	25mm wide carborundum non-slip insert built into treads	90	LM		
	<u>Prepare and apply aproved skim layer, one undercoat and three coats silk vinyl emulsion paint as "Crown Paints" or equal and aproved internally on:-</u>				
M	Plastered horizontal soffits of landings	16	SM		
N	Ditto sloping ditto stairs	28	SM		
O	Ditto edges of stairs 300mm girth	45	LM		
	TOTAL FOR STAIR FINISHES CARRIED TO SUMMARY				

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Qty	Unit	Rate	Kshs/Cts
<u>RAMP FINISHES</u>					
	<u>Gauged plaster in two coats as before described</u>				
A	20mm thick wood floated to horizontal soffits of landings	12	SM		
B	Ditto to slopping soffites of ramp	92	SM		
C	Edges of ramp 450mm high	48	LM		
	<u>Cement sand 1:4 screed</u>				
D	32mm thick to landings	12	SM		
E	Ditto to sloping top of ramp	92	SM		
F	Ditto to to sides of kerb 300mm high	48	LM		
G	Top of ramp kerb 200mm wide	48	LM		
	<u>Polished terrazzo in white cement coloured to approval and marble chips to approved patterns including plastic dividing strips carried out by approved specialist</u>				
H	12mm thick to landings	12	SM		
I	Ditto to sloping top of ramp	92	SM		
J	Ditto to to sides of kerb 300mm high	48	LM		
K	Top of ramp kerb 200mm wide	48	LM		
	<u>Prepare and apply aproved skim layer, one undercoat and three coats silk vinyl emulsion paint as "Crown Paints" or equal and aproved internally on:-</u>				
L	To horizontal soffits of landings	12	SM		
M	Ditto to slopping soffites of ramp	92	SM		
N	Edges of ramp 450mm high	48	LM		
TOTAL FOR RAMP FINISHES CARRIED TO SUMMARY					

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Qty	Unit	Rate	Kshs/Cts
<u>FIXTURES AND BALUSTRADES (PROVISIONAL)</u>					
A	<p>Staircase balustrades <u>Stainless steel</u> 1000mm high balustrading comprising 40x2mm thick diameter top rail and bottom rail including all bends, on and including brackets welded on and plugged into masonry or concrete wall, 40mmx2mm thick diameter balusters in 500mm centre to centre complete with mortices, bolts and grouting in for ends of balustrades including 8mm thick laminated glazing fixed with four number brackets including making good in joints</p>	45	LM		
B	<p>Kerbs 200 x 100mm high railing kerb with plain concrete mix 1:2:4, 20mm gauge plaster mix 1:2:9 and 600x600x10mm thick granito tiles to sides and top surfaces.</p>	45	LM		
C	<p>Ramp balustrades <u>Stainless steel</u> 1000mm high balustrading comprising 40x2mm thick diameter top rail and bottom rail including all bends, on and including brackets welded on and plugged into masonry or concrete wall, 40mmx2mm thick diameter balusters in 500mm centre to centre complete with mortices, bolts and grouting in for ends of balustrades including 8mm thick laminated glazing fixed with four number brackets including making good in joints</p>	48	LM		
D	<p>Kerbs 200 x 100mm high railing kerb with plain concrete mix 1:2:4, 20mm gauge plaster mix 1:2:9 and 600x600x10mm thick granito tiles to sides and top surfaces.</p>	48	LM		
Carried to Collection					

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Qty	Unit	Rate	Kshs/Cts
	Balcony balustrades				
	<u>Stainless steel</u>				
A	1000mm high balustrading comprising 40x2mm thick diameter top rail and bottom rail including all bends, on and including brackets welded on and plugged into masonry or concrete wall, 40mmx2mm thick diameter balusters in 500mm centre to centre complete with mortices, bolts and grouting in for ends of balustrades including 8mm thick laminated glazing fixed with four number brackets including making good in joints	152	LM		
	Kerbs				
B	200 x 100mm high railing kerb with plain concrete mix 1:2:4, 20mm gauge plaster mix 1:2:9 and 600x600x10mm thick granito tiles to sides and top surfaces.	152	LM		
	Worktops				
C	Worktops Comprising 100mm thick reinforced concrete slab, plastered and painted to soffits and screeded tops including all formwork and reinforcement	75	SM		
D	Extra over wortops for 20mm thick black granite slab fixed to aproval including making holes for basins and making good	75	SM		
E	Ditto but 100mm wide fascia	135	LM		
	Shelves				
F	Low level worktop shelves made in 100mm high screeded plinth, 100mm thick top slab reinforced with BRC A142 mesh and supported to the sides by 100mm thick walling, 20mm thick laminated MDF sides, doors, shelves and partitions, 25mm thick blockboard top and fascia, ironmongery to aproval; WHB size 2100x600x900mm high	10	NO		
G	Ditto but WHB size 1200x600x900mm high	10	NO		
H	Shelves comprising 20mm thick laminated MDF shelves, sides and doors including ironmongery to storage rooms and laboratory	65	SM		
	Pergola				
I	Structural steel section fabricated 200x100mmx4mm thick RHS in pergola built into walls and floors and including fixing and fixing accessories at 1300 c/c to approval and making good affected finishes All exposed ends of hollow sections to be blanked with 3mm thick plates. Include 1 prime and 3 coats exterior quality gloos paint.	378	LM		
	Carried to Collection				

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Qty	Unit	Rate	Kshs/Cts
	<u>FIXTURES AND BALUSTRADES (PROVISIONAL) CTD</u>				
	Pergola				
A	Steel decorative feature fabricated from 200mm diameter x4mm thick CHS in pergola built into wall and including fixing and fixing accessories at 1300 c/c to approval and making good affected finishes All exposed ends of hollow sections to be blanked with 3mm thick plates.	85	LM		
B	Prepare and apply one coat red oxide and three coats exterior quality gloss paint to steel surfaces externally	51	SM		
	Pre cast concrete sun breakers				
C	100x300mm precast concrete sun breaker reinforced with 4NO D10 steel bars	66	LM		
	Carried to Collection				
	COLLECTION				
	Brought forward from page 21				
	Brought forward from page 22				
	Brought down from above				
	TOTAL FOR FIXTURES AND BALUSTRADES CARRIED TO SUMMARY				

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Qty	Unit	Rate	Kshs/Cts
	<u>BUILDERS WORK: MECHANICAL</u>				
	<u>All Provisional</u>				
	<u>NOTE</u> <u>Installations are covered in the specifications and Bills of Quantities for mechanical installation works</u>				
	<u>Builder's work in connection with plumbing and drainage installations</u>				
A	Allow for cutting, pinning and making good ends of supports for equipments, appliances, fittings and the like	550	NO		
	<u>Cut away for and make good after the plumber for the following:-</u>				
B	Hole for small pipe through 90mm thick block or stone wall	650	NO		
C	Ditto large pipe ditto	670	NO		
D	Hole for large pipe through 200mm stone wall	700	NO		
E	Ditto through 100mm thick reinforced concrete slab	800	NO		
F	Chases in concrete block or stone wall for small pipe	1200	LM		
G	Ditto for large pipe in concrete floor	1500	LM		
	TOTAL FOR BUILDERS WORK: MECHANICAL CARRIED TO SUMMARY				

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Qty	Unit	Rate	Kshs/Cts
	<u>BUILDERS WORK: ELECTRICAL INSTALLATIONS</u>				
	(All Provisional)				
	<u>NOTE:</u>				
	<u>Installations are covered in the specifications and Bills of Quantities for electrical installation sub-contract works</u>				
	<u>Builder's work in connection with electrical installations</u>				
	<u>Allow for cutting and leaving all necessary holes, notches, mortises and sinkings in both the structure and it coverings and for all making good in connection with the following in concealed conduits or cables</u>				
A	Lighting points for pendant or incandescent fittings and associated switch points	400	NO		
B	Power points (Socket or switch socket) ditto	450	NO		
C	Fire alarms, T.V. aerial, Telephone, signal points and bell points (grouped together ditto)	50	NO		
D	Meters, isolator-switches, switch fuses, distribution boards, bursbars chambers and the like	50	NO		
E	Cut and pin ends of supports for equipment appliances, fittings, trunkings and like	650	NO		
F	Chases in concrete block or stone wall for small pipe	2500	LM		
	TOTAL FOR BUILDERS WORK: ELECTRICAL INSTALLATIONS CARRIED TO SUMMARY				

PROPOSED LABORATORIES AND OFFICES -GDC KABARAK NAKURU

Item	Description	Kshs/Cts
SUMMARY FOR LABORATORIES AND OFFICES BLOCK MAIN BUILDING WORKS		
1	SUBSTRUCTURE FROM PAGE 3	
2	WALLING FROM PAGE 5	
3	CONCRETE FRAME FROM PAGE 7	
4	ROOF FROM PAGE 9	
5	WINDOWS AND CURTAIN WALLS FROM PAGE 11	
6	DOORS FROM PAGE 15	
7	WALL FINISHES FROM PAGE 16	
8	FLOOR FINISHES FROM PAGE 17	
9	CEILING FINISHES FROM PAGE 18	
10	STAIR FINISHES FROM PAGE 19	
11	RAMP FINISHES FROM PAGE 20	
12	FIXTURES AND BALUSTRADES FROM PAGE 23	
13	BUILDERS WORK: MECHANICAL FROM PAGE 24	
14	BUILDERS WORK: ELECTRICAL FROM PAGE 25	
TOTAL FOR LABS AND OFFICES BLOCK CARRIED TO GRAND SUMMARY		

EXTERNAL WORKS - ALL PROVISIONAL

Item	Description	Qty	Unit	Rate	Kshs/Cts
CARPARK AND DRIVEWAY					
Excavation and earthworks					
A	Clear site of shrubs, undergrowth, small trees etc and burn on site or cart away arisings	3,464	SM		
B	Oversite excavation to remove vegetable soil average 300mm deep	1,039	CM		
C	Load and cart away excavated materials	1,039	CM		
D	Compact subgrade to aproval	3,464	SM		
E	Aproved murram filling machine rolled in 150mm thick layers compacted to minimum CBR 100% B.S.	3,464	CM		
F	150mm thick handpacked hardcore machine rolled to aproval	3,464	SM		
G	50mm thick sand or quarry dust blinding to hardcore	3,464	SM		
H	'Round up' or other equal and aproved weedkiller applied in accordance with manufacturers instructions	3,464	SM		
I	80mm thick medium duty precast concrete paving blocks as 'Bamburi Blocks" or equal and aproved laid to falls to aproved pattern	3,464	SM		
J	250x125mm precast concrete kerb and 100x125mm channel including concrete mix 1:2:4 bed and haunch, all necessary excavation, formwork and disposal of surplus spoil	1,190	LM		
K	Ditto but curved	180	LM		
L	100x125mm precast concrete channel a.b.d	1,190	LM		
M	Ditto but curved	180	LM		
CARRIED TO SUMMARY					

Item	Description	Qty	Unit	Rate	Kshs/Cts
PAVING					
Excavation and earthworks					
A	Clear site of shrubs, undergrowth, small trees etc and burn on site or cart away arisings	1300	SM		
B	Bulk excavation from stripped level not exceeding 1.5m	260	CM		
C	Load and cart away excavated materials	260	CM		
D	600x600x50mm precast concrete paving including excavation and disposal, 100mm sand base, pointing and jointing in cement sand 1:4 mortar	1300	SM		
E	100x125mm precast concrete channel a.b.d	902	LM		
CARRIED TO SUMMARY					

Item	Description	Qty	Unit	Rate	Kshs/Cts
STORM DRAINAGE					
(NB: Measured in accordance with CESMM)					
Pipework - Pipes					
A	Excavate for, provide, lay, joint, backfill and cart away excess spoil and test for 300 diameter precast concrete 'Ogee' pipe culverts for stormwater drains in depth exceeding 1.0 but not exceeding 1.5m	12	LM		
B	Ditto but 450mm diameter	12	LM		
Stormwater closed drains (Vee section lined ditches)					
C	Excavate for, backfill and cart away excess spoil, provide, lay and joint 600x450x225mm precast concrete invert block drain. Include for 100mm thick compacted murrum bedding and haunching. Depth not exceeding 1.0m.	150	LM		
D	Ditto with 1 no. 600 x 225 x 75mm side slab on each side. Depth exceeding 1.0 but not exceeding 1.5m	150	LM		
Pipework - Supports and protection, Ancillaries to laying and excavation					
E	Extra over for excavation in rock of any class for stormwater drains	15	CM		
F	Provide all materials and build concrete mix (1:2:4) bed and surround to the 300mm diameter precast concrete ogee pipe for the stormwater drains	12	LM		
G	Ditto but 450mm diameter	12	LM		
Headwalls (6NO)					
H	Excavate in ordinary material to a depth 1-1.5m deep	8	CM		
I	Disposal of excavated material	8	CM		
J	In situ vibrated reinforced concrete mix 1:2:4 150mm thick in base and toe	12	SM		
K	BRC A142 mesh reinforcement in ditto	12	SM		
L	Sawn formwork to ditto	8	SM		
M	150mm thick dressed natural stone walling bedded and jointed in cement sand 1:4 mortar including building wall around culvert openings	12	SM		
N	15mm thick cement sand 1:4 render to walls	12	SM		
CARRIED TO SUMMARY					

Item	Description	Qty	Unit	Rate	Kshs/Cts
	<u>FOUL DRAINAGE</u>				
	<u>PIPEWORK (NB: Measured in accordance with CESMM)</u>				
	Pipework - Pipes				
A	Excavate for, provide, lay, joint, backfill and cart away excess spoil and test for 160 dia. MPVC class 41 golden brown pipe for foul water drains in depth exceeding 1.0 but not exceeding 1.5m	150	LM		
B	Ditto but depth exceeding 1.5 but not exceeding 2m	180	LM		
	Pipework - manholes and Pipework ancillaries				
C	Excavate for, provide, lay, joint, backfill and cart away excess material and test masonry manholes size 600x750mm.				
	Include class 20 mass concrete base slab, concrete class 20 surround, reinforced precast concrete cover slab, benching, C.I step irons, building in drain pipes, medium duty cast iron manhole cover to approval, depth to invert 1-1.5m	15	NO		
D	Ditto but depth exceeding 1.5 but not exceeding 2m	20	NO		
	<u>Gulley traps</u>				
E	100mm diameter gulley traps including mass concrete bed and surround, accessories, formwork, excavation, backfill and disposal	8	NO		
	Pipework - Supports and protection, Ancillaries to laying and excavation				
F	Extra over for excavation in rock of any class for stormwater drains	5	CM		
	TOTAL FOR CARRIED TO SUMMARY				

Item	Description	Kshs/Cts
SUMMARY FOR EXTERNAL WORKS		
1	CAR PARK AND DRIVEWAY FROM PAGE 1	
2	PAVING FROM PAGE 2	
3	STORM DRAINAGE FROM PAGE 3	
4	FOUL DRAINAGE FROM PAGE 4	
5	ALLOW PROVISIONAL SUMS FOR GAS CHAMBERS	1,800,000.00
6	ALLOW PROVISIONAL SUM FOR UNDERGROUD TANK (300M3)	4,500,000.00
TOTAL FOR EXTERNAL WORKS CARRIED TO GRAND SUMMARY		

SECTION IX: ELECTRICAL WORKS

**PROPOSED GEOTHERMAL DEVELOPMENT CORPORATION LABS,
OFFICES AND WORKSHOP AT KABARAK NAKURU**

STANDARD ELECTRICAL SERVICES SPECIFICATION

CONTENTS

3.1.00	GENERAL REQUIREMENTS
3.2.00	WORKMANSHIP AND MATERIALS
3.3.00	TESTING AND COMMISSIONING

PART III

STANDARD ELECTRICAL SERVICES SPECIFICATION

3.1.00 GENERAL REQUIREMENTS

- 3.1.01 Definitions
- 3.1.02 Contract Drawings and Specification
- 3.1.03 Related Documents
- 3.1.04 Regulations
- 3.1.05 Standards
- 3.1.06 Statutory Authorities
- 3.1.07 Materials and Workmanship
- 3.1.08 Packing, Delivery and Off-Site Storage
- 3.1.09 Storage and Protection of Equipment on Site
- 3.1.10 Standardisation
- 3.1.11 Setting Out
- 3.1.12 Fixings
- 3.1.13 Builder's Work
- 3.1.14 Submission of Drawings and Documents
- 3.1.15 Working Drawings
- 3.1.16 Manufacturer's Drawings
- 3.1.17 Electrical Diagrams and Schedules
- 3.1.18 Construction Record Drawings
- 3.1.19 Operating and Maintenance Instruction Manuals
- 3.1.20 Agreed Programme
- 3.1.21 Site Meetings and Progress Reports
- 3.1.22 Instructing the Employer's Staff
- 3.1.23 Foreman
- 3.1.24 Huts, Fencing, Scaffolding, etc.
- 3.1.25 Alternative Proposals
- 3.1.26 Specialist Sub-Contractors
- 3.1.27 Schedule of Rates
- 3.1.28 Variations to Contract
- 3.1.29 Samples
- 3.1.30 Noise and Vibration

3.1.01 Definitions

For the purpose of this specification, the words and abbreviations detailed below shall be interpreted as indicated

- i) Superintending Officer (SO) shall be the Superintending or Supervisory Officer or Employers representatives indicated in the Conditions of Contract, or his accredited representative.
- ii) Contractor or Sub-Contractor shall mean the firm or persons appointed to carry out the works described in this specification.
- iii) Works shall include all plant, equipment, materials and services to be provided for the entire execution of the Contract.
- iv) Site shall mean the area where the works are to be carried out, together with any associated or surrounding area used in agreement with the SO in connection with the execution of the Contract.
- v) Equal or Approved indicates alternative materials substituted for the recommended manufacturer's items with the prior approval of the SO, who shall have the final decision as to whether the alternative is equal.
- vi) Agreed Programme shall be the detailed programme to be provided by the Contractor, for all aspects of the works and agreed with all interested parties.
- vii) Words intimating the singular only shall include the plural and vice-versa.

3.1.02 Contract Drawings and Specification

The Contract Drawings are as detailed in the Schedule of Contract Drawings in this Specification.

Should anything have been omitted from the Contract Drawings and/or the Specification which by the nature of the work can be reasonably inferred intended or required to be provided for the proper completion of the works, the Contractor shall provide or perform the same without extra charge in accordance with the decision to the entire satisfaction of the SO.

The Contract Drawings are intended to show the basic principles on which the Tender is to be prepared. They do not necessarily show exact runs of trunking, conduit, cables, etc.; nor the fittings required, or the precise locations of accessories, outlets, equipment, etc.

The Contract Drawings are not to be taken or regarded as working drawings and must not be scaled for installation purposes.

3.1.03 Related Documents

This Specification shall be read in conjunction with the Condition of Contract, Contract Drawings and related documentation referred to therein.

For the purpose of Tendering it shall be deemed that the contractor has inspected the current "Related Documentation".

3.1.04 Regulations

The Works shall comply with all current and relevant statutory regulations and in particular with those listed below:

- a) Building Regulations and any By-laws.
- b) Electricity Supply and Regulations.
- c) Health and Safety and Work etc. Act.
- d) IEE Regulations for Electrical Installations (15th Edition).
- e) The Gas Safety Regulations.
- f) The Control of Pollution Act.
- g) The Clean Air Acts.
- h) Regulations under the Factories Act.
- i) Regulations and By-laws issued by the local electricity, gas, water and fire authorities.
- j) Building Control.

3.1.05 Standards

Unless otherwise specified the whole of the Works shall comply with the requirements of the current relevant British Standards and Codes of Practice.

3.1.06 Statutory Authorities

The Works shall be carried out in accordance with the requirements of all the local and statutory authorities.

The Contractor shall liaise with the relevant authorities, providing such notice and information that are necessary for their services to be co-ordinated with the "Agreed programme".

3.1.07 Materials and Workmanship

All materials, including those used by manufacturers shall be new and in accordance with the Specification. They shall be of such type and standard to suit their intended application and the operating environment. Materials shall be of British or EEC manufacture unless otherwise specified. Documentary proof of conformity shall be produced on demand.

Approved materials are listed in the Schedules.

Alternative materials shall not be substituted without written approval. Applications for approval shall be accompanied by specifications and samples of the alternative material and copies of written approval by Statutory Authorities where applicable.

Materials which are not in accordance with the Specification may be rejected by the SO. Any material so rejected shall be immediately removed and replaced with suitable materials at no additional cost to the Contract.

3.1.08 Packing, Delivery and Off-Site Storage

All parts shall be suitably protected from corrosion and damage before the makers works and during the period of erection.

Delivery to site of materials of a nature likely to suffer damage or deterioration on the site shall not be made in advance of the reasonable requirements of the programme. Suitable storage shall be provided elsewhere until such time as the material may properly be delivered to the site. All costs for such off-site storage and delivery shall be met by the Contractor.

The Contractor shall give reasonable notice of his intention to deliver materials and plant to site so that any obligation of others in respect of unloading and storage can be fulfilled.

These conditions shall also apply where the quantities of materials to be delivered to the site exceed the space available for on-site storage.

3.1.09 Storage and Protection of Equipment on Site

All materials and equipment on site shall be adequately and securely stored.

All equipment and materials shall be stored clear of the ground in such a manner that items are not deformed to stacking or self weight.

All unprotected materials and equipment shall be stored under ventilation covers.

Storage shall be arranged in such a manner that free access for inspection is available to all items.

Items withdrawn from storage that are damaged, corroded or otherwise unserviceable shall not be installed. Such items shall be replaced at no additional cost to the Contract.

3.1.10 Standardisation

For ease of maintenance and stocking of spars it is essential that the minimum number of different components of a similar type shall be used.

3.1.11 Setting Out

The Contractor shall be responsible for the accurate setting out of the Works, for taking such site dimensions as may be necessary and for obtaining detailed dimensions of plant and equipment from manufacturers.

3.1.12 Fixings

The Contractor shall neatly and securely fix his installations to the building fabric.

Fixing devices shall be:-

- a) Purpose made for their application.
- b) Attached to walls or soffits with roundhead screws into plugs, or with drill anchors.
- c) Attached to structural steelwork with clamps, e.g. "Lindaptors".
- d) Corrosion resistant to suit the environment.

3.1.13 Builder's Work

Where items of Builder's Work are to be carried out by the others, the Contractor shall provide all necessary information to enable the work to be executed, either by provision of drawings or schedules, or by setting out his requirements on site.

The methods to be adopted shall be agreed with all interested parties, by in general will be applied as follows:

- a) Where builder's work is to be formed, dimensioned drawings shall be provided.
- b) Where builder's work is to be cut, it shall be marked-out on site.
- c) Trenches shall be both shown on drawings and marked-out on site.

Note: Holes and chases in concrete will be formed, as will holes over 150 mm diameter or equivalent in any material.

Where drawings or schedules are to be provided by the Contract, they shall be submitted for comment in accordance with the clause "Submission of Drawings and Documents".

The Contractor shall be solely responsible for ensuring that all builder's work carried out is correctly positioned, and any costs arising from incorrect marking-out or information supplied by him, shall be borne by him.

3.1.14 Submission of Drawings and Documents

General

The drawings and documents provided by the Contractor shall include:-

- a) Builder's Work Drawings and Schedules.
- b) Working/Installation Drawings.
- c) Manufacturer's Drawings.
- d) Electrical Diagrams and Schedules.
- e) Construction Record Drawings.
- f) Operating and Maintenance Instruction Manuals.

Drawings and manuals shall be submitted by the Contractor to the SO for comment in the numbers and sequence given in the documentation.

Within two weeks of the award of Contract, the Contractor shall prepare and issue to the SO for comment, a schedule showing the number and title of all drawings to be produced by the Contractor and intended date of issue to meet the "agreed programme".

A reasonable time shall be allowed, and clearly shown in the programme, for the preparation of drawings for checking and amending when required.

Comments will relate only to performance, overall functional matters, quality of materials and compliance with the requirements of the Specification.

Unless otherwise agreed in writing, no work covered by documents submitted for comment shall commence until such comments have been received by the Contractor.

Comments on drawings and documents shall not relieve the Contractor's liability for providing and installing everything necessary for the satisfactory completion of the Works. Any modification required shall be re-submitted within one week of receipt of comments.

The Contractor shall remain entirely responsible for any errors on drawings and documents prepared by him provided that such errors were not occasioned by inaccurate information supplied by the SO.

Working drawings shall be neat, legible and reproducible, and shall be logically titled and numbered.

Drawing Standards

Negatives shall be provided on transparent acetate material.

Drawings shall be to the BS 3429 International "A" series.

All symbols shall be strictly in accordance with BS 1553.

Drawings of plant rooms shall be to a scale of not less than 1:20 and shall include plans and sections. External services route plans shall be to a convenient scale with large scale details of supports, intersections, expansion facilities, etc. Other drawings shall be to a scale of not less than 1:50.

Every drawing shall bear the name of the Contract as shown on the cover of the Specification.

Related drawings and documents shall be cross referenced.

3.1.15 Working Drawings

The Contractor shall, prepare all drawings and related documents as may be necessary for the following purposes:-

- a) To illustrate in detail the arrangement of the various sections of the Works to identify and describe the various components.
- b) To enable the Works to be properly installed and integrated with the detail of the building.

Such drawings and documents shall be made available in good time to enable other interested parties to make full use of the information and discharge their own responsibilities.

The Contractor shall be responsible for accuracy of the information he provides and shall be liable for all costs arising from any errors in such information.

3.1.16 Manufacturer's Drawings

The Contractor shall provide Manufacturer's Drawings for all items of plant or equipment, showing construction and dimensional details.

No orders for such plant or equipment shall be placed until the Contractor has received the SO's comments on the submitted drawings.

3.1.17 Electrical Diagrams and Schedules

Wiring diagrams shall be provided in respect of all electrical equipment and/or systems which form part of the Works.

Such wiring diagrams shall be fully comprehensive and shall co-ordinate the manufacturer's data in respect of individual items of equipment so as to present as a whole, the complete information for an inter-connected group or groups of such items.

The diagrams shall detail separately all the composite electrical circuit and wiring layouts.

Composite circuit and layout diagrams for the electrical services shall not only detail all circuitry within control panels, but also all inter connecting wiring from the main point of supply and all terminal markings. The required sizes and types of all cables and pipes shall be indicated on the layout diagrams together with the ratings of such items as fuses and switches.

The composite diagrams shall subsequently form part of the set of "Construction Record Drawings".

Individual circuit and layout drawings from the various component manufacturers will not be accepted in lieu of composite diagrams.

3.1.18 Construction Record Drawings

The Construction Record Drawings shall show the completed Works as installed. They shall show all plant, equipment and cable, conduit, runs, etc. as appropriate.

The drawings shall include full details of all plant together with cable, conduit etc. sizes and schematic diagrams as appropriate.

The Construction Record Drawings shall show any other information, even if previously shown on working drawings, which may be useful in the operation, maintenance or subsequent modification or extension of the installation. The drawings shall show reference numbers or letters, for the controls, plant items, or any parts thereof, corresponding to the lettering, numbering or any other identification fixed to such plant or equipment.

The drawings shall conform to the following standards:-

- All drawings shall be in ink on best quality transparent acetate film.
- Lettering and numbers shall be stencilled or typed.
- Of the quality that a competent draughtsperson should produce.

Each drawing shall show the following information in a block in the bottom right hand corner of the sheet.

- The words "CONSTRUCTION RECORD" in bold 15 mm high letters.
- Name of Contract and where appropriate, the zone or floor description.
- Description of drawing and scale.
- Employer's name.
- Name and address of originator
- Reference code or number

The completed drawings shall be signed as true record drawings and shall be submitted at the same time as the Operating and Maintenance Instruction Manual.

Adequate and accurate records shall be kept, throughout the execution of the Works to ensure the ultimate completeness and accuracy of the Construction Record Drawings.

A copy of the working drawings shall be maintained on site for the sole purpose of recording in red, a running record to indicate any deviations as the Works progress. These drawings shall be available for periodic inspection and shall be used for the preparation of the Construction Record Drawings.

The Construction Record Drawings are deemed to be a part of the Works and must be issued in order that Practical Completion can be achieved.

3.1.19 Operating and Maintenance Instruction Manual

Prior to Practical completion the Contractor shall provide three copies of a manual containing all information need for the proper operation and maintenance of the Works.

Each manual shall be a follows:

- Cover: Stiff plastic binder with side and spine pockets for labelling.
- Labelling: Project title and details of services covered stencilled on stiff cards (2 No.).
- Page Size: A4
- Format: a) General Description of the Works
b) Operating procedures
c) Maintenance procedures
d) Emergency procedures and fault finding
e) Manufacturers' literature
f) Spare parts list
g) Useful addresses and telephone numbers
h) A set of Record Drawings
i) Lubrication Charts (where applicable)

Each section shall be divided, indexed and cross referenced as necessary.

3.1.20 Agreed Programme

A detailed programme of the production of information and for all aspects of the execution of the Works shall be prepared by the Contractor and agreed with all other interested parties. Such a programme is referred to in this Specification as the "agreed programme".

The "agreed programme" shall make adequate allowance for testing, commissioning and demonstration of the Works before Practical Completion. Specific dates shall be given when witnessing of testing and commissioning will be required.

All precautions shall be taken to ensure that the progress of the Works does not impede the progress of others.

It is the responsibility of the Contractor to ensure that his work is co-ordinated with all other disciplines on the site before installation work commences.

3.1.21 Site Meetings and Progress Reports

On request from the SO the Contractor shall provide:

- i) A competent representative to attend site meetings.
- ii) A written report detailing the progress of the Works and the number of operatives employed on the site.

3.1.22 Instructing the Employer's Staff

The Contractor shall include in his price for providing a competent engineer to instruct the Employer's staff on the correct operation and use of all systems and equipment forming part of the Works.

3.1.23 Foreman

The Contractor shall, during the whole time that the Works are in progress, maintain on the site a competent and qualified technical as a Foreman, who shall be authorised to take and carry out on behalf of the Contractor, any instructions given to him by the SO.

3.1.24 Huts, Fencing, Scaffolding, etc.

Unless otherwise specified in the terms of Contract the Contractor shall provide, at his own cost, all tools; huts for site office, workshop and storage of materials; temporary gangways; fences; scaffolding; etc., for his own use, and all other plant as may be required for executing the Works.

3.1.25 Alternative Proposals

The Contractor shall comply with the "Schedule of Preferred Manufacturers" in this specification.

Alternative proposals may be submitted provided that such alternative proposals result in works equal to or better than the Specification in all respects.

Alternatives offered at the time of Tender shall be submitted on the "Schedule of Alternatives to Specification".

Whenever alternatives are submitted, they shall be accompanied by:

- a) A description of the alternative proposals.
- b) Supporting evidence to demonstrate their suitability.
- c) Contract Price adjustment, including for items (i), (ii) and (iii) below.
- d) An estimate of the cost of any changes in builder's work, method of support and associated services.
- e) Details of changes in physical size and weight.
- f) Any special requirements for access.

If the alternative is accepted the Contractor shall immediately provide the following information:-

- i) Full details and specification of the alternative proposal.
- ii) All drawings and calculations necessary to show the method of incorporating the alternative proposals into the design.
- iii) Details of all builder's work, structural supports and changes to associated services required by the adoption of the alternative proposals.

3.1.26 Specialist Sub-Contractor

Where sections of work are to be undertaken by the Specialist Sub-Contractors, they shall be those specified in the "Schedule of Approved Specialist Sub-Contractors".

3.1.27 Schedule of Rates

Within two weeks of the award of the Contract, the Contractor shall submit a "Schedule of Rates". The "Schedule of Rates" is defined as a full comprehensive list of unit costs per item of plant or equipment, installed complete in accordance with the Specification and Contract Drawings, inclusive of overheads, profit and all other costs, e.g. cost per metre of each size of cable, conduit, trunking, etc. The total cost shall equal the Tender sum.

3.1.28 Variations to Contract

Variations shall, at the discretion of the SO, be priced on the basis of:-

- 1) The Schedule of Rates
- 2) Supplementary quotation

3) Daywork rates

The Contractor shall whenever possible, provide a detailed quotation within seven days of being informed of a variation. Where this is impossible, a best estimate shall be given initially followed by a detailed quotation at the earliest possible date.

When the Contract undertakes a variation he shall, unless he states otherwise in writing, be deemed to have varied his labour and other resources so that the “Agreed Programme” is not varied.

3.1.29 Samples

At the request of the SO the Contractor shall submit for approval samples of the materials to be provided by the Contractor. There shall be change for the samples provided that they are returned to the Contractor in good condition.

3.1.30 Noise and Vibration

The Contractor must ensure that the transmission of noise and vibration, from all items of plant and equipment installed under the contract, is kept to an acceptable level in accordance with current standards, recommendations, and statutory requirements.

PART III

STANDARD ELECTRICAL SERVICES SPECIFICATION

3.2.00 WORKMANSHIP AND MATERIALS

- 3.2.01 General
- 3.2.02 Cubicle Switchboards - LV
- 3.2.03 Circuit Breakers - LV
- 3.2.04 Switchgear - LV
- 3.2.05 Busbar Chambers
- 3.2.06 Protective Relays
- 3.2.07 Current Transformers
- 3.2.08 Metering and Instruments
- 3.2.09 Uninterrupted Power Supplies (UPS)
- 3.2.10 Batteries and Chargers
- 3.2.11 Busbar Trunking
- 3.2.12 Distribution Boards
- 3.2.13 Residual Current Devices (RCDs)
- 3.2.14 Cable Tray
- 3.2.15 Cable Rack
- 3.2.16 Trunking - Steel
- 3.2.17 Trunking - PVC
- 3.2.18 Trunking - Floor
- 3.2.19 Conduit - Steel
- 3.2.20 Conduit - PVC
- 3.2.21 Conduit - Flexible
- 3.2.22 Cables - General
- 3.2.23 Cables - Power
- 3.2.24 Cables and Cords
- 3.2.25 Cables PVC Sheathed
- 3.2.26 Cables - MICC
- 3.2.27 Luminaires
- 3.2.28 Wiring Accessories
- 3.2.29 Wiring
- 3.2.30 Final Connections
- 3.2.31 Current and Fault Ratings
- 3.2.32 Earthing and Bonding
- 3.2.33 Degree of Protection
- 3.2.34 Labelling and Notices
- 3.2.35 Circuit Lists
- 3.2.36 Fire Barriers
- 3.2.37 Spares
- 3.2.38 Painting
- 3.2.39 Fixings
- 3.2.40 Protection Against Damage
- 3.2.41 Dissimilar Materials
- 3.2.42 Lightning Protection System
- 3.2.43 Standby Diesel Generators
- 3.2.44 Power Transformers
- 3.2.45 Sub-Station or Switchroom Earthing
- 3.2.46 HV Switchgear and Installation

- 3.2.01 General

All workmanship shall be of the highest standard and all materials of best quality, new, undamaged and comply with all relevant British Standard Specifications.

