THE UNITED REPUBLIC OF TANZANIA

PRESIDENT'S OFFICE

REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

SONGWE DISTRICT COUNCIL

TENDER NO. SDC/184/W/2021-2022/03

FOR

PROPOSED CONSTRUCTION OF EMERGENCY MEDICINE DEPARTMENT(EMD) BUILDING AND THREE IN ONE SEMI DETACHED STAFF HOUSE URBAN TYPE AT SONGWE COUNCIL HOSPITAL

TENDER DOCUMENT

DECEMBER 2021

SECTION I: INVITATION FOR TENDERS

THE UNITED REPUBLIC OF TANZANIA

PRESIDENT'S OFFICE

REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

TENDER NO. SDC/184/W/2021-2022/03

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PROPOSED CONSTRUCTION OF EMERGENCY MEDICAL DEPARTMENT BUILDING AND THREE IN ONE SEMI DETACHED STAFF HOUSE URBAN TYPE AT SONGWE DISTRICT COUNCIL

INVITATION FOR TENDER

1. The President's Office Regional Administration and Local Government have received funds from the Government for National Development and it intends to apply part of the proceeds of these funds to cover eligible payments during the financial year 2021/2022. It is intended that part of the proceeds of the fund will be used by Songwe District Council to cover eligible payment under the contract for Proposed Construction of Emergency Medicine Department (EMD) Building and three in one Semi detached staff house urban type at Songwe District Council.

2. The Songwe District Executive Director now invites sealed tenders from eligible building contractors registered or capable of being registered with the Contractors Registration Board (CRB) in class Five (4) and above to carry out the Construction of Emergency Medical Department Building nad Three in One Semi Detached stafaa house Urban type at Songwe District Council.

3. Tendering will be conducted through the **National Competitive Tendering** specified in the Public Procurement Regulations, 2013 – Government Notice No. 446 and is open to all Tenderer as defined in the Regulations unless otherwise stated in the Tender Data Sheet.

4. Interested eligible Tenderer may obtain further information from and inspect the Tendering Documents at the office of the Secretary of the Tender Board, Songwe District Council, P.O. Box 77, Mkwajuni, Songwe from 9:00 am to 3:00 pm on Mondays to Fridays inclusive except on public holidays.

5. A complete set of Tendering Document(s) in **English Language** and additional sets may be purchased **by interested** Tenderer on the submission of a written application to the address given under this paragraph and upon payment of a non-refundable fee of **TZS 50,000.00 (Fifty thousand only)**. Payment should be deposited through NMB Account Number **62510009582** Account name; **Songwe District Miscellaneous Account.**

6. All Tenders must be accompanied by Bid Securing Declaration form clearly addressed to the District Executive Director, P.O. Box 77, Mkwajuni - Songwe.

7. All Tenders in one original plus three copies, properly filled in, and enclosed in plain wax – sealed envelopes must be delivered to the address: District Executive Director, Songwe District Council at or before 10:00 am clearly marked **"TENDER FOR PROPOSED CONSTRUCTION OF EMERGENCY MEDICINE DEPARTMENT (EMD) BUILDING AND THREE IN ONE SEMI DETACHED STAFF HOUSE URBAN TYPE FOR SONGWE COUNCIL HOSPITAL. The deadline for submission of Tenders shall be on Tuesday 04th January 2022 at 10:00am.** Tenders will be opened promptly thereafter in public and in the presence of Tenderer representatives who choose to attend in the opening ceremony in the **SAMBILA CONFERENCE HALL AT SONGWE DISTRICT COUNCIL.**

8. Late Tenders portion of Tenders, electronic Tenders, Tenders not received and Tenders not opened at the Tender opening ceremony shall not be accepted for evaluation irrespective of the circumstances**.**

DISTRICT EXECUTIVE DIRECTOR
SONGWE DISTRICT COUNCIL

SECTION II: INSTRUCTIONS TO Tenderer

Table of Contents

A. Introduction

1. Scope of Tender

1.1 The Procuring Entity as indicated in the **Tender Data Sheet** invites Tenders for the construction of works, as described in the **Tender Data Sheet**. The name and identification number of the Contract is provided in the Special Conditions of Contract**.**

1.2 The successful Tenderer will be expected to complete the Works within the period stated in the **Tender Data Sheet** from the start Date specified in the **Tender Data Sheet.**

2. Source of Funds

2.1 The Government of the United Republic of Tanzania through the Procuring Entity named in the **Tender Data Sheet** has received a credit from the financing institution named in the **Tender Data Sheet** towards the cost of the Project named in the **Tender Data Sheet.** The United Republic of Tanzania intends to apply part of the proceeds of this credit to payments under the Contract described in the **Tender Data Sheet**.

2.2 Payments will be made directly by the Procuring Entity (or by financing institution specified in the **Tender Data Sheet** upon request of the Procuring Entity to so pay) and will be subject in all respects to the terms and conditions of the resulting contract placed by the Procuring Entity.

3. Eligibility of Tenderer

3.1 A Tenderer may be a natural person, private Entity, government-owned Entity, subject to subject to ITT sub-Clause 3.4 or any combination of them with a formal intent to enter into an agreement or under an existing agreement in the form of a joint venture, consortium, or association. In the case of a joint venture, consortium, or association, unless otherwise specified in the **Tender Data Sheet**, all parties shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms. The joint venture, consortium, or association shall nominate a Lead Member who shall have the authority to conduct all business for and on behalf of any and all the members of the joint venture, consortium, or association during the tendering process and, in the event the joint venture, consortium, or association is awarded the Contract, during contract

execution. Unless specified in the **Tender Data Sheet,** there is no limit on the number of members in a joint venture, consortium, or association.

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3.2 The Lead Member shall at the time of contract award confirm the appointment by submission of a Power of Attorney to the Procuring Entity.

3.3 Any Tender from a joint venture, consortium or association shall indicate the part of proposed contract to be performed by each party and each party shall be evaluated or post qualified with respect to its contribution only and the responsibilities of each party and shall not be substantially altered without prior written approval of the Procuring Entity.

3.4 The invitation for Tenders is open to all Tenderer as defined in the Public Procurement Regulations, 2013 – Government Notice No. 446 except as provided hereinafter. Tenders

3.5 National Tenderer shall satisfy all relevant licensing and/or registration requirements with the appropriate statutory bodies in Tanzania. Foreign Tenderer are exempted from this requirement but where selected as having submitted the lowest evaluated Tender the successful Tenderer shall register with the appropriate statutory body and shall be required to submit evidence of registration as an approved contractor in Tanzania before signing the contract.

3.6 A Tender shall not have a conflict of interest. All Tenderer found to have a conflict of interest shall be disqualified. A Tenderer may be considered to have a conflict of interest with one or more parties in this tendering process, if they:

a) Are associated or have been associated in the past, directly or indirectly with a firm or any of its affiliates which have been engaged by the Procuring Entity to provide consulting services for the preparation of the design, specifications and other documents to be used for the procurement of the works to be purchased under this Invitation for Tenders.
b) have controlling shareholders in common; or
c) receive or have received any direct or indirect

subsidy from any of them; or

d) have the same legal representative for purposes of this Tenders; or

e) have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the Tender of another Tenderer, or influence the decisions of the Procuring Entity regarding this tendering process; or

f) submit more than one Tender in this tendering process, However, this does not limit the participation of subcontractors in more than one Tender, or as Tenderer and subcontractors simultaneously; or

g) Participated as a consultant in the preparation of the design or technical specifications of the goods and related services that are the subject of the Tender.

3.7 Firms and individuals may be ineligible if –

(a) such person is declared bankrupt or, in the case of company or firm, insolvent;

(b) payments in favour of the person, company or firm is suspended in accordance with the judgment of a court of law other than a judgment declaring bankruptcy and resulting, in accordance with the national laws, in the total or partial loss of the right to administer and dispose of its property;

(c) legal proceedings are instituted against such person, company or firm involving an order suspending payments and which may result, in accordance with the national laws, in a declaration of bankruptcy or in any other situation entailing the total or partial loss of the right to administer and dispose of the property;

(d) the person, company or firm is convicted, by a final judgment, of any offence involving professional conduct;

(e) the person or company is debarred and blacklisted in accordance with section 62 of the Act or ineligible in accordance with section 84(7) of the Act, from participating in public procurement for corrupt, coercive, collusive, fraudulent or obstructive practices, failure to abide with a Tender Securing Declaration, breach of a procurement contract, making false representation about his

qualifications during tender proceeding or other grounds as may be deemed necessary by the Authority company or firm is found guilty of serious misrepresentation with regard to information required for participation in an invitation to tender or to submit proposals.

3.8 Public or Semi-public owned enterprises in the United Republic of Tanzania may participate only if they can establish that they (i) are legally and financially autonomous; and (ii) operate under commercial law. No dependent agency of the Public authority under public financed project shall be permitted to Tender or submit a proposal for the procurement of goods or works under the project.

3.9 Tenderer shall provide to the Procuring Entity evidence of their eligibility, proof of compliance with the necessary legal, technical and financial requirements and their capability and, adequacy of resources to carry out the contract effectively.

3.10 Tenderer shall submit proposals to relating to the nature, conditions and modalities of sub-contracting wherever the sub-contracting of any elements of the contract amounting to the more than ten percent of the tender price is envisaged.

4. One Tender per Tenderer

4.1 A firm shall submit only one Tender, in the same tendering process, either individually as a Tenderer or as a partner in a joint venture.

4.2 No firm can be a subcontractor while submitting a Tender individually or as a partner of a joint venture in the same tendering process.

4.3 A firm, if acting in the capacity of subcontractor in any Tender, may participate in more than one Tender but only in that capacity.

4.4 A Tenderer who submits or participates in more than one Tender (other than as a subcontractor or in cases of alternatives that have been permitted or requested) will cause all the proposals in which the Tenderer has participated to be disqualified.

5. Cost of Tendering

5.1 The Tenderer shall bear all costs associated with the preparation and submission of its Tender, and the Procuring Entity shall in no case be responsible or liable for those costs, regardless of the conduct or outcome of the tendering process except as provided for under Section 97(5) (f) of the Public Procurement Act No. 9 of 2011.