The position of plant, equipment and all points are shown approximately on the drawings; the exact positions shall be determined and agreed on site; minor alterations to locations, if instructed prior to installation, shall be made without additional charges.

In the event of any conduit, cables or apparatus being damaged by any person or persons, the Contractor shall be entirely responsible for arranging the necessary replacement for the installation or equipment and compensation for any damages between the parties concerned. The SO will not participate in any discussion or proceedings concerning the fault or liability of any party beyond reprimanding the party responsible.

Holes in outlets, apparatus, conduit, trunking redundant items and switchgear, etc. shall be blanked off in an approved manner.

The correctness of all connections between all plant and apparatus to be supplied shall be checked before it is put into operation.

Electrical equipment which has been connected but supplied and erected by others must be checked for operation i.e. contractors, relays, starters, thermostats, correct rotation or motors, etc.; any faulty items must be reported to the parties responsible.

3.2.02 Cubicle Switchboards - LV

Cubicle switchboards shall be freestanding units manufactured to BS 5486 with fault withstand levels and class together with protection IP classification, all as stipulated in the Particular Specification; they shall be manufactured, factory tested, and assembled by a specialist switchboard manufacturer.

All components shall be in accordance with the relevant BS specifications which shall include:-

- Air break switches and fuse units to BS 5419 (IEC 408);
- Fuses to BS 88 (IEC);
- Circuit breakers to BS 4752 (IEC 292);
- Protective relays to BS 142;
- Indicating instruments to BS 89 (IEC 51 or DIM 43700);
- Current transformers to BS 3938 (IEC 185);
- PVC insulated cables to BS 6231 and 6004 (IEC 227);
- Indicating lamp and push-button colours to BS 4099 Part 1(IEC 73);
- Moulded case circuit breakers to BS 4752;
- Miniature circuit breakers to BS 3871.

Protective trip circuit voltage shall be 30 V DC; control circuit voltage to be 110 AC.

Framework shall be constructed of folded steel angle of minimum 2 mm thickness, doors and covers of sheet steel of 1.6 mm minimum thickness, and removable lifting eyes shall be provided on all sections; all hinges shall be the concealed type.

Any one section of the switchboard shall not be more than 900 mm wide and 1500 mm deep x 2200 mm high.

The main structural parts including doors and panels shall be constructed from the zinc coated steel sheet and the complete board shall be finished one coat epoxy ester primer and two coats good quality enamel paint.

Current rating of the neutral bar shall be equivalent to phase bar rating all bus bars shall be copper.

A continuous copper earth bar of minimum dimensions 25 mm x 3 mm shall be provided throughout the entire length of the switchboard and shall be connected to the main earth terminal. The main earth bar, or tee-off connection shall be located convenient to the cable gland plates to permit the earth bonding all cable glands. For switchboards protected by an ACB, the main earth bar and tee-off connection shall be not smaller than 300 sq. mm and 160 sq. mm copper respectively. All non-current carrying metallic components shall be permanently connected to earth.

Switchgear shall be clearly labelled to indicate its position and purpose. All switches shall include locking devices.

Each individual panel of the switchboard shall have anti-condensation heaters. They shall be energised from a 240 V 50 Hz single phase supply, switches and fuses being mounted on individual panels.

Main wiring shall be carried out in PVC cables to BS 6004.

The installation of cables passing through busbar chambers to interconnect items of switchgear or distribution equipment will not be permitted.

Each connection for the secondary wiring shall terminate at an approved type of terminal block with a coded ferrule.

All instruments and panel wiring shall be run in square and symmetrical lines shall be filled by means of purpose made insulated cleats, and shall be harnessed together in an approved fashion. All instrument wiring shall have identification ferrules fitted to both ends marked with circuit numbers. Trip circuits shall have an additional ferrule coloured red and marked "Trip". Each circuit number shall be suffixed with the panel suffixed with the panel identification letter.

Trip circuit cables shall be coloured with their respective phase colour.

An ammeter and voltmeter shall be provided suitably scaled on the main incoming switch of each switchboard. Each meter shall be provided completed with selector and off switch so that readings of all phases may be obtained including voltage between phases. Meters shall be flush mounted at or near eye level. Voltmeter fuses shall be easily accessible for replacement without the need to isolate incoming busbar and outgoing circuits.

Instruments shall be flush mounting with a 90° scale, and protective relays shall be flush mounted.

Identification labels shall be black lettering on white and shall be fixed with rivets or screws other than self tapping type.

3.2.03 Circuit Breakers - LV

Low voltage circuit breakers shall comply with BS 4752, be metal clad, and of the air break horizontal draw out pattern with rupturing capacities at system voltages specified; they shall be complete with all ancillary protection circuits including overload, shunt trip, no-volt coil, intertripping etc.; closing mechanisms shall be of the trip-free type, and incorporate a mechanical "ON/OFF" indicator and mechanical interlock in order to prevent withdrawal, plugging, or access to the breaker in the closed position. When withdrawn, automatic shutters shall close over the fixed contacts to prevent inadvertent access.

Contacts shall be provided with arc quenching devices, be capable of carrying full load for an indefinite period and be readily renewable.

All breakers shall be equipped with independent manual spring and motor charged spring operating mechanisms suitable for operating for batteries or mains. In the event of a failure to latch in the closed position, it shall not be possible for the breaker to open except at normal speed. Means shall be provided for slow closing for maintenance purposes.

Electrical releases and trip circuits shall be suitable for operation at nominal battery voltages of 30V DC.

All types of operating mechanism shall be designed to allow the breaker to open immediately the trip coil is energised.

Circuit breakers must be provided with means for connecting the circuit to the main earth bar of the equipment.

The Contractor shall supply and fix to the switchroom wall, a board complete with retaining clips and tools for operation.

3.2.04 Switchgear - LV

Items of switchgear shall be of the metal clad, totally enclosed pattern to BS 5486 (IEC 439), with fuses to BS 88 (IEC 269), MCCBs to BS 4752 (IEC 152), MCBs to BS 3871, Contractors and Control Gear to BS 5424 and Starters to BS 4941 (IEC 292); they shall be of the type and rating as indicated in the Particular Specification, Schedules or on the Contract Drawings.

Provision shall be made for all items of switchgear to be lockable in to off position.

Cable connections to busbars or switchgear in excess of 16 mm² shall comprise crimp or compression type lugs.

Items of switchgear shall not be looped together, bunching of more than one conductor in a terminal will not be permitted.

All multiple arrangements of switchgear other than cubicle switchboards shall be mounted on a steel angle framework which shall be constructed of 50 mm x 50 mm x 6 mm steel angle and 40 mm x 6 mm flat steels, the framework shall be rigidly assembled and fixed to the structure to withstand the most adverse operation of the switchgear. After assembly the frame shall be wire brushed till clean and painted with one coat zinc chromate primer one undercoat and top coats as necessary to produce a uniform colour and finish.

Insulators for motors or special circuits, etc. shall be in accordance with chapter 46 of the IEE Regulations.

3.2.05 Busbar Chambers

Busbars, connections and arrangements shall comply with BS 159. Busbars shall be of high conductivity copper.

Connections to busbars shall comprise of split type cast brass clamps, drilling will not be permitted.

Only busbars and cables connected thereto shall be enclosed in the busbar chamber.

The busbar chamber shall be assembled to permit extension of the chamber in the future.

3.2.06 Protective Relays

Protective relays shall comply with BS 142, and may be static or electro mechanical type. They must have characteristics, settings and ratings entirely suitable for the system purpose for which they are utilised, and be compatible with all associated components and equipment.

All relays shall be housed in flush mounted casings installed on the front of the switchboards and be readily withdrawable for testing or inspection with no disturbance to any connections.

3.2.07 Current Transformers

Current transformers must comply with BS 3938, provide appropriate accurate and be compatible with over-current factors, characteristics, performance and VA rating required for the satisfactory operation of the associated protection devices, instruments, and meters; they must be capable of withstanding the maximum short circuit current applicable to their location in the system.

Test links must be provided in the secondary connections to facilitate testing of instruments, meters, etc.; connected thereto.

3.2.08 Metering and Instruments

Electricity meters, including kWh, kVA and maximum demand meters, shall be in accordance with BS 37 and BS 5685.

They shall be direct reading up to and including 80 A and current transformer operated above.

Metering compartments or panel boards shall be provided as necessary to house the company's metering equipment. The provision shall include an insulated panel, for mounting the meters and fuses to protect the

meter coils circuits; they shall incorporate a hinged glazed door for viewing and facility for fitting the supply authority seals.

Allowance must be made for mounting the associated current transformers on the relevant conductors.

Measuring instruments and their accessories including voltmeters, ammeters, frequency indicators and power factor indicators shall comply with BS 89.

All meters and measuring instruments shall be flush mounting and suitable for the purpose which they are to be utilised, or as detailed in the Particular Specification or on the drawings.

The wiring to voltmeters and the potential coils of all instruments and meters shall be protected by appropriately sized fuses.

Meters and instruments shall be completely segregated in instrument compartments.

3.2.09 Uninterrupted Power Supplies (UPS)

The system shall be provided as a complete package suitable for unattended operation, including batteries and charger, transformer/rectifier, DC-AC inverted, controls, protection, instruments, alarms, and automatic static bypass facility; it must cater for the requirements and load as indicated in the Particular Specification, and shall be housed in one or more robust sheet steel cabinet, constructed and finished to the standards detailed for enclosures of cubicle switchboards in clause 3.2.02 of this specification and IP 31; each cubicle shall have full sized front doors, cooling fans to allow the unit to run at full load with one fan out of service, and a suitably sized brass earthing terminal.

The noise level of the units must not exceed 75 dBA measured one meter from the surface of the enclosure and full radio interference suppression must be incorporated.

All components shall be in accordance with the relevant current BS specifications which shall include:-

Cartridge fuses to BS 88; measuring instruments to BS 89; miniature circuit breakers to BS 3871; colours of indicating lights, push buttons, annunciators, and digital readouts to BS 4099; residual current devices to BS 4293; moulded case circuit breakers to BS 4752; air break switches to BS 5419; control gear to BS 5424; batteries to BS 6290; semi-conductor devices to BS 6493; radio and leakage currents to BS PD 6485.

The transformer/rectifier shall be continuously rated to supply the full rated input load of the inverter and the maximum battery charging current simultaneously; the input transformer shall be double wound; phase shifting of input supplies shall be incorporated to reduce total harmonic current drawn from the mains supply.

The static inverter shall be rated to supply the full load continuously and 150% of full load for a period of 10 seconds in any 15 minute period; output frequency must be controlled automatically to allow the unit to operate in synchronism with the bypass supply, but to run independently when the bypass supply deviates from the specified limits of voltage or frequency; manual adjustment of frequency within the range of +5% of nominal shall be provided, together with an unload switch disconnecter at the output of the converter system.

A double wound output transformer shall be utilised together with filters to reduce the harmonic content of the output voltage waveform to specified limits when supplying rated output.

If the output of the inverter deviates for the specified limits, the automatic static bypass switch shall transfer the load to the mains supply when the inverter output is in synchronism with mains supply.

A manual bypass shall be incorporated with arrangements for isolating the equipment from all supplies for maintenance.

Protection against overload, short circuit, failure of components and overheating must be provided, which shall include DC output, AC input, and solid-state power component protect.

Flush mounted instruments shall be provided which shall include ammeters and voltmeters, which selector switch for 3-phase units on both input and output supplies.

On each unit a mimic diagram of the main circuit shall be provided incorporating lights, push buttons, instruments and alarms to indicate incoming supply healthy, battery on boost charge, op/closed state of all circuit breakers, bypass on/off, transfer to bypass inhibited.

Audible alarms shall be provided for incoming supply failure, battery discharged, battery charge failure, battery circuit breaker or isolator open, overload, cooling fan failure, equipment over temperature, output outside limits, load on bypass. A remote indication panel shall be provided to register alarm condition, load on UPS system, load on bypass supply, transfer to bypass inhibited, output outside limits.

The system must comply with the "System Design and Development Committee's Engineering Recommendation G5/3" for limits of harmonics on the electricity supply system.

3.2.10 Batteries and Chargers

Battery banks shall be provided either housed in a composite charger/battery unit, a separate cubicle, or non purpose made stand; they shall be rated as detailed in the Particular Specification on or the drawings and be sealed or vented lead acid to BS 6290 or vented nickel cadmium.

Lead acid cells shall have a nominal voltage of 2 V and nickel cadmium a nominal voltage of 1.2 V

Containers shall be manufactured from steel or high strength plastic capable of withstanding an internal pressure of 2 bar, and if sealed shall incorporate self resealing safety gas release valves, to operate a 0.35 bar.

Battery banks shall be complete with an automatic low voltage disconnect feature to prevent damage from excessive discharge below manufacturers recommended level; they shall be provided with all inter connections and necessary accessories, which shall include a cell testing voltmeter scaled 3-0-3 volts, a cell bridge in connection, and two syringe hydrometers appropriately scaled.

Operation instructions in a glass and hardwood frame must be fixed adjacent to the battery bank, together with a notice prohibiting smoking or the use of naked flames within the vicinity.

Charger units shall be manufactured to BS 5486 Part 1 with robust cabinets of sheet steel and must be compatible with the particular manufacturers for which they are to be used; they shall be of the selenium or silicon full wave rectifier type, arranged for natural air cooling, and utilising a double wound transformer and on/off switch.

The units shall be designed to provide a low charge to maintain the batteries in the fully charged condition and automatic boost charge when the terminal voltage drops below the nominal value, or on supply failure, and reconnect on restoration of the mains or when the terminal voltage drops to nominal value.

Solid state and L.E.D. components shall be incorporated to indicate the rate of charge in amps, voltage, mains health and battery charge level.

A charge fail alarm relay shall be provided, with volt free contacts for connection of a remote alarm.

3.2.11 Busbar Trunking

Busbar trunking shall comply with BS 159 and BS 5486 Parts 1 and 2.

The busbars shall be of a hard drawn high conductivity copper or, if specified, aluminium alloy and shall be of the appropriate cross sectional area for the current rating required; busbars shall be rigidly mounted on non-hygroscopic insulators and connection of the bars shall be made by means of copper fish plates or specially designed clamps. Each system shall be complete with all accessories including cable feed unit, sealed end, self adjusting expansion units as appropriate, spreader and suspension units, and insulated support racks.

All busbars shall be constructed to withstand a fault level equal to the maximum breaking capacity of the controlling incoming fuse switch or circuit breaker and neutral bars shall be of the same cross section as the phase bars.

Busbars shall be fully enclosed in sheet metal with adequate means for mounting as appropriate. Earth continuity shall be provided by the housing which shall have an impedance not more than twice that of the phase conductor bars. The housing shall be adequately jointed between lengths and fitted with copper links for earth continuity.

In addition the above, busbars rated at over 80A shall be fitted with an unbroken earthing tape fixed to the outside of the casing for the entire length of its run and terminating the cable box or switchgear to which the busbar is connected at each end. The earthing tape shall have a cross section area not less than half that of any phase conductor or 75 mm² whichever is the greater.

The busbar trunking shall be designed to take account of varying conditions of ambient temperature, normal building movement and loading, and the conductors shall be capable of an end-wise movement of at least 25 mm; expansion joints shall be fitted as necessary.

The trunking shall be securely fixed to the wall at regular intervals in accordance with the manufacturer's recommendations. Interconnections between the busbar trunking and local switchgear shall be made using appropriate tap-off units.

Plug-in unit enclosures shall make positive contact to the busbar housing before the phase conductors make contact with live busbars. Barriers shall be provided to prevent exposing live parts and arcing across phases. Means of padlocking the switch in the off position shall be provided for all tap-off units.

Busbar risers shall be labelled at each floor level to indicate the current carrying capacity of the bars.

Fire barriers shall be provided at each floor level and wherever the trunking passes through a fire compartment.

Drawings showing the routing and manufacturers assembly details shall be prepared and submitted for approval prior to manufacture.

Special care shall be executed to ensure there is no contact between the busbar trunking and any other item likely to cause vibration.

Mini busbar trunking (ratings up to 400 A) shall comprise channel section conductor bars insulated with noryl (a styrene modified polyphenylene oxide) or equal, individually supported with an extruded aluminium alloy channel housing having a front cover of noryl.

Tap off outlets on the mini trunking shall be positionable at regular intervals not exceeding 500 mm along the run of the busbar; when the tap off position is not in use it shall be closed by means of self-locating sliding covers; tap off boxes shall be constructed from sheet steel of minimum 1.5 mm thickness and shall be fitted with duplicate earthing contacts to engage with the sides of the busbar housing in advance of the main contacts; the boxes shall be fitted with fuse carriers and include HRC fuses of the appropriate type rating.

Factory manufactured joints, feeding units and intersections shall be used and shall provide the same conduction and insulation properties as the main trunking.

The busbar trunking shall be supported along the complete length at intervals not exceeding 1500 mm and not less than 225 mm from bends. The supports shall consist of a bolt arrangement onto a section of channel affording a space off the fixing surface of at least 25 mm.

3.2.12 Distribution Boards

Distribution boards shall be of the rating and type as indicated in the Particular Specification, Schedules, or on the contract Drawings; they shall be manufactured to BS 5486 (IEC 439), with cartridge fuses to BS 88 (IEC 269), MCCBs to BS 4752, and miniature circuit breakers to BS 3871; metal enclosures shall be a minimum thickness of 16 s.w.g.

Neutral conductors in all distribution boards shall be connected in the same order as the phase conductors; neutral and earthing bars shall be of the equivalent rating to phase bars.

Consumer units shall be of the MCB type and incorporate an insulator/residual current device (RCD) with a 30 mA tripping current.

Provision shall be made for locking the distribution board and for locking miniature circuit breakers in the off position; one key shall fit the locks on all boards.

All access holes or slots shall be fitted with bushes or protective neoprene strip to obviate cable damage.

Distribution boards shall be of the same manufacture throughout.

Phases/poles shall be indelibly identified by colouring or other approved means.

3.2.13 Residual Current Devices (RCDs)

RCDs shall be in accordance with BS 4293 and unless otherwise specified shall have a sensitivity of 30 mA with a tripping time not exceeding 30 ms; they must incorporate protection features to ensure that the DC component of fault currents, or harmonics, do not affect the satisfactory operation of the unit.

3.2.14 Cable Tray

Perforated cable tray for widths up to 300 mm shall be manufactured from 16 swg mild steel and from 14 swg mild steel for widths greater than 300 mm. All cable trays shall be galvanised finished unless otherwise specified.

The minimum width of cable tray shall be 75 mm but in all cases the width shall be 25 mm greater than necessary for the cables being installed thereon.

Where changes in level or direction of tray runs occur, the manufacturer's pre-formed bends shall be used as far as practicable.

Care should be taken to avoid damage to the finish of the cable tray and all nuts and bolts through the tray shall be fitted with washers and the heads shall be on the cable side.

The cable tray together with any necessary brackets etc., required to support the tray shall be supplied and installed. The tray shall be fixed at intervals or not greater than 900 mm and joins between sections shall be smooth. The brackets supporting the cable tray shall be painted, to prevent rusting, before erection of the same, and shall be fabricated from mild steel flat bar to BS 4360 and galvanised to BS 729.

3.2.15 Cable Rack

Cable rack shall comprise of a proprietary system of channel sections, with return lip and compatible jointing and fixing accessories; it shall be of bending and profiling quality hot dipped galvanised steel to BS 2989, and shall be finished in manufacturer's standard coating and colour. Only manufacturers matching fittings shall be utilised.

3.2.16 Trunking - Steel

Trunking shall be a minimum of 18 swg, be in accordance with BS 4678, and have an overlapping close fitting lid fixed with screws which are not self tapping; it shall be of standard paint finish generally galvanised for all external or damp locations and areas subject to condensation.

Manufacturers accessories must be used, except in cases where special conditions require site made bends, sets, etc.

Trunking shall be run parallel or at right angles to walls, except where following the line of construction feature, and wherever possible be concealed in stores, cupboards ducts, voids, etc. At least 150 mm clearance must be maintained between trunking and all plumbing or mechanical services. Where passing through obstructions the lid shall be fixed to 25 mm either side.

Connections to trunking shall be with standard manufacturers flange or screwed conduit coupling and bus; copper earthing links shall be installed at all joints.

Supports and fixings shall be at intervals not exceeding 1500 mm and within 300 mm of any junction.

3.2.17 Trunking - PVC

PVC trunking shall be of the high impact type and in accordance with BS 4678.

Only manufacturers accessories shall be used and the trunking must be fixed and supported sufficiently to prevent any distortion and at intervals not exceeding 1000 mm.

Installation shall be in accordance with the manufacturers recommendations and as detailed for steel trunking in this specification.

3.2.18 Trunking - Floor

Flush floor or underfloor trunking shall be sheet steel and must comply with BS 4678 Part 2; it shall be 1.6 mm minimum thickness and for flush finish shall have a recessed lid to incorporate the floor finish material and a screwed levelling device. Service outlet boxes shall have hinged lids with recess for floor finish material and screwed levelling device.

All floor trunking shall run in straight lines with accessible junction boxes at all changes of direction. The height of junction boxes, services outlet boxes and flush floor trunking must be adjusted in co-operation with the persons responsible for the finished level of the floors.

Temporary covers must be fitted to all open boxes and vertical ends to prevent the ingress of screed materials or foreign matter.

3.2.19 Conduit - Steel

Conduit shall be heavy gauge screwed welded with matching accessories, be of minimum 20 mm diameter, and in accordance with BS 4568, it shall be black enamel class 2 generally, with galvanised class 3 for all external or damp locations and for areas subject to condensation.

Runs shall be installed neatly in straight and symmetrical lines and to minimise bends and sets; changes of direction shall be made with site machine pulled bends, manufactures bends, or boxes; elbows shall not be used.

Not more than four sets or two right angle bends shall be installed between draw boxes, which must be fitted at maximum spacing of 10 metres along any conduit run.

Conduits must not be installed within 150 mm of any gas or hot services pipework, or within 75 mm of any cold services pipework.

Conduit thread lengths must fit the internal threads on fittings or accessories and be fully tightened; all running couplings must have a milled edge locknut; any surface damage and all exposed threads must be cleaned, treated with an appropriate primer and painted to match the conduit.

Runs subject to water ingress or condensation shall have a box inserted at the lowest level with a 4 mm drain hole.

Conduits not terminating in threaded entries shall be terminated with a coupler and brass bush, with paint removed from contact faces to ensure good continuity; bushes must be tightened with bush spanners.

Conduit ends shall be reamed and cleaned internally prior to assembly; open ends must be plugged after installation to prevent ingress of foreign matter or water.

The installation shall be completed prior to cables being installed.

Boxes must be fixed independently of conduit, and fixings must be capable of supporting any intended fittings and withstanding mechanical forces required to operate such fittings.

Internal to external conduits shall have a thermal seal comprising of a conduit box filled with cold sealing compound after wiring, and labelled "Thermal Seal".

Surface mounted conduits shall be neatly run in vertical and horizontal directions, fixed by spacer bar or distance saddles to give a minimum clearance from conduit to surface of 4 mm internally and 6 mm externally; they shall be fixed at maximum intervals of 1000 mm and not further than 200 mm from any bend.

Conduits buried in the fabric of the building shall have plaster depth covering or minimum cover of 30 mm in concrete or screed; they shall be fixed with steel saddles or crampets at 1500 mm maximum spacing; where crossing expansion joints, expansion couplings shall be used with a separate earth protective conductor installed. Extension rings must be provided to ensure all boxes are flush with the fabric finishes.

Conduits to be cast in-situ in concrete shall be securely fixed to the shuttering and sealed; attendance must be provided whilst concrete is being poured and whilst shuttering is being removed.

All boxes installed must be accessible.

Conduits shall be parallel or right angles to joints or beams, and no holes shall be cut without the prior written authority of the Engineer.

Where surface conduit passes through walls or floor it shall be protected by metal sleeves to allow for movement due to expansion; the sleeving must be fire sealed.

3.2.20 Conduit - PVC

Conduit shall be of the high impact type and in accordance with BS 6099.

Only manufacturers accessories shall be used and the conduit must be fixed and supported sufficiently to prevent any distortion and at intervals not exceeding 1000mm.

The installation shall be in accordance with the manufacturer's recommendations and run as detailed for steel conduits in this specification.

A separate earthing conductor shall be installed throughout.

3.2.21 Conduit - Flexible

Final conduit connections to all items of equipment subject to withdrawal or vibration shall be with PVC covered flexible metallic conduit and purpose made glands from a conduit box mounted as closely as possible to the equipment; a separate earthing conductor must be installed; glands shall be rust proof.

3.2.22 Cables - General

Cables and flexible cords shall be supplied by an approved manufacturer and shall comply with the relevant BS specifications which shall include:- Paper Insulated Lead Covered (PILC) to BS 6480; PVC armoured to BS 6346; Cross Linked Polyethylene (XLPE) to BS 5467 and 5468; Ethylene Propylene Rubber (EPR) to BS 5467 and 5469; PVC insulated to BS 6004; flexible cords to BS 6500 and coaxial to BS 5425.

Each coil of cable and flexible cord shall have a label fixed to the coil stating the manufacturer's name, size of cable, result and date of tests. Cables manufactured more than twelve months before delivery will not be accepted.

All cables shall be designed for continuous operation at full load, and shall be of the type and rating to suit the application and environmental conditions of the installation.

The rated voltage of the cable shall not be less than the operating voltage.

All conductors shall be high conductivity copper.

Cables shall NOT be installed in cold conditions which may damage the PVC insulation or sheath.

All cables shall be fitted with numbered identification sleeves at all termination points.

Unless otherwise specified cables shall be selected as appropriate from the following:

- | | | |
|--|---|--|
| Fixed Power Distribution | - | PILC (paper insulated lead covered) armoured or unarmoured. |
| | - | XLPE (cross linked polyethylene) armoured or unarmoured. |
| | - | PVC (Polyvinyl chloride) armoured or unarmoured. |
| | - | MICC (mineral insulated copper covered) |
| Flexible Power Distribution | - | Pliable armoured cables with EPR (ethylene propylene rubber) insulation, PCP (polychloroprene) sheath, pliable wire armour and PCP oversheath. |
| General Wiring Enclosed in Conduit or Trunking | - | PVC insulated up to 70°C |
| | | Butyl rubber insulated from 70° to 85° C |
| General Wiring Unenclosed | - | MICC |
| | - | PVC/PVC with earth conductor |
| Flexible Cords (Unenclosed) | - | PVC insulated and PVC sheathed - up to 70° C |
| | - | EPR insulated CSP (chlorosulphonated polyethylene) sheathed - up to 85° C |
| Flexible Cords (enclosed in conduit) (and equipment) | - | PVC insulated and sheathed - up to 70° C |
| | - | Silicone rubber insulated and glass braid from 70° C to 150° C |
| Controls (unenclosed) | - | Multi-core PVC insulated and sheathed single wire armoured. |

Temperatures indicated above are for the internal connections of the equipment.

3.2.23 Cables - Power

Unless otherwise specified, the Contract includes excavation, supply and installation of sand, cable tiles and cable markers, backfilling and temporary reinstatement. Installation of ducts will be carried out by others.

Where cables are not installed in the ground, the Contractor shall supply and fix all racks, trays, cleats etc. as may be required for the proper installation of the cables.

Where cables are laid in open ground, 75 mm of sieved soil or sand shall be laid below and above the cable, and overlapping cast concrete cable tiles to BS 2484 marked "Electric Cable" shall be laid 150 mm above the cable.

Cable route markers shall be installed at changes of direction and at 150 Mtr intervals on straight runs of cable. Markers shall be of the precast concrete type, be marked "Electric Cable", and have a projection of 200 mm above the finished ground level.

Medium voltage cables shall have a minimum cover of 450 mm, cables passing under roadways shall have a minimum cover of 1 metre. High voltage cables shall have a minimum cover of 1 metre. The depths may be varied in certain circumstances due to the proximity of cable and other services. The excavation depth shall be checked with the Engineer before laying the cable.

Where cables of different voltages are laid together in the ground at the same depth, vertical cable tiles shall be used to segregate the cables. Control cables and communication cables shall not be laid closer than 1 metre to high voltage cables.

Unarmoured single core power cables shall be physically protected from damage; high voltage cables shall be of the earthed screened type.

Where cables are on cable hangers, the spacing between hangers shall not be greater than recommended in the Institution of Electrical Engineers Regulations for Electrical Equipment installed within Buildings or an equivalent international standard approved by the Engineer. All cable cleats shall make allowance for expansion and contraction of the cables.

Cables to be installed on ladder racking shall be located between 50 mm pegs spaced at 40 mm centres across a rung so that an 80 mm space is maintained between cable centres. Cleats shall be used where the ladder racking is vertical.

Cleats shall be of the moulded reinforced nylon type.

Where cables pass in or out of any duct entries into or within buildings, such entries shall be sealed by means of duct stoppers after the cables have been drawn in. The duct stopper shall be sealed with bituminous compound or other approved method in order to prevent the ingress of water or dirt. The stoppers shall have a fire resistance of at least half an hour.

Cables passing under roads, paths or hard surfaced areas shall be drawn into cable ducts. The ducts shall be complete with draw-in pits and slow bends, and be of such a size that the cables can readily be drawn in without undue force, and can be removed and replaced at a later date.

After cables are installed the ends of all ducts including spare ways shall be sealed to prevent the ingress of foreign matter.

The Contractor shall ensure that sufficient draw-in points have been provided and that adequate room has been allowed by others for the installation of his cables.

Armoured cable or any sub-main cable shall not be run in the same trunking or duct as final circuit cabling. High voltage cables shall be separated from all other cables.

Cables shall be installed without trees or through joints unless otherwise approved by the Engineer.

Cable armour shall be earthed at one end or both ends of the cable as required by the installation.

Thermoplastic and Elastomeric Cables shall be jointed with epoxy resin cold setting compound, premeasured and prepacked ready for use. The boxes shall be of split, moulded plastic type with filling vents for compound. Bonding straps shall be fitted with armour clamps across the joint and inspected by the Engineer prior to filling the box with compound.

Wrapped pressure type joints will not be accepted.

Tee joints shall be carried out so that the through cable conductor is not broken and the tee fender is connected using a pinching screw type of clamp. The clamp shall be insulated so that the jointing can be carried out 'live' where necessary. Insulated spacers shall be inserted between the conductors to give separation during the jointing process.

The conductor shall be kept clear of the box casing.

High voltage cable joints shall include conducting tapes and screens as directed by the manufacturer. A period of at least four hours, or as directed by the manufacturer, shall be allowed before the cable is connected to the power supply.

Cable terminations shall be crimped using a hydraulic power tool. Sweated terminations will not be accepted.

Low voltage cables shall be terminated using cast resin sealing ends, conducting tape and screen earthing conductor. Alternatively heat shrinkable electrical stress control material with stress cones and sheds may be used. Transformer terminations shall be of the moulded elbow type with heat shrinkable materials to give a fully insulated termination. Where necessary, cable boxes should be utilised for dry jointing methods.

3.2.24 Cables and Cords

Single insulated PVC cables shall be installed in conduit or trunking and must comply with BS 6004; no cables smaller than 1.5 mm² shall be used.

In locations where the ambient temperature is likely to exceed 40° C, heat resistant cables and flexible cords must be used.

Flexible cords shall be rated at not less than the current rating of the circuit protective device or accessory fuse to which they are connected; no flexible cord with a conductor less than 0.75 mm² shall be used.

Telephone cables installed within buildings shall comprise multi-core conductors of 0.6 mm high conductivity tinned copper wires insulated with PVC, cores paired laid up, taped, and sheathed with grey PVC. Cables shall incorporate a Terylene rip-cord under the sheath; they shall in all instances be enclosed in conduit or trunking, unless otherwise specified.

Heat resistant flexibles shall be 85° C ethylene propylene rubber insulated.

3.2.25 Cables - PVC Sheathed

Flat PVC sheathed cable shall be stranded copper conductor 600/1000 V grade to BS 6004.

Cables shall be concealed, as far as possible, in cavities and voids where they shall run parallel or at right angles to all joists, etc. Care shall be taken to prevent the cables being subjected to pressure of mechanical strain. Easy bends of cables shall be employed at changes of direction.

In roof spaces to which there is access, a length or lengths of rigid timber shall be run at right angles to roof joists to support the cables.

Cables run below floorboards shall pass through purpose drilled holes in joists in such positions to comply with IEE Regulation 523-20, in that all cables are at least 50 mm below the underside of floorboards or above the top of ceiling panels.

Unless otherwise specified in the Particular Specification any cables installed on the surface shall be run in PVC high impact conduit, PVC trunking, steel conduit or steel trunking.

Where installed in inaccessible locations or buried in the fabric of the building, cables shall be in steel or PVC high impact conduit to render the installation rewirable. The free ends of the conduit shall terminate within ceiling voids for lighting, within floor cavities for power, or at a height specified, and shall be fitted with a suitable rubber or PVC bush to prevent abrasion of the cable.

Cables run externally shall be enclosed in galvanised conduit, which shall commence at the inside surface of exterior walls, the ends of conduit being fitted with brass bushes to prevent damage. Where overhead cable runs are encountered a cable change box shall be fitted on the inside of the exterior walls and the outside run made by using weather-resisting HSOS cable unless otherwise specified in the Particular Specification.

Overhead cables shall be installed and secured in an approved manner.

Cables passing through walls or solid floors shall be enclosed in bushed protective conduits or trunking depending upon the system specified.

In compliance with Regulation 525-10 (Note 3), non-metal sheathed cables shall be effectually segregated from fixed metalwork wherever possible.

Single runs of cables shall be secured by means of nylon cable clips, complete with hardened steel pins.

Where cables are specified to be run on the surface, clips shall be spaced at intervals not exceeding those required by Table 11A of the Regulations.

Cables run in roof spaces and similar accessible positions, shall be secured at intervals not exceeding 1200 mm, except that where cables will be liable to mechanical stress fixing shall be made at all such points. Where cables enter junction boxes they shall be clipped immediately before entering.

Connections between cables shall be made in a purpose made multiway connector block with terminals of suitable capacity fitted in a suitable circular or adaptable conduit box. For flush installations the conduit boxes shall be fitted with sheet steel overlapping plates.

The use of connectors behind wood blocks or in local switch boxes will not be accepted. Junction boxes shall not be used for cables exceeding 1.5 mm² unless otherwise specified in the Particular Specification.