6. Site Visit and Pre-Tender Meeting

6.1 The Tenderer, at the Tenderer's own responsibility and risk, is advised to visit 'and examine the Site of Works and its surroundings and obtain for itself 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 at the Tenderer's own expense.

6.3 The Tenderer's designated representative is invited to attend a site visit and Pre-Tender meeting which, if convened, will take place at the venue and time stipulated in the **Tender Data Sheet**.

6.4 The Tenderer is requested as far as possible, to submit any questions in writing or in electronic forms that provide record of the content of communication or by cable, to reach the procuring Entity before pre-Tender meeting. It may not be practicable at the meeting to answer all questions, but questions and responses will be transmitted in accordance with ITT sub-Clause 6.5.

6.5 Minutes of the pre-tender meeting, including the text of the questions raised and the responses given together with any responses prepared after the pre-tender meeting, will be transmitted within three (3) working days to all purchasers of the tendering documents. Any modification of the Tendering Documents listed in ITT sub-Clause 7.1 that may become necessary as a result of the pre-tender meeting shall be made by the Procuring Entity exclusively through the issue of an Addendum pursuant to ITT sub-Clause 9.2 and not through the minutes of the pre-Tender meeting.

6.6 Non attendance during the site visit or pre-Tender meeting will not be a cause for disqualification of a Tenderer

B. Tendering Documents

7. Content of Tendering Documents

7.1 In addition to the Invitation for Tenders, the Tendering Documents which should be read in conjunction with any addenda issued in accordance with ITT sub-clause 9.2 include:

Section II Instructions to Tenderer;
Section III Tender Data Sheet;
Section IV General Conditions of Contract;
Section V Special Conditions of Contract;
Section VI Specifications;
Section VII Drawings;
Section VIII Bill of Quantities;
Section IX Tender Forms;

- Form of Tender and Appendix to Tender;
- Form of Qualification Information;
- Letter of acceptance;
- Form of Agreement;

Section X Forms of Security;

- Tender Security Form or Tender Securing Declaration Form;
- Performance Security Form;
- Bank Guarantee for Advance Payment Form;

Section XI. Form of Integrity.

7.2 The number of copies to be completed and returned with the Tender is specified in the **Tender Data Sheet.**

7.3 The Invitation for Tenders (Section I) issued by the Procuring Entity is not part of the Tendering Documents. In case of discrepancies between the Invitation for Tender and the Tendering Documents listed in sub-Clause 7.1 above, said Tendering Documents will take precedence.

7.4 The Procuring Entity is not responsible for the completeness of the Tendering Documents and their addenda, if they were not obtained directly from the Tender Board.

7.5 The Tenderer is expected to examine all instructions, forms, terms and specifications in the Tendering Documents. Failure to furnish all information required by the Tendering Documents or to submit a Tender substantially responsive to the Tendering Documents in every respect will be at the Tenderer's risk and may result in the rejection of its Tender.

8. Clarification of Tendering Documents

8.1 A prospective Tenderer requiring any clarification of the Tendering Documents may notify the Procuring Entity in writing or in electronic forms that provide record of the content of communication at the Procuring Entity's address indicated in the **Tender Data Sheet**.

8.2 The Procuring Entity will within three (3) working days after receiving the request for clarification respond in writing or in electronic forms that provide record of the content of communication to any request for clarification provided that such request is received no later than the fourteen (14) days prior to the deadline for the submission of competitive Tenders prescribed in ITT sub-Clause 21.1 and in the case of non-competitive methods, three (3) days prior to the deadline.

8.3 Copies of the procuring entity's response will be forwarded to all Purchasers of the Tendering Documents, including a description of the inquiry, but without identifying its source.

8.4 Should the Procuring Entity deem it necessary to amend the Tendering Documents as a result of a clarification, it shall do so following the procedure under ITT Clause 9.

9. Amendment of Tendering Documents

9.1 Before the deadline for submission of tenders, The Procuring Entity for any reason, whether at its own initiative or in response to a clarification requested by a prospective Tenderer, the procuring Entity may modify the Tendering Documents by issuing addenda.

9.2 Any addendum issued including the notice of any extension of the deadline shall be part of the Tender Documents pursuant to ITT sub-Clause 7.1 and shall be communicated in writing or in electronic forms that provide record of the content of communication to Tenderer to which the Procuring Entity provided the Tendering Documents.

9.3 In order to allow prospective Tenderer reasonable time in which to take an addendum into account in preparing their Tenders, the Procuring Entity at its discretion shall extend, as necessary, the deadline for submission of tenders, in accordance with ITT sub-Clause 21.2

C. Preparation of Tenders

10. Language of Tender

10.1 The tender, and all correspondence and documents related to the Tender exchanged by the Tenderer and the Procuring Entity, shall be written in the Tender language stipulated in the **Tender Data Sheet**. Supporting documents and printed literature furnished by the Tenderer may be in another language provided they are accompanied by an accurate translation of the relevant passages in the above stated language, in which case, for purposes of interpretation of the tender, the translation shall prevail.

11. Documents Constituting the Tender

11.1 The Tender prepared by the Tenderer shall constitute the following components:

a) The Form of Tender and Tender Price completed in accordance with ITT clauses 13,14 and 15
b) Information requested by Instructions to Tenderer ITT sub-Clause 12;
c) Tender security or Tender securing declaration in accordance with Instructions to Tenderer ITT Clause 17;
d) Priced Bill of Quantities;
e) Forms of Qualification Information and Documents;
f) Alternative offers where invited in accordance with Instructions to Tenderer ITT Clause 18;
g) Written power of attorney authorizing confirmation signatory of the Tender to commit the Tenderer in accordance with Instructions to Tenderer ITT Clause 19; and
h) Any other document required in the **Tender Data Sheet.**

12. Documents Establishing Eligibility and Qualifications of the Tenderer

12.1 Pursuant to ITT Clause 11, the Tenderer shall furnish, as part of its Tender, documents establishing the Tenderer's eligibility to Tender and its qualifications to perform the contract if its Tender is accepted.

12.2 In the event that pre-qualification of potential Tenderer has been undertaken, only Tenders from pre-qualified Tenderer will be considered for award of Contract. These qualified Tenderer should submit with their Tenders any information updating their original pre-qualification applications or, alternatively, confirm in their Tenders that the

originally submitted pre-qualification information remains essentially correct as of the date of Tender submission. The update or confirmation should be provided in Section IX – Form of Tender - Forms of Qualification Information.

12.3 If the Procuring Entity has not undertaken pre-qualification of potential Tenderer, all Tenderer shall include the following information and documents specified in Section IX – Forms of Tender: Form of Qualification Information.

12.4 To qualify for award of the Contract, Tenderer shall meet qualifying criteria stated in Section IX – Forms of Tender - Form of Qualification Information.

12.5 The figures for each of the partners of a joint venture shall be added together to determine the Tenderer's compliance with the minimum qualifying, however, for a joint venture to qualify, each of its partners must meet at least 25 percent of minimum criteria Average Annual Turnover, Experience and Financial Capability (liquid assets, unencumbered real assets, lines of credit, and other financial means) for an individual Tenderer, and the partner in charge at least 40 percent of those minimum criteria. Failure to comply with this requirement will result in rejection of the joint venture's Tender. Subcontractors' experience and resources will not be taken into account in determining the Tenderer's compliance with the qualifying criteria.

12.6 Domestic Tenderer and joint ventures of domestic and foreign Tenderer applying for eligibility for a margin of preference in Tender evaluation shall supply all information to satisfy the criteria for eligibility as described in ITT Clause 31.

12.7 When Tendering for more than one Contract under the slice and package arrangements, the Tenderer must provide evidence that it meets or exceeds the sum of all the individual requirements for the slices or lots being applied for in regard to:-

a) Average annual turnover;
b) Experience;
c) Financial capability;

d) Personnel capabilities; and
e) Equipment capabilities.

In case the Tenderer fails to fully meet any of these criteria, it may be qualified only for those slices for which the Tenderer meets the above requirement.

13 Forms of Tender

13.1 The Tenderer shall complete the Tender Form furnished in the Tendering Documents. The Tender Form must be completed without any alterations to its format and no substitute shall be accepted.

13.2 **The documentary evidence of the Tenderer's eligibility to Tender shall establish to the Procuring Entity's satisfaction that the Tenderer, at the time of submission of its Tender, is from an eligible country as defined under ITT Clause 3.**

14 Tender Prices

14.1 The Contract shall be for the whole Works, as described in sub-Clause 1.1, based on the priced Bill of Quantities submitted by the Tenderer.

14.2 The Tenderer shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items for which no rate or price is entered by the Tenderer will not be paid for by the Procuring Entity when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities. On the other hand, if the Tenderer introduces new Bill of Quantities items not specified in the Tendering documents the new items, corresponding quantities and prices shall not be accepted and the Tender may be disqualified as being substantially non responsive.

14.3 All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 28 days prior to the deadline for submission of Tenders, shall be included in the rates, prices, and total Tender price submitted by the Tenderer.

14.4 The rates and price quoted by the Tenderer shall be subject to adjustment during the performance of the Contract if provided for in the **Tender Data Sheet** and **Special Conditions of Contract** and the provisions of Clause 49 of the General Conditions of Contract. The Tenderer shall submit with the Tender all the

information required under the Special Conditions of Contract and Clause 49 of the General Conditions of Contract.

The Procuring Entity may require the Tenderer to justify its proposed weighting.

15. Tender Currencies

15.1 The unit rates and prices shall be quoted by the Tenderer entirely in Tanzania Shillings. Foreign currency requirements shall be indicated in the **Tender Data Sheet** as a percentage of the Tender price (excluding provisional sums) and shall be payable at the option of the Tenderer in up to three foreign currencies of any country. For the purpose of this Clause, the Euro is also an eligible currency.

15.2 The rates of exchange to be used by the Tenderer in arriving at the local currency equivalent and the percentages mentioned in ITT sub-Clause. 15.1 above shall be the selling rates for similar transactions established by the authority specified in the **Tender Data Sheet** prevailing on the date 28 days prior to the latest deadline for submission of Tenders. These exchange rates shall apply for all payments so that no exchange risk will be borne by the Tenderer. If the Tenderer uses other rates of exchange, the provisions of ITT sub-Clause 29.1 shall apply. In any case, payments will be computed using the rates quoted in the Tender.