The "looping-in" system shall be adopted with flat PVC wiring; approved 3-plate ceiling roses, 3-terminal batten holders or other purpose-made accessories shall be used, and an earth terminal provided to terminate the earth protective conductor.

"Looping-in" will not be permitted at switches.

3.2.26 Cables - MICC

MICC cables shall be of 600 volt grade for single phase circuits, 1000 volts grade for three phase circuits, and be in accordance with BS 6207 with glands to BS 6081.

Unless otherwise specified the method of termination in accessories, etc. shall be by means of the cold screw-on pot type seal and universal brass gland. PVC sleeves are to be used on the conductor tails, for identification purposes.

Where cables are run on the surface of walls, on cable tray, or in ducts, they shall be fixed by saddles and roundhead brass screws spaced at not more than 300 mm apart and be PVC covered when used with PVC served cable.

Cables installed in the following situations shall be PVC sheathed and fitted with shrouds.

- a) Laid upon or fixed to a concrete or stone surface subject to dampness.
- b) Laid upon or fixed to a zinc coated surface (e.g. galvanised cable tray).
- c) Buried direct in the ground or in the fabric of the building.
- d) In locations subject to corrosion.

Cables buried in floor or roof screeded areas shall run parallel with and at a distance of 300 mm from walls where practicable, and are to be covered with cement and sand as soon as they are laid; surface runs shall be run in vertical or horizontal directions, except where following a line of construction of the building.

No through joints will be allowed unless shown on the Contract drawings.

Only compound, accessories and tools recommended by the manufacturers of the cable are to be used.

Connection of the glanded cable ends to conduit accessories, shall be by means of conduit sockets and brass bushes; conductors of 6 mm² and above shall be terminated with purpose made compression cone grip cable lugs.

Termination shall be made strictly in accordance with the manufacturers instructions utilising ring type glands and/or seals with earthing tails; for all locations where the operating temperature of the seal may exceed 80° C, such as tubular or water heaters and recessed or bulkhead tungsten luminaires, medium temperature seals with silicone based sleeving shall be used.

Final connections to items of equipment subject to withdrawal or vibration shall be made via a conduit box and flexible conduit as detailed in 3.11.01.

Where circuits using single core cables terminate at a metal clad enclosure the holes drilled in same shall be interconnected with a single saw cut to prevent the formation of heat due to eddy currents; the sheaths of the cables shall be bonded together at each end in accordance with Regulation 522-7.

Where a cable buried in the fabric crosses an expansion joint in a building it shall be wrapped in three layers of waterproof building paper for a distance of 300 mm on each side of the joint.

Surface cables crossing an expansion joint in a building shall be provided with a 360° loop on one side of the joint.

Where cables pass through walls or floors, they shall be protected by a length of conduit fitted at both ends with female brass bushes and fire sealed.

Cables emerging from the ground or floor shall be protected adequately from mechanical damage up to a height of 1200 mm. The protective enclosure, which may be heavy gauge galvanised conduit for single or multicore cables, or a galvanised channel for groups of cables, shall be bonded to the cable sheath and securely fixed to the building fabric.

3.2.27 Luminaires

At all lighting points marked on the drawing and detailed on the schedules, the Contractor shall supply, install and connect luminaires of the types indicated by the reference letter and schedule of luminaires.

Where panelled ceilings/ceiling tiles are to be erected, particular care should be taken in setting out to ensure that the luminaires are symmetrically disposed in relation to the ceiling panels; except where otherwise specified, the centres of luminaires shall coincide with the centres of the ceiling panels.

Under no circumstances shall luminaires be secured to ceiling boards alone, suitable wooden battens shall be fixed above the ceiling to take the weight of the luminaires. Where the suspended ceiling cannot support the weight of the luminaires the latter must be suspended from the structural ceiling.

Any modification required to manufacturers standard suspensions must be allowed for in order to comply with requirements relative to mounting heights. In the event of extra long stems or chains being required, they shall be ordered with the luminaires. Modification on site shall be only for the purpose of shortening the standard suspension stems or chains, but the fundamental method of suspension shall not differ from that adopted by the manufacturer.

Where luminaires are required to be suspended they shall be supported either by means of conduit suspension sets with the connections being made via a ball socket type of plate, or with hook plates and jack chain.

Lamps and tubes shall in all cases be provided for luminaires and accessories. Tungsten lamps shall be of the coiled 'double life' type and shall be pearl finish when installed in open shades.

Luminaires shall not be lamped or tubed until immediately prior to handover.

The mounting height of luminaires shall be as shown on the drawing and schedules, but shall be subject to confirmation prior to fixing.

3.2.28 Wiring Accessories

Accessories shall be of the type and manufacture as indicated in the Particular Specification, or Contract Drawings.

Unless otherwise specified lighting circuits comprising fluorescent lamps shall have switches rated at 15 amps and those with incandescent lamps shall have switches rated at 5 amps. Unless otherwise specified, every switch shall be contained in a steel or plastic box with suitable conduit or cable entries dependent upon the type of wiring specified. At all positions where switches are grouped multiple gang boxes are to be used.

Switches in external positions shall be weatherproof.

All lighting switch boxes shall be provided with an earth terminal connected to the earth continuity conductor.

All socket outlets are to be switched, unless otherwise specified socket outlets must be of the 2-pin and earth pin type, 13 amp, complete with plug tops, suitably fused for the apparatus to which they are connected.

Where a conduit or trunking system is employed, the earth terminal of each socket outlet shall be connected by a green and yellow sheathed conductor of minimum cross-section 2.5 mm² to an earth terminal in the conduit box or trunking.

Unless otherwise indicated the following mounting heights shall be taken as a guide to the mounting height to the base of various items:-

Switches	1370 mm above ffl.
Sockets (general)	300 mm above ffl.
Sockets above worktops in kitchens, e.t.c	150 mm above worktops
Fused spur units	Top of accessory to be level with top of appliance
Cooker control units	150 mm above worktops
Cooker connection box	450 mm above ffl.
Clocks	2200 mm above ffl.
Consumer units	2000 mm above ffl.
Immersion heater switch	1050 mm above ffl.
Fire alarm bells/sounds	2100 mm above ffl.
Fire alarm control panel	2000 mm above ffl.
Fire alarm contacts	1370 mm above ffl.
Thermostats	1500 mm above ffl.
Distribution board	2000 mm above ffl.
Telephone point	300 mm above ffl.
Lampholder	2300 mm above ffl.

Desk mounted unit outlet boxes	300 mm above ffl.
Wall mounted Intercom unit outlet box	1370 mm above ffl.
H & V control panel	1500 mm above ffl.
Starters, Isolators	1370 mm above ffl.

3.2.29 Wiring

Single-phase distribution boards shall be connected to the phase of the supply as indicated on the drawings; lighting and power circuits installed in the same area shall be connected to the same phase of the supply.

Unless otherwise specified single phase circuits to apparatus, equipment, e.t.c. run direct from a switchboard or distribution board shall be connected to the same phase of the supply as other circuits within the area.

All wiring is to be carried out as a “loop-in” system and no intermediate joints will be permitted. In no case may more than three conductors be bunched at any one terminal point, except by prior approval. A minimum length of 150 mm of cable is to be left at each lighting outlet, and 100 mm at socket outlet points.

All lighting outlets shall be provided with an earth terminal.

Single core PVC insulated cables shall only be used where mechanically protected throughout their length by switchgear, steel conduit, PVC conduit, steel trunking or PVC trunking.

The protection required will be detailed in the particular specifications or drawings.

No cables shall be drawn in until the conduit or trunking installation is completed.

No joints will be allowed in any cable run.

Insulation shall only be removed at terminations. Bare conductors shall not provide from terminals.

Small conductors shall be folded back for the full depth of the terminal to ensure effective connection.

Larger cables shall be fitted with compression or crimp lugs.

3.2.30 Final Connections

Heat-resisting cables shall be used in the following situations or as specified in the Particular Specification:

- a) Adjacent to boiler or heating pipes.
- b) Final connections to electric fires, space heaters, immersion heater or tubular heaters.
- c) For pendant luminaires.
- d) For final connections to the lampholders of enclosed ceiling mounted luminaires.

Surface mounted luminaires shall be fixed on conduit boxes. Final connections shall be made using heat-resisting flexible cords. Where the temperature is likely to exceed 85° C, fibre-glass sleeving shall be utilised.

In areas where there is a suspended ceiling, the conduit shall be fixed to the soffit of the slab and terminate adjacent to each luminaire in a plug-in ceiling rose. Final connections shall be made using three core heat resisting flexible cord. The luminaires are to be supported from the slab on adjustable conduit or rod suspensions to allow for final alignment with the false ceiling. This method of fixing shall be used unless otherwise specified in the Particular Specification.

Terminations to machines and equipment of a fixed nature shall, unless otherwise stated, be made with a circular conduit box, fixed rigidly to the unit or on the adjacent wall or building structure, and flexible conduit.

3.2.31 Current and Fault Ratings

All switchgear distribution boards, cables, etc. comprising the entire system shall have a fault withstand capacity rating in excess of the prospective fault current at the points at which they are installed in the system.

Continuous current ratings shall be suitable for the load and not less than shown on the Contract Drawings; derating factors must be applied as appropriate for the installation conditions and environment.

3.2.32 Earthing and Bonding

Earthing generally shall be provided to comply with the fundamental requirements of the Regulations 13-8, 13-10 and 541-1 of the IEE Regulations.

Earth protective paths shall be installed so that designed fault loop impedances as scheduled in Table 41A1 and 41A2 of the Regulations will not be exceeded to enable the requisite disconnection times of protective devices to be met.

For every installation the Contractor shall provide an earth terminal or earth bar fixed in an accessible position.

Protective conductors shall be suitably sheathed throughout their length and where a non-sheathed protective conductor that is incorporated in a multi-core cable is bared adjacent to a termination point it shall be insulated with a green and yellow coloured sleeve.

Bonding generally shall be provided to comply with the fundamental requirements of Regulations 13-8 and 13-11 of the IEE Regulations.

To comply with Regulation 413-2 and the requirements of the Electricity Board for the connection of a PME system of supply, a main equipotential bonding zone shall be created by connecting the main earth terminal to the main water pipes, main gas pipes, other service pipes and ducting, risers of central heating and air conditioning systems and exposed metallic parts of the building structure.

The cross-sectional area of the equipotential bonding conductor shall be at least half of that of the earthing conductor of the installation subject to a minimum of 6 mm². The size of the larger conductors shall be as required by the supply authority for a PME system and 25 mm² for a non-PME system.

The bonding of the incoming service pipes mentioned above shall be as close as is practical to the point of entry of these pipes into the building, providing that where there is an insulating section or insert at the entry point, the connection shall be made on the consumers side of that section.

For a gas service, the connection shall be on the consumer's side of the meter within 600 mm of same.

In cases where two or more PME service lines enter a building the size of the bonding connection required shall be related to the size of the largest services line.

Cable clamps shall comply with BS 951.

Within the main equipotential bonding zone mentioned above extraneous conductive metal parts and simultaneously accessible exposed conductive parts shall be bonded together and to earth by local supplementary bonding connections.

The extraneous conductive metal parts required to be so bonded and earthed include baths, exposed metal pipes, sinks, taps, tanks, radiators and where practicable, accessible structural steelwork.

In addition to the main equipotential bonding to service pipes etc. entering the building, metal sheaths and armouring of all cables, metal conduits, ducts and trunking which may otherwise come into fortuitous contact with other fixed metal shall be effectually segregated therefrom or effectually bonded thereto.

The metallic sheaths of all single-core cables of the same circuit shall be bonded together at both ends of their run.

Local supplementary bonding conductors between exposed conductive parts and extraneous conductive parts and between themselves shall be a minimum size of 2.5 mm² if mechanical protection is provided or 4 mm² if mechanical protection is not provided.

The various lengths of steel trunking and conduits, together with their respective fittings and accessories shall be properly and effectively bonded together by tightly screwed couplings and/or other special coupling pieces. Bonding to be complete at all draw-in or other boxes, distribution boards, switchgear, etc. into or at which the trunking or various conduits run or terminate so that the wiring is continuously and effectively protected. The trunking and conduits, etc. are to be under no mechanical stress and the steel casings are to be electrically and mechanically continuous throughout the installation.

The armouring of PVC cables and all metallic sheathing of MI cables shall be bonded by means of appropriate cable glands to the various items of control gear, distribution boards, outlet boxes, etc. at which they terminate and with the conduit system generally.

The Contractor's attention is drawn to the special requirement needed to ensure bonding of conduits, ducting and trunking where these cross the expansion joints of the building structure.

3.2.33 Degree of Protection

All equipment and systems must have a degree of protection in accordance with BS 4533 for their location and not less than:-

- i) IP 65 for outdoor locations
- ii) IP 31 for switchgear indoor locations
- iii) IP 20 for luminaires in indoor locations

3.2.34 Labelling and Notices

All items of equipment including cables, switchgear, isolators, distribution boards, contractors, meters, etc. shall have plastic laminated identification labels; they shall be engraved with 5 mm high black lettering on white, and be fixed with a minimum of two roundhead brass screws; self tapping screws or stick on labels will not be accepted. Unenclosed cables shall have circular labels attached at all changes of direction.

All enclosures containing terminals or exposed live parts where a voltage exceeds 250 volts shall have a Trafflyte label engraved in 8 mm characters - white - red - white indicating the maximum voltage present in the enclosure.

e.g. DANGER -415 VOLTS

All labels shall be fixed in a prominent position clearly visible for normal operation of the apparatus.

Where practicable the labels shall be affixed to the outside cover of the enclosure.

A schematic diagram, showing the complete distribution system, and a shock notice and first aid chart shall be fixed in a prominent position in every switchroom or switchgear location; they shall be mounted under glass in hardwood frames.

3.2.35 Circuit Lists

Circuit schedules shall be provided in all distribution boards, control units, etc.; they shall be typed or printed on paper, mounted on 2 mm thick card, protected by clear plastic envelopes, and fixed in or local to the board. Details shown shall include the location and nature of the load, number of points, fuse and circuit breaker rating, load wattage or horsepower, cable sizes for the supply and outgoing circuits, and the source of supply.

The ways referred to on the circuit schedule must be clearly identified on the distribution board.

3.2.36 Fire Barriers

At each penetration of a fire barrier, the aperture remaining after installation of cables, trunking, conduit, etc. shall be made good with an approved material to maintain the barrier's fire resistance and allow for expansion; the interior spaces of trunking shall be fitted with fire barriers.

3.2.37 Spares

All spares shall be supplied when the building is officially handed over and an official receipt shall be obtained.

Unless otherwise specified the following spares shall be provided where applicable:-

HRC Fuses and Carriers - 10 % of all sizes below 60 A (with a minimum of 2)
- 10 % of all sizes above 60 A (with a minimum of 1)

Emergency Lighting - 5 % spare lamps (with a minimum of 4)

Fire Alarm - 6 No. spare glasses for call points

A suitable cabinet must be provided and installed in the switchroom to house the spares.

3.2.38 Painting

Where particular methods of finish and painting are not specified elsewhere, the following requirements shall be met:

- i) All metal work shall be adequately protected against corrosion and oxidation.
- ii) All frames, cladding and the like, of mild steel construction, shall be thoroughly cleaned to remove all scale rust, oil and grease and treated with rust inhibiting solution. One coat of metallic primer shall then be applied followed by two coats of oil bound enamel paint of BS 318C, colour to be approved.

Any damage to finishes on equipment and plant leaving the manufacturer's work shall be made good immediately as follows:

- i) Where a metal coating is damaged, it shall be cleaned to the parent metal and coated with a zinc rich epoxy (Armour 1527), or approved alternative.
- ii) Damaged areas of paintwork shall be repaired locally by cleaning to bare metal and repainted using the complete paint system previously applied.

3.2.39 Fixings

The Contractor shall be responsible for fixings for all conduits, equipment and accessories which shall include the supply and installation of all rawlplugs and other plugs, bolts and rawlbolts, screws, suspensions, brackets, clasps, saddles, spacers, etc. and any other fixing whether or not specified, which may be required for the proper and effective fixing of materials or equipment. A minimum of two fixings shall be installed for the fixing of conduit boxes and accessories. The use of wooden plugs for fixing purposes will not be permitted.

The Contractor shall supply and fix all timber grounds and noggings required for the electrical installation, unless otherwise stated in the Particular Specification.

Fixings by means of hardened steel pins driven in by percussion tools, (HILTI or similar) or by gun fixing techniques will only be allowed where specifically agreed in writing by the Engineer.

Structural steelwork may be drilled subject to the Structural Engineer's approval in writing.

When fitting flush socket outlets or switch boxes in dry partition walls, the Contractor shall use purpose made flanges mounted on either side of each box.

3.2.40 Protection Against Damage

The Contractor shall be responsible for providing and maintaining adequate protection for plant, equipment and machinery against damage or deterioration in handling, storage, erection and during the whole of the Contract period, including protection from all building operations, from other contractors on site, and from the weather. Any damage that may occur to plant an equipment due to lack of protection shall be made good by the Contractor at his own expense.

All equipment such as electric motors, starters, fuseboards, etc. shall be enclosed in a strong transparent plastic sheet or bag to provide a reasonable dust and damp proof membrane.

All stainless steel or similarly finished equipment and accessory plates shall be covered with a PVC wrapper until handover.

The enclosures of all apparatus exposed to the weather or fitted in a damp atmosphere shall be made weatherproof.

3.2.41 Dissimilar Materials

Where dissimilar metals and/or materials are used together, precautions shall be taken to ensure that there are no chemical or electrolytic action between them. Particular attention is drawn to aluminium and aluminium alloys and the surfaces with which they are in contact.

3.2.42 Lightning Protection System

The entire installation shall be in accordance with BS 6651 1985, and when completed, tests shall be carried out to the satisfaction of the SO.

The head of each electrode shall be located in a purpose made inspection pit and they shall be installed so that the zones of earthing do not overlap.

The whole termination network shall have a combined resistance to earth not exceeding 7 ohms before being bonded to any other services or the main electrical earthing bar.

Test clamps shall be provided on each down conductor at a point 500 mm above foundation level, or as detailed on the drawings. No connection shall be made to the down conductor below the test clamp, except the earth electrode.

Conductors shall consist of a copper tape of minimum dimensions of 25 mm x 3 mm.

Connections between tapes on the network shall be made with purpose made mechanical clamps. All joints must be cleaned and inhibited from oxidation by the use of suitable non-corrosion compound prior to clamping.

3.2.43 Standby Diesel Generators

Unless otherwise specified diesel generators shall be provided as a complete package with all accessories, including fuel system with tanks pipework and pumps, exhaust system with pipework and silencers etc, air ducting with louvres acoustic louvres and grilles, starting system and batteries, tools, labels, meters and 3 No. copies of comprehensive operating and maintenance instructions and manuals.

The engine shall be coupled to the alternator and mounted on a robust fabricated steel base frame with lifting lugs and anti-vibration mounts. The diesel engine shall be BS 5541 : 1977 or equivalent, and be a multi-cylinder, cold starting, direct injection type, complete with pressure lubricating system, fuel and lubricating oil fillers and air cleaner; the water cooling system shall include thermostatic control, circulating pump, mounted radiator and pusher fan. An electric starting system shall be provided with starter motor, battery charging alternator and voltage control unit. Fuel injection equipment with mechanical or electronic governor shall be to

BS 5514 : 1977 class A1 or equivalent. The engine instrument panel shall incorporate an oil pressure gauge, water temperature gauge and battery charger ammeter.

A brushless, self exciting self regulating, drip proof screen protected alternator shall be provided, continuously rated to BS 4999 or equivalent, which shall maintain voltage within $\pm 2\%$ from no load to full load at 0.8 to unity power factor utilising a fully transistorised automatic voltage regulator. Radio interference suppression shall be provided to BS 800 or equivalent.

An instrumentation and switchgear sheet steel control cubicle shall be provided mounted on the unit, which shall house the control and instrumentation items including:

- 1 No. flush mounting voltmeter and phase selector sw.
- 1 No. flush mounting ammeter and phase selector sw.
- 3 No. current transformers
- 1 No. TP & N circuit breaker
- Engine low oil pressure shutdown relay and indicator lamp
- High water temperature shutdown relay and indicator lamp
- Instrument fuses
- Four pole output terminal block
- All internal wiring, output terminals, labels etc.

The control cubicle shall be suitable for manual stop/start and for automatic mains failure operation on receipt of a signal from the main LV panel; a three attempt multiple start sequence shall be incorporated.

Heavy duty lead acid batteries shall be provided for starting, together with a suitable battery charger unit which shall be fitted to the wall local to the battery position.

An 8 hour capacity set mounted fuel tank shall be provided complete with float switch and motorised fuel transfer pump, 10 metres of pipe and a manual fuel transfer pump complete with flexible lines.

The continuous or standby kVA rating, voltage, number of poles, frequency, voltage tolerance, frequency tolerance, ambient temperature, environmental conditions, and permitted noise level limitation and distance shall be as detailed in the particular specification.

Testing and Commissioning

In addition to the normal tests and checks for compliance with specification, safety insulation resistance, earthing, mechanical damage, fixings, etc. full operational tests shall be carried out which shall include the following:-

- (i) Fuel pump, lines, float switches and controls.
- (ii) Engine start and stop controls.
- (iii) Automatic start (including 3 attempts) on simulated mains failure.
- (iv) Six hour full load run.
- (v) One hour 10% overload run.
- (vi) One step 60% of full load application.
- (vii) Temperature use and engine oil pressure checks.
- (viii) Voltage regulation and phase sequence checks.
- (ix) Control and protection devices.

Test certificates covering all aspects of testing shall be provided in the maintenance manuals.

3.2.44 Power Transformers

Power Transformers shall be of the type as detailed in the particular specification and comply with IEC 726 and BS 171; they shall generally be either :-

- Oil filled and natural air cooled - ONAN
- Oil filled and forced air cooled - ONAF
- Dry type class C - natural air cooled - AN
- Silicon filled and natural air cooled - LNLN
- Cast resin and natural air cooled - AN
- Cast resin and forced air cooled - AF

Unless otherwise specified they shall be vector group DYN 11, have externally operated off circuit HV tap change control with voltage tapplings of $\pm 2\frac{1}{2}\%$ and $\pm 5\%$ of normal supply voltage, have a maximum impedance of 5 % and be fitted with a 3 pole cable gland box on HV side and a 4 pole air filled terminal chamber on LV side.

Voltage ratio, kVA rating, frequency, number of phases, and IP rating shall be as detailed in the particular specification or on the drawings.

All transformers shall be fitted with substantial lifting lugs, earthing terminal, rating and connection plate, and be suitable for ground mounting.

Oil or silicon filled transformers shall be fitted with a drain plug, sampler, oil gauge, filler cap and main breather.

Dry type class C transformer shall be fitted with dial.

Unless otherwise specified cast resin transformers shall be fitted with temperature monitoring equipment with volt free contacts for fan, alarm, and trip initiation.

Care must be taken to ensure that transformers are installed on a level base. Surge protection devices shall be fitted as detailed in the particular specification.

Testing and Commissioning

Visual checks must be made after delivery and positioning to ensure no damage has been inflicted during transportation.

Insulation tests with a portable instrument shall be carried out together with a check on the voltage ratio by applying a medium voltage to the HV terminals and measuring the induced voltage on the LV side.

Tap changing gear, protective relays and current transformers shall be checked for proper operation.

3.2.45 Sub-Station or Switchroom Earthing

The main earth bar shall be a minimum of 50 mm x 6 mm copper. It shall have sufficient studs to allow all earthing tapes to be connected separately, and be wall mounted, on suitable porcelain spacers, at 500 mm FFL within the HV sub-station at the position indicated on the drawing.

Separate copper tapes, of minimum 25 mm x 3 mm or copper cable of equivalent cross sectional area shall be installed from the earth bar to each power transformer, IIV switchboard or generator earthing connection, and the LV switchboard neutral/earth bar.

Where items of equipment are grouped together and are at a sufficient distance from the main earth bar to render separate tapes impractical, a further bar must be installed, connected to the main bar by a tape of minimum 25 mm x 6 mm dimensions.

Under no circumstances shall an earthing tape be 'looped' around the various items of equipment.

Copper tapes of minimum 25 mm x 3 mm dimensions, or copper cable of equivalent cross sectional area, shall be installed from the earth bar to sufficient earth electrodes to obtain a maximum resistance to earth of 5 ohms, and of 1 ohm when the supply cables sheaths have been bonded to the bar via the switchgear earthing points.

Earth electrodes shall be located in a purpose made inspection pit, and the connecting tape must have a test clamp incorporated. They shall be installed so that the zones of earthing do not overlap.

The wire armouring on the incoming supply cables and the cables between switchboards and transformers shall be bonded via clamps to their associated housing.

Where joints are made, the contact surfaces shall be tinned and sweated, then riveted or bolted.

Joints must have a resistance not exceeding that of an equivalent length of the conductor.

Where connections are made to plant or equipment, care must be taken to avoid reduction in current carrying capacity by ensuring that the full contact area is utilised.

The earthing tape must not be drilled except for terminating or jointing. When cables are utilised for earthing conductors all terminations must be crimp type lugs. Foundation fixing bolts of plant or equipment must not be utilised for the earthing connection.

The installation earthing network must be connected to the mass of earth, via electrodes, at a single position only.

3.2.46 HV Switchgear and Installation

HV switchgear shall be of the metalclad cubicle pattern, with voltage, normal continuous and short circuit duty current ratings, and IP classification, as detailed in the particular specification or on the drawings; it must be suitable for use in the environmental conditions and ambient temperatures indicated and be in accordance with the relevant IEC and British Standard which shall include:-

IEC 694 -	BS 6581 -HV Switchgear
IEC 56 -	BS 5311 -AC circuit breakers over 1 kv
IEC 265 -	BS 5463 -HV switches
IEC 129 -	BS 5253 -Disconnecters and earth switches
IEC 298 -	BS 5227 -Metal enclosed switchgear
IEC 466 -	Insulation enclosed switchgear
IEC 420 -	-HV switches with fuses
IEC 282 -	BS 2692 -HV fuses
IEC 644 -	BS 5907 -HV fuses for motor protection

HV switches or circuit breakers shall be of the type specified, which shall be either:-

Oil extinguishing and oil or air insulated

Sulphur hexafluoride (SF6) extinguishing and air or SF6 insulated.

Vacuum extinguishing and air or vacuum insulated.

Voltage transformers, protection relays and instruments as detailed in the particular specification of drawings shall be provided and fitted within the switchgear cubicle by the switchgear manufacturer; all relays and instruments shall be flush mounted within the associated section.

Erection of switchgear must be carried out strictly in accordance with the manufacturers drawings and instructions, which must be on site prior to commencing.

The sub-station of switchroom must be clean and dry with debris removed.

All opening not in immediate use must be blanked off or covered.

Electrical insulation must be kept dry and clean by protected coverings and heated if necessary.

Materials must be stored carefully to ensure no losses or damage.

Any missing parts, however minor must be replaced with the exact manufacturers part, no substitute will be permissible.

Correct lifting procedures utilising the manufacturers designated lifting points must be observed at all times to ensure no parts are subjected to undue stress which could disturb settings or inflict damage.

Accuracy of the foundation of the switchboard must be obtained to ensure correct operation.

Steel channels, embedded within the floor and incorporating captive adjustable nuts must be installed; they must be truly parallel and level, and project slightly above the floor to enable the switchgear to be clamped to them without any adjustment necessary to the channels.

The erection shall commence, with the centre unit and proceed both ways with the inter-unit tie bolts loosely positioned and all units lined up with the centre one; plumb lines being used to ensure each unit is truly vertical. When all units have been checked for alignment the inter tie bolts shall be tightened and checks made all withdrawable items may be entered and withdrawn smoothly. Instrument cabinets and other components can then added.

Bus bar assemblies must be carefully erected to ensure correct location in their units. Contact surfaces must be carefully cleaned using fine sandpaper (not emery cloth). Threads of all screw connections must be cleaned with a fine scratch brush. After cleaning, joint faces must be wiped with clean lint cloth to remove dirt, and joints assembled immediately. Care must be taken to ensure that manufacturers instructions concerning overlaps, joints and torque setting for spanners are strictly adhered to in order to produce the correct joint resistance without overstressing the bolts. Special attention must be paid to any manufacturers instructions concerning insulated joints and safety precautions relating thereto.

Cable terminations shall be carried out by a specialist joiner and in accordance with the manufacturers instructions.

Where oil switchgear is installed, the oil must comply with BS 148 and be of the type recommended by the manufacturer, chambers must be checked for cleanliness prior to carefully pouring the oil to the indicated level. Voltage transformers should be filled after mounting. Where the temperature differs from 15 centigrade when fitting allowance should be made in the oil level.

Testing and Commissioning

Final checks shall be made after assembly to ensure:-

- (i) All chambers are clean and free from foreign matter, including tools. All covers and screws are fitted and secure.
- (ii) Labels are fitted and visible.
- iii) Mechanical interlocks and safety shutters are operative.
- (iv) Withdrawable items are operating correctly.

- (v) Fuses and links are all correctly inserted.
- (vi) Exposed insulation surfaces are clean and dry.
- vii) Continuity of earthing.
- viii) All tools used are accounted for.

Testing and commissioning procedures to be carried out after installations shall include:-

- (i) Visual checks to ensure all connections are in accordance with the wiring diagrams, and all correct fuses and links have been fitted.
- (ii) Impedance measurements on bus bars, earth conductors and earth points.
- iii) Insulation resistance testing.
- (iv) Current and voltage transformer connections.
- (v) Operation of protective system.
- (vi) Operation of circuit breakers.
- (vii) Control system sequence operation.
- viii) High voltage test.
- (ix) Load test.

PART III

STANDARD ELECTRICAL SERVICES SPECIFICATION

3.3.00 TESTING AND COMMISSIONING

PAGE

- 3.3.01 General
- 3.3.02 Test Certificates
- 3.3.03 Switchgear Test at Manufacturers' Premises
- 3.3.04 Site Testing and Commissioning
- 3.3.05 Fire Alarm and Detection System
- 3.3.06 Testing prior to Expiration of Defects Liability Period

3.3.01 General

The Works shall be subject to testing, pre-commissioning procedures throughout contract period which shall include:

- 1) Visual checks and examinations during constructions of the workmanship and methods of installation.
- 2) Tests during construction and/or manufacture of sections of the works and/or items of plant/equipment.
- 3) Pre-commissioning, cleaning and adjustment.
- 4) Final acceptance tests.
- 5) Commissioning.

Testing in sections or zones shall be carried out as necessary, but this will not eliminate the requirement for tests on completed system.

The Contractor shall prepare, and agree, a programme for commissioning of the Works setting out the anticipated times and duration of pre-acceptance and final acceptance tests.

The programme shall identify any power, fuel, special attendance by others, shutdown of existing systems, etc.

3.3.02 Test Certificates

Test Certificates shall contain or have attached to them the following information:

- 1) The job name as designated by the So.
- 2) A description of the item component or system tested including fabrication, block and production members.
- 3) The name and address of the Contractor together with his Contract or order numbers.
- 4) The date and time of the test.
- 5) The weather conditions (if relevant).
- 6) The testing party together with the signature of the testing engineer.
- 7) The properties to be tested and the source of the parameters for such properties, i.e. BS, IEE Regulations, Specification, etc.

- 8) The result of the test and any divergence from the specification, production drawings, or statutory regulations.
- 9) The details of any work to be complete but which is outside the scope of the test.

3.3.03 Switchgear Tests at Manufacturer's Premises

The following tests shall be carried out at the manufacturer's works:

Completed switchboards and individual switches-routine tests to BS 116, BS 162 and BS 4752 or type tests.

Functioning tests to prove satisfactory operation of circuit breaker isolating devices and earthing equipment. This test to include operation of circuit breakers a minimum of 8 times.

Tests to show minimum voltage at which all coils will effectively operate their respective apparatus.

Ratio and polarity tests on all current transformers and voltage transformers.

Simulation of internal and external interlock and control systems if applicable.

Functioning tests upon handing equipment included in the Contract.

Visual inspection to check correctness of specification and quality of workmanship.

3.3.04 Site Testing and Commissioning

The Contractor shall carry out tests of the electrical installation as prescribed in Part 6 of the IEE Regulations.

Where earth leakage circuit breakers are fitted they shall be tested as prescribed in Appendix 15 of the IEE Regulations, but also they shall be bypassed for normal loop impedance testing.

Voltage tests on all PVC insulated power cables shall be in accordance with Appendix B of BS 6346:1969 using direct current, the value of the voltage being that specified in Appendix B, Table 20.

Voltage tests on MICC cables shall be in accordance with Appendix C of BS 6207: Part 11, using direct current, the value of the voltage being that specified in Appendix C Table 12.

Site testing and commissioning will be witnessed by the SO or his representative. It shall be the Contractor's responsibility to put the installation to work and to certify that the specified commissioning procedures have been carried out.

Where the British Standards Institution, Chartered Institution of Building Services and/or the Institution of Electrical Engineers has published Codes of Practice, Guides or Regulations, for the purpose, these shall be followed.

Responsibility for providing all necessary instruments, equipment, materials and labour shall remain with the Contractor. The accuracy of instruments shall be certified.

Each installation shall be fully commissioned. Commissioning shall include the balancing and regulation of distribution systems, the final adjustment of control systems, the setting of all relays and the insulation resistance and continuity testing of all wiring and cabling. All details shall be entered on test sheets and signed by the tester and witness.

The necessary fuel, water and electricity will be provided free of cost to the Contractor for site testing purposes, unless otherwise indicated in the contract documentation.

Any defects of workmanship, materials and performance, maloperation or other irregularities which become apparent during the tests shall be rectified by the Contractor at his sole expense and the tests shall be repeated, if so directed by the SO, to demonstrate the efficacy of the remedial measures, at the Contractor's sole expense.

3.3.05 Fire Alarm and Detection System

The following tests shall not be carried out for each area:-

- i) Tests to prove that the wiring and completed installation conforms to BS 5839 and BS 3116.
- ii) Tests on each detector head to check correct sensitivity output signal, operation of local flashing neon indicator and correct group indication on the local panel.
- iii) Operation of alarm bells and silencing switches.
- iv) Operation of control panels including simulated breaks in wiring continuity, resistance fault, earth fault, charger fault, battery voltage low, mains failure alarm, etc.
- v) Discharge test on battery with standing losses for 24 hours and maximum alarm load for one half hour at an adequate voltage.
- vi) Checks on mains and battery indications and alarms by simulated breaks in wiring continuity, resistance fault, earth fault, charger fault, battery voltage low, mains failure alarm, etc.
- vii) Sound level measurements with other services i.e. ventilation plant, lifts, etc.