15.3 Tenderer shall indicate details of their expected foreign currency requirements in the Tender.

15.4 Tenderer may be required by the Procuring Entity to clarify their foreign currency requirements and to substantiate that the amounts included in Lump Sum and in the Special Conditions of Contract are reasonable and responsive to ITT sub-Clause 15.1.

16. Tender Validity Period

16.1 Tenders shall remain valid for the period specified in the **Tender Data Sheet** after the deadline for Tender submission Specified in ITT Clause 21. A Tender valid for a shorter period shall be rejected by the Procuring Entity as non responsive.

16.2 In exceptional circumstances, prior to expiry of the original Tender validity period, the Procuring Entity may request that the Tenderer to extend the period of validity for a specified additional period. The request and the Tenderer' responses shall be made in writing or in electronic forms that provide record of the content of communication. A Tenderer may refuse the request without forfeiting its Tender security or causing to be executed its Tender securing declaration. A Tenderer agreeing to the request will not be required or permitted to otherwise modify the Tender, but will be required to extend the validity of its Tender Security or Tender Securing Declaration for the period of the extension, and in compliance with ITT Clause 17 in all respects.

16.3 In the case of fixed price contracts, if the award is delayed by a period exceeding sixty (60) days beyond the expiry of the initial Tender validity period, the contract price will be increased by a factor specified in the request for extension. The Tender evaluation shall be based on the Tender price without taking into consideration on the above correction.

17. Tender Security

17.1 Pursuant to ITT Clause 11, unless otherwise specified in the **Tender Data Sheet**, the Tenderer shall furnish as part of its Tender, a Tender Security in original form and in the amount and currency specified in the **Tender Data Sheet** or Tender Securing Declaration as specified in the **Tender Data Sheet** in the format provided in Section X.

17.2 The Tender Security or Tender Securing Declaration is required to protect the Procuring Entity against the risk of Tenderer's conduct which would warrant the security's forfeiture, pursuant to ITT sub-Clause 17.10.

17.3 The Tender security shall be denominated in the currency of the Tender or in another freely convertible currency, and it shall be in the form specified in the **Tender Data Sheet** which shall be in any of the following:

a) a bank guarantee, an irrevocable letter of credit issued by a reputable bank, or an insurance bond

issued by a reputable insurance firm of their choice located in any eligible country, in the form provided in the Tendering Documents Tendering or another form acceptable to the Procuring Entity and valid for twenty eight (28) days beyond the end of the validity of the Bid. This shall also apply if the period for Tender validity is extended. In either case, the form must include the complete name of the Tenderer; or,

b) a cashier's or certified check.

c) another security if indicated in the **Tender Data Sheet.**

17.4 The Tender Security shall be in accordance with the Form of the Tender Security included in Section X or another form approved by the Procuring Entity prior to the Tender submission.

17.5 The Tender Security shall be payable promptly upon written demand by the Procuring Entity in case any of the conditions listed in sub-Clause 17.9 are invoked.

17.6 Any Tender not accompanied by a Tender Security in accordance with sub-Clauses 17.1 or 17.3 shall be rejected by the Procuring Entity as non-responsive, pursuant to ITT Clause 27.

17.7 Unsuccessful Tenderer' Tender Security will be discharged or returned as promptly as possible but not later than thirty (30) days after the expiration of the period of Tender validity prescribed by the Procuring Entity pursuant to ITT Clause 39. The procuring entity shall make no claim to the amount of the tender security, and shall promptly return the tender security document, after whichever of the following that occurs earliest:

(a) the expiry of the tender security;
(b) the entry into force of a procurement contract and the provision of a security for the performance of the contract if such a security is required by the solicitation documents;
(c) the rejection by the procuring entity of all tenders;
(d) the withdrawal of the tender prior to the

deadline for the submission of tenders, unless the solicitation documents stipulate that no such withdrawal is permitted.

17.8 The successful Tenderer's Tender Security will be discharged upon the Tenderer signing the contract, pursuant to ITT Clause 39, and furnishing the performance security, pursuant to ITT Clause 40.

17.9 The Tender Security or the Tender Securing Declaration of a joint venture, consortium or association shall be in the name of the joint venture, consortium or association that submits the Tender. If the joint venture, consortium or association has not been constituted into a legally-enforceable joint venture, consortium or association, at the time of Tendering, the Tender Security or the Tender Securing Declaration shall be in the names of all future partners.

17.10 The Tender Security may be forfeited:

a) if a Tenderer;

i) withdraws its Tender during the period of Tender validity specified by the Tenderer on the Tender Form except as provided for in ITT sub-clause 16.2; or

ii) does not accept the correction of errors pursuant to ITT sub-clause 28.3; or

b) in the case of a successful Tenderer, if the Tenderer fails:

i) to sign the contract in accordance with ITT Clause 39; **or**

ii) to furnish performance security in accordance with ITT Clause 40.

17.11 The Tender Security of a joint venture must be in the name of the joint venture submitting the Tender.

17.12 A Tenderer shall be suspended from being eligible for Tendering in any contract with the Procuring Entity

for the period of time indicated in the Tender Security:

(a) if the Tenderer withdraws its Tender, except as provided in sub-Clauses 16.2 and 28.2; or

(b) in the case of a successful Tenderer, if the Tenderer fails within the specified time limit to:

(i) sign the contract; or

(ii) furnish the required performance security.

18. Alternative Tenders by Tenderer

18.1 Tenderer shall submit offers that comply with the requirements of the Tendering documents, including the basic Tenderer's technical design as indicated in the specifications, Drawings and Bill of Quantities. Alternatives will not be considered, unless specifically allowed for in the **Tender Data Sheet**. If so allowed, sub-Clause 18.2 and 30.3 shall govern.

18.2 When alternative times for completion are explicitly invited, a statement to that effect will be included in the **Tender Data Sheet** as will the method of evaluating different times for completion.

18.3 If so allowed in the **Tender Data Sheet**, Tenderer wishing to offer technical alternatives to the requirements of the Tendering documents must also submit a Tender that complies with the requirements of the Tendering documents, including the basic technical design as indicated in the drawings and specifications. In addition to submitting the basic Tender, the Tenderer shall provide all information necessary for a complete evaluation of the alternative by the Procuring Entity, including design calculations, technical specifications, breakdown of prices, proposed construction methods and other relevant details. Only the technical alternatives, if any, of the lowest evaluated Tenderer conforming to the basic technical requirements shall be considered by the Procuring Entity.

19. Format and Signing of Tender

19.1 The Tenderer shall prepare one original of the documents constituting the Tender as described in ITT Clause 11 of these Instructions to Tenderer, bound

with the volume containing the Form of Tender, and clearly marked "ORIGINAL". In addition, the Tenderer shall submit copies of the Tender, in the number specified in the **Tender Data Sheet**, and clearly marked as "COPIES." In the event of discrepancy between them, the original shall prevail.

19.2 The original and the copy or copies of the Tender shall be typed or written in indelible ink and shall be signed by the Tenderer or a person or persons duly authorized to sign on behalf of the Tenderer. This authorization shall consist of a written confirmation as specified in the **Tender Data Sheet** 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, except for un-amended printed literature, shall be initialled by the person or persons signing the Tender.

19.3 The Tender shall contain no alterations or additions, except those to comply with instructions, issued by the Procuring Entity, or as necessary to correct errors made by the Tenderer, in which case such corrections shall be initialled by the person or persons signing the Tender.

19.4 The Tenderer shall furnish information as described in the Form of Tender on commissions or gratuities, if any, paid or to be paid to agents relating to this Tender and to Contract execution if the Tenderer is awarded the Contract.

D. Submission of Tenders

20. Sealing and Marking of Tenders

20.1 The Tenderer shall seal the original and each copy of the Tender in separate envelopes, duly marking the envelopes as "ORIGINAL" and "COPY." The envelopes shall then be securely sealed in such a manner that opening and resealing cannot be achieved undetected.

20.2 The inner and outer envelopes shall:

a) be addressed to the Procuring Entity at the address given in the **Tender Data Sheet**; and
b) bear the Project name indicated in the **Tender Data Sheet**, the Invitation for Tenders (IFB) title and

number indicated in the **Tender Data Sheet**, and a statement: "DO NOT OPEN BEFORE," to be completed with the time and the date specified in the **Tender Data Sheet**, pursuant to sub-Clause 21.1.

20.3 In addition to the identification required in ITT sub-Clause 20.2, the inner envelopes shall indicate the name and address of the Tenderer to enable the Tender to be returned unopened in case it is declared late, pursuant to ITT Clause 22, and for matching purposes under ITT Clause 23.

20.4 If all envelopes are not sealed and marked required by sub-clause 20.3, the Procuring Entity shall assume no responsibility for the misplacement or premature opening of the Tender.

20.5 If the outer envelope discloses the Tenderer's identity, the Procuring Entity will not guarantee the anonymity of the Tender submission, but this shall not constitute grounds for rejection of the Tender.

21. Deadline for Submission of Tenders

21.1 The Tenders shall be received by the Procuring Entity at the address specified under ITT sub-Clause 20.2 no later than the date and time specified in the **Tender Data Sheet.**

21.2 The Procuring Entity may, in exceptional circumstances and at its discretion, extend the deadline for the submission of Tenders by amending the Tendering Documents in accordance with ITT Clause 9, in which case all rights and obligations of the Procuring Entity and Tenderer previously subject to the deadline will thereafter be subject to the new deadline.

21.3 The extension of the deadline for submission of Tenders shall not be made later than the period specified in the **Tender Data Sheet** before the expiry of the original deadline.

22. Late Tenders

22.1 The Procuring Entity shall not consider for evaluation any Tender that arrives after the deadline for submission of tenders, in accordance with ITT Clause 21.

22.2 Any Tender received by the Procuring Entity after the deadline prescribed in ITT Clause 22 will be declared late, rejected and returned unopened to the Tenderer.

23. Modification and Withdrawal of Tenders

23.1 A Tenderer may modify or substitute or withdraw its Tender after it has been submitted, provided that written notice of the modification, including modification, substitution or withdrawal of the Tender, is received by the Procuring Entity prior to the deadline for submission of Tenders.

23.2 The Tenderer's modification, substitution or withdrawal notice shall be prepared, sealed, marked, and dispatched in accordance with the provisions of ITT Clauses 20 and 21 with the outer and inner envelopes additionally marked "**MODIFICATION**" "**SUBSTITUTION**" or "**WITHDRAWAL"** as appropriate. The notice may also be sent by electronic mail, telex and facsimile but followed by a signed confirmation copy, postmarked no later than the deadline for submission of Tenders.

23.3 Tenders may only be modified by withdrawal of the original Tender and submission of a replacement Tender in accordance with sub-Clause 23.1. Modifications submitted in any other way shall not be taken into account in the evaluation of Tenders.

23.4 Tenderer may only offer discounts to or otherwise modify the prices of their Tenders by substituting Tender modifications in accordance with this Clause or included in the original Tender submission.

23.5 No Tender may be withdrawn, replaced 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. Withdrawal of a Tender during this interval shall result in the Tenderer's forfeiture of its Tender security pursuant to the ITT sub-Clause 17.9.

E. Opening and Evaluation of Tenders

24. Opening of Tenders

24.1 The Procuring Entity will open all Tenders including modifications, substitution or withdrawal notices made pursuant to ITT Clause 23, in the presence of Tenderer or their representatives who choose to

attend, and other parties with a legitimate interest in the Tender proceedings, at the place, on the date and at the time specified in the **Tender Data Sheet**. The Tenderer' representatives present shall sign a register as proof of their attendance.

24.2 Envelopes marked "WITHDRAWAL" shall be opened and read out first. Tenders for which an acceptable notice of withdrawal has been submitted pursuant to ITT Clause 23 shall not be opened but returned to the Tenderer. If the withdrawal envelope does not contain a copy of the "Power of Attorney" confirming the signature as a person duly authorized to sign on behalf of the Tenderer, the corresponding Tender will be opened. Subsequently, all envelopes marked "MODIFICATION" shall be opened and the submissions therein read out in appropriate detail. Thereafter all envelops marked ''SUBSTITUTION'' shall be opened and the submission therein read out in appropriate detail.

24.3 All other envelopes shall be opened one at a time. The Tenderer' names, the Tender prices, the total amount of each Tender and of any alternative Tender (if alternatives have been requested or permitted), any discounts, Tender modifications, the presence or absence of Tender security, Tender securing declaration and such other details as the appropriate tender board may consider appropriate, will be announced by the Secretary of the Tender Board or his delegate at the opening.

24.4 Tenders or modifications that are not opened and not read out at Tender opening shall not be considered further for evaluation, irrespective of the circumstances. In particular, any discount offered by a Tenderer which is not read out at Tender opening shall not be considered further.

24.5 Tenderer are advised to send in a representative with the knowledge of the content of the Tender who shall verify the information read out from the submitted documents. Failure to send a representative or to point out any un-read information by the sent

Tenderer's representative shall indemnify the Procuring Entity against any claim or failure to read out the correct information contained in the Tenderer' Tender.

24.6 No Tender will be rejected at Tender opening except for late Tenders which will be returned unopened to the Tenderer, pursuant to ITT Clause 22.

24.7 The Procuring Entity shall prepare minutes of the Tender opening, including the information disclosed to those present in accordance with sub-clause 24.3. The minutes of the Tender opening shall be furnished to the individual Tenderer upon request.

24.8 The Tenderer' representatives who are present shall be requested to sign the record. The omission of a Tenderer's signature on the record shall not invalidate the contents and affect the record. A copy of the record shall be distributed to all the Tenderer.

24.9 A copy of the minutes of the Tender opening shall be furnished to the individual Tenderer upon request.

25 Confidentiality

25.1 Information relating to the examination, clarification, evaluation, and comparison of Tenders and recommendations for the award of a Contract shall not be disclosed to Tenderer or any other persons not officially concerned with such process until the award to the successful Tenderer has been announced.

25.2 Any effort by a Tenderer to influence the Procuring Entity's processing of Tenders or award decisions may result in the rejection of his Tender.

25.3 Notwithstanding ITT sub-Clause 25.2, from the time of Tender opening to the time of Contract award, if any Tenderer wishes to contact the Procuring Entity on any matter related to the Tendering process, he/she should do so in writing or in electronic forms that provide record of the content of communication.

26 Clarification of Tenders

26.1 To assist in the examination, evaluation, and comparison of Tenders and post-qualifications of Tenderer, the Procuring Entity may, at its discretion, ask any Tenderer for clarification of its Tender including breakdown of prices. Any clarification submitted by a Tenderer that is not in response to a request by the Procuring Entity shall not be considered.

26.2 The request for clarification and the response shall be in writing or in electronic forms that provide record of the content of communication, but no change in the price or substance of the Tender shall be sought, offered, or permitted except as required to confirm the correction of arithmetic errors discovered by the evaluation committee in the evaluation of the Tenders in accordance with ITT Clause 28.

26.3 From the time of Tender opening to the time of contract award if any Tenderer wishes to contact the Procuring Entity on any matter related to the Tender it should do so in writing or in electronic forms that provide record of the content of communication.

27. Preliminary Examination of Tenders

27.1 Prior to the detailed evaluation of tenders, the Procuring Entity will determine whether each Tender;

(a) meets the eligibility criteria defined in ITT Clause 3;

(b) has been properly signed;

(c) is accompanied by the required securities; and

(d) is substantially responsive to the requirements of the Tendering Documents.

The Procuring Entity's determination of a Tender's responsiveness will be based on the contents of the Tender itself.

27.2 A substantially responsive Tender is one which conforms to all the terms, conditions, and specifications of the Tendering Documents, without material deviation or reservation. A material deviation or reservation is one that:-

a) affects in any substantial way the scope, quality, or performance of the Works;
b) limits in any substantial way, inconsistent with the Tendering Documents, the Procuring Entity's rights or the Tenderer's obligations under the Contract; or
c) if rectified, would affect unfairly the competitive position of other Tenderer presenting substantially responsive Tenders.

27.3 The Procuring Entity will confirm that the documents and information specified under ITT Clause 11, ITT Clause 12 and ITT Clause 13 have been provided in the Tender. If any of these documents or information is missing, or is not provided in accordance with the Instructions to Tenderer, the Tender shall be rejected.

27.4 The Procuring Entity may waive any minor informality, nonconformity, or irregularity in a Tender which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any Tenderer.

27.5 If a Tender is not substantially responsive, it will be rejected by the Procuring Entity and may not subsequently be made responsive by the Tenderer by correction of the nonconformity.

27.6 The Procuring Entity shall confirm that the following documents and information have been provided in the Tender. If any of these documents or information is missing, or is not in accordance with the Instructions to Tenderer, the Tender shall be rejected:

a) Form of Tender;
b) Information requested under sub-Clause 12.3;
c) Information requested under sub-Clause 12.4 if Tender is submitted by joint venture;
d) Information requested under sub-Clause 12.5;
e) The period of Tender validity;
f) The Tender price;
g) Written confirmation of authorization to commit the Tender;
h) Tender security or Tender Securing

Declaration; and

i) Any other information/data required by this Tendering document as specified in the **Tender Data Sheet**.

27.7 The Procuring Entity may waive any minor informality, nonconformity or irregularity in a Tender that does not constitute a material deviation, and that does not prejudice or affect the relative ranking of any Tenderer as a result of the technical or commercial evaluation pursuant to ITT Clause 26 and 28.

27.8 If a Tender is not substantially responsive, it will be rejected by the Procuring Entity, and may not subsequently be made responsive by correction or withdrawal of the non conforming deviation or reservation.

28. Correction of Errors

28.1 Tenders determined to be substantially responsive will be checked for any arithmetic errors. Errors will be corrected as follows: -

a) if there is a discrepancy between unit prices and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail, and the total price shall be corrected, unless in the opinion of the Procuring Entity there is an obvious misplacement of the decimal point in the unit price, in which the total price as quoted shall govern and the unit price shall be corrected;

b) if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and

c) where there is a discrepancy between the amounts in figures and in words, the amount in words will govern.

28.2 The amount stated in the Tender will, be adjusted by the Procuring Entity in accordance with the above procedure for the correction of errors and, with, the

concurrence of the Tenderer, shall be considered as binding upon the Tenderer. If the Tenderer does not accept the corrected amount, its Tender will then be rejected, and the Tender security may be forfeited accordance with ITT sub-Clause 17.9.

29. Conversion to Single Currency

29.1 To facilitate evaluation and comparison, the Procuring Entity will convert all Tender prices expressed in the amounts in various currencies in which the Tender prices are payable to either:

a) in Tanzania Shillings at the selling exchange rate established for similar transactions by the Bank of Tanzania or a commercial bank in the United Republic of Tanzania;

or

b) a currency widely used in international trade, such as U.S. Dollars, at the selling rate of exchange published in the international press for the amount payable in foreign currency; and at the selling exchange rate established for similar transactions by the Bank of Tanzania in the United Republic of Tanzania for the amount payable in Tanzania Shillings.

29.2 The currency selected for converting Tender prices to a common base for the purpose of evaluation, along with the source and date of the exchange rate, are specified in the **Tender Data Sheet.**

30. Comparison of Tenders

30.1 The Procuring Entity shall evaluate and compare only the Tenders determined to be substantially responsive in accordance with ITT sub-Clause 27.1.

30.2 In evaluating the Tenders, the Procuring Entity will determine for each Tender the evaluated Tender Price by adjusting the Tender Price as follows: -

a) making any correction for errors pursuant to ITT Clause 28;

b) excluding provisional sums and the provision, if any, for contingencies in the Bill of Quantities, but including Daywork, where priced competitively;

c) making appropriate adjustment for any other acceptable variations, deviations, or alternative offers submitted in accordance with ITT Clause 18;

d) making an allowance for varying times of completion offered by Tenderer, if permitted in the **Tender Data Sheet** and in the manner prescribed therein;

e) making appropriate adjustments to reflect discounts or other price modifications offered in accordance with ITT sub-Clause 30.5; and

f) applying any discounts offered by the Tenderer for the award of more than one Contract, if tendering for this Contract is being done concurrently with other contracts (sub-Clause 34.2).