The Local Fire Brigade shall be given 14 days notice before the date when tests are due to be carried out.

3.3.06 Tests Prior to Expiration of the Defects Liability Period

The Contractor shall allow in his Tender for re-testing the systems provided under the Contract thirty days prior to the end of the Defects Liability Period. The Contractor shall give the SO fourteen days written notice of his visit to carry out these tests.

Tests shall be carried out as aforementioned on the following basis:-

- 1) All sockets outlets installed under the Contract shall be tested for line-earth loop impedance.
- 2) Two and a half per cent (2 1/2%) of all lighting points installed under the Contract with a minimum of five, shall be tested for line-earth loop impedance. All sample points shall be chosen by the SO.
- 3) Miscellaneous plant, machinery, and equipment, supplied and installed under the Contract shall be tested on a similar basis to item (2) above.
- 4) Functional test of the fire alarm system.

In the event of serious errors being found, all the instrumentation, metering and protection equipment shall be checked and adjusted/repaired.

Any defects discovered during these tests shall be corrected solely at the Contractor's expense.

ELECTRICAL SERVICES PARTICULAR SPECIFICATION

CONTENTS

PART I PARTICULAR SPECIFICATION

PART II SCOPE OF WORK

PART III BILLS OF QUANTITIES

PART 1 - PARTICULAR SPECIFICATION

1.1.01 Contract Preliminaries	6
1.1.02 Variance Clause	6
1.1.03 Location of Site	6
1.1.04 Description of Project	6
1.1.05 Construction of Building	6
1.1.06 Builders Works	6
1.1.07 Operating and Maintenance Manuals	6
1.1.08 Contract Drawings and Specification	7
1.1.09 Copyright	7

1.1.01 Contract Preliminaries

The Preliminary Clauses contained within the Main Contractors Contract Documentation shall apply to all the Sub-Contract Works. The sub-contractor shall take all Insurance policies and Bond as required under the items of the sub-contract.

1.1.02 Variance Clause

Any clause within this part of the specification in variance with clauses in other parts shall be deemed to override those other clauses.

1.1.03 Location of Site

The site is located at Kabarak off Nakuru/Eldama Ravine road

1.1.04 Description of Project

The buildings consists of office & labs of comprising 2 floors of ground & 1st floors, a separate workshop (approx. 500m apart) with ground floor only

1.1.05 Construction of Building

The buildings are of reinforced concrete construction with concrete and blockwork walls and a sloping roof. The external walls comprise generally glass windows.

1.1.06 Builders Works

The Electrical Contractor shall be responsible for providing details of all builders works required in accordance with Clause 1.13 of the Standard Electrical Services Specification provided by the Services Engineers, together with such actual works as designated to him in the Main Contract Preliminaries.

1.1.07 Operating and Maintenance Manuals

The Electrical contractors shall provide 4 No. Sets of O & M manuals which shall be detailed in Clauses 1.18 and 1.19 of the Standard Electrical Services Specification provided by the Services Engineers.

1.1.08 Contract Drawings and Specification

The Contract Drawings are provided together with this Specification or appended to the Specification. Should anything have been omitted from the Contract Drawings and/or the Specification which by the nature of the work can be reasonably inferred intend or required

to be provided for the proper completion of the works, the Contractor shall provide or perform the same without extra charge to the entire satisfaction of the Engineer.

The Contract Drawings are intended to show the basic principles on which the Tender is to be prepared. They do not necessarily show exact runs of trunking, conduit, cables, etc.; nor the fittings required, or the precise locations of accessories, outlets, equipment, etc.

The Contract Drawings are not to be taken or regarded as working drawings and must not be scaled for installation purposes.

1.1.08 Copyright

The copyright of this Document is vested with the Engineer and no part thereof may be reproduced without his written express permission.

PART II

ELECTRICAL SERVICES PARTICULAR SPECIFICATION

01. Scope of Work
02. Liaison with Authorities
03. Type of Installation
04. Earthing and Bonding
05. Small power
06. Technical and Data and LV Service Wireways
07. Fire Alarm System
08. Lighting.
09. Existing Installation.
10. Testing and Commissioning

01. Scope of Work

The entire Installation shall be strictly in accordance with BS 7671:1992

The scope of works consists of removal as required of existing electrical services, systems and equipment to facilitate demolition and the supply, delivery, installation, testing, commissioning and rectification of defects and routine operational maintenance during the defects liability period, of the electrical engineering services as described herein and in related documents. The installation shall comply with 16th edition IEE wiring regulations and Standard Electrical Services Specification provided by the Services Engineers. The works shall comprise the whole of the labour and all the materials necessary to form a complete installation and such tests, adjustments and commissioning as are described elsewhere herein, and as may otherwise be required to give an effective and approved working installation. A “complete installation” shall be deemed to mean not only the major items of plant and equipment, but all incidental sundry components necessary for the complete execution of the works and for the proper operation of the installation, with their labour charges.

The works shall **include** but not necessarily be limited to the following: -

- a) Installation of new MCBB meter board, MCCB distribution panels & MCB sub-main cables.
- b) Final circuit Distribution Wiring Installation.
- c) UPS connections.
- d) Lighting Installation.
- e) Earthing and Bonding to LV Switch Board.
- f) Small Power Installation.
- g) Data and LV Service Trunking Installation.
- h) Fire Alarm System.
- i) Lightning Protection
- j) BMS system

The work shall also **include** the following: -

- a) The provision of working Drawings, Builders work Drawing and Record Drawings.
- b) Testing, commissioning and certification of all systems including the provision of test equipment in accordance with BS7671:1992 Part 7
- c) Negotiations with statutory authorities including making such application and submissions that those authorities may require.
- d) Preparation of a detailed programme covering all aspects of the contract and its co-ordination with the Main Contractor and Clients Development Programme for the project.

- e) Liaison, co-ordination and co-operation with Clients Head of unit and other contractors employed on the work, at all stages through to total completion.
- f) The provision of sundry items to properly complete, identify and make safe the works as a whole, including circuit lists, framed diagrams, notices, labels, special tools and spare parts, as required.
- g) Protection of the works during construction.
- h) Maintaining existing systems in operation except as agreed and programmed.

02. Liaison with Authorities

Liaison as required with the Statutory Authorities shall be the responsibility of the sub-contractor.

03. Type of Installation

The Installation shall be run flush within the fabric of the building or concealed in ducts, ceiling voids, or the natural contours of the building. Conduits, trunking, and cables etc. shall be run as and where detailed in this document and indicated on relevant drawings or otherwise agreed in writing with the Engineer. The cutting of chases etc. for electrical services other than floor ducts shall be the responsibility of the Electrical Contractor.

Types of installation for the various systems shall be as follows: -

MCCB & MCB distribution panels – new
 Sub-main cabling – XLPE as per drawings & specs
 General wiring - PVC cables drawn into pvc conduit and or Trunking and pvc floor distribution Trunking or conduits, as detailed.

Fire alarms - PVC cables shall be drawn steel conduit/trunking entirely segregated, from other wiring, or MICC cables.

Multi Service Wireways – Steel distribution trunking and conduit as detailed.
 Draw wires to be provided in ELV & LAN conduits

04. Earthing and Bonding

All earthing shall be strictly in accordance with British Standard 7671:1992 Part 5 chap. 54 as applicable, back to the Main LV Switchboard. Particular attention should be paid to the provision of all equipotential bonding conductors, the earthing of all extraneous metalwork and supplementary bonding.

05. Small Power

Small power accessories shall be 13 amp universal outlets unless otherwise indicated and be located as detailed, wired on ring circuits with maximum 10 outlets per circuit.

Wiring to Switched Socket Outlets including dedicated protective conductor (in accordance with BS7671 Chap. 54) shall be carried out using PVC cables drawn into conduits as indicated on relevant drawings.

Where fixed appliances are supplied with a flush controlling accessory, it shall be located adjacent or local to the item, with a concealed conduit running to an outlet box located behind the item, close to the connection terminals; positioning of the controlling accessory shall be agreed with the Engineer prior to installation.

06. Data/Tel and LV Service Wireways

Two compartment floor outlet boxes for Data/Tel and LV service wiring shall be installed where indicated on relevant drawings by the Electrical Sub Contractor within concealed pvc conduits, to low & high level trunking and cable trays.

07. Fire Alarm System

The system shall be analogue addressable and fully monitored with both fault and alarm indication, and comprise of manual call points, automatic smoke detectors, alarm sounders

08. Lighting.

Indirect LED lighting fittings, LED recessed downlights, LED striplights and LED battens shall be installed as shown on the drawings. Connection to all fittings in office areas including lift lobbies shall be via white flex. All fittings shall be supplied with lamps. Cabling shall be in 1.5mm cables and each fitting shall be connected thru' lighting sensors and. lighting master switches is to be provided as indicated.

09. Testing and commissioning

The Electrical Contractor shall ensure that the complete installation is fully tested and commissioned to the satisfaction of the Engineer.

The Electrical Contractor shall, at the completion of the project provide as part of the Operating and Maintenance manuals, Test and Completion Certificates as recommended in 16th edition Wiring Regulations as issued by the Institution of Electrical Engineers.

ITEM	DESCRIPTION	UNIT	QTY.	RATE	AMOUNT
					SHS
	<p>Supply, install, connect and set to work the following complete with all accessories as described in specification and shown on drawings:</p> <p>ALL RATES ARE INCLUSIVE OF VAT</p> <p><u>OFFICES & LABS</u></p> <p><u>LIGHTING</u></p> <p><u>Supply & install</u> the following lighting fittings</p>				
1	Recessed LED round panel fitting, 18w as Robus Eternity 18W Cat. No. R18230DL-01	No.	68		
2	Ditto but with emergency kit	No.	12		
3	600 x 600 LED 40W panel fitting as Osram Ledvance	No.	350		
4	Ditto but with emergency kit	No.	15		
5	1200x300 LED 40W panel fitting as Osram Ledvance	No.	0		price only
6	Ditto but with emergency kit	No.	0		price only
7	Exit light, maintained as THORN VOYAGER LED E1M	No.	15		
8	40w IP65 LED splashproof fitting as OSRAM LEDVANCE	No.	10		
9	Ditto but with emergency kit	No.	2		
10	70W SON external wall mounted bulkhead fitting as THORN PIAZZA II	No.	26		
13	Explosion proof LED fitting ATEX certified	No.	6		
14	Lighting point in concealed rigid PVC conduit or trunking c/w 1.5mm sq. PVC single cables, 10A MK ivory plate switch and all accessories (trunking measured separately.	No.	498		
15	Presence and illumination level sensor as MK K5030F, 10A flush mounted	No.	20		
16	Contactors for above	No.	5		
17	External wall mounted security lighting circuit comprising of wiring in 2.5 mm sq. PVC cable in concealed rigid PVC conduit,	No.	6		
18	Photocell switch with manual bypass for above circuits	No.	6		
19	4 meter steel column with 60mm dia shaft for road lighting c/w loop -in/ loop-out, cutout as THORN QC3	No.	12		
20	Post top lantern for above as DISANO POLAR with 42w TC-EL lamps and canopy (www.disano.it)	No.	12		
21	Sub-main cable in trench or duct comprising 4 core x 6mm sq. PVC/SWA/PVC cable complete with glands and all necessary materials	LM	300		
22	Total Lighting carried to Summary				

ITEM	DESCRIPTION	UNIT	QTY.	RATE	AMOUNT
					SHS
	Supply, install, connect and set to work the following complete with all accessories as described in specification and shown on drawings:	B/F			
	<u>SMALL POWER</u>				
23	13A twin gang switched socket outlets as MK2743WHI with two USB charging ports c/w cabling in 2.5mm sq. & ecc in conduit or trunking (trunking measured elsewhere) ring circuit type A1, on normal power supply	No.	20		
34	Ditto but on UPS supply	No.	20		
25	13A twin gang surface mounted industrial <u>metalclad</u> switched socket outlets as MK 2946ALM c/w box, cabling in 2.5mm sq. & ecc in conduit or trunking (trunking measured elsewhere) ring circuit type A1, on normal power supply.	No.	20		
26	63A TP&N+E IP67 angled switchsocket on 3Ø supply as MK	No.	5		
27	10mm sq 5C xlpe/pvc cable for 3Ø socket outlets	M	150		
28	20A fused spur units mounted on wall for TV supply as MK5423WHI wth neon & flex outlet	No.	5		
29	TV coaxial outlet point mounted on wall with pvc conduit from trunking as MK3557WHI c/w draw wire	No.	5		
30	CCTV point (conduits only) in concealed heavy gauge PVC conduit with draw box and draw wire.	no	6		
31	Air-conditioners indoor units 1Ø power supply in radial circuit in rigid pvc conduit c/w cabling in 4mm sq. pvc/pvc cables + ECC , 20A DP switches (8no units max per circuit)	Item	5		
32	Ditto for sweep ceiling fans	Item	5		
33	Extract fan power supply circuit in conduit c/w cabling in 2.5mm sq. pvc/pvc+ecc and 20A DP isolator	Item	6		
34	Water heater circuit for undersink heater in kitchen in concealed rigid PVC conduit c/w wiring in 6mm sq. cu. Cables +ECC, 20A DP switch and final connection in heat resistant flex.	Item	2		
35	Floor outlet box, 2 compartment flush mounted as MK 88112 GRY c/w segregator fixing kits, trim & accessory spacers as required	No.	10		
36	32mm Ø pvc conduits to above from trunking, concealed in floor slab	M	20		
37	Make provision for flush Data/power outlet point at desks comprising steel box and by installing flush 25mm flexible steel conduits laid from trunking or floor outlet box, (Draw wires to left in all conduits).	No.	360		
38	150 x 50mm x 18SWG 2 compartment wall metallic trunking clip-on type as made by PEIL, powder coated to approval, c/w cover, bends, brackets and tees in offices at L/L and above worktops in Labs, for small power & ELV	m	350		
39	Ditto but 250 x 50mm x 18SWG on support brackets fixed at H/L to wall/ceiling c/w cover bends and tees to suit routing, powder coated to approval - For small power & ELV	M	650		
40	Total Small Power carried to Summary				

ITEM	DESCRIPTION	UNIT	QTY.	RATE	AMOUNT
					SHS
	Supply, install, connect and set to work the following complete with all accessories as described in specification and shown on drawings:	B/F			
40	<u>LARGE POWER</u>				
41	16 way 630A TP&N MCCB main distribution panel and meter board in FORM 3B IP54 enclosure, 800A TPN CU busbars as Shneider Electric c/w cabling, 1no. 400A TPN MCCB, 8no.100A TPN MCCB, 3no. 60A MCCB (30KA), 630A ATS with manual bypass, 150KVAR stepped power factor correction capacitor bank, and all necessary accessories as specified in the specifications and indicated on the drawings. In office/Lab block	item	1		
42	400KVA 415V voltage stabiliser as IREM \pm 20% input \pm 1% output voltage, c/w bypass switches, to ISO 9001 & ISO 14001 standard, at office block	item	1		
43	30KVA on-line UPS 3 \emptyset /3 \emptyset in office block server roomc/w static and manual bypass, type APC, with 20min battery backup, inclusive of connection to distribution panel as per manufacturer's specs, Merlin Gerin Galaxy	No.	1		
44	12 way 125A TP&N MCB sub-distribution panel in office block c/ w MCB's and all necessary accessories as specified ispecifications as specified in the specifications and drawings - for normal supply	item	9		
45	12way 125A TPN mcb DB on UPS supply c/w double pole mcbs as MEM (curve D)	No.	8		
46	Sub-main cable comprising of 2 x 150mm sq. 4core XLPE/SWA cable from backup generator to mccb subpanel in switchroom	M	50		
47	Sub-main cable comprising of 35mm sq. 4core XLPE/SWA cable from mccb subpanel in switchroom to mcb distribution panels	M	500		
48	Ditto but 16mm 4C XLPE/SWA to mcb panel on UPS supply	M	500		
49	Ditto but 16mm 4C XLPE/SWA to lift control panel	M	60		
59	Ditto but 10mm sq 4C XLPE/SWA to AC condensing units & ventilation fans	M	300		
51	Ditto but 10mm sq. 2C to AC condensing units	M	30		
52	60A IP67 TPN isolator for the above, KATKO	No.	12		
53	250 x 50mm x 16SWG GI slotted cable tray on support brackets fixed to wall/ceiling at H/L c/w bends & tees to suit routing - For submain cables	m	250		
54	PME earthing of <u>all metalwork</u> , as in specification, as per code of practice	item	1		
55	Allow for attendance of generator installation	item			
56	Provisional sum for incoming KP&L service line	SUM			
57	Allow for attendance for above item	%	5		
58	Total Large Power carried to Summary				

ITEM	DESCRIPTION	UNIT	QTY.	RATE	AMOUNT
					SHS
	Supply, install, connect and set to work the following complete with all accessories as described in specification and shown on drawings:				
	<u>FIRE ALARM SYSTEM</u>				
59	One loop Analogue addressable fire alarm panel as MENVIER DF6000 complete with battery charger as in specification and drawings	No.	1		
60	DF6000REP Repeater panel in GF foyer - MENVIER	No.	1		
61	I/O Interface unit MENVIER MIO230	No.	1		
62	Fire alarm point in concealed rigid PVC conduit c/w FP200 cables and all necessary materials as specified in specification	No.	124		
63	Analogue addressable fire alarm break-glass as MENVIER	No.	12		
64	Analogue addressable Fire alarm bell as MENVIER MBM248	No.	12		
65	Analogue addressable Optical smoke/heat detectors as MENVIER MID710	No.	100		
66	Total Fire Alarm carried to Summary				
	<u>LIGHTNING PROTECTION</u>				
67	25mm x 3mm HC soft insulated copper tape as to FURSE Cat.No. TC130 or equivalent	L/M	450		
68	16mm x 1200mm extension coper bond earth ' electrode, threaded 16mm, with radial copperthickness 0.25mm minimum as to ' FURSE Cat No. RB 205 or equivalent	No.	8		
69	20mm Type" A" tape- rod connector clamp,' to BS 1400 Grade LG2, as to FURSE Cat No.CR 105, or equivalent.	No.	8		
70	Lockable galvanised lid inspection pit as FURSE cat. No.PT106	No.	8		
71	Oblong copper test/ Junction clamp as FURSE Cat CN105	No.	8		
72	Total carried to Summary				
	<u>SUNDRY ITEMS</u>				
73	Allow for attendance to specialist contractors during installation of door access, data/tel cabling, Alarm system etc.	Item	1		
74	Allow for any item necessary for completion of installation (specify)	Item	1		
75	Total Sundry Items carried to Summary				

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
					SHS
	<p>Supply, install, connect and set to work the following complete with all accessories as described in specification and shown on drawings:</p> <p><u>SUMMARY - LABS & OFFICES</u></p> <p>a) PRELIMINARIES (AS BUILT DRAWINGS)</p> <p>b) LIGHTING</p> <p>c) SMALL POWER</p> <p>d) LARGE POWER</p> <p>e) FIRE ALARM SYSTEM</p> <p>f) LIGHTNING PROTECTION</p> <p>g) SUNDRY ITEMS</p> <p style="text-align: center;">Sub-total</p> <p style="text-align: center;">10% CONTINGENCY</p> <p style="text-align: center;">TOTAL CARRIED TO GRAND SUMMARY INCL. VAT</p>				
		ITEM			
		B/F			
		B/F			
		B/F			
		B/F			
		B/F			
		B/F			

**SECTION X: PLUMBING, DRAINAGE, FIRE FIGHTING AND
SOLAR WATER HEATING**

GENERAL MECHANICAL SPECIFICATIONS

CONTENTS

<u>CLAUSE</u>	<u>DESCRIPTION</u>	<u>PAGE</u>
2.01	GENERAL	A-2
2.02	QUALITY OF MATERIALS	A-2
2.03	REGULATIONS AND STANDARDS	A-2
2.04	ELECTRICAL REQUIREMENTS	A-3
2.05	TRANSPORT AND STORAGE	A-3
2.06	SITE SUPERVISION	A-4
2.07	INSTALLATION	A-4
2.08	TESTING	A-4
2.09	COLOUR CODING	A-5
2.10	WELDING	A-6

2.01 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.

2.02 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.

2.03 Regulations and Standards

The Sub-contract Works shall comply with the current editions of the following:

- a) The Kenya Government Regulations.
- b) The United Kingdom Institution of Electrical Engineers (IEE) Regulations for the Electrical Equipment of Buildings.
- c) The United Kingdom Chartered Institute of Building Services Engineers (CIBSE) Guides.
- d) British Standard and Codes of Practice as published by the British Standards Institution (BSI)
- e) The Local Council By-laws.
- f) The Electricity Supply Authority By-laws.
- g) Local Authority By-laws.
- h) The Kenya Building Code Regulations.
- i) The Kenya Bureau of Standards

2.04 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 and Lighting Company (KPLC) 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.

2.05 Transport and Storage

All plant and equipment shall, during transportation be suitably packed, crated and protected to minimize 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.

2.06 Site Supervision

The Sub-contractor shall ensure that there is an English-speaking supervisor on the site at all times during normal working hours.

2.07 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 2.03 of this Section.

2.08 Testing

2.08.1 General

The Sub-contractor's attention is drawn to Part 'C' Clause 1.38 of the "Preliminaries and General Conditions".

2.08.2 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.

2.08.3 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 week's 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.

2.08.4 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.

2.09 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.

2.10 Welding

2.10.1 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.

2.10.2 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.

2.10.3 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.

2.10.4 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 seeing 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.

GENERAL SPECIFICATION FOR PLUMBING
INSTALLATION

1.0 GENERAL REQUIREMENTS

1.01 Introduction

This specification details the requirements for the materials, supply installation, testing and commissioning of the plumbing, drainage and fire fighting installation as shown on the Contract drawings.

The Contractor shall include 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 contract works.

If there is a difference between this Specification and Contract Drawings or lack of clarity in either the specification or the Contract Drawings, the Contractor must clarify such differences with the Engineer before tendering. No claim for extra payment shall be entertained from the Contractor due to failure to comply with this requirement.

1.02 Scope of Works

The Sub -Contract shall comprise the Supply and installation of the entire sanitary appliance, the internal drainage system up to the nearest manhole outside the building, the internal cold water and hot water supply and storage system, the external water reticulation system, together with the installation of the fire fighting equipments all as shown on the contract drawings and as herein specified.

1.03 Regulations and Standards

A licensed and experienced plumber under the government regulations shall carry out all the plumbing works. The works shall be carried out in accordance with the best principles of modern plumbing practice.

The Contractor shall be responsible for ensuring compliance with all government regulations and in particular his attention is drawn to the following specific codes and regulations: -

- a) The Local Authority by-laws and regulations.
- b) The current Republic of Kenya Building Code
- c) The M.O.W. latest issue of "General Specification for Building works"
- d) B.S 5572 – Code of practice for sanitary pipework
- e) B.S 8301 – Code of practice on building drainage
- f) B.S 6465 – Sanitary Appliances
- g) C.P 310 – Water Supply
- h) B.S 6700: 1987 – Water supplies within buildings
- i) The I.E.E. Regulations
- j) The Kenya Bureau of Standards (K.B.S.) Specification.

All plumbing work shall be executed in accordance with the regulations of the local Authorities and water supply Companies. The Contractor shall give all notices and pay all fees required there under. The amount of fees shall to be deemed included in the Contract Sum unless otherwise expressly stated.

1.04 Occupation Certificate

The plumbing Contractor shall upon completion obtain an "Occupation Certificate" from the Local Authority and forward it to the Engineer. The cost of obtaining the certificate shall be deemed included in the Contract Sum.

1.05 Material and Standards

All equipments and materials shall be new, strong and of durable construction. All the items must meet the relevant quality and standards and of reputable manufacture. Safety devices such as pressure relieve valves; thermal expansion joints, thermal and overload protectors etc. must be installed wherever deemed necessary.

1.06 Builders Work

Holes, trenches and wall chase in building fabric to accommodate pipes, cable trays, etc., together with concrete plinths for pumps, tanks etc shall be carried out by the Main Contractor at no cost to the Sub-Contractor. However, the Sub-Contractor must inform the main Contractor of his requirements well in advance to allow such requirements to be incorporated before casting of the building fabric.

Drilled holes in concrete for anchor channels, clamps, supports, etc. shall be carried out by the Sub-Contractor but must liaise with the Main Contractor before carrying out the works.

The Sub-Contractor must not make any holes nor cut the building fabric without the express consent of the Structural Engineer and Consultation with the Main-Contractor.

1.07 Electrical Works

The Electrical Sub-Contractor for the Project shall be responsible for the provision of electrical power supply up to and including connection to the local isolators for all the equipment supplied by the plumbing Sub-Contractor.

The Sub-Contractor for the plumbing works shall supply and install all electrical equipment, electrical control gear, interconnecting cabling wiring and connections for all his installations. All control diagrams shall be supplied to the Engineer for approval.

The electrical power supply shall be 415 volts/ 3-phase/ 50 Hz and 240 volts/ 1-phase/ 50Hz and all electrical equipments shall be suitable for these supplies.

All electrical works shall be carried out by competent licensed electrician and in liaison with the project electrical sub-Contractor.

1.08 Water Meters

These shall be to BS 5728 Part 1.S. 4064/1 . The meters shall be suitable for water temperatures up to 30°C and 10 bar nominal pressure.

These shall have counter registration in cubic metres (or litres), and be able to register down to one litre of water volume.

These shall be installed to the requirements of B.S. 5728 Part 2 and to the approval of the local council.

The Sub-Contractor shall on behalf of the client apply for and secure meter connection from local authority. He shall therefore allow for all costs for permits, materials and attendance in connection thereof.

1.09 Duration of Installation

The Plumbing Sub-Contractor shall be required to phase his work in accordance with a programme to be agreed with the Main Contractor and the Architect.

2.0 WATER SUPPLY INSTALLATION

2.01 Galvanized Mild Steel Pipes

Tubing shall be galvanized mild steel to B.S. 1387, with tapered pipe threads to B.S. 21: 1985. These shall be medium gauge for general use and heavy gauge for underground use, with screwed and socketed joints and of approved manufacturer. Tubes must be cleanly finished with smooth surfaces, free from defects and scales.

All pipes below ground are to be protected by coating with bitumen reinforced with glass fiber tissue, Hessian cloth or other approved material.

Fittings shall be galvanized mild wrought steel to B.S. 1740, with B.S. thread, or galvanized malleable cast iron to B.S. 143 and 1256, of approved manufacture, for use with galvanized steel pipes to B.S. 1387. Castings must be smooth and free from blowholes, pitting and other defects.

Where flanged connections are used, these shall comply with B.S. 4504, welded or screwed. All flanges shall withstand a nominal pressure of 1.6 Mpa (PN 16) and shall be of either grey cast iron or steel.

Flange joints shall have gasket complying with B.S. 4865 Part 1 of 1972, for pressure up to 6.4 Mpa (64 Bars).

Galvanizing of pipes and fittings shall be to B.S. 729: 1971

2.02 PP-R Pipework

PP-R pipe work up to 63mm nominal bore shall be manufactured in accordance with the current European standards i.e., DIN 8077 and DIN 8078 for PN 25 tubing, with metallic joints to DIN 8076, joints and fittings for tubing to DIN 16962. All

threaded inserts in the fittings and joints shall be made of nickel brass OT58 and are turned from bars and manufactured in accordance with DVGW 534E.

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.

2.03 Copper Pipework

Copper pipes shall be to B.S. 2871: 1971 part 1, and of approved manufacturer. These must be solid drawn, round, clean, smooth and free from all defects and deleterious films in the bore. Fittings shall be capillary or compression type to B.S. 864: 1983 Part 2, and approved manufacturer, free from design fins and designed for minimum resistance of fluid flow. Compression fittings to be type A (Non-manipulative), unless otherwise specified.

Copper tubing is to be used as shown on drawings and as connection tube between steel pipe work and sanitary and laboratory fittings.

In order to avoid direct contact a brass straight connector shall be positioned between the steel tube and the copper tube.

2.04 u.P.V.C. Cold Water Service Pipe System

Pipes shall comply in all respects with British Standard 3305: 1968 and shall bear the British Standard Kite Mark together with appropriate class colour coding at one-meter intervals.

Fittings shall comply in all respects with British Standard 4346 Part 1: 1969 and shall bear the British Standard Kite Mark.

Pipes shall be supplied in plain-ended lengths.

The minimum acceptable wall thickness of pipes and fittings shall be as follows:

12mm nominal diameter 1.7mm diameter 3.1mm	40mm nominal
20mm nominal diameter 1.9mm diameter 3.9mm	50mm nominal
25mm nominal diameter 2.2mm diameter 5.7mm	75mm nominal
32mm nominal diameter 2.7mm nominal diameter 7.3mm	100mm

The method of jointing to be employed for dimensions 40 mm and smaller shall be that of solvent welding socket using the manufacturer's approved solvent cement.

The dimensions 50mm and larger the method of jointing shall be locking ring integral socket and coupling.

The grade of polymer used for the pipe shall have a minimum softening point of 75° C and for fittings a minimum of 72° C when tested by 'Vicat' method 102J and a Tensile strength of Min. 45MN/m² at 20° C as described in British Standards 2782: 1975.

The pipes and fittings shall be colour grey.

2.05 Valves, Taps and Ball Valves

a) Brass stop valves and draw-off taps (bib taps, pillar taps combination taps etc) shall be to B.S. 1010 part 2: 1973 or 5412; screw down pattern, to comply to test pressure of 2.0 Mpa (20 bars) and of approved manufacture. Draw-off taps shall be of metal body with chromium-plated finish unless otherwise specified.

b) Copper alloy valves (gate, globe, stop and check valves) shall be to B.S. 5154 and tested to B.S. 5146 part 2, 1984. These shall be with screwed, flanged or capillary compression ends. Flanged check shall be to B.S. 5153: 1974 Glenfield No. 5003. The body, door cover to be of meehanite cast iron with gunmetal seat to B.S. 1400.

Gate valves of sizes above 80mm shall be of cast iron wedge type to B.S. 5163 1974 as Glenfield R.S. No. 3500 series. These are of meehanite cast iron body to B.S. 1452 with rubber covered meehanite cast iron gate.

Brass drain taps to be screw down pattern to B.S. 2879: 1980, type A (Bushed) unless specified.

Ball valves shall be of brass body and to B.S. 1212 part 1: 1953 piston type for low, medium or High pressure (3.58 bars, 7.72 bars and 12.6bars respectively) as directed and with provision for removable seats supplied with copper floats to B.S. 1968: 1953, or plastic floats to B.S. 2456. approximately marked.

2.06 Pipe Thermal Insulation

All exposed and underground hot water and chilled water supply pipes and fittings shall be adequately thermally insulated. The insulation shall be to B.S. 5422: 1977, and B.S. 5970, 1981.

The insulation shall be preformed fiberglass insulation for hot water and steam, and expanded polystyrene (styropor) in sections for chilled water.

The insulation should be covered should be covered with proprietary cladding material or, where no proprietary materials exist, with canvas for indoor pipework and 0.25mm thick aluminum sheet or foil for external underground piping. The sheet jointing shall be waterproof to Engineers approval. The underground gladding shall be finished with two coats of bituminous painting.

The pipe insulation thickness for hot water supply shall be as given in table below and the density of the fibreglass shall be 100kg/cm³, and 0.045w/m² °C declared max. thermal conductivity.

Pipe Diameter	15-20mm	25-80mm	100-200mm
Insulation Thickness	20mm	25mm	30mm

All lagged pipes which run in a visible position after erection shall be given a canvass cover prepared for painting as follows: -

- (i) Apply a coating of suitable filler until the canvass weave disappears and allow drying.
- (ii) Apply two coats of an approved paint and finish in suitable gloss enamel to colours

Approved by the Engineer.

All lagging for cold and hot water pipes erected in crawlways, ducts, and above false ceilings which after erection are not visible from corridors or rooms, shall be covered with reinforced aluminum foil finish and 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 standards of modern practice as described in C.P. 342 and C.P. 310 respectively, to the approval of the Engineer.

Hot water pipes chased in walls shall be wrapped with air felt or tobacco paper and secured with copper wire.

2.07 Jointing of Water Supply Pipework

- a) All joints must be airtight and water tight.
- b) Compounds containing red lead shall not be used in jointing water supply pipes.
- c) Steel pipes shall be screwed together with an approved compound/proprietary thread tape.
- d) Exposed threads above ground shall be rust proof painted using non-toxic bituminous paint while those to be buried shall be thickly coated with bitumen.
- e) Joints of Copper to steel pipes of less than 38mm diameter shall be by copper unions or union
- f) Ferrules. Those of 38mm diameter and above shall be by screw, braze, or weld copper flange with copper alloy bolts and nuts.

Before any joint is made, the pipes shall be hung in their supports and adjusted to ensure that the jointing faces are parallel and any falls, which shall be required, are achieved without springing the pipe.

Where falls are not shown on the drawings or stated elsewhere in the specification, pipework's shall be installed parallel to the lines of the building 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 to function correctly. Valves and other user equipments shall be installed with adequate access for operation and maintenance. Where valves and other operational equipments are unavoidably installed beyond normal reach or in a

position as to be difficult to reach from a short stepladder, extension spindles with floor or 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 alteration of pipework to be done without need to cut the pipework.

Full allowance shall be made for the expansion and contraction of pipework, precaution being taken to ensure that any forces produced by the pipe movement are not transmitted to valves, equipment or plant.

All screwed joints to piping and fittings shall be made with P.T.F.E. tape or Boss white proprietary compound.

2.08 Expansion Joints and Anchors

Where practicable, hot water pipework system shall be arranged with sufficient bends and changes of direction to absorb pipe expansion provided that the pipe stresses are contained within the working limits prescribed in the relevant B.S. Specification.

Where piping is supplied, they shall be fixed to the main structure only. Details of all anchor design proposal shall be submitted to the Engineer for approval before erection commences.

When arranging pipework, it shall be ensured that no expansion movement shall be transmitted directly to connection and flanges on the pump or other items of plant

Flexible joints shall be supplied to prevent vibration and other movement being transmitted from pump to piping system or vice versa.

All bends, valves and hydrant tees etc. in the line of water mains shall be adequately anchored to resist thrust due to internal water pressure. A concrete block shall be cast under and around the pipe and between it and the side of the trench. Well rammed materials shall be used to support the pipe on either side of the concrete.

2.09 Pipe Support and Fixings

a) General

This sub-clause deal with the pipe hangers, slider and roller type supports, clamps, cages cantilevers etc support securing pipes to the structure for building for above ground application. These shall be manufactured to B.S. 3974.