30.3 The Procuring Entity reserves the right to accept or reject any variation, deviation, or alternative offer. Variations, deviations, and alternative offers and other factors which are in excess of the requirements of the Tendering Documents or otherwise result in unsolicited benefits for the Procuring Entity will not be taken into account in Tender evaluation.

30.4 The estimated effect of any price adjustment conditions under Clause 49 of the General Conditions of Contract, during the period of implementation of the Contract, will not be taken into account in Tender evaluation.

30.5 In the case of several Lots, pursuant to ITT sub-Clause 30.2(f), the Procuring Entity will determine the application of discounts so as to minimize the combined cost of all the lots.

30.6 If the Tender, which results in the lowest Evaluated Tender Price, is seriously unbalanced or front loaded in relation to the Predetermined Tender Value of the items of work to be performed under the Contract, the Procuring Entity may require the Tenderer to produce detailed price analysis for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, taking into consideration the

schedule of estimated Contract payments, the Procuring Entity may require that the amount of the performance security set forth in ITT Clause 40 be increased at the expense of the Tenderer to a level sufficient to protect the Procuring Entity against financial loss in the event of default of the successful Tenderer under the Contract.

31. National Preferences

31.1 Works utilizing this Standard Tendering Document shall be exclusively reserved for national contractors unless otherwise is stated in the **Tender Data Sheet.**

. 31.2 The Procuring Entity shall, in applying exclusive preference, use the Authority's register of Tenderer to determine whether or not Tenderer are qualified for exclusive preference.

31.3 A joint venture, consortium or an association between a foreign and local firm in which the contribution of the local firm in that joint venture or association is greater than sixty per cent, shall also be eligible to participate in the exclusive preference scheme.

31.4 The following procedure will be used to apply the margin of preference:

(a) Responsive Tenders will be classified into the following groups:

(i) Group A: Tenders offered by domestic Tenderer and joint ventures meeting the respective criteria of ITT sub-Clauses 31.2;

(ii) Group B: Tenders offered by joint ventures of domestic and foreign firms meeting the criteria of ITT sub-Clause 31.3 above; or

(iii) Group C: Tenders offered by foreign contractors.

(b) For the purpose of further evaluation and comparison of Tenders only, an amount equal to a percentage specified in the **Tender Data Sheet** of the valuated Tender Prices determined in accordance with ITT sub-Clause

30.2(a), (b), and (d), will be added to all Tenders classified in Group B.

31.5 Alternative offers, where solicited or permitted, will be evaluated separately, in accordance with the provisions of ITT Clause 18, and shall be subject to the margin of preference in accordance with ITT sub-Clause 31.4.

32 Determination of Lowest Evaluated Tender

32.1 The Tender with the lowest evaluated price from among those that are eligible, compliant and substantially responsive shall be the lowest evaluated Tender.

33. Post-qualification of Tenderer

33.1 If pre-qualification was not undertaken, post-qualification shall be performed.

33.2 Where the tender price of the lowest evaluate Tenderer is considered to be abnormally low, the Procuring Entity shall perform price analysis as part of the post-qualification. The following process shall apply:

(a) The Procuring Entity may reject a tender if the Procuring Entity has determined that the price in combination with other constituent elements of the tender is abnormally low in relation to the subject matter of the procurement (scope of works or services) and raise concerns with the Procuring Entity as to the ability of the Tenderer that presented that tender to perform the contract.

(b) Before rejecting an abnormally low tender the procuring entity shall: request the Tenderer an explanation of the tender or of those parts which it considers contribute to the tender being abnormally low; take account of the evidence provided in response to a request in writing or in electronic forms that provide record of the content of communication; and subsequently verify the tender or parts of the tender being abnormal

(c) The decision of the Procuring Entity to reject a

tender and reasons for the decision shall be recorded in the procurement proceedings and promptly communicated to the Tenderer concerned;

(d) The Accounting Officer (Procuring Entity) shall seek the approval of the Authority prior to rejecting a tender;

(e) Neither the Authority nor the Procuring Entity shall incur liability solely by rejecting abnormally tender; and

An abnormally low tender means, in the light of the Procuring Entity's estimate and of all the tenders submitted, the tender appears to be abnormally low by not providing a margin for normal levels of profit.

33.3 The Procuring Entity will determine to its satisfaction whether the Tenderer that is selected as having submitted the lowest evaluated responsive Tender is qualified to perform the Contract satisfactorily, in accordance with the criteria listed in ITT sub-Clause 12.3.

33.4 The determination will take into account the Tenderer's financial, technical, and production capabilities. It will be based upon an examination of the documentary evidence of the Tenderer's qualifications submitted by the Tenderer, pursuant to ITT sub-Clause 3.3, as well as such other information as the Procuring Entity deems necessary and appropriate. Factors not included in these Tendering Documents shall not be used in the evaluation of the Tenderer' qualifications as specified in the Tender Data Sheet.

33.4 A Procuring Entity may seek independent references of a Tenderer and the results of reference checks may be used in determining award of contract.

33.5 In case of a foreign company, a Procuring Entity shall

seek independent reference of legal existence of a Tenderer from Tanzania diplomatic missions abroad or from any other reliable source.

33.6 An affirmative determination will be a prerequisite for award of the Contract to the lowest evaluated Tenderer. A negative determination will result in rejection of the Tenderer's Tender, in which event the Procuring Entity will proceed to the next-lowest evaluated Tenderer to make a similar determination of that Tenderer's capabilities to perform satisfactorily.

F. Award of Contract

34. Criteria of Award

34.1 Subject to ITT Clause 36, the Procuring Entity will award the Contract to the successful Tenderer whose Tender has been determined to be substantially responsive to the Tendering Documents and who has offered the lowest Evaluated Tender Price, provided that such Tenderer has been determined to be (a) eligible in accordance with the provisions of ITT Clause 3, and (b) qualified in accordance with the provisions of ITT Clause 12.

34.2 If, pursuant to ITT sub-Clause 12.7, this Contract is being let on a "slice and package" basis, the lowest evaluated Tender price will be determined when evaluating this Contract in conjunction with other Contracts to be awarded concurrently, taking into account any discounts offered by the Tenderer for award of more than one Contract.

35. Negotiations

35.1 Negotiations may be undertaken with the lowest evaluated Tender relating to the following areas:

(a) a minor alteration to the technical details of the statement of requirements;
(b) reduction of quantities for budgetary reasons, where the reduction is in excess of any provided for in the solicitation documents;
(c) a minor amendment to the special conditions of Contract;
(d) finalising payment arrangements;
(e) mobilisation arrangements;
(f) agreeing final delivery or work schedule to accommodate any changes required by the

procuring entity;

(g) the methodology or staffing; or

(h) clarifying details that were not apparent or could not be finalised at the time of tendering.

35.2 Where single source method was used or a competitive procurement method was used but only a single tender was received, negotiations may relate to other areas of the tender including the price tendered provided that the negotiation shall not increase price or affect the quality of the works.

35.2 Where negotiation fails to result into an agreement, the Procuring Entity may invite the next ranked Tenderer for negotiations. Where negotiations are commenced with the next ranked Tenderer, the Procuring Entity shall not reopen earlier negotiations.

36. Procuring Entity Right to Accept any Tender and to Reject any or all Tenders

36.1 Notwithstanding ITT Clause 34, the Procuring Entity reserves the right to accept or reject any Tender, and to cancel the Tendering process and reject all tenders, at any time prior to the award of Contract, without thereby incurring any liability to the affected Tenderer or any obligation to inform the affected Tenderer.

36.2 Notice of the rejection of all Tenders shall be given promptly to all Contractors that have submitted Tenders.

36.3 The Procuring Entity shall upon request communicate to any Tenderer the grounds for its rejection of its tenders, but is not required to justify those grounds.

37. Procuring Entity Right to Vary Quantities at the Time of Award

37.1 The Procuring Entity reserves the right at the time of Contract award to increase or decrease the scope of services originally specified in these Tendering Documents provided this does not exceed by the percentage indicated in the **Tender Data Sheet**, without any change in unit price or other terms and conditions of the Tender and Tendering Documents.

38. Notification of

38.1 Prior to awarding of the contract, the Procuring

Award

Entity shall issue a notice of intention to award the contract to all Tenderer who participated in the tender in question giving them fourteen (14) days within which to submit complaints to the Procuring Entity thereof, if any.

38.2 Where no complaints have been lodged, the Tenderer whose Tender has been accepted will be notified of the award by the Procuring Entity prior to expiration of the Tender validity period in writing or in electronic forms that provide record of the content of communication. The Letter of Acceptance will state the sum that the Procuring Entity will pay the successful Tenderer in consideration for the execution of the scope of works as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price).

38.2 The notification of award will constitute the formation of the Contract, subject to the Tenderer furnishing evidence of registration with relevant statutory bodies within the country and furnishing the Performance Security in accordance with ITT Clause 40 and signing the Contract in accordance with ITT sub-Clause 39.2.

38.3 Upon the successful Tenderer's furnishing of the performance security pursuant to ITT Clause 40, the Procuring Entity will promptly notify each unsuccessful Tenderer, notify the name of the winning Tenderer and the Contract amount and will discharge the Tender security or Tender securing declaration of the unsuccessful Tenderer pursuant to ITT Clause 17.

38.4 If, after notification of award, a Tenderer wishes to ascertain the grounds on which its Tender was not selected, it should address its request to **the Procuring Entity. The Procuring Entity will promptly** respond in writing or in electronic forms that provide record of the content of communication to the unsuccessful Tenderer citing grounds for rejection of its Tender without disclosing information about other Tenderer.

39 Signing of Contract

39.1 Promptly after notification, Procuring Entity shall send the successful Tenderer the Agreement and Special Conditions of Contract, incorporating all agreements between the parties obtained as a result of Contract negotiations.

39.2 Within twenty eight (28) days of receipt of the Contract Agreement Form, the successful Tenderer shall sign and date the Contract and return it to the Procuring Entity.