The variety and type of support shall be kept to a minimum and their design shall be such as to facilitate quick and secure fixing to metal, concrete, masonry or wood.

Consideration shall be given, when designing supports, to the maintenance of desired pipe fall and restraining of pipe movement to a longitudinal direction only.

Pipes shall be fixed in a direction that leaves the lower surface at the same horizontal level, unless otherwise instructed.

Pipes shall be fixed on true lines parallel to adjacent lines of building unless otherwise specified.

Where insulated, pipes shall be fixed with the insulation at least 25mm clear of adjacent surfaces.

The plumbing Contractor shall supply and install all steel works forming part of the pipe support assemblies and make good any damage to builder's work associated with the pipe support installation.

All proposals for pipe support shall be submitted to the Engineer for approval before any erection work commences.

b) Spacing for Pipe Supports

Pipe runs shall be secured by clips connected to pipe hangers, wall brackets, or trapeze type supports. 'U' bolts shall 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 pipes and tube is given in the following table for horizontal runs.

Size Nominal Bores	Copper Tube To B.S. 2871	Steel Tube To B.S. 1387
15mm	1.25m	2.0m
20mm	2.0m	2.5m
25mm	2.0m	2.5m
32mm	2.5m	2.5m
40mm	2.5m	2.7m
50mm	3.0m	3.0m
65mm	3.0m	3.0m
80mm	3.0m	3.5m
100mm	3.0m	4.0m
125mm	3.5m	4.5m
150mm	4.5m	5.5m

The support spacing for vertical runs shall not exceed one and a half times the distance given for horizontal runs, or given by the manufacturers.

c) Pipe Sleeves

Where pipes pass through concrete or block wall, pipe sleeves of galvanized steel tube shall be used; these shall be of sufficient sizes to give at least 3mm clearance around the pipe. The annular space shall be filled with bitumastic materials and caulked at the ends.

2.10 Trench Excavation – Water Main

As described in B.S. 8301 clause 18 and the following: -

- a) The Contractor shall excavate the trench in the line to the depth indicated by the Engineer. Except where otherwise indicated in the drawing or directed by the Engineer, all pipes must have a minimum cover of 500mm over the top of the barrel of the pipe when laid, plus or minus a tolerance of 75mm either way. All trenches shall be excavated in open cuttings.
- b) Where the trench passes through grassland, arable land or garden, whether enclosed or otherwise, the turf, if any, shall be pared off and stacked, and the productive soil shall be carefully removed from a width of 600mm greater than the normal trench width, or equal to the overall width of the track of the excavating machine whichever is greater and laid aside to be subsequently used in reinstating the surface of the ground after the trench has been refilled.
- c) The bottom of the trench shall be properly trimmed off, and all low places and irregularities shall be leveled up with fine material. Where rock or large stones are encountered, they shall be cut down to a depth of at least 75mm below the level at which the bottoms of the barrels of the pipes are to be laid, and covered to a like depth with fine material (sand or red soil) as to form a fine and even bed for the pipes.
- d) Joint holes shall be excavated to such minimum dimensions as to allow the joints to be well and properly jointed.
- e) The pipe trench shall be kept clear of water at all times.
- f) The Contractor shall wherever necessary by means of timbering or otherwise, support the sides of the trench so as to make them thoroughly secure and accord adequate support to adjoining roads, lands, building and property during the whole time the trench remains open and shall remove such timbering when the trench has been backfilled.

The cost of such timbering and other work shall be deemed to have been included in the rates for excavation and backfilling. In case the Contractor is instructed to leave any portion of such timber in position; he shall be paid for it accordingly.

- g) The clear width inside the timbering, in the case of single pipes shall be at least 320mm
In excess of the external diameter of the pipe being laid, in order to allow it to be freely lowered into the position in the trench without damage to the external protection.

- h) Where more than one pipe is to be laid parallel, then the clear width inside the timbering shall be 520mm in excess of the combined external diameter of the pipes.
- i) Any excavation below the specified depth, in error or otherwise, shall be refilled to the correct levels, at no extra cost, with mix 1:3:6; concrete or other approved material.
- j) If the Contractor uses a mechanical excavator, he shall indemnify the Employer against any claim of damage that in the opinion of the Engineer may be caused by the use of this plant. When the mechanical excavator is used the bottom 200mm shall be excavated by hand to ensure an even bed for the pipes.

2.11 Concrete Bedding, Hunching and Surround

Concrete bedding, hunching and surround shall be provided as necessary of where called for by the Engineer in accordance with the requirements laid down in B.S. 8301: 1985 Clause 11.

2.12 Backfilling

Backfilling of trenches, shall be carried out in accordance with the methods described in B.S. 8302: 1985 Clause 5.7.6

2.13 Reinstatement of Surfaces

Following the Backfilling of all trenches and manhole surrounds, the surface of the excavated areas shall be fully reinstated to the approval of the Engineer.

Where excavation has been carried out in the public highways or other areas not forming part of the site, charges shall be deemed to allow for all charges associated with the temporary and final reinstatement requirements of the local Highway Authority.

No claims for extras in this respect will be accepted.

2.14 Identification of Pipelines

All pipes conveying fluids shall be identified by applying the basic identification colours or the colour code identification as specified in B.S. 1710. The following table is given as a guide.

No. Colour	Pipe Content	Basic Identification
1	Water	Green
2.	Drainage	Black
3.	Steam	Silver Grey
4.	Fire Extinguishing	Red
5.	Compressed air and Vacuum	Light Blue

6.	Oils	Brown
7.	L.P.Gas	Yellow

The method of application shall be as here in specified and / or shown on the drawings.

2.14 Lettering

The lettering for sluice valves, fire hydrants, air valves and washouts abbreviated SV, FH, AV, and WO respectively shall be in accordance with the normal practice and as details shown on the drawings and colour coded as above with letters in white or black on the appropriate background colour.

2.15 Surface Box

Sluice Valves, air valves and fire hydrants shall be covered in surface box in accordance with details as shown on drawings. In roads and footpaths, the boxes shall be laid in flush with the surface.

2.16 Water Supply Pipe Testing

The whole of the water supply system shall be tested to the approval of the Engineer as follows: -

- a) Plug-off valves of main service line and/ or terminals in the section to be tested.
- b) Fill pipes with drinking water and apply test pressure, which shall be the maximum working pressure plus 50% or as directed by the Engineer.
- c) There must be no measurable loss of pressure at the end of one hour and the system must be watertight.
- d) Open all taps and check for satisfactory rate of flow.
- e) Test all cisterns as directed, at pressure not less than the working pressure.
- f) Locate and make good all defects and retest to the satisfaction of the Engineer.

2.17 Testing – Mains Installation

- a) The test pressure shall be one and a half the maximum working pressure except where a pipe is manufactured from which the relevant B.S. Specification designate a maximum test pressure as in the case of cast iron or spun iron pipes where the test pressure should not exceed 11120, 180, and 240 metre/head for Clause B, C, and D pipes, respectively.

The pump shall maintain the test pressure for about one hour and if there is any leakage, it shall be measured by the amount of water pumped into the system in that time.

- b) Where a section of the mains has been jointed, the ends shall be closed with caps, plugs, or flanges, which must be strongly strutted against a solid

surface to the satisfaction of the Engineer. The trench must be properly backfilled and rammed as herein specified, and as shown on drawings for its whole length so as to cover the mains to a depth of not less than 500mm except at the joints which shall be kept clear of any backfilling, if necessary, by use of timbering, so that each joint is left fully exposed for inspection. No backfilling of joints will be permitted before testing of each joint.

A long section of the mains as possible shall be tested at one time subject to the maximum length of the open trench approved by the Engineer or permitted by the Highway Authority, and the test must be carried out within 12 days of the completion of such section of the mains.

Where a main is laid across a road or in such a position as to interfere seriously with the normal use of road, the Contractor may with the consent of the Engineer and at his own risk, fill in such joints holes as may be necessary. He shall at his own expense, re-excavate any or all holes necessary to locate a leak and carry out repair works should the results of his hydraulic test remain unsatisfactory.

The section shall be filled with mains water, great care being taken to drive out all air through valves, ferrules or otherwise to the approval of the Engineer.

- c) After the section to be tested has been charged and all air liberated, it shall remain standing under moderate pressure for several days for final airing. The leakage from the mains and connection from each section shall not exceed four litres of water per 25mm diameter of mains, per 2km, each 24 hours, every 30 meters head of pressure, and any visible individual leak shall be repaired.

To determine the rate of leakage, the Contractor shall furnish a suitable hydraulic test pump, pressure gauge & connections, water meter and other appliances for measuring the amount of water pumped.

If the leakage be at greater rate than specified, the Contractor shall re-excavate the trench where necessary and shall remake the joints and replace defective work until the leakage is reduced to allowable amount.

- d) The Employer shall charge the Contractor the cost of any coupling required to joint up tested lengths of mains if in the opinion of the Engineer greater lengths could reasonable have been tested or if failure under test requires the pipe to be cut, or other methods of laying could be adopted.

The Main Contractor shall provide water used by the Contractor in testing the mains. The Contractor will carry out all work, which may be necessary for making temporary connection to the existing mains to obtain water for testing at his own expense.

- e) In carrying out the test for water tightness, the Engineer shall authorize operation of all valves, but the Contractor shall provide all the necessary

labour to assist in the opening and closing of valves to the Engineer's instructions, and he shall allow in his prices all his expenses in connection with testing on completion.

The Engineer shall be the sole judge of water tightness.

2.18 Sterilization of Installation

After testing, all the water supply system shall be sterilized before taking into use, and after being opened for any repairs.

Sterilization shall be done in accordance with C.P. 310: 1965 Clause 4409, or as detailed below to the satisfaction of the Engineer.

- a) Fill the whole system with clean water and flush out.
- b) Re-fill the system, add sterilizing chemical gradually as the storage cistern fills. Use proprietary chemicals, or bleaching powder at the rate of 0.15 kg per 1000 litres.
- c) When the cistern is full, open the cistern successively working away from the cistern, and closing each tap as the discharge begin to smell chlorine.
- d) Top up the cistern and sterilizing chemical and leave still for 24 hours.
- e) Empty the system and flush out thoroughly with clean water.

2.19 Cleansing and Sterilizing the Mains

When a pipeline is complete and where applicable, has successfully passed the test, it shall be thoroughly washed out using, if possible, an open end. Thereafter it shall be sterilized by being filled with a solution containing not less than 20 p.p.m. of free available chlorine or any other sterilizing agent as the Engineer may approve. After standing for 24 hours the mains shall be washed out and refilled with mains water to the taking of bacteriological samples. The Contractor shall provide all the necessary stop ends, fittings and chemicals for these works.

Emptying and washing out of pipes shall be carried out in such a manner as not to damage the trench or cause flooding, and the Contractor shall supply and use such piping, special and/ or hose as may be necessary to facilitate the flow of water to the nearest drain or water course. The main Contractor will supply water for washing out and sterilization.

Before any section of is put into use a bacteriological sample or samples will be taken in the presence of the Engineer and only on receipt of the satisfactory certificate from the medical research laboratory will the main or section of the main be permitted to be put into supply and be considered as having been substantially completed.

Any expenditure involved in providing facilities or materials involved in the making o samples shall be included in the Contractor's tendered rates and the Engineer will

specify and shall be the sole judge as to the number of samples required and the points at which they are to be taken.

The cost of bacteriological examination will be borne by the Employer but if the sample or samples are not satisfactory, the cost of any subsequent analysis will be borne by the Contractor.

2.20 Existing Installation

Where pipes for cold water are to be connected up to existing installations, the condition of the existing installation is to be reported to the Engineer in order to establish if part of the existing installation is to be replaced or serviced. The Contractor is to allow for keeping the service in use with minimum interruptions. All service interruptions must be reported and agreed to with the Client at least 24 hours in advance.

2.21 Clearance of the Site

The Contractor shall remove all surplus pipes, specials and other fittings from the site, upon completion of the works and prior to handing over. The site of works shall be leveled and all surplus excavation, debris, cut trees or bushes shall be carted to the approved sites

3.0 WATER STORAGE TANKS, CISTERNS AND CYLINDERS

3.01 Generally:

Tank and cisterns shall be of dimensions and capacities shown on drawings, care should be taken to distinguish between nominal and actual capacities.

All cisterns are to be fitted with a closely fitting dustproof covers unless otherwise directed. All pressed steel sectional tanks shall be fitted with fat or pitch mild steel plate cover properly supported and provided with a ventilation outlet with anti-mosquito gauge.

3.02 Marking:

All tanks and cisterns shall be legibly marked as follows: -

- a) Manufacturer's name or Trade Name;
- b) Standard of Manufacture
- c) Date of Manufacture

3.03 Hot Water Cylinders:

These shall be to B.S. 417 part 2, Grade A, unless otherwise specified, and of approved manufacture.

All holes for immersion heaters must be cleanly bored. Cylinders shall be galvanized to B.S. 729, after fabrication and after all drilling, cutting and welding is complete. Cylinders shall be thermally insulate using 50mm thick rock wool and covered with 0.5mm (24 s.w.g.) thick galvanized mild steel sheet with pop-riveted joints.

Alternatively use insitu formed polyurethane foam, 50mm thick with 0.5mm thick galvanized mild steel sheet casing.

3.04 Galvanized Mild Steel Cisterns

These shall be to B.S. 417 part 2, Grade A unless otherwise specified, and of approved manufacture. Mild steel plates must be free from any defects, which might affect the functioning of the cistern, or contaminate the water.

Cisterns must be galvanized to B.S. 729 after fabrication and drilling, cutting and welding is complete. Cisterns of 1225 litres capacity and above are to be stayed for structural support, with internal crossties and at the top a specified in the standard.

4.0 DRAINAGE SYSTEM MATERIALS AND WORKMANSHIP

4.01 Cast Iron Spigot and Socket Pipes

These shall conform to B.S. 416: 1973 for above ground pipework and B.S. 437 for below ground pipework and of approved manufacture. Castings must be sound and free from defects, and must ring clearly when struck with a light metal hammer. All pipes and fitting to be coated with tar or bitumen-based solution suitable for tropical condition by manufacturer.

Jointing shall be by packing the joint space with a gasket of firmly caulked tarred yarn, then caulked with molten lead or fibrous lead yarn.

Cast iron socketed pipes shall generally be supported at every socket joint by means of either holderbats secured rigidly to the structure, or purpose made straps for attachment to rigid steel support brackets.

When holderbats are used, they shall conform to the requirements of B.S. 416.

Suitable anchors shall be provided at all changes of direction, junctions and tees, to counteract the effects of end thrust loads.

All cast iron pipework, branches, tees bends and other fittings shall be supplied complete with inspection covers for cleaning purposes. These inspection covers shall be included as part of the fittings and shall comply with the requirements of B.S. 416.

4.02 u.P.V.C. Soil and Waste System

The pipes and fittings shall comply in all respects to B.S. 4514 and B.S. 5255 and shall where appropriate bear the British standard Kite Mark.

Pipes shall be supplied in plain-ended lengths.

The minimum acceptable wall thickness of pipe and fittings will be as follows: -

32mm pipe	1.8mm
40mm pipe	1.9mm
50mm pipe	2.0mm
80mm pipe	3.2mm
100mm pipe	3.2mm
150mm pipe	3.3mm

The method of jointing to be employed shall be that of solvent welding using the manufacturer's approved solvent cement. Seal ring fittings shall be used where necessary to accommodate thermal movement, or socket of standard fittings shall be converted to seal ring joints by addition of a seal ring adaptor.

The grade of polymer used for the pipe shall have a minimum softening point of 82 °C and the fitting a minimum softening point of 79 °C when tested by 'Vicat' method 102D as described in British Standard 2782: 1975.

Pipes and fittings shall be colour grey, to British Standard 5252: 1976, 10.A.07 with the exception of water closet connections, which may be colour white.

The Rubber seals for seal ring joints shall be of 'W' section and shall be to the material requirements of British Standard 2494: 1976. Water Closet connection shall be to the same British Standards.

Waste boss connection when fitted to pipes shall consist of two parts with inner and outer flanges, solvent welded as a complete unit with inbuilt gradients for waste pipes of gradients of 1.25 degrees. Where it is not possible to gain access to the bore of the soil pipe, self-locking bosses with integral clamping action may be used provided that the mating surfaces are suitable for and used with solvent weld cement.

Waste boss connections to branch fittings as necessary shall be solvent welded to set position of its branch fittings. Alternative boss connection may be made using unequal junctions conforming to British Standards 4514: 1969 with solvent weld joints conforming to the same.

Holderbats shall be made of mild steel protected from corrosion by galvanizing. They shall have two positions fixing suitable for either acting as pipe support but allowing thermal movement or as a clamp fit on a fitting creating a fixed point. For optimum fit to pipe supports P.C.V. packing may be used.

Access shall be provided when necessary either by means of an integrally moulded door in an access fitting with an externally fitted rubber seal and secured with two galvanized bolts and nuts or alternatively two piece type clamp door fitted into the pipe run. The system shall be as described in a 'product Handbook' complying with the recommendation of B.S 4940: 1973.

4.03 u.P.V.C. Rainwater Fittings

All fittings shall be injection moulded and shall be compatible with pipes and gutters.

All gutters, pipes and fittings shall be colour grey to B.S. 5252: 1976 10.A.07, or black or white.

Gutter connection fittings shall have intergrally-moulded seal retaining cavities housing a polychloroprene seal of hollow section.

The fittings shall incorporate a gutter-retaining clip: -

Gutter connecting fittings shall incorporate provision for fixing to fascia boards, rafters or block work such that the fixing screws shall not be in contact with the inner surface of the gutter and shall have provisions or expansion of the gutter clearly marked in the fitting.

The grade of polymer used for pipes and fittings shall have a minimum softening point of 75 °C when tested by the Vicat method 102J as described in the British Standard 2782: 1975.

Gutters shall be supported on support brackets at one-meter centers.

Gutters shall be installed to accommodate thermal movement

Expansion joints shall be provided at maximum 4-meter centers.

All rainwater system shall be installed in accordance with the manufacturer's site work instructions.

4.04 u.P.V.C. Underground Drainage System

The pipes and fittings shall comply in all respects to British Standard 4460: 1973 and shall bear the British Standard Kite mark.

Pipes shall be supplied in plain ended lengths.

The minimum acceptable wall thickness of pipes and fittings shall be as follows: -

<u>80mm pipes</u>	<u>2.25mm</u>
<u>110mm pipes</u>	<u>3.2mm</u>
<u>160mm pipes</u>	<u>4.10mm</u>
<u>80mm pipes</u>	<u>3.2mm</u>
<u>110mm pipes</u>	<u>3.50mm socket 3.8mm body</u>
<u>All other fittings</u>	<u>3.20mm socket 3.4mm body</u>
<u>160mm all other fittings</u>	<u>4.30mm socket 4.7mm body</u>

The method of jointing to be employed shall be lip seal socketed fitting. Jointing to other materials shall be made in the manner specified by the manufacturer.

The grade of polymer used for the pipes shall have a minimum softening point of 82 °C when tested by 'Vicat' method 102D as described in British Standard 2782: 1975, and for fittings 79 °C

The pipes and fittings shall be of colour golden brown approximating to British Standard 381: 1971 No.414. The seal retaining caps shall be black polypropylene.

The rubber for lip seal joints shall be to British standards 2494:1976.

The base of soil and vent stack connection to the below ground drain shall be made with a bend of minimum centre line radius 250mm.

Minor changes of direction where permitted shall be made with a variable bend.

Where pipes are laid under floor slab, these shall be laid on 150mm thick concrete class "15"

(1 : 3: 6 mix) bed on full width trench or min 400mm wide, and the pipe shall be completely surrounded with similar concrete thickness. In all other cases, the pipes shall be laid on prepared ground in trench and backfilling to manufacturer's recommendations. Pipes shall be left exposed to the sub during construction period.

4.03 Waste Fitment Traps

a) Standard Traps

These shall be generally of the same diameter and materials as the waste outlets to which they are connected to or as specified on drawings. All waste shall comply with B.S. 3380.

Wastes connected to main drains through an intermediate gully trap may have a trap with a minimum water seal depth of 40mm. All other traps shall have a water trap of minimum 75mm. Bottle traps shall be used for waste connection to sinks.

Copper and copper alloys traps shall be cast, solid drawn or hot formed to B.S. 11884.

Plastic traps shall be to B.S. 3943, or of approved manufacture. The same manufacturer must supply these and the Upvc pipework.

b) Anti-Siphon traps

Where a specified, anti-siphon traps shall be as manufactured by "Caradon' Terrain Ltd", self-resealing type by "Marley Extrusions Ltd", Anti-siphon type, or equal and approved.

4.05 Sealing off Existing Drains and Manholes

Existing foul, surface water and subsoil drains exposed during the progress of work are to be recorded and reported to the Engineer. Where not required to be reused,

seal off with concrete or grout solid as directed. Seal of connection to manholes, demolish walls to 500mm below surrounding ground level and fill remainder of manhole with consolidated approved rubble and cover to level of the surrounding as directed.

4.06 Drain Trenches

Excavation of trenches shall be made to such depths as shall be required to obtain proper falls and firm foundation. No permanent construction shall be commenced on any trench until the Engineer has approved the excavation. Where trenches have been excavated below the required depth they shall be refilled to the correct depth with Class '10' mass concrete (1:4:8 mix) for indoors and compacted granular or other approved fill for outdoors. Backfilling of the pipe trenches be by soft materials free from stones and shall be watered and carefully tamped over and around the pipes or pipe concrete surround in 300mm layers until they are covered to a depth of 600mm. Subsequent filling is to be in 150mm layers, watered and rammed.

4.07 Cast Iron Manhole Covers and Frames

Covers and frames shall be to B.S. 497, of approved manufacture. Covers are to be cleanly cast, free from air holes, sand holes and voids and fit well in the frame. Covers and frames shall be coated using hot applied coal tar-based material complying with B.S. 4164: 1980.

Unless otherwise specified, covers are to be 600 x 450mm, single or double seal, flat type or recessed top for light or medium duty as specified on contract drawings.
Medium duty (Grade B): Minimum weight 143kg.
Light duty (Grade C): Minimum weight 37kg.

Step irons for manholes where specified shall be of cast iron to B.S. 1247.

4.08 Sundries

Galvanized steel wire balloons shall be to B.S. 416, table 22, of approved manufacture.

Vent cowls, weathering slates and aprons for Upvc piping shall be supplied from manufacture of the plastic pipework system.

Fixing of all pipework shall be by holder bats, pipe rings, fixing clips, screwed, nailed or bolted to the structure to manufacturer's recommendations and to Engineer's approval.

4.10 Inspection and Testing

All inspection and testing shall be carried out as laid down in B.S. 5572: 1978 and to the Engineer's approval. All apparatus for testing shall be provided by the Contractor.

Drainage pipework shall be tested as soon as practical after erection. Concealed pipework shall be tested to approval before enclosing.

Testing shall be carried out as follows: -

- a) Carry out air-test as described in B.S. 5572 clause 12.3.1.
- b) Carry out water test as described in B.S. 5572, clause 12.3.2.3.
- c) Carry out performance tests as described in B.S. 5572, CLAUSE 12.3.3.

Keep records of all tests carried out for inspection by the Engineer.

5.0 SANITARY APPLIANCES

5.01 General

All sanitary appliances shall be installed in accordance with the best standard of modern practice as described in B.S. 6465, and to the approval of the Engineer.

The appliances shall be here in specified and as described on the Contract drawings. The item specification is given as a guidance only, including manufacturer's reference numbers, but the Contractor shall ascertain and procure all necessary accessories specified or not, but which are required for complete installation and proper functioning of the appliance. The Contractor shall also ensure that all items ordered comply with general regulations, standards and by-laws as specified in the document.

Where specified items are unobtainable, the Engineer shall be entitled to reject any of the alternatives on grounds of appearance or for any other reasons, notwithstanding compliance with the terms of this specification.

5.02 Protection

Protection covers for the appliances etc shall be retained during and after fixing as far as possible.

None of the equipment for the Contract works shall be used for preparing or soaking materials for washing tools, disposing waste or for any other purpose that they are not designed.

All appliances must be stored under cover and kept dry prior to installation.

Where existing sanitary fittings are removed or replaced the fittings is to be removed with utmost care and fittings and taps to be handed over to employer.

5.03 Fixing

All fixtures shall be fixed in accordance with the manufacturer's recommendations and to the Engineer's approval.

Fastenings and fixings supplied by the equipment manufacturers shall be used wherever possible.

6.0 FIRE HYDRANTS

6.1 GENERAL

This particular specification details the requirement for the supply, installation and commissioning of the Fire Hydrants and Fire Hydrant Pump. The hydrants installation shall comply in all respects to the requirements of BS. 750: 1977 or the latest version of it.

6.2 SCOPE OF WORKS

The Sub-Contractor shall supply, deliver, erect, test and commission underground screw-down type fire hydrants and portable fire hydrant pumps.

6.3 FIRE HYDRANT DETAILS

(a) 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.

(b) 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, 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.

(c) 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 either type LG 2 or type LG 4. 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, either type CZ114 or type CZ115, and it shall have a threaded machined of trapezoidal form.

The spindle cap shall be of a cast iron secured to the spindle by an M12 hexagon socket set screw conforming to BS 4168.

(d) 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, type LG2G or DC BIC or
Copper alloy to BS 2872, type CZ114 or CZ115, or
Suitable spheroidal graphite iron to BS 2789 protected against corrosion
accordance with CP 2008.

(e) 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 drilled drip plug.

(f) Jointing

The hydrants shall have machined joint faces through out 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.

(g) Hydrant coating

The hydrant shall be coated in accordance to BS. 4164.

(h) Surface Box.

The clear opening of hydrant surface boxes at ground level shall not be less than 250mm x 380mm. The depth of frame shall normally be

a) for boxes located on footpaths: 100mm

b) For boxes located in roads: 125mm

(i) Markings

Surface box covers shall be clearly marked by having the words

'FIRE HYDRANT' in letter not less than 30mm high, or the initials 'F.H.' in letters not less than 75mm high cast into the cover.

(j) Surface Box Covers & Frames.

The surface box frames and covers shall be graded in accordance with 2.1. of BS 497:1967 and shall meet the loading test requirement also given in BS 497

(k) 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: Appendix a.1

6.4 STAND PIPES

One end of these shall have internal threads to couple with the 80mm diameter external threads of the screw down type fire Hydrant (BS750 type 2 hydrants) outlet. The other shall have 65mm diameter internal threads to couple with the interconnect or hose of the pump set

6.5 HOSE PIPE

Each cotton synthetic fibre rubberized fire hosepipe to be 25mm metres long with 65mm diameter female instantaneous type connector.

TECHNICAL SCHEDULE

The Tenderer must complete the following schedule comprehensively, indicating the names of manufacturers and/ or suppliers and unit types and must submit technical brochures for the equipment he proposes to supply for the works.

ITEM No.	DESCRIPTION	MANUFACTURER	MODEL No.
1	Water Closet Suites		
2	Wash Hand Basin		
3	Stainless Steel Sinks		
4	Shower Mixer Fittings		
5	Brassware		
6	Galvanized Mild Steel Pipes and Fittings		
7	u.P.V.C Pipes and fittings (Drainage)		
8	Valves		
9	Water Tanks (Polyethylene)		
10	CPVC Pipes and fittings		
11	Portable Fire Fighting Units		
12	Hose Reels		
13	Hospital Sinks		
14	u.P.V.C Pressure Pipes and fittings		
15	Undersink Mini Reverse Osmosis Unit		

Sign ----- Date -----
(Tenderer)

WATER PIPES TESTING REPORT

PROJECT ----- DATE -----

FOREMAN/PLUMBER -----

DATA RECORDED ON SITE

Location and Ref. Drawing:					
Length/Diameter Of Pipe:					
Class/Type of pipe:					
Test Pressure Required					
Water Filled at:					
Water Pressure Reached at:					
Loss of Water Pressure Reading:	1 st Hr	2 nd Hr	3 rd Hr	4 th Hr	6 th
Quantity of water pumped to retain test pressure:					
Allowable quantity of leakage					
Remarks					

Signature ----- Date -----
(C.O.W/R.E)

Signature ----- Date -----
(Foreman/Plumber)

PARTICULAR SPECIFICATION FOR PLUMBING AND DRAINAGE
INSTALLATIONS

1.0 INTRODUCTION

These specifications cover the execution of the Plumbing Drainage and Fire Fighting Installations and should be read in conjunction with other relevant specifications, drawings and contract documents issued to the Contractor in conjunction with the job.

The specifications apply to works at the above-mentioned site, description and design by and executed under the supervision of Project Manager or the Engineer, or any agent or representative duly appointed to do so.

2.0 SCOPE OF SUBCONTRACT WORKS

2.1 INCLUDED IN THE SUB-CONTRACT

- (a) The works include, unless otherwise specified, supply, delivery, installation, testing, commissioning, cleaning-up and setting to work all the installations described in the specifications.
- (b) The provision of all labour, materials, tools, instruments, testing apparatus and scaffolding necessary to execute the work in a first-class manner, even such labour, materials, instruments or apparatus that are not specifically mentioned in the project but are necessary for the satisfactory completion of the works, including such elements as:
- Cold water supply pipework and fittings to the water storage tanks from the Local Water Authority mains supply;
 - Water storage tanks complete with all necessary covers, fittings, washouts, overflow pipes and supports. Also included are pipe connections, fittings, washouts and overflow piping to the ground level tank. The Contractor is expected to take the overflow and washout pipes to reasonable discharge points;
 - The water supply pipework to the functional points and sanitary fittings as indicated in the specifications plus the necessary fixing, supporting and jointing materials from the water storage tank and the Local Water Authority mains;
 - The sanitary and operational fittings together with the fixing, supports and jointing to the supply and discharge pipes;
 - The waste and soil pipework from the sanitary and operational fittings to the first manholes, including all fixing, supports and jointing materials.
- (c) All carting away and all making good will, if nothing else is specified, be carried out by the Contractor and this work is kept to a minimum. The Contractor shall

also be responsible for the correct marking of all chases and holes, including the provision of all necessary details.

- (d) The Contractor shall also be responsible for ensuring that runs for floor or wall chases, holes to be cut or left, will be marked out at appropriate stage of the structural work.
- (e) The Contractor shall undertake all notifications demanded by the Authorities in order to comply with current regulations and produce all certificates, if any, from the Authorities without extra charge.
- (f) The Contractor shall, as part of his Tender, supply all necessary information such as manufacturer's catalogue or type numbers, brochures or copies of catalogue pages, weight, and all other relevant information that are necessary to classify the equipment tendered for.
- (g) Electrical wiring in plant rooms from isolator and all control wiring.
- (h) All other materials, labour, tools, instruments, scaffolding, etc., which are necessary for final completion in a first-class manner of the plants to the Engineer's satisfaction.
- (i) The contractor shall include for cables, pipes, etc., from central facilities to working area.
- (j) Provide the Engineer for his approval complete working and manufacturing drawings as specified.
- (k) Commissioning and testing of the plants as specified.
- (l) Supply of complete operation and maintenance manuals as specified, as well as instructions to the Client's maintenance personnel as specified.
- (m) The Contractor shall include for full maintenance during initial maintenance period as specified.

2.2 EXTERNAL WORKS EXCLUDED IN THE CONTRACT

- (a) All concrete works, inclusive of necessary holes, plinths, etc.
- (b) All blockwork inclusive necessary holes, etc.
- (c) All electrical wiring up to and inclusive isolators and switchboards.
- (d) The Contractor will provide centrally located facilities for supply of water and power during the construction period.

3.0 EXTENT OR THE CONTRACTOR'S DUTIES

At the commencement of the work, the Contractor shall investigate and report to the Engineer if all materials and equipment to be used in the work, and not specified as supplied by others, are available locally. If not available, the Contractor shall at Manager and/or the Engineer. Failure to do so shall in no way relieve the Contractor from supplying the specified materials and equipment in time.

Materials supplied by others for installation and/or connection by the Contractors shall be carefully examined before installation and connection. Any defects noted shall immediately be reported to the Engineers.

Any item or material found to be defective shall be replaced by the Contractor within seven days of his being notified and any result of defective workmanship shall be repaired including supply of new parts, if necessary, immediately upon being notified.

The Contractor shall furnish at his own cost any samples of materials or workmanship required for the Contractor works, that may be called for by the Engineer for his approval. The Engineer may reject materials or workmanship not in his opinion up to the approved standard. The Contractor shall allow in his prices for such samples.

The Contractor shall, when authorized in writing by the Project Manager or the Engineer, make variations from the specifications and drawings.

The Contractor shall submit to the Project Manager or to the Engineer, claims for any work for which he considers demanding extra payment before the beginning of such work.

The Contractor shall be responsible for verifying all dimensions relative to his work by actual measurements taken on the site.

The Contractor shall request any alteration to the building structures within 30 days of the awarding of the Sub-Contract. Only such alterations as deemed unavoidable by the Engineer will be considered.

The Contractor shall collaborate with the Engineer and the Contractor in planning the installation before work is commenced. Particular care shall be taken to ensure that there is close collaboration with the other Contractors when installing services.

The Engineer and Project Manager shall have full rights to inspect the work in progress and all materials and equipment for use in the installation prior to its erection whether these are on site or the Contractor's workshop. The Contractor shall allow for reasonable access to the work for this purpose.

Where large items of equipment are to be installed, the Contractor shall advise in good time, so that access is provided for installation before work is commenced on site.

The Contractor or his responsible representative shall participate in all site meetings as and when required, in order to discuss the works, make necessary decisions, receive relevant instructions, confirm fulfillment of time schedules, etc.

4 .0 COMMENCEMENT OF WORKS

The Sub-contractor in submitting his tender shall be deemed to have included for commencing any necessary work on site at such time as will comply with the Main-contractor' programme.

5.0 CLIMATIC CONDITIONS

The following climatic conditions apply at the site of the works and all plant, equipment, materials and installations shall be suitable for these conditions.

Maximum temperature	-	25.5°C
Minimum temperature	-	10.14°C
Diurnal range	-	17.82°C
Relative humidity range	-	50 – 71.5 %
Altitude above sea level (Approximate)	-	1,806.11 m
Rainfalls mean p.a.	-	762mm

6.0 ORDERING

The Contractor shall order materials from the quantities taken from his own approved working Drawings and not from the quantities shown on the contract Drawings or in the Specification.

7.0 BUILDER'S WORK REQUIREMENTS

The structural and other provisions allowed for are indicated on the contract drawings. If the tenderer requires any other provisions, he shall mark them in a contrasting colour and submit them as part of his tender.

8.0 STATEMENT OF COMPLIANCE

The tenderer shall provide as an integral part of his bid, a statement of compliance in which he shall clearly declare any item of specification to which his offer does not comply and the alternative which is included in the offer.

9.0 FINISH PAINTING

When all the installations have been set work, tested and commissioned, the Contractor shall prime the pipework with an undercoat and paint 2 No. coats of paint in accordance with BS 1710 standard for color coding, to the satisfaction of the Engineers and the Project Managers.

PARTICULAR SPECIFICATION FOR SOLAR WATER HEATING

PART B: PARTICULAR CONDITION FOR SOLAR HEATING INSTALLATIONS

<u>CLAUSE</u>	<u>DESCRIPTION</u>	<u>PAGE</u>
1.0	LOCATION OF SITE	B-1
2.0	DESCRIPTION OF PROJECT	B-1
3.0	COMMENCEMENT OF WORK	B-1
4.0	CLIMATIC CONDITIONS	B-1
5.0	DESCRIPTION OF SUBCONTRACT	B-1
6.0	ORDERING	B-2
7.0	PARTICULAR CONDITIONS	B-2
8.0	SCOPE OF WORKS	B-2 and B-3
9.0	PLANT AND EQUIPMENT	B-3 and B-4
10.	RECORD DRAWINGS AND MAINTENANCE MANUALS	B-4 and B-5

1.0 LOCATION OF SITE

The site of the proposed works shall be located within Kabarak in Nakuru County. The Sub-contractor is deemed to have visited the site.

2.0 DESCRIPTION OF PROJECT

The works comprise supply, fabrication, installation, testing and commissioning of a solar water heating systems to the proposed development.

3.0 COMMENCEMENT OF WORKS

The sub-contractor in submitting his tender shall be deemed to have included anything necessary for commencing works on site at such time as will comply with the main Contractor's programme.

4.0 CLIMATE CONDITIONS

The following climatic conditions apply at the site of the works and all plant and equipment, materials and installations shall be suitable for these conditions.

Maximum temperature	-	25.5°C
Minimum temperature	-	10.14°C
Diurnal range	-	17.82°C
Relative humidity range	-	50 – 71.5 %
Altitude above sea level (Approximate)	-	1,806.11m
Rainfalls mean p.a.	-	762mm

The sub-contractor shall be deemed to have taken account of the above details in his prices and his planning of the execution of the works.

Unless otherwise stated, all ratings of plant, equipment and apparatus shall be interpreted as site rating and not sea level or other ratings.

5.0 DESCRIPTION OF SUB-CONTRACT WORKS

The works covered under this sub-contract shall comprise but not restricted to supply, installation, testing and commissioning of the following works: - a solar water heating systems to the proposed development.

6.0 ORDERING

The sub-contractor shall order materials from quantities taken from his own approved working drawings and not quantities shown in the specification.

7.0 PARTICULAR CONDITIONS

The following plant and equipment specification covers the specific requirements for the supply, installation and commissioning of the solar water heating systems and shall be read in conjunction with the contract drawings.

The sub-contractor shall include for all appurtenances and appliances, not necessarily called for in this specification or on the contract drawings but which are necessary for the completion and satisfactory functioning of the works.

No claims for extra payments will be accepted from the sub-contractor because of his non-compliance with the above requirements.

If in the opinion of the Sub-contractor, there is a difference between the requirements of the Specification and the contract drawing; he shall clarify this difference with the engineer before tendering.

All works shall be performed in a straightforward manner by competent workmen under skilled supervision to the entire satisfaction of the engineer.

8.0 SCOPE OF WORK

8.01 General

The Sub-Contractor shall supply, deliver, erect, test and commission all solar water heating installation which is called for in the drawing schedule. This comprises solar panels, water distribution pipework, primary and secondary circulation pumps and controls, storage cylinders and all associated accessories.

8.02 Builder's Work

Permanent holes in building fabric to accommodate pipes, cables conduits etc. together with concrete plinths for fixing appliances are not included in this sub-contract. However, the Sub-Contractor must inform the main Contractor of his requirements for holes in the building fabric well in advance to allow the requirements to be incorporated before casting of the building fabric.

Drill holes in buildings for anchor channels, clamps, supports etc are included in this sub-contract. The Sub-Contractor shall liaise with the main contractor in forming these holes.

The Sub-Contractor shall not make holes in the building fabric without consultation with the Main Contractor, and the approval of the Structural Engineer.

8.03 Electrical Works

Electrical Sub-Contractor for the works shall be responsible only for the provision of electrical power supply up to and including connection to the local isolator for solar water heating systems.

The Sub-Contractor for the works contained in this document shall supply and install all electrical equipments, electrical control gear, interconnecting cabling, wiring and connections.

The Electrical power supply shall be 415 volts / 3-phase/ 50Hz and be 240 volts / 1-phase/ 50Hz and all electrical equipments shall be suitable for these supplies.

Interconnecting cabling and wiring shall be run in conduits/ trunking approved by the electrical engineer. Built in conduits shall be supplied and installed by others.

9.0 PLANT AND EQUIPMENT

The following plant and equipment specification covers the specific requirements of the equipments to be used through out this sub-contract works and shall be read in conjunction with the accompanying contract drawings.

It is deemed that the tenderer has based his tender on the equipment, which is similar in performance and manufacture to that stated in this specification. If the tenderer wishes to offer alternative equipment to that specified, he shall describe and provide specifications of this alternative equipment.

9.01 Solar Heat Collector Panels

The solar heat collector panels shall be the flat type comprising an absorber plate thermally bonded to rows of tubing thermal insulation all enclosed within a sheet metal casing with glass cover.

The absorber panel shall have a heat absorbing area of 1.5 and 2.0 square metres and shall be made of heavy gauge copper with a chemically treated black coating finish to enhance the heat collection capacity. The copper absorber panel shall be soldered to a series of parallel copper tubes through which the water to be heated shall flow. The tubes shall be connected at their ends to two 25mm diameter header tubes.

The absorber assembly shall be placed in an insulated 0.75mm thick galvanized sheet steel casing with red oxide primer finish and 50mm thick density packed fiberglass insulation at the bottom to minimize heat losses. The casing shall be made waterproof by the use of rubber grommets around the header tubes and sealing strips. The glass cover shall be of 4mm thick clear glass shall be of low iron content and toughened or tempered.

Each solar heat collector panel shall be capable of raising 60 litres of water per day from 18 °C to 60 °C in clear sunshine. The solar heat collector panels shall be installed in banks as shown on the contract drawings and with separate banks connected in parallel. Each bank of collector panels shall be mounted on 40 x 40 x 4 mm galvanized angle or channel rolled mild steel sections securely fixed to the roof.

9.02 Solar Hot Water Storage

The solar hot water storage cylinder shall be horizontal type fabricated from 4mm thick mild steel plate and hot dipped galvanized after welding. The storage cylinder shall have an outer casing of 24-gauge galvanized sheet steel.

Insulation shall be 50mm thick polyurethane foam pressure injected into void between the outer wall of the storage cylinder and the inner cylinder. Each hot water cylinder shall have a number of immersion electric heater elements controlled by a thermostat and a time switch as shown on the contract drawings.

Each storage cylinder shall be complete with boss connection outlets for the following:

- 20,25mm diameter cold water feed pipe
- 25mm diameter primary flow pipe to solar collectors
- 25mm diameter primary return pipe from solar collectors
- 20mm diameter cylinder drain
- Pressure relief valve
- 12.5mm diameter temperature gauge connection
- 12.5mm diameter pressure gauge connection

Where not used, the holes shall be appropriately plugged.

9.03 Pipework and Fittings

Pipe work shall be galvanized mild steel tubings to B.S. 1387 medium grade with tapered pipe threads to B.S. 21. Fittings shall be galvanized wrought steel to B.S. 1740 or galvanized malleable cast iron to B.S. 143, with B.S. thread. All connections to items of plant and equipment shall be made with union connectors and the connections to the pumps shall be flanged if 50mm diameter or over. All pipe supports shall be to B.S. 3974.

9.04 Insulation

Insulation shall be as 'Armerflex' flexible foam tube insulation as manufactured by 'Armstrong Cork International'. Fixing shall be of slip on or snap on method rejoined with 'Armaflex' adhesive. Alternatively, preformed fibreglass or polystyrene insulation with 0.55mm thick galvanized mild steel sheet cladding is acceptable.

9.05 Valves

Valves shall be of copper alloy type (stop, globe, gate and check valves) all to B.S. 5154 and tested to B.S. 5146 part 2: 1984 with screwed ends. These shall be as manufactured by 'Peglar International' or equal and approved.

10.0 RECORD DRAWINGS AND MAINTENANCE MANUALS

Upon practical completion of the sub-contract works, the Sub-Contractor shall furnish the Employer with three sets of record drawings and three sets of installation, operation and maintenance manuals.

The record drawings shall detail "as installed" installations and shall include all information necessary for working drawings.

The manual shall contain comprehensive operation and maintenance instructions for each item. It shall include, but not restricted to the following: -

- a) System description
- b) Switches operation
- c) Control operation
- d) Preventive maintenance and servicing periods and procedures.
- e) Trouble shooting procedures
- f) Emergency procedures
- g) Colour coding for service
- h) Key and detailed electrical wiring diagrams
- i) Spare parts lists and code number.

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	QTY	UNIT	RATE Kshs	AMOUNT Kshs
1.0	SANITARY FITTINGS Supply, Install, test and commission the following sanitary fittings as specified: NB: All rates to be inclusive of V.A.T and any other applicable tax				
A	CLOSE COUPLED WATER CLOSET (WC) SUITE. DURAVIT "D-CODE" Close coupled WC Suite Bowl in white vitreous china #211809 bowl with horizontal Outlet; 6 litre cistern and fittings with bootom left supply and chrome plated dual flush button;heavy duty plastic seat and cover #00673, WC outlet connector or equal and approved.	2	No		
B	WATER CLOSET (W.C.) PAN Water closet suite pan, in white vitreous china, comprising of Duravit D Code floor standing W.C. bowl # 211509, heavy duty Duravit D Code matching seat and cover with soft close #0067310 or equal and approved.	20	Nos.		
C	WATER CLOSET FLUSH VALVES Toilet flush valve as "JAQUAR Ref No. FLV-CHR-1015" hand held lever type, chrome plated and complete with inlet connectors, and all fixing accessories or equal and approved.	20	Nos.		
D	DISABLED TOILET SUITE Twyfords "doc.M rimless" disabled washroom set #PK8184WH comprising of the following:- Avalon rimless horizontal outlet pan and fixings; avalon rimless cistern, fittings and spatula lever 6 litres flush; Avalon rimless seat ring, stainless steel hing with stability buffers; hand rinse medical basin with one tap hole; sola 1/2" lever action tap, one hinged support rail, and four fixed support rails No. WF 1241WH WC outlet connector or equal and approved.	6	Nos.		
E	TOILET ROLL HOLDER Vandal proof wall-mounted circular toilet paper dispenser for industrial rolls of 230mm, made of stainless steel with white epoxy finish. As Mediclinics ref: PR2783	22	Nos.		
F	ROBE HOOK Wall mounted chrome plated double coat hook	28	Nos.		
G	WASH HAND BASIN - COUNTERTOP Countertop wash hand basin size 635 x 500mm with one tap hole,C/W basin tap, 32mm diameter chrome plated chain waste, chain stay hole, and chrome plated bottle trap (32mm 'P' trap) with 75mm seal. All to be as DURAVIT D - Code CAT No. 0337540000 Countertops Washand Basin or equal and approved.	31	Nos.		
H	WASH HAND BASIN - PEDESTAL DURAVIT"D - CODE" vero wash hand basin with one tap hole No. #045460, size 600 x 470 mm in white vitreous china. Complete with full pedestal, tap with cross head, chrome plated waste outlet fittings; and chrome plated bottle P trap with extension piece to the wall or equal and approved.	2	Nos.		
I	MIRRORS 600 x 600 x 6mm thick plate glass mirror, bevelled mirror. Mirrors shall be installed above all W.H.B's.	33	Nos.		
J	Total carried to collection page 4				

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	QTY	UNIT	RATE Kshs	AMOUNT Kshs
A	URINAL BOWL Urinal bowl as Duravit – D CODE ref # 082930000 in white with built in spreader and concealed waste trap complete with Stainless steel fixing bolts and caps, size 305 x 570mm firmly fixed on the wall with chrome plated screws. The fittings shall be as Duravit D Code Range or equal and approved.	17	Nos.		
B	URINAL BOWL FLUSH VALVES DOCOLTRONIC - Pressmatic Vandal-proof Low Pressure Urinal Valve, concealed, Code 17015006, Bi-nickel chrome plated, providing long-lasting durability and higher resistance to corrosion, maintaining the product beautiful and glossy much longer. Diameter: 1/2" and 3/4", Operates perfectly in high and low pressure, from 0,2 to 4 kgf/cm ² or from 3 to 57 psi.. Or equal and approved.	17	Nos.		
C	URINAL BOWL DIVISIONS Ceramic urinal bowl divisions separating the above described urinal bowls fixed firmly on the wall. The fittings shall be as Duravit Starck 3 # 850000 or equal and approved.	19	Nos.		
D	LIQUID SOAP DISPENSER Mediclinics DJOO30 liquid soap dispenser in stainless steel AISI 304 body. With top filling lid and push button. With epoxy finish. Or equal and approved.	27	Nos.		
E	PAPER TOWEL DISPENSERS Paper dispenser in AISI 304 stainless steel with a capacity of 400-600C/Z towels as mediclinics DT2106CS or equal and approved.	2	Nos.		
F	HAND DRYER 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 2.25kw and performance flow rate of 187cfm (3.12m ³ /min) and to be of size 213x330x170mm deep It shall have a noise level below 75 dBA at 1.5m. It shall be as Mediclinics MACHFLOW or approved equivalent.	16	Nos.		
G	SHOWER MIXER FITTINGS JAQUAR Shower set comprising of: 1No. Concealed body of single lever shower mixer No. ALD-CHR-233; Exposed part of single lever built in with spout No. FLR-CHR-5233K; Single function 240 x 240mm square shape maze overhead shower, stainless steel No.OHS 1629; Wall mounted square shower arm, 600mm long, 25 x 25mm section No. SHS -CHR-455L600. Or equal and approved.	10	No		
H	TOWEL RAIL 645 x 80mm wall mounted Chrome plated towel rail as DURAVT D-CODE # 0099241000 equal and approved.	10	Nos.		
I	SOAP TRAY Wall mounted Chrome plated soap dish as DURAVIT D-CODE:# 0099181000 Dimension 135 x 120mm OR equal and approved.	10	Nos.		
J	KITCHEN SINK Heavy duty sink, double bowl, double drainer in 430 stainless steel top Cold pressed bowl in AISI 304 grade stainless steel with 40mm outlet, Stainless steel legs with adjustable foot pieces Heavy duty galvanised backing sheet with bitumastic sound deadening,150mm splash back: Overall size (LxWxH):-1850 x 650 x 1060mm, Bowl size:-505 x 505 x 250mm	1	Nos.		
K	Total carried to collection page 4				

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	QTY	UNIT	RATE Kshs	AMOUNT Kshs
2.0	LABORATORY FITTINGS				
A	LABORATORY SINK METHOD'S Model: MS 808 LAB SINK Chemical resistant sinks ref. Size 560 x 355 x 230mm. The sink shall be made from polypropylene(P.P) co-polymers resin. The sink shall have a self-draining base and an outlet recessed to accept and be complete with the following VULCATHENE fittings: 504 38mm diameter BSP waste, having a 76mm diameter flange, 507 standing waste tube to suite 504 waste and to be supplied with a hanging loop and to be 160mm high.	29	No		
B	LABORATORY SINK FITTINGS 2-Way Dual Neck Water Faucet, Bench mount,swivel necks and fixed nozzles. It shall be as METHOD, Laboratory Fittings Ref. BM 105 3B1 or equal and approved.	36	No		
C	EMERGENCY SHOWER AND EYEWASH BOWL The eyewash bowl C/W pressure booster pump, 280mm moulded in chemical resistant ABS in brightlyyellow colour. 250mm aluminium pedestal with mounting holes with stainless steel ball valve. The pipe and fitting shall be 32mm stainless stell or Galvanized iron pipe eboxy powder coated in powder. shall be as METHOD;- Model ECB 10022 AB, GIC10022AB or equal and approved.	2	No		
D	DOUBLE BOWL NO DRAINER STAINLESS STEEL SINK - GEOPHYSICS, SAMPLE RECEIVING AND PREPARATION Heavy duty countertop 16 Gauge SS double bowl and body stainles steel sink,C/W swivel tap , size 24" x 24" bowl 14"deep, stainless steel top Cold pressed bowl in stainless steel with 40mm outlet, 150mm splash back. Or equal and approved	4	No		
E	FLOOR STANDING STAINLESS STEEL SINK - LAPIDARY Heavy duty16 Gauge SS single bowl and body stainles steel sink,C/W swivel tap stainless steel legs, size 24" x 24" bowl 14"deep, stainless steel top Cold pressed bowl in stainless steel with 40mm outlet, Stainless steel legs with adjustable foot pieces Heavy duty galvanised backing sheet with bitumastic sound deadening,150mm splash back	7	Nos.		
F	FUME CUPBOARD Fume Cupboard of exterior dimensions 1,000mm wide x 730mm deep x 2,400mm high as 'METHOD' MEB 10 or equal and approved. The fume cupboard Shall have fluorescent lights complete light switch and socket outlet. Chemical resistant Fibreglass Reinforced fan directly coupled via a stainless steel shaft unto bifurcated electric motor. Capacity 1m3/s at 1440 RPM at 150 pa static pressure. Electrical power supply: 0.75Kw, three phase 415v 50Hz complete with control switch and regulators as WOODS 50JM.Bif/16 or equal and approved.	4	No		
G	DHOBI SINK Dhobi sink approximate size 600 x 450 x 350mm deep complete with 40mm diameter grid waste and chain plug, fixed on a concrete worktop. 20mm diameter chrome plated sink tap, 40mm diameter x 40mm diameter bottle trap with 75mm seal, inlet screwed female, outlet male, extension piece and any other item necessary for the installation.	6			
H	Total carried to collection page 4				

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	AMOUNT Kshs
	COLLECTION PAGE	
A	Total B/F from page 1	
B	Total B/F from page 2	
C	Total B/F from page 3	
D	TOTAL FOR SANITARY FITTINGS INSTALLATIONS C/F TO MAIN SUMMARY PAGE 35	

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	QTY	UNIT	RATE Kshs	AMOUNT Kshs
2.0	INTERNAL COLD WATER SUPPLY INSTALLATION - CPVC PIPES				
	Supply, deliver and install Chlorinated Poly Vinyl Chloride (CPVC) pipes to ASTM F441, SDR 11 Standard. Tenderers must allow in their pricing of pipework for all the couplings, connectors, joints, unions etc as required in the running lengths of pipework. Also where necessary for pipe fixing clips, holder bats plugged or screwed, pipe sleeves should be used through structural members. Rates must allow for all Metal/Plastic threaded adaptors where required for the connection of sanitary fixtures, support raceways, isolating sheaths, elastic materials, expansion arms and bends, crossovers etc. (As Astral Flow Guard or equal and approved)				
	PIPEWORK				
A	63mm diameter pipe	60	Mtrs		
B	50mm diameter pipe	184	Mtrs		
C	40mm diameter pipe	72	Mtrs		
D	32mm diameter pipe	136	Mtrs		
E	25mm diameter pipe	380	Mtrs		
	ELBOW/BENDS				
F	63mm diameter	16	Nos.		
G	50mm diameter	80	Nos.		
H	40mm diameter	16	Nos.		
I	32mm diameter	60	Nos.		
J	25mm diameter	148	Nos.		
	TEES				
K	63 x 63x 63mm diameter tee	4	Nos.		
L	63 x 63x 50mm ditto	12	Nos.		
M	50 x 50 x 50mm ditto	36	Nos.		
N	50 x 50 x 40mm ditto	12	Nos.		
O	50 x 50 x 32mm ditto	24	Nos.		
P	50 x 50 x 25mm ditto	18	Nos.		
Q	32 x 32 x 32 mm ditto	22	Nos.		
R	32 x 32 x 25 mm ditto	30	Nos.		
S	32 x 32 x 25 mm ditto	30	Nos.		
T	25 x 25 x 25 mm ditto	98	Nos.		
U	Total carried to collection page 7				

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	QTY	UNIT	RATE Kshs	AMOUNT Kshs
A	MALE/FEMALE THREADED ELBOW 50 mm diameter bend	32	Nos.		
B	32 mm diameter bend	22	Nos.		
C	25 mm diameter bend	148	Nos.		
D	MALE/FEMALE THREADED ADAPTORS 50mm diameter threaded adaptor	32	Nos.		
E	32mm diameter ditto	20	Nos.		
F	25mm diameter ditto	60	Nos.		
G	SOCKETS 63mm diameter	15	Nos.		
H	50mm ditto	46	Nos.		
I	40mm ditto	43	Nos.		
J	32mm ditto	34	Nos.		
K	25mm ditto	95	Nos.		
L	UNIONS 63mm diameter	8	Nos.		
M	50mm ditto	23	Nos.		
N	40mm ditto	22	Nos.		
O	32mm ditto	17	Nos.		
P	25mm ditto	48	Nos.		
Q	FLEXIBLE TUBING 15mm diameter x 300mm long flexible connectors complete with integral chrome plated angle valve as Jaguar Astra with wall flange for connecting the sanitary fitting to water supply.	90	No		
R	ANGLE VALVES 15mm diameter angle valves as Cobra or equal and approved	90	Nos.		
S	GATE VALVES 50mm diameter high pressure screw-down full way non-rising stem solid wedge disc gate valve to BS 5154 PN 16 for Series B Rating with wheel head and including jointing to steel tubing. As CRANE Model 156 or equal and approved	16	Nos.		
T	32mm diameter ditto	10	Nos.		
U	25mm diameter ditto	30	Nos.		
V	STERILIZATION Allow for sterilization including flushing out water and chlorine to the satisfaction of the Engineer.	Item	Sum		
W	TESTING AND COMMISSIONING Test and commission the entire internal water supply to the satisfaction of the Engineer.	Item	Sum		
X	Total carried to collection page 7				

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	AMOUNT Kshs
	COLLECTION PAGE	
A	Total B/F from page 5	
B	Total B/F from page 6	
C	TOTAL FOR INTERNAL COLD WATER INSTALLATIONS C/F TO MAIN SUMMARY PAGE 35	

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	QTY	UNIT	RATE Kshs	AMOUNT Kshs
3.0	INTERNAL HOT WATER SUPPLY INSTALLATION - CPVC PIPES Supply, deliver and install Chlorinated Poly Vinyl Chloride (CPVC) pipes to ASTM F441, SDR 11 Standard. Tenderers must allow in their pricing of pipework for all the couplings, connectors, joints, unions etc as required in the running lengths of pipework. Also where necessary for pipe fixing clips, holder bats plugged or screwed, pipe sleeves should be used through structural members. Rates must allow for all Metal/Plastic threaded adaptors where required for the connection of sanitary fixtures, support raceways, isolating sheaths, elastic materials, expansion arms and bends, crossovers etc. (As Astral Flow Guard or equal and approved)				
	PIPEWORK				
A	32mm diameter pipe	48	Mtrs		
B	25mm diameter pipe	96	Mtrs		
	ELBOW				
C	32mm diameter	16	Nos.		
D	25mm diameter	36	Nos.		
	TEES				
E	32mm diameter	8	Nos.		
F	32 x 32 x 25 mm ditto	3	Nos.		
G	25 x 25 x 25 mm ditto	12	Nos.		
	MALE/FEMALE THREADED ELBOW				
H	25 mm diameter bend	20	Nos.		
	MALE/FEMALE THREADED ADAPTORS				
I	32 mm diameter adaptors	8	Nos.		
J	25 mm diameter adaptors	28	Nos.		
	SOCKETS				
K	32mm diameter	12	Nos.		
L	25mm diameter	24	Nos.		
	UNIONS				
M	32mm diameter	6	Nos.		
N	25mm diameter	12	Nos.		
	GATE VALVES				
O	32mm diameter high pressure screw-down full way non-rising stem solid wedge disc gate valve to BS 5154 PN 16 for Series B Rating with wheel head and including jointing to steel tubing. As CRANE Model 156 or equal and approved	4	Nos.		
P	25mm ditto	14	Nos.		
Q	STERILIZATION Allow for sterilization including flushing out water and chlorine to the satisfaction of the Engineer.	Item	Sum		
R	TESTING AND COMMISSIONING Test and commission the entire internal water supply to the satisfaction of the Engineer.	Item	Sum		
S	TOTAL FOR INTERNAL HOT WATER INSTALLATIONS C/F TO MAIN SUMMARY PAGE 35				

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	QTY	UNIT	RATE Kshs	AMOUNT Kshs
4.0	<p>FOUL AND WASTE WATER DRAINAGE Supply, install, test and commission the following complete: General Note. Prices for pipework shall include the cost for couplings, connectors and jointing to fittings appliances etc., and fixing brackets all as required in the pipework installation, together with marking pipe routes on walls and floors for wall chasing and holes cutting by others.</p> <p>Note for U.P.V.C. pipework: All UPVC couplings, branches, tees etc., are to be formed strictly in accordance with the manufacture's interactions. Jointing pipework by "heat formed sockets" etc., shall not be accepted. U.P.V.C. Soil, Waste and Ventilation Pipes and fittings to B.S. No. 5255</p> <p>PIPEWORK</p>				
A	40mm waste pipe fixed to wall or wall chase including approved pipe clips or brackets	120	Mtrs		
B	50mm – ditto	196	Mtrs		
C	100mm grey drain pipe fixed to wall surface or boxed to architect's detail	326	Mtrs		
D	<p>UNDERGROUND UPVC PIPEWORK TO BS 4660:1963 GOLDEN BROWN SERIES 100mm soil and waste pipe laid in or under concrete Floor slab or underground</p>	386	Mtrs		
E	150mm – ditto	296	Mtrs		
F	200mm – ditto	256	Mtrs		
G	<p>SWEEP BEND 40mm diameter sweep bend</p>	120	Nos.		
H	50mm diameter sweep bend	38	Nos.		
I	100mm SR	36	Nos.		
J	100mm LR	54	Nos.		
K	<p>SWEEP TEE 40mm diameter sweep tee</p>	84	Nos.		
L	50mm diameter sweep tee	12	Nos.		
M	100mm equal tee	22	Nos.		
N	100mm single branch	48	Nos.		
O	Total carried to collection page 12				

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	QTY	UNIT	RATE Kshs	AMOUNT Kshs
A	ACCESS CAP 40mm access cap	48	Nos.		
B	50mm access cap	12	Nos.		
C	100mm access cap	42	Nos.		
D	BOSS CONNECTOR 40mm	12	Nos.		
E	50mm	54	Nos.		
F	No. 125 WC CONNECTOR	42	Nos.		
G	WEATHERING APRON	25	No		
H	VENT COWL	25	No		
I	FLOOR TRAP Floor trap as " Key Terrain" 281.3 trapped Floor gully, 282.6 Floor gully inlet and grating.	56	Nos.		
Q	FLOOR DRAIN TROUGHS Floor drain size 600 x 100mm with 100mm outlet on 150mm thick mass concrete slab, and heavy duty stainless steel grating to the chamber as shown in the drawings	6	No		
J	LABORATORY DRAINAGE 40mm vulcathene waste pipe fixed to wall or wall chase including approved pipe clips or brackets	184	Lm		
K	SWEEP BEND 40mm vulcathene sweep bend	112	Nos.		
L	SWEEP TEE 40mm vulcathene sweep tees	90	Nos.		
M	50mm vulcathene sweep tees	16	Nos.		
N	ACCESS CAP 40mm vulcathene access cap	48	Nos.		
O	50mm vulcathene access cap	8	Nos.		
P	DILUTION TRAP Vulcathene 910G – Dilution recovery trap liquid capacity 4.5 litres with a trap seal of 76mm and three top inlet connections the Visual Version with base of heat resistant borosilicate glass fro identification of solid units to be complete with horizontal inlet adaptor, vertical inlet, glass dip tube and blanking off plug together with a suitable support stand.	30	Nos.		
R	Total carried to collection page 12				

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	QTY	UNIT	RATE Kshs	AMOUNT Kshs
A	<p>GREASE TRAP Grease trap comprising of 110mm diameter upvc gulley trap with bell mouth housed in mass concrete (1:3:6/25mm.) pad size 600 x 500 x 1400mm deep and with 400mm diameter mild steel cover complete with attached chamber overall size 2550 x 1500 x 1400mm deep comprising 150mm thick concrete (1:2:4/20mm.) walls all round, 100mm thick ditto partition and cover slab, 2 No. medium duty cast iron manhole covers and frames size 600 x 450mm wide, 2 No. mild steel removable trays made of 40 x 3mm thick handle with ends welded to 4mm thick base plate size 450mm wide x 560mm girth, inclusive of all necessary excavations, backfilling, carting away remainder, formwork, plaster, paint, holes and pipe connections to sewer line.</p>	1	No		
B	<p>GULLY TRAP WITH STAINLESS STEEL GRATINGS Gully trap chamber size 250 x 250mm, approximately 150mm deep in 150mm blockwork with cement mortar joints, on 150mm thick mass concrete slab and plastered inside for 100mm trap and hopper. 40mm thick, 250 x 250mm grated stainless steel cover to gully trap chamber.</p>	14	No		
C	<p>GULLY TRAP Gully trap chamber size 250 x 250mm, approximately 400mm deep in 150mm blockwork with cement mortar joints, on 150mm thick mass concrete slab and plastered inside for 100mm trap and hopper. 40mm thick, 250 x 250mm P.C.C cover to gully trap chamber and provided with 40mm ventilating hole.</p>	14	No		
D	<p>INSPECTION CHAMBER Internal chambers not to exceed 1070 x 910mm and depth not to exceed 2000mm below finished floor or ground level. Wall thickness should be 150mm blockwork and it should have concrete base and rendered concrete benching 1:3:6 mix. The cover to be cast iron Grade "B" Heavy duty to BS 497 with double seal.</p>	52	No		
E	<p>TESTING AND COMMISSIONING Test and commission the entire internal foul water drainage to the satisfaction of the Engineer.</p>	Item	Sum		
F	Total carried to collection page 12				

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	AMOUNT Kshs
	COLLECTION PAGE	
A	Total B/F from page 9	
B	Total B/F from page 10	
C	Total B/F from page 11	
D	TOTAL FOR FOUL AND WASTE DRAINAGE INSTALLATIONS C/F TO MAIN SUMMARY PAGE 35	

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	QTY	UNIT	RATE Kshs	AMOUNT Kshs
5.0	FIRE FIGHTING - INTERNAL Supply, Install, Test and Commission the following items complete as specified:				
A	FIRE HOSE CABINET Fire cabinet 800 x 300 x 1600mm with double door as NAFCO OR approved similar	8	Nos.		
B	PORTABLE FIRE EXTINGUISHER 4.5kg carbon dioxide gas extinguisher complete with refill cartridges and wall fixing brackets and complying with B.S 5423	16	Nos.		
C	6kg dry chemical powder portable fire extinguisher complete with pressure gauge, initial charge and mounting brackets and complying with B.S 5423	32	Nos.		
D	WET CHEMICAL FIRE EXTINGUISHER 7 litre wet chemical, fire extinguisher complete with refill cartridges and wall fixing brackets complying with B.S 5423.	2	Nos.		
E	AUTOMATIC DRY POWDER EXTINGUISHER 30kg 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 NAFCO model ND6 MATIC or equal and	16	No		
F	FIRE BLANKET 1.8metre x 1.2metre Fire Blanket manufactured to BS EN 1869:1997 and BSI Kite marked, with slim-line design with rigid plastic case, plastic that case can be wiped maintaining hygiene in kitchen environments, Includes hole so that the fire blanket can quickly and easily be wall-mounted, hinged base and complete with toggles for quick and easy to use in the case of a fire emergency.	6	No		
G	MANUAL ALARM BELL 9" (225mm) manual operated alarm bell (Gong)	8	No		
H	FIRE NOTICES Allow for fire signage, fire exits and fire instructions as as described in the particular specifications and to the Project Engineer's approval.	8	Item		
I	FIRE FIGHTING HOSE REELS Make: Similar or equal and approved to 'TG' Series Hose Reels type with the following characteristics: Manual operation Swinging type. Delivery valves 25mm BSP inlet to B.S 1010. Mild steel feed to B.S 1387	8	Nos.		
J	FIRE FIGHTING PIPEWORK All pipes shall be heavy gauge galvanized mild steel pipes to B.S1387 and fittings to B.S. 1740 (class C) . Price of pipework to include the cost of couplings, connectors, fixing brackets, holderbats, plugs and jointing to fittings etc., together with marking of pipe routes for wall chasing and holes cutting by others all as required in pipework installation.				
K	25mm diameter pipe	24	Mtrs		
L	40 mm diameter pipe	48	Mtrs		
M	Total carried to collection page 15				

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	QTY	UNIT	RATE Kshs	AMOUNT Kshs
A	BENDS 25mm diameter bend	24	Nos		
B	40mm diameter bend	12	Nos		
C	TEES 40 X 40 X 25mm diameter	4	Nos		
D	DIAMETER REDUCERS 40 x 25mm diameter	8	Nos		
E	GATE VALVES TO BS 5151:1974 25mm diameter	8	Nos		
F	SOCKETS 40mm socket	6	Nos		
G	25mm socket	12	Nos		
H	UNIONS 40mm union joint	3	Nos.		
I	25mm union joint	6	Nos.		
J	Allow for priming and finish painting of installation with 3 No. coats of paint to the Engineers approval.	Item	Sum		
K	TESTING AND COMMISSIONING Allow for testing and commissioning the entire fire fighting system to the satisfaction of the Engineer.	Item	Sum		
L	Total carried to collection page 15				

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	AMOUNT Kshs
	COLLECTION PAGE - FIRE FIGHTING	
A	Total B/F from page 13	
B	Total B/F from page 14	
C	TOTAL FOR INTERNAL FIRE FIGHTING INSTALLATIONS C/F TO MAIN SUMMARY PAGE 35	