39.3 Upon the furnishing by the successful Tenderer of the Performance Security, pursuant to ITT Clause 40, the Procuring Entity will promptly notify the other Tenderer that their Tenders have been unsuccessful and will notify the name of the winning Tenderer to each unsuccessful Tenderer and will discharge the Tender Security of the unsuccessful Tenderer pursuant to ITT Clause 17.

39.4 If, after notification of award, a Tenderer wishes to ascertain the grounds on which its Tender was not selected, it should address its request to the secretary of the appropriate tender board that authorized the award of Contract. The Procuring Entity will promptly respond in writing or in electronic forms that provide record of the content of communication to the unsuccessful Tenderer citing grounds for rejection of its Tender without disclosing information about other Tenderer.

40. Performance Security

40.1 Within twenty eight **(28)** days after receipt of the Letter of Acceptance, the successful Tenderer shall deliver to the Procuring Entity a Performance Security in the amount and in the form stipulated in the **Tender Data Sheet and the Special Conditions of Contract**, denominated in the type and proportions of currencies in the Letter of Acceptance and in accordance with the Conditions of Contract.

40.2 If the Performance Security is provided by the successful Tenderer, it shall be in the form specified in the **Tender Data Sheet** which shall be in any of the following;

(a) cash, certified cheque, cashier's or manager's cheque, or bank draft;
(b) irrevocable letter of credit issued by a reputable commercial bank or in the case of an irrevocable letter of credit issued by a foreign bank, the letter shall be confirmed or authenticated by a reputable local bank;
(c) bank guarantee confirmed by a reputable local bank or, in the case of a successful foreign tenderer, bonded by a foreign bank; or
(d) surety bond callable upon demand issued by any reputable surety or insurance company.

Any Performance Security submitted shall be enforceable in the United Republic of Tanzania.

40.3 Failure of the successful Tenderer to comply with the requirement of ITT sub-Clause 40.1 shall constitute sufficient grounds for the annulment of the award and forfeiture of the Tender Security, in which event the Procuring Entity may make the award to the next lowest evaluated Tenderer or call for new Tenders.

41. Advance Payment

41.1 The Procuring Entity will provide an Advance Payment as stipulated in the Conditions of Contract, subject to a maximum amount, as stated in the **Tender Data Sheet**. The Advance Payment request shall be accompanied by an Advance Payment Security (Guarantee) in the form provided in Section IX. For the purpose of receiving the Advance Payment, the Tenderer shall make an estimate of, and include in its Tender, the expenses that will be incurred in order to commence work. These expenses will relate to the purchase of equipment, machinery, materials, and on the engagement of labour during the first month beginning with the date of the Procuring Entity's "Notice to Commence" as specified in the Special Conditions of Contract.

42. Adjudicator

42. 1 The Procuring Entity proposes the person named in the **Tender Data Sheet** to be appointed as Adjudicator or under the Contract, at an hourly fee specified in the **Tender Data Sheet**, plus reimbursable expenses. If the Tenderer disagrees with this proposal, the Tenderer should so state in the

Tender. If, in the Letter of Acceptance, the Procuring Entity has not agreed on the appointment of the Adjudicator, the Adjudicator shall be appointed by the Appointing Authority designated in the Special Conditions of Contract at the request of either party.

43. Fraud Corruption, Coercion, Collusion, Fraudulent and Obstructive Practices

43.1 The Government requires that Procuring entities (including beneficiaries of Government funded projects and procurement) as well as Tenderer/Suppliers/Contractors under Government financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, the Government.

a) defines, for the purpose of this provision, the terms set forth below as follows:-

i. "corrupt practice" means the offering, giving receiving or soliciting of anything of value to influence the action of a public officer in the procurement process or contract execution;

ii. "coercive practice" means impairing or harming, or threatening to impair or harm directly or indirectly, any party or the property of the party for the purpose of influencing improperly the action or that party in connection with public procurement or in furtherance of corrupt practice or fraudulent practice;

iii. collusive practices" means impairing or harming, or threatening to impair or harm directly or indirectly, any part or the property of the Party for the purpose of influencing improperly the action or a part or in connection with public procurement or government contracting or in furtherance of a corrupt practice or a Fraudulent Practice

iii) "fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Government or a public body and includes collusive practices among Tenderer, prior to or after submission designed to establish tender prices at artificial non-competitive levels and to deprive the Government of the benefits of free and open

competition;

iv) "obstructive practice" means acts intended to materially impede access to required information in exercising a duty under this Act;

b) Will reject a proposal for award if it determines that the Tenderer recommended for award has engaged in corrupt, coercive, collusive, fraudulent or obstructive practices in competing for the contract;

c) In pursuit of the policy defined in ITT sub-Clause 43.1 the Government will cancel the portion of the funds allocated to a contract for goods, works, or services if it at any time determines that corrupt, coercive, collusive, fraudulent or obstructive practices were engaged in by representatives of the procuring entity or approving authority or of a beneficiary of the funds furring the procurement or the execution of that contract, without the procuring entity or approving authority having taken timely and appropriate action satisfactory to the Government of the united Republic of Tanzania to remedy the situation

d) Declare a firm ineligible for a period of ten years, to be awarded a public-financed contract if it at any time it determines that the firm has engaged in corrupt, coercive, collusive, fraudulent or obstructive practices in competing for, or in executing, a public – financed contract

43.2 The Government of the United Republic of Tanzania reserves the right, where a firm has been found by a foreign country, international organization or other foreign organization to have engaged in corrupt, coercive, collusive, fraudulent or obstructive practices, to declare that such a firm is ineligible, for a period of ten years to be awarded a public financed Contract in the United Republic of Tanzania.

43.3 Any communication between the Tenderer and the Procuring Entity related to matters of alleged fraud or corruption must be made in writing or in

electronic forms that provide record of the content of communication.

G. Review of Procurement Decisions

44. Right to review

44.1 A Tenderer who claims to have suffered or that may suffer any loss or injury as a result of breach of a duty imposed on a procuring entity or an approving authority in the course of these procurement proceeding may seek a review in accordance with the procedure set out under this Section.

45. Time limit on review

45.1 The Tenderer shall submit an application for review within twenty-eight (28) days of the Tenderer becoming or should have become aware of the circumstances giving rise to the complaint or dispute.

46. Submission of applications for review

46.1 Any application for administrative review shall be submitted in writing or in electronic forms that provide record of the content of communication to the Accounting Officer of a Procuring Entity and a copy shall be served to the Public Procurement Regulatory Authority (PPRA) at the address shown in the **Tender Data Sheet** in writing or in electronic forms that provide record of the content of communication **Tender.**

46.2 The application for administrative review shall include:

(a) details of the procurement requirements to which the complaint relates;
(b) details of the provisions of the Act, Regulation or provision that has been breached or omitted;
(c) an explanation of how the provisions of the Act, Regulation or provision has been breached or omitted, including the dates and name of the responsible public officer, where known;
(d) documentary or other evidence supporting the complaint where available;
(e) Remedies sought; and
(f) any other information relevant to the complaint.

46.3 The head of a Procuring Entity shall not entertain a

complaint or dispute or continue to do so after the procurement Contract has entered into force.

47. Decision by the Head of Procuring Entity

47.1 The head of a Procuring Entity shall, within fourteen (14) days after receipt of the complaint or dispute, deliver a written decision which shall indicate:

a) whether the application is upheld in whole, in part or rejected;
b) the reasons for the decision; and
c) any corrective measures to be taken.

47.2 Where the head of a Procuring Entity does not issue a decision within the time specified in ITT sub-Clause 47.1, contractor, submitting the complaint or dispute or the procuring entity shall be entitled immediately thereafter to institute proceedings under ITT sub-Clause 48.1 and upon instituting such proceedings, the competence of the head of Procuring Entity to entertain the complaint or dispute shall cease.

48. Review by the Public Procurement Appeals Authority

48.1 Complaints or disputes which,

(a) are not settled within the specified period under ITT sub-Clause 47.1;
(b) are not amicably settled by the accounting officer; or
(c) arise after the procurement contract has entered into force pursuant to ITT Clause 39,

shall be referred to the Appeals Authority within fourteen days from the date when the Tenderer received the decision of the accounting officer or, in case no decision is issued after the expiry of the time stipulated under ITT sub-Clause 47.1 or when the Tenderer become aware or ought to have become aware of the circumstances giving rise to the complaint or dispute pursuant to ITT sub-Clause 45.1.

48.2 PPAA may be contacted at the address shown in the **Tender Data Sheet.**

SECTION III: TENDER DATA SHEET

TENDER DATA SHEET (TDS)

Instructions to Tenderer Clause Reference

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

TDS Clause	ITT Clause	Description
		A. Introduction
1.	**1.1**	The procuring entity is: **SONGWEDISTRICT COUNCIL** **P.o Box 77,** **MKWAJUNI-SONGWE** The Project is: **PROPOSED CONSTRUCTION OF EMERGENCY MEDICINE DEPARTMENT (EMD) BUILDING AND THREE IN ONE SEMI DETACHED STAFF HOUSE URBAN TYPE AT SONGWE COUNCIL HOSPITAL** Identification Number of the Contract is: **TENDER NO. SDC/184/W/2021-2022/03**
	1.2	The successful Tenderer is expected to complete the works in the **AGREED COMPLETION TIME (**The works is expected to commence **ON THE DATE AGREED at Negotiation Meeting.**
2	**2.1**	Financial year when the project will be carried out ***2021/2022*** The Project is: **PROPOSED CONSTRUCTION OF EMERGENCY MEDICINE DEPARTMENT (EMD) BUILDING AND THREE IN ONE SEMI DETACHED STAFF HOUSE URBAN TYPE AT SONGWE COUNCIL HOSPITAL.** The Financial Institution which the Procuring Entity has applied for credit is: ***N/A.***

		The Project Credit Number is: *N/A*
	2.2	Payment will be done by: **DISTRICT EXECUTIVE DIRECTOR, SONGWE DISTRICT COUNCIL.**
3	**3.1**	Nature of the parties shall be: **N/A** Maximum number of members in the joint venture, consortium or association shall be: *N/A*
4.	**6.3**	The site visit shall be held on: **N/A** The pre-tender meeting shall be held on: **N/A**
		B. Tendering Documents
5.	**7.2**	The number of copies of the Tender to be completed and returned shall be *ONE ORIGINAL* and *TWO COPIES*
6.	**8.1**	Address for clarification of Tendering Document is: **HEAD OF PROCUREMENT MANAGEMENT UNIT,** **SONGWE DISTRICT COUNCIL,** **P.O.BOX 77,** **MKWAJUNI-SONGWE.** E-mail: **ugavi@songwedc.go.tz**
		C. Preparation of Tenders
7.	**10.1**	Language of Tenders: **ENGLISH LANGUAGE**
8.	**11.1 (h)**	Other information or materials required to be completed and submitted by Tenderer: (a) Copies of documents defining legal status of the company such as: (i) Certificate of Registration, (ii) Valid Business License (iii) VAT certificate (iv) TIN Certificate, (v) Valid Contractors Registration Board (CRB) Certificate (vi) Principal place of business and physical address (b) Evidence of experience and past performance in works of similar nature and complexity in pre-fabricated technology and conversional construction method. (c) Financial capabilities: Cash flow not less than TZS 400,000,000 (Four Hundred Million Shillings Only). (d) Qualifications and experience of key Technical and Management Personnel: Site Engineer a graduate Civil/Structural Engineer 1-3 years in similar works; Foreman/Civil Technician; FTC or Diploma holder 3 years in similar works.

		(e) Capability with respect to equipment and construction facilities for works of such scope as indicated in table below; proof of ownership or lease arrangements for the stated capability to be submitted. (f) Information regarding any litigation, current or in the past; the parties involved and dispute amount; authenticated by a legal person (g) An original Registered Power of Attorney authorizing the signatory to commit the bidder or associate (h) Anti-bribery policy/ code of conduct of the firm.
10.	**15.1**	The currency in which the prices shall be quoted: **TANZANIAN SHILLINGS.**
	15.2	The authority for establishing the rates of exchange shall be: **N/A**
12.	**16.1**	The Tender validity period shall be: **ONE HUNDRED AND TWENTY (120) DAYS.**
13.	**17.1**	The amount of Tender Security shall be: **Tender Securing Declaration Form** clearly addressed to District Executive Director, Songwe District Council.
	17.3	The Tender Security shall be in the form of: **TENDER SECURING DECLARATION FORM**
14	**18.1**	Alternative Tenders to the requirements of the Tendering documents ***"WILL NOT"*** be permitted with respect to any circumstances.
	18.2	Alternative time for completion is: **NOT APPLICABLE**.
	18.3	Alternative technical alternative to the requirements of the tendering documents **"WILL NOT"** be permitted.
15.	**19.1**	In addition to the original of the Tender, the Tenderer should submit **ONE ORIGINAL AND TWO COPIES** of the Tender.

Descriptions of Equipment for each Lot	Unit	Qty
Plate Compactor	Nr.	2
Tipping truck 10 tonnes	Nr.	1
Poker vibrator	Nos.	4
Water pumps	Nos.	2
Generator set (25 – 50 KVA)	Nos.	1
Dampers	Nos.	1
Wood working machines	Nos.	1
Steel cutting machine	Nos.	1
Steel bending machine	Nos.	1
Concrete Mixer	Nr.	1

	19.2	Written confirmation of authorization is: **REGISTERED *POWER OF ATTORNEY***
D. SUBMISSION OF TENDERS		
16.	**20.2(a)**	Tenders shall be submitted to*:* ***THE SECRETARY,*** **COUNCIL TENDER BOARD,** ***SONGWE DISTRICT COUNCIL*** ***P.O.BOX 77,*** ***MKWAJUNI –SONGWE.***
	20.2(b)	Project name: **PROPOSED CONSTRUCTION OF EMERGENCY MEDICINE DEPARTMENT (EMD) BUILDING AND THREE IN ONE SEMI DETACHED STAFF HOUSE URBAN TYPE AT SONGWE COUNCIL HOSPITAL** Tender number: **SDC/184//W/2021-2022/03** Time and date for submission: 4th January 2022, 10:00am
17.	**21.1**	The deadline for Tender submission is a) Day: **Tuesday** b) Date: **4th January 2022** c) Time ***10:00 Hours***
	21.3	Extension of the deadline for submission of Tender shall not be made later than 7 days before expiry of the original deadline.
E. Opening and Evaluation of Tenders		
18.	**24.1**	The Tender opening shall take place at: Street address: **P.O.BOX 77, MKWAJUNI-SONGWE** Floor/Room No. Second floor at SAMBILA CONFERENCE HALL City/Town: **SONGWE** Country: **TANZANIA**
	24.3	List the appropriate details required to be announced at the Tender opening meeting; ***a)*** Tenderer's Names, ***b)*** Tender Prices, ***c)*** Discount Offered, ***d)*** Bid Security ***e)*** Power of Attorney ***f)*** Tender Securing Declaration Form
19.	**27.6 (i)**	List any other information/data required: **N/A**
20.	**29.2**	The currency that shall be used for Tender evaluation and comparison

		purposes to convert all Tender prices expressed in various currencies is: **TANZANIAN SHILLINGS** The source of exchange rate shall be: **BANK OF TANZANIA** The date of exchange rate shall be: **THE DATE OF BID OPENING**
21.	**30.2 (d)**	Tender price *"will not"* be adjusted by making an allowance for varying times of completion.
22.	**31.1**	Domestic preference: **N/A**
	31.4(b)	If a margin of preference applies, the application methodology shall be: **N/A**
23.	**33.1**	Post-qualification: **APPLICABLE.**
24.	**37.1**	Percentage for quantities increase or decrease is ***15 percentage***
F. Award of Contract		
25.	**40.1**	The amount of Performance Security shall be: ***10% OF THE CONTRACT PRICE.***
	40.2	The Performance Security shall be in the form of: **TENDER SECURING DECLARATION FORM**
26.	**41.1**	The Advance Payment shall be: **LIMITED TO A MAXIMUM OF THIRTY (30) PERCENT OF THE CONTRACT PRICE UPON SUBMISSION OF BANK GUARANTEE FROM REPUTABLE BANK WITHIN REPUBLIC OF TANZANIA OR INSURANCE BOND FROM TANZANIA**
27.	**42.1**	The proposed adjudicator for the project is: **NATIONAL CONSTRUCTION COUNCIL (NCC),** **SAMORA TOWER, 9TH FLOOR –** **MANSFIELD STREET,** **P. O. BOX 70039,** **DAR ES SALAAM,** **TANZANIA.** Whose hourly rate shall be: **IN ACCORDANCE WITH NATIONAL CONSTRUCTION COUNCIL (NCC) RATES.**
G. Review of Procurement Decisions		
28.	**46.1**	The address to submit copies of complaints: Chief Executive Officer, Public Procurement Regulatory Authority (PPRA) PPF Tower 8th Floor, P.O. Box 49, **DAR ES SALAAM.** Tel: 2133466, 2121236/7

		Fax: 2121238 email: ceo@ppra.go.tz Website: www.ppra.go.tz
29.	**48.2**	The address for Appeal to PPAA: The Secretary, Public Procurement Appeals Authority, Sukari House 1st Floor, P.O. Box 9310, **DAR ES SALAAM.** Tel: 2120451

SECTION IV: GENERAL CONDITIONS OF CONTRACT

Table of Clauses

Sec. IV

A. General

1. Definitions

1.1 Boldface type is used to identify defined terms.

The **Adjudicator** is the person appointed jointly by the Employer and the Contractor to resolve disputes in the first instance, as provided for in Clauses 26 and 27 hereunder.

Bill of Quantities -means the priced and completed Bill of Quantities forming part of the Tender.

Compensation Events are those defined in Clause 46 hereunder.

The **Completion Date** is the date of completion of the Works as certified by the Project Manager, in accordance with sub-Clause 57.1.

The **Contract** is the Contract between the Employer and the Contractor to execute, complete, and maintain the Works. It consists of the documents listed in Clause 2.3 below.

The **Contractor** is a person or corporate body whose Tender to carry out the Works has been accepted by the Employer.

The **Contractor's Tender** is the completed Tender document submitted by the Contractor to the Employer.

The **Contract Price** is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.

Corrupt practice means the offering, giving receiving or soliciting of any thing of value to influence the action of a public official in the procurement process or in contract execution and includes inter alia, bribery and extortion or coercion which

involves threats of injury to person, property or reputation, and

Fraudulent practice means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Employer, and includes collusive practice among Tenderer (prior to or after Tender submission) designed to establish Tender prices at artificial non - competitive levels and to deprive the Employer of the benefits of free and open competition.

Days are calendar days; months are calendar months.

Day works are varied work inputs subject to payment on a time basis for the Contractor's employees and Equipment, in addition to payments for associated Materials and Plant.

A **Defect** is any part of the Works not completed in accordance with the Contract.

The **Defects Liability Certificate** is the certificate issued by Project Manager upon correction of defects by the Contractor.

The **Defects Liability Period** is the period named in the **Special Conditions of Contract** and calculated from the Completion Date.

Drawings include calculations and other information provided or approved by the Project Manager for the execution of the Contract.

The **Employer** is the party who employs the Contractor to carry out the Works.

Equipment is the Contractor's machinery and vehicles brought temporarily to the

Site to construct the Works.

The **Initial Contract Price** is the Contract Price listed in the Employer's Letter of Acceptance.

The **Intended Completion Date is** the date on which it is intended that the Contractor shall complete the Works. The Intended Completion Date is specified in the **Special Conditions of Contract**. The Intended Completion Date may be revised only by the Project Manager by issuing an extension of time or an acceleration order.

The **Intended Commencement Date is** the date on which it is intended that the Contractor shall start the Works. The Intended Commencement date is specified in the **Special Conditions of Contract**. The Intended commencement Date may be revised only by the Project Manager by issuing an extension of time.

Materials are all supplies, including consumables, used by the Contractor for incorporation in the Works.

Plant is any integral part of the Works that shall have a mechanical electrical, chemical, or biological function.

The **Project Manager** is the person named in the **Special Conditions of Contract** (or any other competent person appointed by the Employer and notified to the Contractor, to act in replacement of the Project Manager) who is responsible for supervising the execution of the Works and administering the Contract.