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	QTY	UNIT	RATE Kshs	AMOUNT Kshs
7.0	ROOF RAIN WATER DRAINAGE Supply, Install, Test and Commission the following items complete as specified: All pipe and fittings are UPVC manufactured to B.S. 4576 and bear where applicable the kite mark. The should also comply with the recommendation of the British Standard Code of Practice 6367 : 1983 and Building Regulations 1976 Prices for pipework shall include the cost for couplings, connectors and jointing to fittings appliances etc., and fixing brackets all as required in the pipework installation, together with marking pipe routes on walls.				
A	FULBORA OUTLETS 150mm diameter dome shaped rain water fullbora outlet. To be as ACO or equal and approved.	22	Nos.		
B	DOWN PIPES 150mm diameter UPVC pipe	882	Mtrs		
C	200mm ditto	380	Mtrs		
D	ELBOWS 150mm UPVC Elbows	40	Mtrs		
E	SWEEP TEE 150mm x 150mm x 150mm tee	4	Nos.		
F	200mm x 200mm x 150mm tee	36	Nos.		
G	PIPE SUPPORT Allow for horizontal PVC pipe support to the slab in the basement using metallic slab to S.E approval at intervals of 500mm	Item	Sum		
H	RAIN WATER MANHOLE Internal chambers not to exceed 600 x 450mm and depth not to exceed 2000mm below finished floor or ground level. Wall thickness should be 150mm blockwork and it should have concrete base and rendered concrete benching 1:3:6 mix. The cover to be cast iron Grade "B" medium duty to BS 497 with double seal.	28	No		
I	RAINWATER SUBMERSIBLE PUMP Model: PEDROLLO UP multistage submersible pump, Model UPm8/4 Or equal and approved. Head: 30M, Flow rate: 8m³/hr Complete with a low level control float switch and 20M cable, thermal cut out, isolating valves, automatic voltage stabilizer as Sollatek AVS13. Power supply 1.5kW, three phase 240v, 50Hz.	1	Nos.		
J	ELECTRICAL WORKS Allow for electrical works wiring and fitting to pumps, controls from Isolator.	Item	Item		
K	TOTAL FOR ROOF RAIN WATR DRAINAGE INSTALLATIONS C/F TO MAIN SUMMARY PAGE 35				

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	QTY	UNIT	RATE Kshs	AMOUNT Kshs
8.0	LIQUIFIED PETROLEUM GAS (LPG) - MAIN KITCHEN Supply, Install, Test and Commission the following complete as specified:				
A	LPG GAS CYLINDERS 1.0 Tonne LPG Gas tank complete with LPG gas; test certificate, main cylinder valve, gas gauge and any other necessary accessory. The cylinder to be as TOTAL or equal and approved.	1	Nos.		
B	First stage regulator complete with fittings including pole connector and other adaptors.	1	Nos.		
C	Second stage regulator complete with fittings including all relevant connecting adaptors.	2	Nos.		
D	15mm diameter seamless black steel pipe class B with all necessary fittings e.g. bends, unions, sockets, and nipples	60	Mtrs		
E	15mm dia gms socket/nipple	15	Nos.		
F	15mm dia brass adaptors	4	Nos.		
G	15/8mm dia brass adaptors	12	Nos.		
H	8 mm copper gas pipes	2	Mtrs		
I	8mm dia ball lever operated isolating gas valve	12	Nos.		
J	LP Gas pressure gauge	1	Nos.		
K	65mm dia gms class C manifold with 14No. 8mm and 2No.12mm dia tappings to equipment complete with mounting legs and plugs, 6m long	2	Nos.		
L	Automatic LPG leakage detector and shutoff valve	1	Nos.		
M	Allow for painting of the above pipework with bituminous paints	Item	Sum		
N	Allow for installation of 50mm pvc sleeve	24	Mtrs		
O	Provide cost for putting up a masonry chamber to house the second stage regulator	Item	Sum		
P	15mm Diameter gas shut off valves shall be quarter turn lever operated ball valve of stainless steel construction installed both at the gas tank point and the gasline kitchen entry point for maintenance or emergency isolation	2	Nos.		
Q	TESTING AND COMMISSIONING Allow for testing and commissioning the entire lpg system to the satisfaction of the Engineer.	Item	Sum		
R	TOTAL FOR MAIN KITCHEN LPG INSTALLATIONS C/F TO MAIN SUMMARY PAGE 35				

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	QTY	UNIT	RATE KHS	AMOUNT KHS
9.0	<p>SOLAR WATER HEATING SYSTEM - MAIN KITCHEN Manufacture, supply, instal, test and commision the following complete as specified: INDIRECT SOLAR WATER HEATING SYSTEM Indirect system using glycol circulated in thermosiphon model, the tank and is mounted remotely from the solar collectors, complete with:-</p>				
A	<p>SOLAR COLLECTORS - FLAT PANEL The Solar collector shall be high efficiency which incorporate area absorption plates laser welded to copper circulation tubes, advanced specification insulation and tempered security glass to provide energy absorption of upto 95% single glazed with low iron tempered glass. The effective area of each collector shall be 2.0m² minimum absorbing area.</p>	12	Nos.		
B	<p>SOLAR HOT WATER CYLINDERS Shall be vertical high pressure long life eco friendly indirect single coil water storage tank made fromstainles steel G316 (Inner tank) and cathodic protection for exceptional corrosion protection Powder coated steel external casing 50mm thick soft foam insulation 2no. 2kW thermostat controlled heating element. The cylinder capacity shall be 1,500 litres Connections required: 40mm water supply feed to cylinder 40mm hot water outlet 25mm solar panel supply 25mm solar panel return 15mm diameter drain Sludge collectors 15 mm diameter Automatic ressure relief valve as SPIRAX SARCO Model No. SV 11 or equal and approved.connected to Circulation fluid:- Glycol Expansion tank As SUNHEAT or equal and approved</p>	1	Nos.		
C	<p>INTELLIGENT CONTROLLER WITH TEMPERATURE DISPLAY Advanced programmable differential temperature controller to manage operations of forced circulation solar system. The controller shall be able to incorporate inputs from sensors that monitor temperature at various points in the system and relay signals to the control, the thermostat controlled heater element to optimize hot water availability. It shall also include digital display indicating the system layout, hour counter for the circulator pump and system temperature.</p>	1	Nos.		
D	<p>PRIMARY CIRCULATION PUMP Speed controlled Primary Circulation Capacity of 1.8m³/hr against 3m head. To be as GRUNDFOS ALPHA2 25/60. Electrical load:- 0.1KW single phase 240V, 50Hz. Or equal and approved</p>	1	Nos.		
E	<p>SECONDARY CIRCULATION PUMP Speed controlled Primary Circulation Capacity of 1.8m³/hr against 3m head. To be as GRUNDFOS ALPHA2 25/60. Electrical load:- 0.1KW single phase 240V, 50Hz. Or equal and approved</p>	1	Nos.		
F	<p>PUMP TEMPERATURE DIFFERENTIAL CONTROLLER The circulation pump shall be controlled by temperature differential control unit with adjustable time delay circuit suitable for pump control. The unit shall have a robust electric temperature sensing device for measuring temperature diffrential between two points. The sensing circuit shall be stable over 5°C to 50°C teperature range. The cost should include wiring from the service isolator to differential control from differential control to sensors in solar cylinder and pump.</p>	1	Nos.		
G	Total C/F to Collection page 20				

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	QTY	UNIT	RATE KHS	AMOUNT KHS
A	SOLAR COLLECTOR AND CYLINDER SUPPORTS Allow for suitable angle iron supports for securing solar panels cylinders to be approved by Engineer.	Item	Sum		
1.1	INSULATED HOT WATER SUPPLY PIPEWORK INSULATED GMS HOT WATER SUPPLY PIPEWORK Shall be galvanised mild steel pipework medium grade to B.S. 1387 (class "B") screwed and socketed joints to B.S/21. All exposed pipework shall be insulated with vermiculate or fibers glass. STRAIGHT PIPE - GALVANIZED MILD STEEL STRAIGHT PIPE				
B	40mm diameter pipe	18	Mtrs		
C	25mm diameter pipe	12	Mtrs		
D	ELBOWS 40mm diameter elbow	6	Nos.		
E	25mm diameter elbow	18	Nos.		
F	GATE VALVES 40mm diameter approved high pressure screw down fullway non-rising stem, solid wedge disc gate valve to BS 5154 PN 16 Series B Rating with wheel head and joints to steel tubing. As PEGLER or equal and	2	Nos.		
G	25mm diameter ditto	2	Nos.		
H	25mm Non return valve	1	Nos.		
I	BRASS COUPLINGS 25mm diameter machined brass couplings for interconnecting solar	48	Nos.		
J	ELECTRICAL SUPPLY Allow for electrical power supply and wiring to pumps, electric booster elements and controllers from the local isolator	Item	Sum		
K	TESTING AND COMMISSIONING Allow for setting to work, testing and commissioning of the entire solar water heating system.	Item	Sum		
L	Total C/F to Collection page 20				

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	AMOUNT KHS
	<p>COLLECTION PAGE - SOLAR WATER HEATING MAIN KITCHEN</p> <p>A Total amount B/F from 18</p> <p>B Total amount B/F from 19</p>	
D	TOTAL C/F TO SUMMARY PAGE 24	

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	QTY	UNIT	RATE KHS	AMOUNT KHS
2.0	<p>SOLAR WATER HEATING SYSTEM - SYSTEM 02, 03 & 04 - FOR THE COMMON SHOWERS Supply, deliver, install, test and commission the following indirect TP300JEL/F thermosiphon model solar water heating system complete with the following features and accessories or equal and approved.</p>				
A	<p>2NO. HAIER FLAT PANEL COLLECTORS Dimensions: 2000mm x 1000mm x 80mm Gross Area: 2M² Insulation Material: Rock Wool Frame material: Aluminium Absorber Sheet Material: Aluminium Riser Material: Copper Cover Material: Tempered Glass-4mm</p> <p>1NO. 300L SOLAR HOT WATER STORAGE CYLINDERS Double Jacket Cylinder Inner Tank Material: Enamel Coating Steel Sheet Thickness: 2.5mm Working Pressure: 10Bar Insulation Material: 50mm Polyutherene Outer Tank Material: 0.5mm Colored Steel Pressure/Temperature Relief Valve</p> <p>ELECTRICAL HEATING BOOSTER ELEMENTS 1NO. 2.7kW Immersion Electric Bactup Heaters</p> <p>6NO. Brass Interconnectors & Copper Pipe & Fittings For Collectors.</p> <p>SOLAR COLLECTOR SUPPORTS Allow for suitable powder coated steel, alluminium sections equal and approved material for solar system support frame for mouting on the flat roof to support both the collector and the cylinder</p>	3	No		
B	<p>SOLAR WATER HEATING CONTROL UNIT Solar water heating automatic controller, SP26 or equal and approved with the following features: Input power:- single phase 240V, 50HZ, 3W Accuracy of temperature +/-1 °C Temperature range : - 0-99°C Input and output signal sensors LCD Display Communication port Water protection</p>	3	No		
C	<p>WIRING Allow for wiring to immersion heaters from local isolator and water circulation pumps from the local isolator.</p>	Item	Sum		
D	Total C/F to Collection page 23				

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	QTY	UNIT	RATE KHS	AMOUNT KHS
1.1	INSULATED HOT WATER SUPPLY PIPEWORK INSULATED GMS HOT WATER SUPPLY PIPEWORK Shall be galvanised mild steel pipework medium grade to B.S. 1387 (class "B") screwed and socketed joints to B.S/21. All exposed pipework shall be insulated with vermiculate or fibers glass. STRAIGHT PIPE - GALVANIZED MILD STEEL STRAIGHT PIPE				
A	25mm diameter pipe	48	Mtrs		
B	ELBOWS 25mm diameter elbow	18	Nos.		
C	GATE VALVES 25mm diameter approved high pressure screw down fullway non-rising stem, solid wedge disc gate valve to BS 5154 PN 16 Series B Rating with wheel head and joints to steel tubing. As PEGLER or equal and	12	Nos.		
D	BRASS COUPLINGS 25mm diameter machined brass couplings for interconnecting solar	24	Nos.		
E	ELECTRICAL SUPPLY Allow for electrical power supply and wiring to pumps, electric booster elements and controllers from the local isolator	Item	Sum		
F	TESTING AND COMMISSIONING Allow for setting to work, testing and commissioning of the entire solar water heating system.	Item	Sum		
G	Total C/F to Collection page 23				

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	AMOUNT KHS
	COLLECTION - SOLAR WATER HEATING	
A	Total amount for System-01 B/F from 21	
B	Total amount for System-01 B/F from 22	
D	TOTAL FOR SOLAR WATER HEATING INSTALLATIONS C/F TO SUMMARY PAGE 24	

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	AMOUNT KHS
	SUMMARY PAGE - SOLAR WATER HEATING	
A	Total amount for Main Kitchen Solar Installations B/F from 20	
B	Total amount for Common showers Solar Installations B/F from 23	
D	TOTAL FOR SOLAR WATER HEATING INSTALLATIONS C/F TO MAIN SUMMARY PAGE 35	

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	QTY	UNIT	RATE Kshs.	AMOUNT Kshs.
10.0	EXTERNAL WATER RETICULATION				
10.1	MAIN PRESSURE BOOSTER PUMP				
A	MAIN BOOSTER PUMP Model : PEDROLLO PURIJET 6/200, Booster Pump duty and standby. Or equal and approved Head: 24M Flow rate: 8m ³ /hr Complete with thermal cut out, isolating valves, automatic voltage stabilizer as Sollatek AVS13. Power supply 2.2kW, 3-phase 415V, 50Hz.	1	NO		
B	PUMP CONTROLLER Inline electronic pump controller with the following features:- start pump on pressure and stop on low flow; start pressure adjustable between 3.5 bar and 5 bar; inbuilt timer delays pump starting and controls pump cycling; dry run protection and automatic reset; LED power and dry run indicators; built in pressure gauge. To be as BRIO PUMP COTROLLER or equal and approved.	1	NO		
C	ELECTRICAL WORKS Allow for electrical works wiring and fitting to pumps, control panel and float switches from Isolator provided by others.	ITEM	SUM		
D	ELEVATED DOMESTIC WATER STORAGE TANK Supply, deliver and Assemble a Surace level water tank, made of pressed steel sectional tank plates 6mm thick plates (type 1 and 4) and of size 1000mm x 1000mm capacity of Tank to be approximately 48,000 litres and of preferred dimensions 4,000mm x 4,000mm x 3,000mm. The Tank to come complete with tank cover, mosquito proof inspection vent, internal stays, jointing material, bolts and nuts including applying two coats of non-toxic bituminous paint on the inside and two coats of aluminum paint on the outside. Complete with:-Water level indicator, Internal Ladder, External Ladder for tank platform, 4No. 75mm diameter for vent, overflow pipe 75mm diameter outlet pipe for domestic pump, 63mm diameter inlet pipe.	1	NO		
C	Total carried to collection page 29				

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	QTY	UNIT	RATE Kshs.	AMOUNT Kshs.
10.2	<p>EXTERNAL WATER RETICULATION PIPEWORK Supply, install, test and commission the following as specified All pipes shall be heavy duty black HDPE pressure pipes PN 20 As TOP PIPE or equal and approved All pipes shall be High density Polyethylene Pipe to ISO4427 SDR 11, PN 20, PE 100 The following in High Density Polyethylene HDPE PN16 conforming to the current European standards for HDPE installations and to the Engineers approval. Rates must allow for all Metal/Plastic adaptors where required for the connection of fixtures, support raceways, isolating sheaths, elastic materials, expansion arms and bends, crossovers etc.</p> <p>Sizes indicate the inside diameters of the pipes NOTE: ITEMS ARE PROVISIONAL SUBJECT TO REMEASUREMENT</p>				
	PIPEWORK				
A	100mm diameter HDPE Pipe	520	Lm		
B	75mm ditto	90	Lm		
C	63mm ditto	136	Lm		
D	50mm ditto	192	Lm		
E	40mm ditto	36	Lm		
F	32mm ditto	56	Lm		
G	25mm ditto	24	Lm		
	BENDS				
H	100mm diameter bend	6	No		
I	75mm ditto	4	No		
J	63mm ditto	6	No		
K	50mm ditto	12	No		
L	40mm ditto	6	No		
M	32mm ditto	8	No		
N	25mm ditto	8	No		
	TEES				
O	100 X 100 X 100mm diameter	10	No		
P	100 X 100 X 75mm diameter	3	No		
Q	100 X 100 X 63mm diameter	2	No		
R	100 X 100 X 50mm diameter	2	No		
S	75 X 63 X 63mm diameter	4	No		
T	75 X 75 X 50mm diameter	4	No		
U	63 X 63 X 63mm diameter	4	No		
V	50 X 50 X 32mm diameter	3	No		
W	50 X 50 X 25mm diameter	6	No		
X	Total carried to collection page 29				

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	QTY	UNIT	RATE Kshs	AMOUNT Kshs
A	GATE VALVES TO BS 5151:1974 50mm diameter high pressure screw-down full way non-rising stem solid wedge disc sluice valve to BS 5154 PN 16 for Series B Rating with wheel head and including jointing to steel tubing. As CRANE Model 156 or equal and approved	2	No		
B	NON-RETURN VALVES 50mm non-return valve	2	No		
C	UNION/FLANGES 100mm diameter	48	No		
D	75mm diameter	10	No		
E	63mm diameter	12	No		
F	50mm diameter	16	No		
G	40mm diameter	6	No		
H	32mm diameter	6	No		
I	25mm diameter	4	No		
J	TRENCHING Excavate trench, including leveling, ramming bottoms, backfilling (average 600mm deep)	1054	Lm		
K	PVC SLEEVE 250mm diameter pvc pipe	30	Lm		
L	SLUICE VALVE 100mm diameter sluice valve as manufactured by Glensfield or equal and approved.	1	No		
M	Total carried to collection page 29				

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	QTY	UNIT	RATE Kshs.	AMOUNT Kshs.
A	<p>SLUICE VALVE CHAMBER</p> <p>Valve chamber size 300 x 300 x 600mm deep inside, comprising 200mm thick plain (1 : 3 : 6 mix) concrete base, 150mm solid concrete walling with cement mortar joints and 12mm thick inside rendering and formed holes for pipework. 400 x 400 x 40 mm thick R.C.C (MIX C) cover reinforced with B.R.C. NO. 14 with 400mm ventilating/lifting hole.</p>	1	No		
B	<p>SLUICE VALVE INDICATOR POST</p> <p>Valve indicator post size 90 x 50 x 1200mm high in P.C.C. (MIX C) With enlarged and shaped head, size 225 x 50 with splayed corners, all reinforced with 2 x 12 mm mild steel bars folded back at the enlarged head and with 6mm stirrups 50mm D/c, all fair finished and painted yellow gloss paint and with the letters 'SV' recessed 3mm into the enlarged head and painted black: Post set into and including 400 x 400 x 400mm deep 150mm under finished ground level, including all the necessary excavations, back filling, disposal, form work etc.</p>	1	No		
C	Ditto but marked with letters "WL"	1	No		
D	<p>TESTING AND COMMISSIONING</p> <p>Allow for flow and pressure testing the whole of the water supply system during the works progress and on completion to the satisfaction of the Engineer. (Pressure test records to be kept on site with copies given to the Engineer for approval and record)</p>	Item	sum		
E	Total carried to collection page 29				

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	AMOUNT (Kshs)
	COLLECTION PAGE	
A	Total B/F from page 25	
B	Total B/F from page 26	
C	Total B/F from page 27	
D	Total B/F from page 28	
E	Total for External Water Reticulation Carried Forward to Summary page 34	

ITEM No.	DESCRIPTION	QTY	UNIT	RATE Kshs.	AMOUNT Kshs.
12.2	<p>EXTERNAL FIRE HYDRANTS Supply,install, test and commission the following as specified: All pipes shall be heavy duty black HDPE pressure pipes PN 16 As TOP PIPE or equal and approved. All pipes shall be High density Polyethylene Pipe to ISO 4427 SDR 11, PN 16, PE 100. The following in High Density Polyethylene HDPE PN16 conforming to the current European standards for HDPE installations and to the Engineers approval. Rates must allow for all Metal/Plastic adaptors where required for the connection of fixtures, support raceways, isolating sheaths, elastic materials, expansion arms and bends, crossovers etc. Sizes indicate the inside diameters of the pipes Note:-All rates to be inclusive of VAT and any other applicable tax NB: All pipes are subject to remeasurement.</p>				
	PIPEWORK				
A	150mm diameter	460	Mtrs		
B	100mm diameter	260	Mtrs		
C	75mm ditto	24	Mtrs		
D	40mm ditto	90	Mtrs		
	BENDS				
E	150mm diameter bend	4	Nos.		
F	100mm diameter bend	4	Nos.		
G	75mm ditto	8	Nos.		
H	40mm ditto	16	Nos.		
	THREADED BENDS				
I	75mm diameter bend	8	Nos.		
	DIAMETER REDUCERS				
J	100 x 75mm diameter reducer	6	Nos.		
	TEES				
K	150 x 150 x 150mm diameter	4	Nos.		
L	150 x 150 x 100mm diameter	4	Nos.		
M	100 x 100 x 100mm diameter	2	Nos.		
N	100 x 100 x 75mm ditto	8	Nos.		
O	100 x 100 x 40mm ditto	4	Nos.		
P	100 x 100 x 32mm ditto	2	Nos.		
	UNIONS/ FLANGES				
Q	150mm diameter flanges	46	Nos.		
R	100mm diameter flanges	26	Nos.		
S	75mm ditto	3	Nos.		
T	40mm ditto	39	Nos.		
U	Total carried to next page				

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	QTY	UNIT	RATE Kshs.	AMOUNT Kshs.
A	Total carried forward from previous page				
B	SLUICE/GATE VALVES TO BS 5151:1974 150mm diameter	6	Nos.		
C	FIRE HYDRANT VALVE The hydrant valves to be of oblique type with flanged inlet and manufactured to comply to BS 5041 Part 1 standard with delivery hose connection outlet and blank cap complying with BS 336:2010 standard. Model No. NDR 098 or equal and approved. Valves to be complete with a strap and pad lock so that the hand wheel can be secured to counter unauthorized use, and a 1.5meters heavy gauge galvanized mild steel stand pipe with flanges for inlet and outlet with all necessary accessories required for installation.	6	No		
D	FIRE HYDRANT HOSE CABINET The external fire hose cabinet to accommodate the hose pipes, branch pipe nozzle and the hydrant outlets shall be fabricated from 1.5m sheet steel. This shall be lockable and provided with center opening glazed doors. The cabinet to be complete with the hose pipes.	6	No		
E	TRENCHING Excavate trench, including leveling, ramming bottoms, backfilling (average 600mm deep)	834	Lm		
F	TESTING AND COMMISSIONING Allow for testing and commissioning the entire fire fighting system to the satisfaction of the Engineer.	Item	Sum		
G	Total for external fire hydrants carried to Collection page 33				

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	AMOUNT Kshs
	SUMMARY PAGE - EXTERNAL FIRE FIGHTING	
A	Total for Automatic fire pump set B/F from page 30	
B	Total for Fire Hydrants B/F from page 32	
C	TOTAL FOR FIRE FIGHTING INSTALLATIONS C/F TO SUMMARY PAGE 34	

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	AMOUNT Kshs
	SUMMARY PAGE - EXTERNAL MECHANICAL WORKS	
A	Total for External water reticulation B/F from page 29	
B	Total for External fire fighting system B/F from page 33	
C	TOTAL FOR EXTERNAL MECHANICAL INSTALLATIONS C/F TO MAIN SUMMARY PAGE 35	

PROPOSED GDC COMPLEX AT KABARAK NAKURU COUNTY - LABORATORY + OFFICES COMPLEX
PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS

ITEM No.	DESCRIPTION	AMOUNT (Kshs)
	SUMMARY PAGE - OFFICES + LABORATORIES COMPLEX	
A	Total for Sanitary Fittings B/F from page 4	
B	Total for Internal Cold Water B/F from page 7	
C	Total for Foul Water Drainage B/F from page 12	
D	Total for Fire Fighting System B/F from page 15	
E	Total for Roof Rain Water Drainage B/F from page 16	
G	Total for LPG installations for the main kitchen B/F from page 19	
H	Total for solar water heating installations B/F from page 24	
I	Total for mechanical external works installations B/F from page 34	
J	Provision of as- Built drawings	
K	Provisional SUM FOR KITCHEN EQUIPMENT	8,500,000.00
K	SUB TOTAL	
L	Allow Contingency to be used at the direction of the Engineer	4,500,000.00
M	TOTAL FOR LABS & OFFICES PLUMBING, DRAINAGE AND FIRE FIGHTING INSTALLATIONS	

SECTION XI: TABLE OF PRICE ADJUSTMENT DATA

**PROPOSED LABORATORIES AND OFFICES FOR GEOTHERMAL DEVELOPMENT
COMPANY LIMITED**

TABLE OF PRICE ADJUSTMENT DATA (SUB-CLAUSE 13.9)

Source of indices:	Quarterly Construction Input Price Indices (C.I.P.I.) published by the Kenya National Bureau of Statistics (KNBS), Table 3 (The building cost indices)
Base indices:	Indices prevailing 30 days before Bid opening
Applicable currency:	Kshs
Formula:	$P=(Lm-Lo)/Lo$
Where:	
P:	Adjustment factor for proportion of contract price payable (specific items of construction inputs)
Coefficients:	
Lm:	Index prevailing at the time the work is done
L.o:	Base index
NB:	Applicable items are only those listed below and base prices must be filled in by the tenderer
Labour component	Shall be taken as 20% of the all-in rates
Items that do not appear in the C.I.P.I.:	Items that do not appear in the C.I.P.I. or this table and schedule below shall not be subject to adjustment To the extent that the tenderer has not filled in rates in the schedule below, sub-clause 13.9 shall not be applicable
NB:To the extent that full compensation for any rise or fall in Costs is not covered by the provisions of clause 13 and the list below, the Accepted Contract Amount shall be deemed to have included amounts to cover the rises and falls in such costs.	

TENDERERS TO ENTER CURRENT PRICES (BASE PRICES) FOR THE FOLLOWING:

Prices to include transport to site and any other incidental costs but excluding labour and profit

Item	Description	Unit	Base price
A	Cement	Bag (50Kg)	
B	Hardcore	CM	
C	Sand	Tonne	
D	Ballast	Tonne	
E	Steel reinforcement bars	KG	
F	Structural steel	KG	
G	Undressed quarry stone	Feet	
H	Machine cut stone (400x200x200mm)	NO	
I	Machine cut stone (400x200x150mm)	NO	
J	Machine cut stone (400x200x100mm)	NO	
K	100x500mm sawn softwood timber	LM	
L	100x500mm wrot softwood timber	LM	
M	100x500mm sawn hardwood timber	LM	
N	100x500mm wrot hardwood timber	LM	
O	80mm thick concrete paving blocks	SM	
P	G24 coloured box profile roofing sheets	SM	
Q	Aluminium doors (Excluding glass)	SM	
R	Aluminium windows (Excluding glass)	SM	
S	Steel doors (Excluding glass)	SM	
T	Wooden flushdoors hardwood veneered size 900x2100mm	NO	

BASE PRICES CONTINUED

Item	Description	Unit	Base price
A	4mm clear glass	SM	
B	6mm clear glass	SM	
C	Ceramic floor tiles	SM	
D	Ceramic wall tiles	SM	
E	Granito floor tiles	SM	
F	Gloss paint	Litre	
G	Emulsion paint	Litre	

SECTION XII: PROVISIONAL SUMS AND GRAND SUMMARY

PROPOSED LABORATORIES AND OFFICES AT KABARAK NAKURU FOR GDC

PROVISIONAL SUMS

NB: The specialised works indicated under provisional sums herebelow shall either be carried out by the contractor or by separate specialized contractors who shall have a direct contract with the employer.

Where the contractor shall provide a competitive quotation, they will carry out the works either themselves if registered and experienced in that specialisation or through registered and experienced domestic subcontractors approved by the project manager.

Where the work is carried out by the contractor, the attendance and profit items shall not apply.

The contractor shall allow in his prices for co-ordinating and co-operating with any specialist contractors who may be appointed to carry out part of the works.

The contractor shall allow in their rates for any costs related with complying with the above.

Item	Description	Qty	Unit	Rate	Kshs/Cts
	<u>Lift</u>				
A	Allow the provisional sum of Kshs 6,000,000.00 for lift		Sum		6,000,000.00
B	Allow for contractor's profit		Sum		
C	Allow for attendance as described		%		
	<u>Standby generators</u>				
D	Allow the provisional sum of Kshs 7,000,000.00 for 300KVA standby generator for lab and offices		Sum		7,000,000.00
E	Allow for contractor's profit		Sum		
F	Allow for attendance as described		%		
	<u>LAN, CCTV and access control</u>				
G	Allow provisional sum of Kshs 4,500,000.00 for LAN, CCTV and access control		Sum		4,500,000.00
H	Allow for contractor's profit		Sum		
I	Allow for attendance as described		%		
	Carried to collection				

PROPOSED LABORATORIES AND OFFICES AT KABARAK NAKURU FOR GDC

Item	Description	Qty	Unit	Rate	Kshs/Cts
	<u>PABX</u>				
A	Allow the provisional sum of Kshs. 3,000,000.00 for PABX		Sum		3,000,000.00
B	Allow for contractor's profit		Sum		
C	Allow for attendance as described		%		
	<u>Heating, ventilation and air conditioning</u>				
D	Allow the provisional sum of Kshs. 30,000,000.00 for heating, ventilation and air conditioning		Sum		30,000,000.00
E	Allow for contractor's profit		Sum		
F	Allow for attendance as described		%		
	<u>Technical gases</u>				
G	Allow the provisional sum of Kshs. 20,000,000.00 for technical gases installation		Sum		20,000,000.00
H	Allow for contractor's profit		Sum		
I	Allow for attendance as described		%		
	<u>Waste water treatment and disposal</u>				
J	Allow the provisional sum of Kshs. 10,000,000.00 for waste water treatment and disposal		Sum		10,000,000.00
K	Allow for contractor's profit		Sum		
L	Allow for attendance as described		%		
	<u>Furniture</u>				
M	Allow provisional sum of Kshs. 20,000,000.00 for furniture		Sum		20,000,000.00
N	Allow for contractor's profit		Sum		
O	Allow for attendance as described		%		
	Carried to collection				

PROPOSED LABORATORIES AND OFFICES AT KABARAK NAKURU FOR GDC

Item	Description	Qty	Unit	Rate	Kshs/Cts
A	<u>Landscaping</u> Allow the provisional sum of Kshs. 2,000,000.00 for decorative landscaping		Sum		2,000,000.00
B	<u>Generator shed</u> Allow provisional sum of Kshs 500,000.00 for generator 1 number shed		Sum		500,000.00
C	<u>Signage</u> Allow the provisional sum of Kshs. 1,200,000.00 for signage		Sum		1,200,000.00
D	<u>Reception desk</u> Allow the provisional sum of Kshs. 450,000.00 for reception desk		Sum		450,000.00
E	<u>Fluctuations/Price change clause</u> Allow the provisional sum of Kshs. 20,000,000.00 for price fluctuations		Sum		20,000,000.00
F	<u>Contingencies</u> Allow the provisional sum of Kshs. 15,000,000.00 for contingencies on builders works		Sum		15,000,000.00
	Carried to collection				39,150,000.00
	COLLECTION				
	Brought forward from page 1				
	Brought forward from page 2				
	Brought down from above				39,150,000.00
	TOTAL FOR PROVISIONAL SUMS CARRIED TO MAIN SUMMARY				

GRAND SUMMARY

ITEM	PARTICULARS	FOR OFFICIAL USE ONLY	KSHS/CTS
1	PRELIMINARIES FROM PAGE 22		
2	LABORATORIES, OFFICES AND RESTAURANT BLOCK FROM PAGE 26		
3	EXTERNAL WORKS FROM PAGE 5		
4	ELECTRICAL WORKS FROM PAGE 5		
5	PLUMBING AND SOLAR WATER HEATING FROM PAGE 35		
6	PROVISIONAL SUMS FROM PAGE 3		
GRAND TOTAL INCLUDING VAT CARRIED TO FORM OF TENDER			

.....
TENDERER'S SIGNATURE AND STAMP

.....
WITNESS'S SIGNATURE

.....
.....
NAME & ADDRESS

.....
.....
NAME & ADDRESS

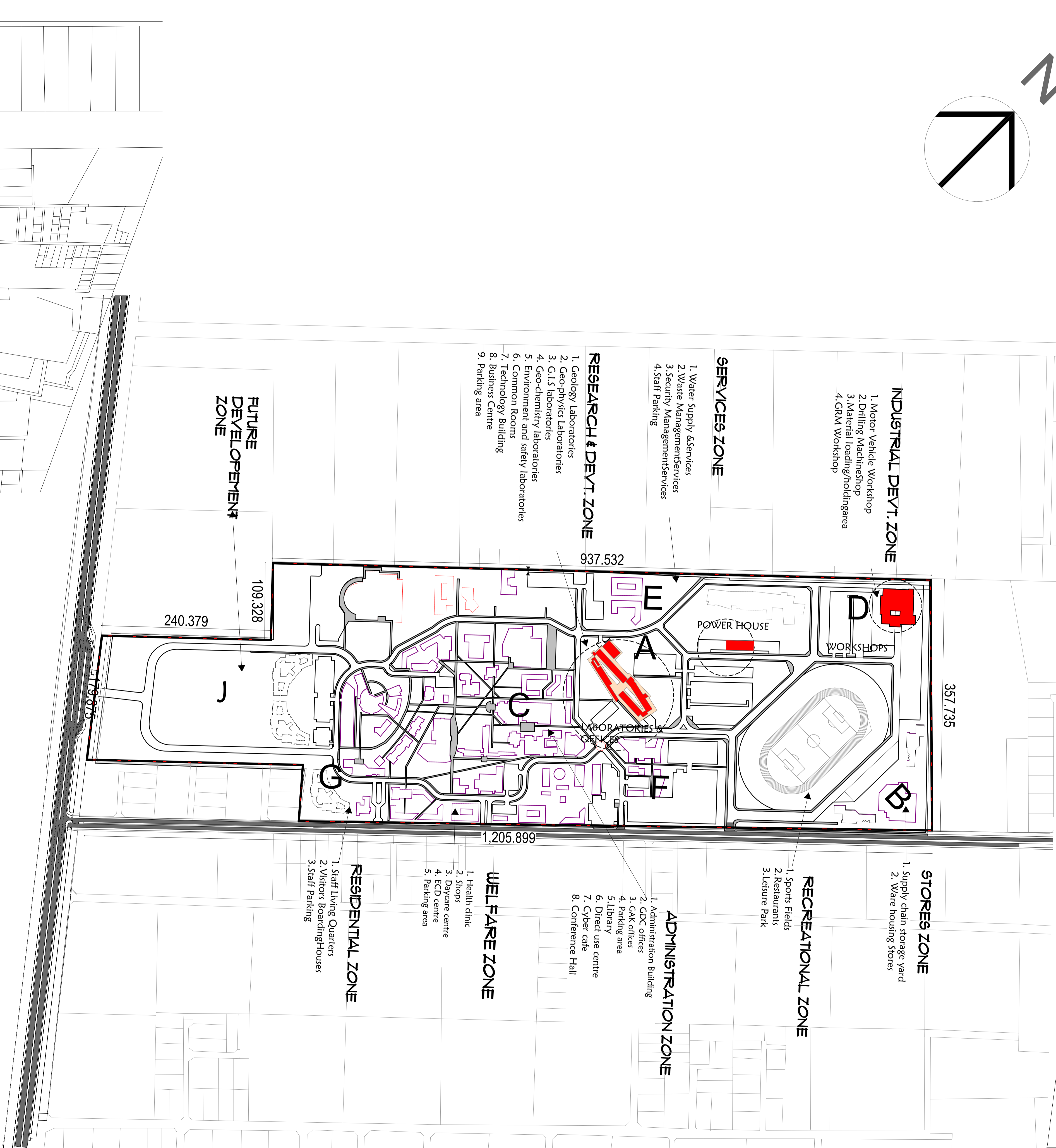
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DATE

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DATE

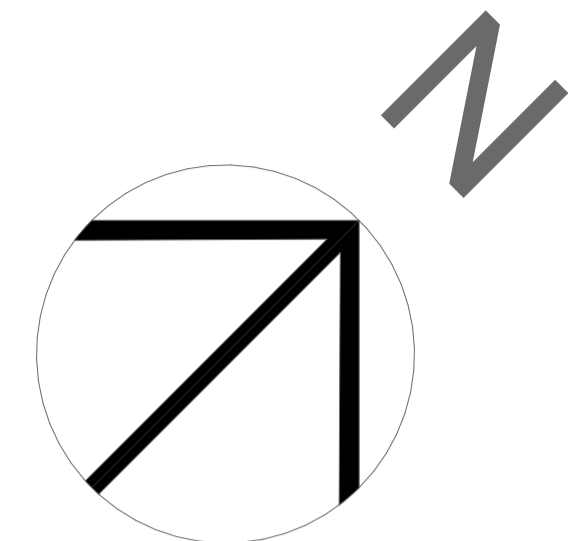
SECTION XIII: DRAWINGS



SITE LOCATION PLAN



SITE PLAN



GENERAL NOTES

1. All dimensions to be checked on site and any discrepancy referred to the architect immediately.
2. PV denotes permanent air vent over doors and windows as marked on plans and elevations.
3. All R.C (reinforced concrete) works must be carried out as per Structural Engineer's details
4. All Drain Pipes passing under building or drive-way are to be encased in 150mm thick concrete surround.
5. All Plumbing, Water Reticulation and drainage to be left clean and in working order to the entire satisfaction of M.O.H.
6. D.P.C to be of approved quality plastic membrane provided under all walls
7. All Inspection chambers along Drive-way should have quality heavy duty covers
8. Dry co2 fire extinguisher to be available at escape route to N.C.C regulations

DRAWING TITLE:

SITE CONTEXT PLAN

PROJECT:-

PROPOSED GDC COMPLEX KABARAK-NAKURU

CLIENT:-



ARCHITECT/ CONSULTANTS

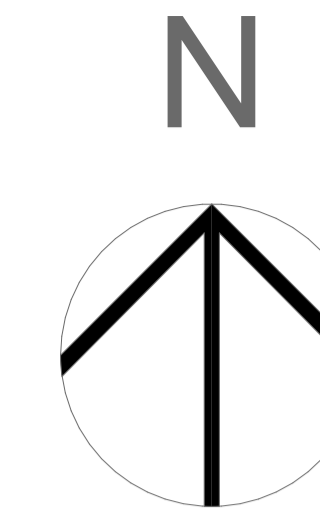
KIGONDU S. A792



PROJECT NO. GDC/05/2023

DATE REVISED 08/11/2023 DRAWN BY: A-K

SCALE 1:8000, CHECKED BY: KI



GENERAL NOTES

1. All dimensions to be checked on site and any discrepancy referred to the architect immediately.
2. PV denotes permanent air vent over doors and windows as marked on plans and elevations.
3. All R.C (reinforced concrete) works must be carried out as per Structural Engineer's details
4. All Drain Pipes passing under building or drive-way are to be encased in 150mm thick concrete surround.
5. All Plumbing, Water Reticulation and drainage to be left clean and in working order to the entire satisfaction of M.O.H.
6. D.P.C to be of approved quality plastic membrane provided under all walls
7. All Inspection chambers along Drive-way should have quality heavy duty covers
8. Dry co2 fire extinguisher to be available at escape route to N.CC regulations
9. 60% of energy used to be solar

DESIGN STAGE

SCHEME DESIGN

DRAWING TITLE:

GROUND FLOOR PLAN

PROJECT:

PROPOSED GDC LABORATORIES & WORKSHOPS - KABARAK, NAKURU

CLIENT:

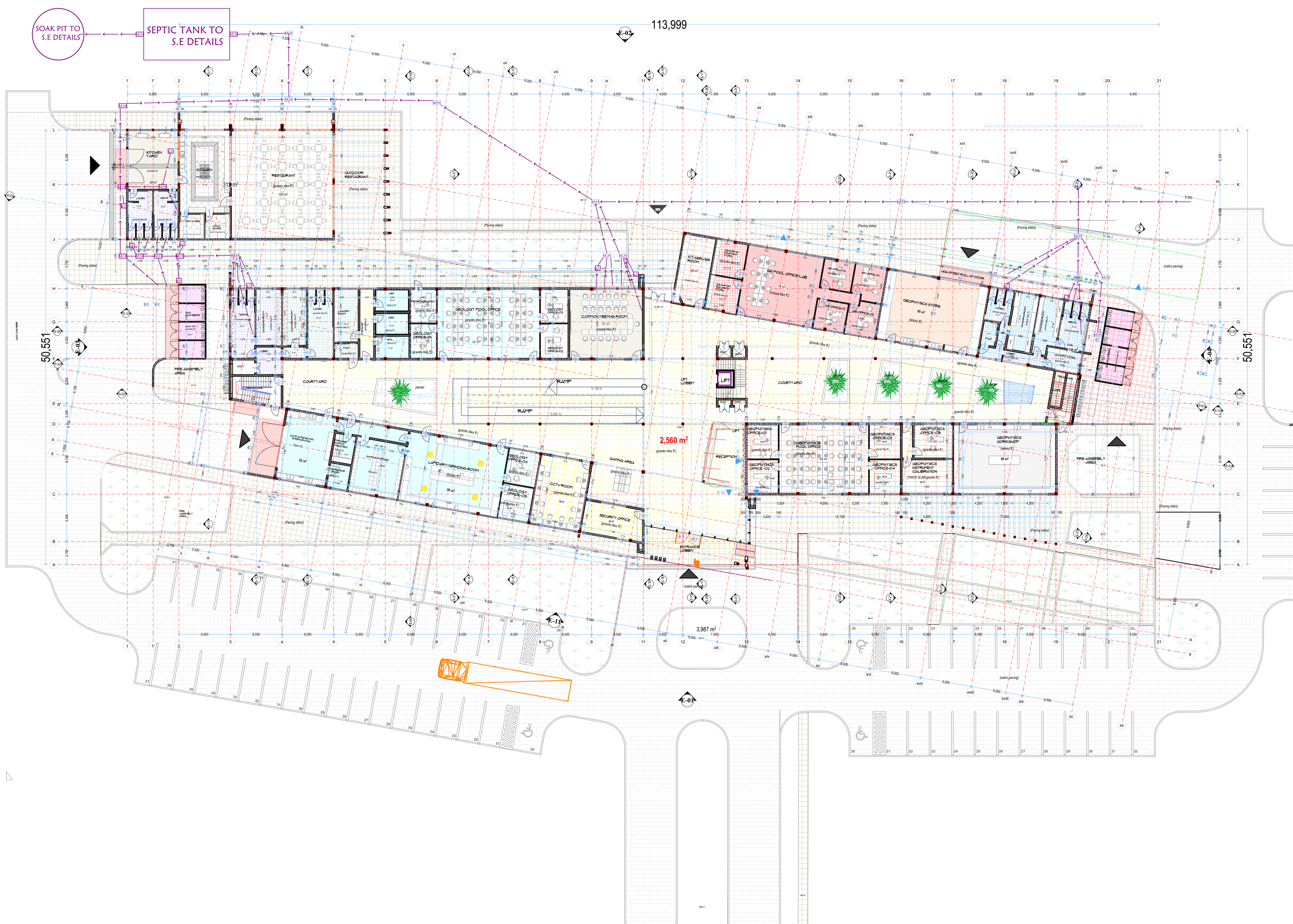


GEO-THERMAL DEVELOPEMENT COMPANY

ARCHITECTS



**KIGONDU S.
JKUATES
P.O BOX 62000-00200
NAIROBI**



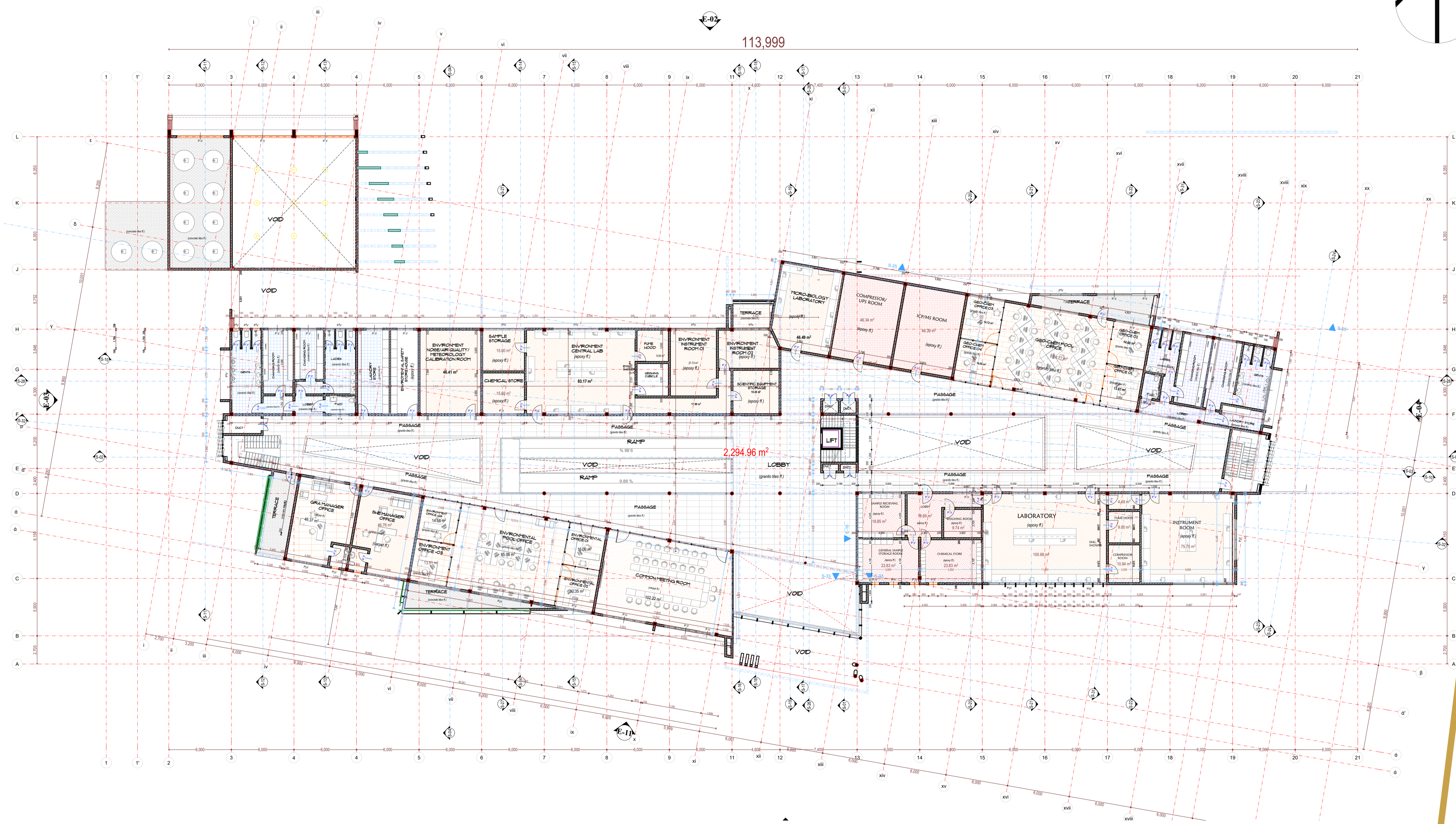
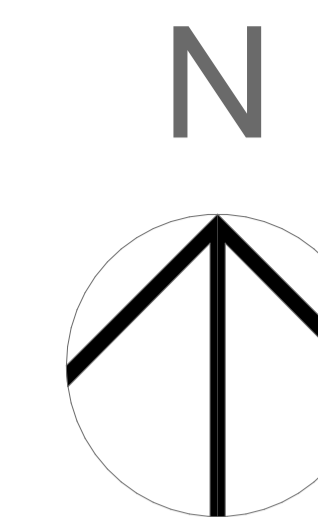
113,999

SOAK PIT TO S.E DETAILS
SEPTIC TANK TO S.E DETAILS

GROUND FLOOR PLAN

BUILT AREA = 2,560 M²

JOB NO.	DRAWING NO.:
DATE: 08/11/2023	DRAWN BY: A.K
DRAWING SCALE AT A1 1:250	CHECKED BY: KI



FIRST FLOOR PLAN

BUILT AREA = 2,319 M²

GENERAL NOTES

1. All dimensions to be checked on site and any discrepancy referred to the architect immediately.
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9. 60% of energy used to be solar

DESIGN STAGE

SCHEME DESIGN

DRAWING TITLE:
FIRST FLOOR PLAN

PROJECT:
PROPOSED GDC LABORATORIES & WORKSHOPS - KABARAK, NAKURU

CLIENT:



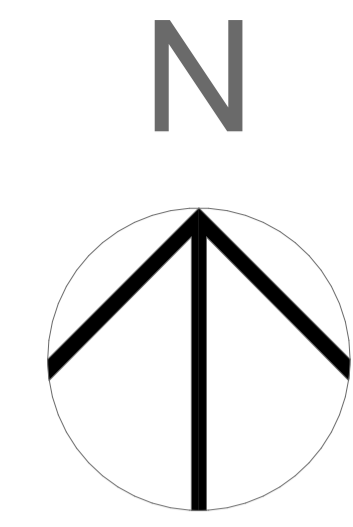
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ARCHITECTS



KIGONDU S.
JKUATES
P.O BOX 62000-00200
NAIROBI

JOB NO.	DRAWING NO.:
DATE: 08/11/2023	DRAWN BY: A.K
DRAWING SCALE AT A1: 1:200	CHECKED BY: KI



GENERAL NOTES

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DESIGN STAGE

SCHEME DESIGN

DRAWING TITLE:

ROOF PLAN

PROJECT:

PROPOSED GDC LABORATORIES & WORKSHOPS - KABARAK, NAKURU

CLIENT:



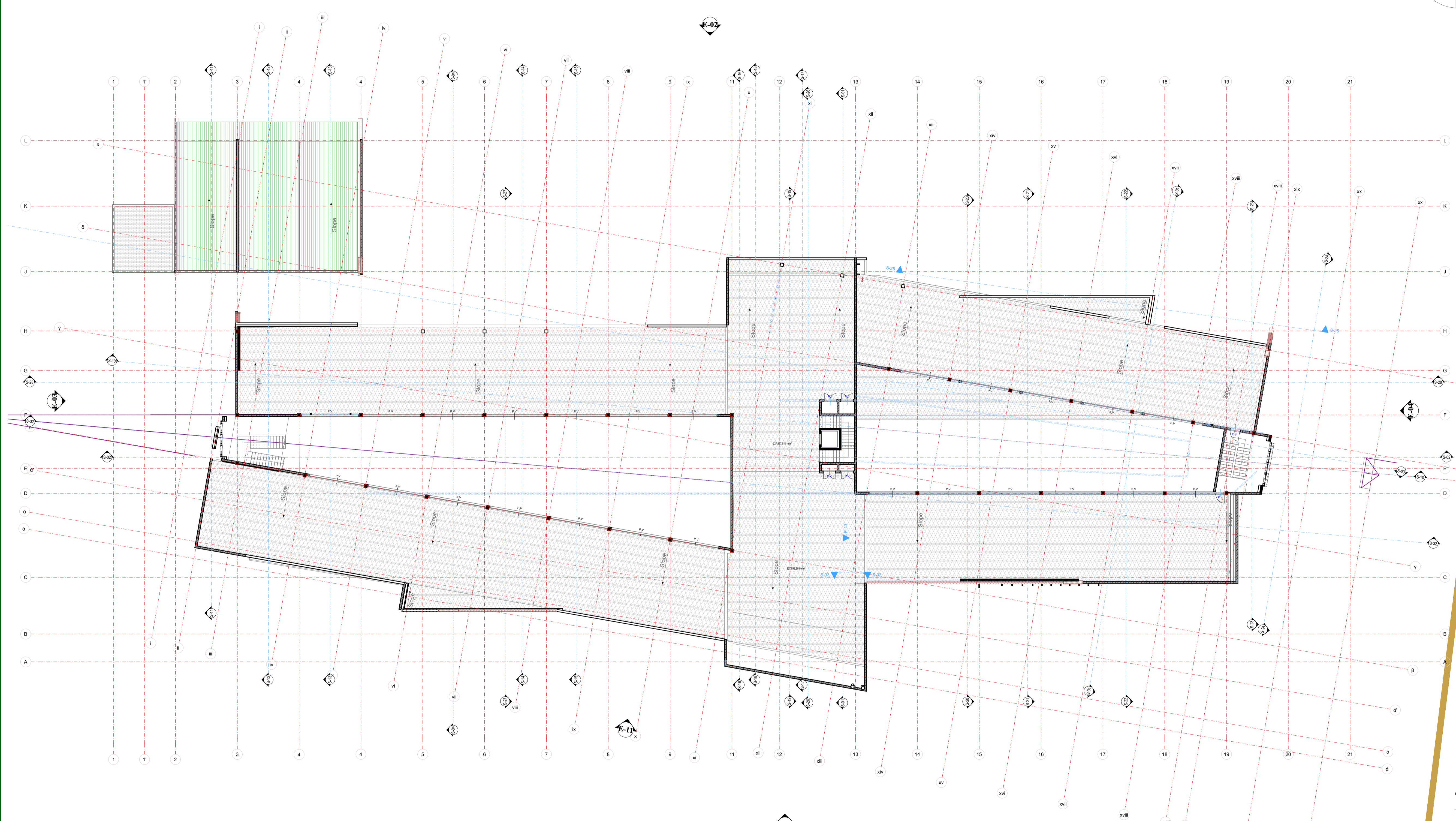
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ARCHITECTS



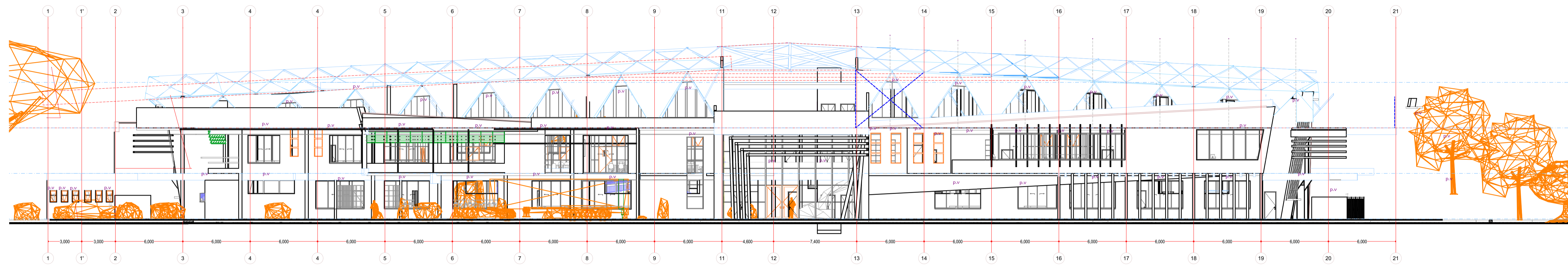
KIGONDI S.

**JKUATES
P.O BOX 62000-00200
NAIROBI**



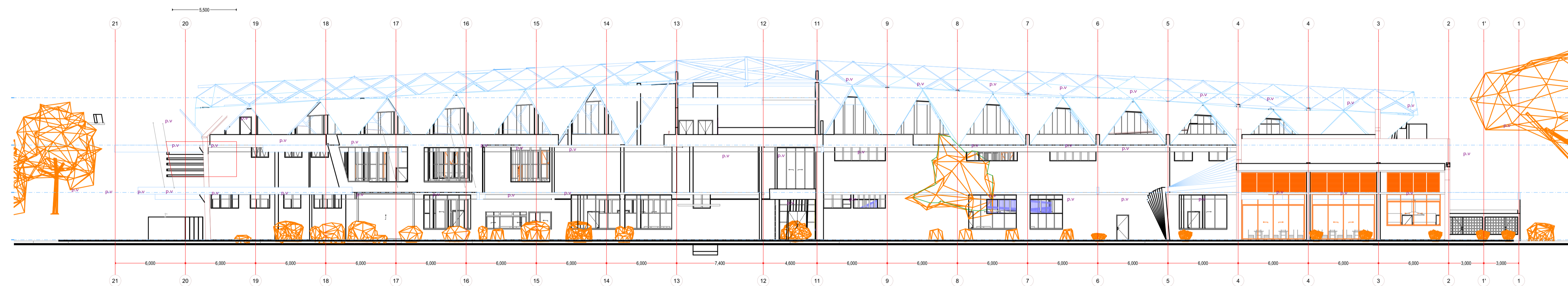
ROOF PLAN

JOB NO.	DRAWING NO.:
DATE: 08/11/2023	DRAWN BY: A.K
DRAWING SCALE AT A1: 1:200	CHECKED BY: KI



E-01 Elevation

1:200



E-02 Elevation

1:200

GENERAL NOTES

1. All dimensions to be checked on site and any discrepancy referred to the architect immediately.
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9. 60% of energy used to be solar

DESIGN STAGE

SCHEME DESIGN

DRAWING TITLE:
ELEVATIONS

PROJECT:
PROPOSED GDC LABORATORIES & WORKSHOPS - KABARAK, NAKURU

CLIENT:



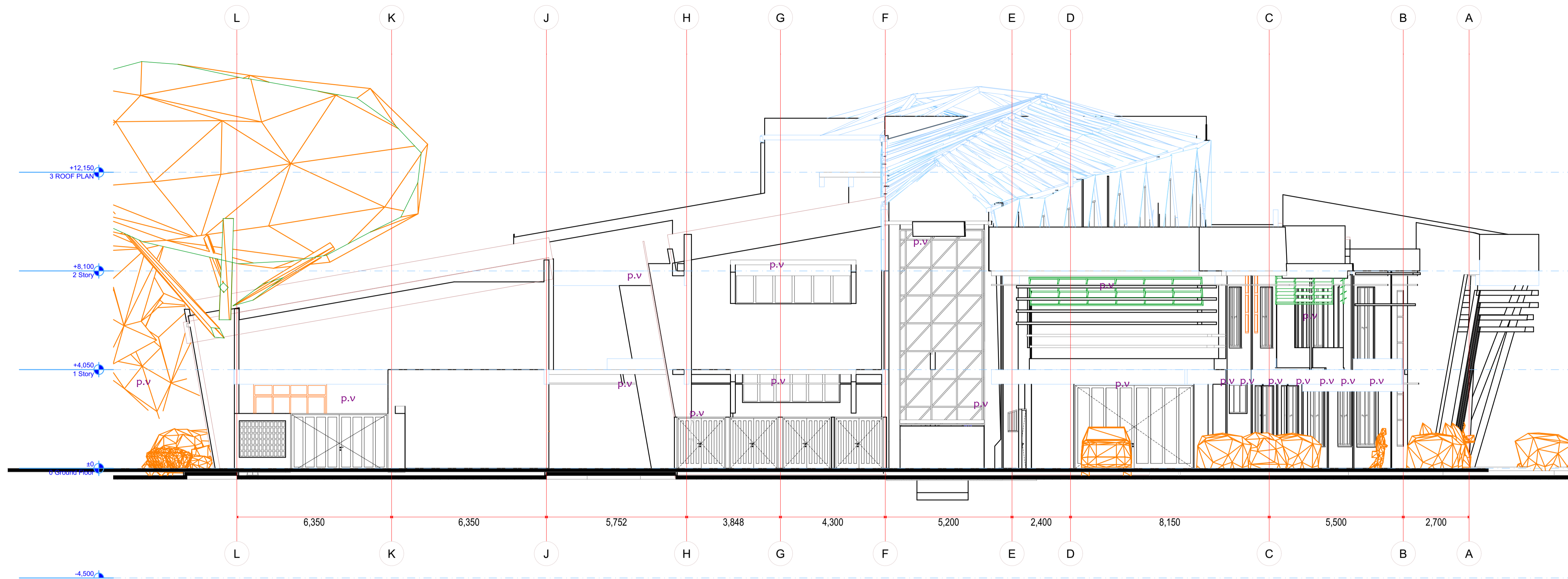
GEO-THERMAL DEVELOPEMENT COMPANY

ARCHITECTS

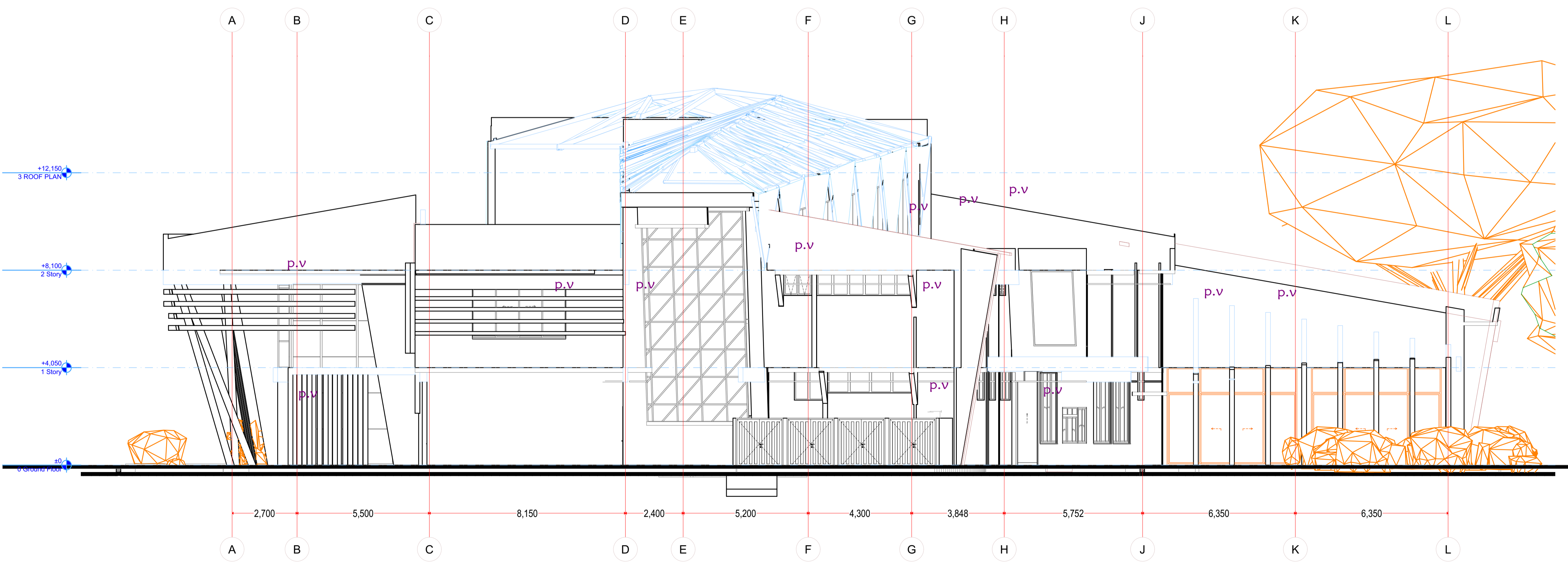


KIGONDU S.
JKUATES
P.O BOX 62000-00200
NAIROBI

JOB NO.	DRAWING NO.:
DATE: 08/11/2023	DRAWN BY: A.K
DRAWING SCALE AT A1: 1:200	CHECKED BY: KI



E-03 Elevation 1:100



E-04 Elevation 1:100

GENERAL NOTES

1. All dimensions to be checked on site and any discrepancy referred to the architect immediately.
2. PV denotes permanent air vent over doors and windows as marked on plans and elevations.
3. All R.C (reinforced concrete) works must be carried out as per Structural Engineer's details
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9. 60% of energy used to be solar

DESIGN STAGE


SCHEME DESIGN

DRAWING TITLE:
ELEVATIONS

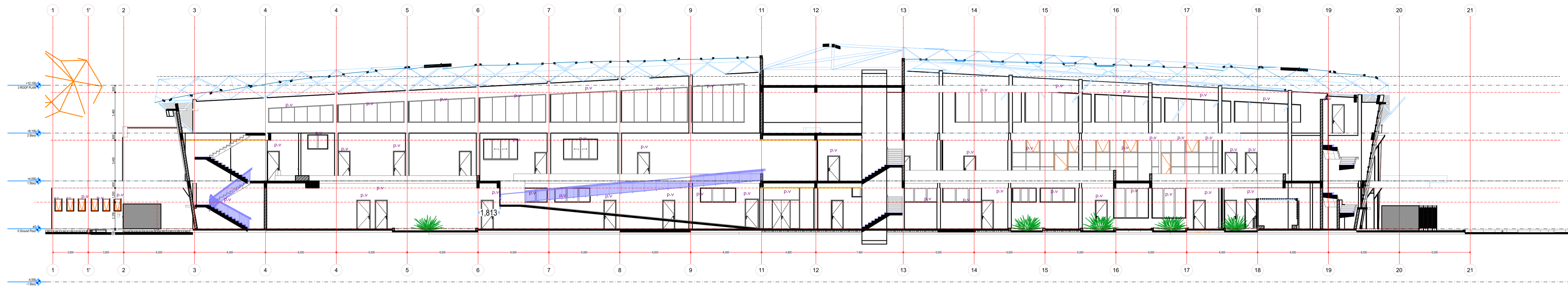
PROJECT:
PROPOSED GDC LABORATORIES & WORKSHOPS - KABARAK, NAKURU

CLIENT:

GEO-THERMAL DEVELOPEMENT COMPANY
Green Energy for Kenya

ARCHITECTS

KIGONDU S.
JKUATES
P.O BOX 62000-00200
NAIROBI

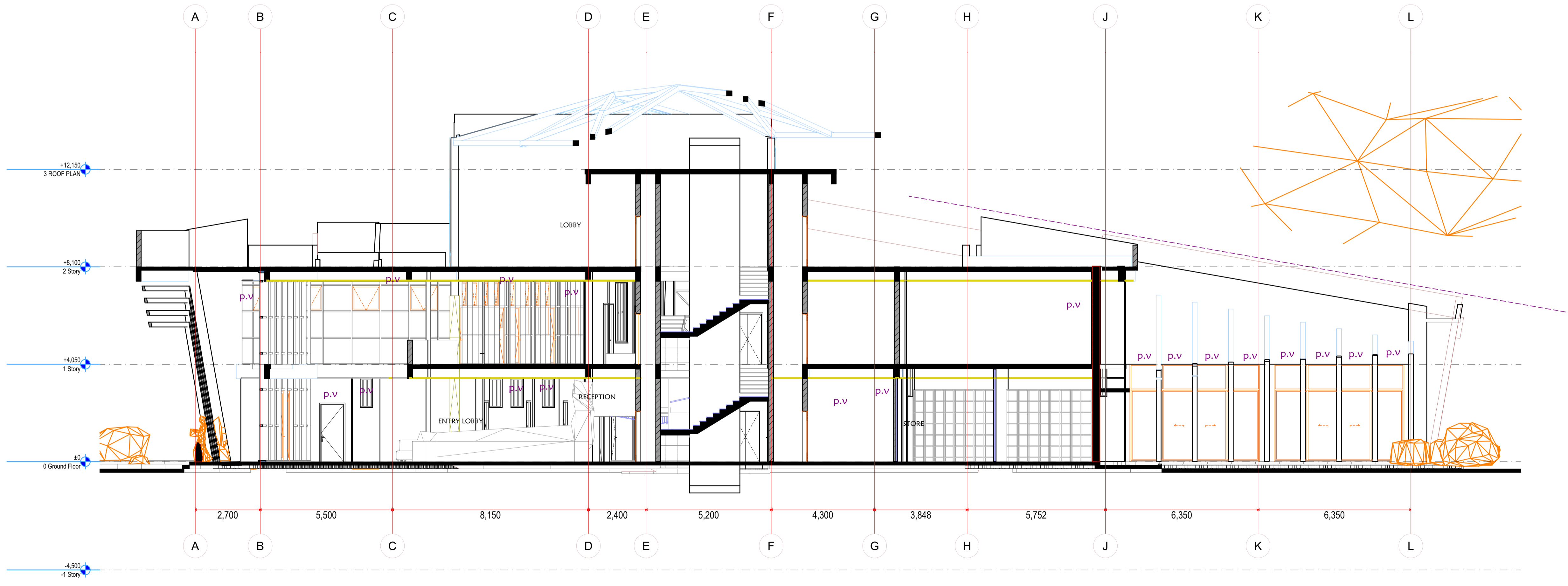
JOB NO.	DRAWING NO.:
DATE: 08/11/2023	DRAWN BY: A.K
DRAWING SCALE AT A1: 1:100	CHECKED BY: KI



S-02

Building Section

1:200



S-01

Building Section

1:100

GENERAL NOTES

1. All dimensions to be checked on site and any discrepancy referred to the architect immediately.
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DESIGN STAGE

SCHEME DESIGN

DRAWING TITLE:
SECTIONS

PROJECT:
PROPOSED GDC LABORATORIES & WORKSHOPS - KABARAK, NAKURU

CLIENT:



GEO-THERMAL DEVELOPEMENT COMPANY

ARCHITECTS



KIGONDU S.
JKUATES
P.O BOX 62000-00200
NAIROBI

JOB NO.	DRAWING NO.:
DATE: 08/11/2023	DRAWN BY: A.K
DRAWING SCALE AT/A1 1:200, 1:100	CHECKED BY: KI