The **Site** is the area defined as such in the **Special Conditions of Contract**.

Site Investigation Reports are those that were included in the Tendering documents and are factual and interpretative reports about the surface and subsurface

conditions at the Site.

Specification means the Specification of the Works included in the Contract and any modification or addition made or approved by the Project Manager.

The **Start Date** is given in the Special Conditions of Contract. It is the latest date when the Contractor shall commence execution of the Works. It does not necessarily coincide with any of the Site Possession Dates.

A **Subcontractor** is a person or corporate body who has a Contract with the Contractor to carry out a part of the work in the Contract, which includes work on the Site.

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

A **Variation** is an instruction given by the Project Manager which varies the Works.

"Force Majeure" means an event which is beyond the reasonable control of a Party and which makes a Party's performance of its obligations under the Contract impossible or so impractical as to be considered impossible under the circumstances.

The **Works** are what the Contract requires the Contractor to construct, install, and turn over to the Employer, as defined in the **Special Conditions of Contract**.

2. Interpretation 2.1 In interpreting these Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The

Project Manager will provide instructions clarifying queries about these Conditions of Contract.

2.2 If sectional completion is specified in the Special Conditions of Contract, references in the Conditions of Contract to the Works, the Completion Date, and the Intended Completion Date apply to any Section of the Works (other than references to the Completion Date and Intended Completion Date for the whole of the Works).

2.3 The documents forming the Contract shall be interpreted in the following order of priority:

(1) Agreement,

(2) Letter of Acceptance,

(3) Contractor's Tender,

(4) Special Conditions of Contract,

(5) Conditions of Contract,

(6) Specifications,

(7) Drawings,

(8) Bill of Quantities, and

(9) Any other document listed in the Special Conditions of Contract as forming part of the Contract.

3. Language and Law

3.1 The language of the Contract and the law governing the Contract are stated in the **Special Conditions of Contract**.

4. Project Manager's Decisions

4.1 Except where otherwise specifically stated, the Project Manager will decide contractual matters between the Employer and the Contractor in the role representing the Employer.

5. Delegation

5.1 The Project Manager may delegate any of his duties and responsibilities to other people except to the Adjudicator, after notifying the Contractor, and may cancel any delegation after notifying the

Contractor.

6.	**Communications**	6.1	Communications between parties that are referred to in the Conditions shall be effective only when in writing. A notice shall be effective only when it is delivered.
7.	**Subcontracting**	7.1	The Contractor may subcontract with the approval of the Project Manager, but may not assign the Contract without the approval of the Employer in writing. Subcontracting shall not alter the Contractor's obligations.
8.	**Other Contractors**	8.1	The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities, and the Employer between the dates given in the Schedule of Other Contractors, as referred to in the **Special Conditions of Contract**. The Contractor shall also provide facilities and services for them as described in the Schedule. The Employer may modify the Schedule of Other Contractors, and shall notify the Contractor of any such modification.
9.	**Personnel**	9.1	The Contractor shall employ the key personnel named in the Schedule of Key Personnel, as referred to in the **Special Conditions of Contract**, to carry out the functions stated in the Schedule or other personnel approved by the Project Manager. The Project Manager will approve any proposed replacement of key personnel only if their relevant qualifications and abilities are substantially equal to or better than those of the personnel listed in the Schedule.
		9.2	If the Project Manager asks the Contractor to remove a person who is a member of the Contractor's staff or work force, stating the reasons, the Contractor shall ensure that the person leaves the Site within seven days and has no further connection with

the work in the Contract.

10. Employers and Contractor's Risks

10.1 The Employer carries the risks which this Contract states are Employer's risks, and the Contractor carries the risks which this Contract states are Contractor's risks

11. Employers Risks

11.1 From the Start Date until the Defects Correction Certificate has been issued, the following are Employer's risks:

(a) The risk of personal injury, death, or loss of or damage to property (excluding the Works, Plant, Materials, and Equipment), which are due to:

(i) use or occupation of the Site by the Works or for the purpose of the Works, which is the unavoidable result of the Works or

(i) negligence, breach of statutory duty, or interference with any legal right by the Employer or by any person employed by or contracted to him except the Contractor.

(b) The risk of damage to the Works, Plant, Materials, and Equipment to the extent that it is due to a fault of the Employer or in the Employer's design, or due to war or radioactive contamination directly affecting the country where the Works are to be executed.

11.2 From the Completion Date until the Defects Correction Certificate has been issued, the risk of loss or damage to the Works, Plant, and Materials is an Employer's risk except loss or damage due to:

(a) a Defect which existed on the Completion Date,

(b) an event occurring before the Completion Date, which was not itself

an Employer's risk, or

(c) the activities of the Contractor on the Site after the Completion Date.

12. Contractor's Risks

12.1 From the Starting Date until the Defects Correction Certificate has been issued, the risks of personal injury, death, and loss of or damage to property (including, without limitation, the Works, Plant, Materials, and Equipment) which are not Employer's risks are Contractor's risks.

13. Insurance

13.1 The Contractor shall provide, in the joint names of the Employer and the Contractor, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts and deductibles stated in the **Special Conditions of Contract** for the following events which are due to the Contractor's risks:

(a) loss of or damage to the Works, Plant, and Materials;

(b) loss of or damage to Equipment;

(c) loss of or damage to property (except the Works, plant, Materials, and Equipment) in connection with the Contract; and

(d) personal injury or death.

13.2 Policies and certificates for insurance shall be delivered by the Contractor to the Project Manager for the Project Manager's approval before the Start Date. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.

13.3 If the Contractor does not provide any of the policies and certificates required, the Employer may effect the insurance which the Contractor should have provided and recover the premiums the Employer has

paid from payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be a debt due.

13.4 Alterations to the terms of an insurance shall not be made without the approval of the Project Manager.

13.5 Both parties shall comply with any conditions of the insurance policies.

14. Site Investigation Reports

14.1 The Contractor, in preparing the Tender, shall rely on any Site Investigation Reports referred to in the **Special Conditions of Contract**, supplemented by any information available to the Tenderer.

15. Queries about the Special Conditions of Contract

15.1 The Project Manager will clarify queries on the **Special Conditions of Contract**.

16. Contractor to Construct the Works

16.1 The Contractor shall construct and install the Works in accordance with the Specifications and Drawings.

17. Commencement and Completion of Works

17.1 The Contractor may commence execution of the Works by the Start Date and shall carry out the Works in accordance with the Program submitted by the Contractor, as updated with the approval of the Project Manager, and complete them by the Intended Completion Date.

18. Approval by the Project Manager

18.1 The Contractor shall submit Specifications and Drawings showing the proposed Temporary Works to the Project Manager, who is to approve them if they comply with the Specifications and Drawings.

18.2 The Contractor shall be responsible for design of Temporary Works.

18.3 The Project Manager's approval shall not alter the Contractor's responsibility for design of the Temporary Works.

18.4 The Contractor shall obtain approval of third parties to the design of the Temporary Works, where required.

18.5 All Drawings prepared by the Contractor for the execution of the temporary or permanent Works, are subject to prior approval by the Project Manager before this use.

19. Protection of the environment

19.1 The Contractor shall take all reasonable steps to protect the environment and to limit damage and nuisance to people and property resulting from pollution, noise and other results of his operations.

19.2 The Contractor shall ensure that emissions, surface discharges and effluent from his activities shall not exceed values prescribed in relevant environmental laws.

20. Labour Laws

20.1 The Contractor shall comply with all the relevant labour laws applicable in the Country, including laws relating to workers employment, working hours, health, safety, welfare, immigration and shall allow them all their legal rights.

20.2 The Contractor shall require his employees to obey all applicable laws, including those concerning safety at work.

21. Health and Safety

21.1 The Contractor shall at all times take all reasonable precautions to maintain the health and safety of his personnel.

21.2 The Contractor shall ensure that first aid facilities are available at all times at the site and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics

21.3 The Contractor shall notify the Employer 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 the property, as the Employer may reasonably require.

21.4 The Contractor shall conduct an HIV-Aids awareness programme, and shall take other such measures as specified in the **SCC** to reduce the risk of transfer of HIV virus between and among Contractor's personnel, the Employers Staff and the surrounding community.

22 Discoveries

22.1 Anything of historical or other interest or of significant value unexpectedly discovered on the Site shall be the property of the Employer. The Contractor shall notify the Project Manager of such discoveries and carry out the Project Manager's instructions for dealing with them.

23 Possession of the Site

23.1 The Employer shall give possession of all parts of the Site to the Contractor. If possession of a part is not given by the date stated in the **Special Conditions of Contract**, the Employer will be deemed to have delayed the start of the relevant activities, and this will be a Compensation Event

24 Access to the Site

24.1 The Contractor shall allow the Project Manager and any person authorized by the Project Manager access to the Site and to any place where work in connection with the Contract is being carried out or is intended to be carried out.

25 Instructions, inspections and audits

25.1 The Contractor shall carry out all instructions of the Project Manager which comply with the applicable laws where the Site is located.

25.2 The Contractor shall permit the Government, of the United Republic of Tanzania to inspect the Contractor's accounts and records relating to the performance of the Contractor and to have

them audited by auditors appointed by the Government of the United Republic of Tanzania if so required by the Government of the United Republic of Tanzania.

26. Disputes

26.1 If the Contractor believes that a decision taken by the Project Manager was either outside the authority given to the Project Manager by the Contract or that the decision was wrongly taken, the decision shall be referred to the Adjudicator within 14 days of the notification of the Project Manager's decision.

27. Procedure for Disputes

27.1 The Adjudicator shall give a decision in writing within 28 days of receipt of a notification of a dispute.

27.2 The Adjudicator shall be paid by the hour at the rate specified in the Tender Data Sheet and Special Conditions of Contract, together with reimbursable expenses of the types specified in the **Special Conditions of Contract**, and the cost shall be divided equally between the Employer and the Contractor, whatever decision is reached by the Adjudicator. Either party may refer a decision of the Adjudicator to an Arbitrator within 28 days of the Adjudicator's written decision. If neither party refers the dispute to arbitration within the above 28 days, the Adjudicator's decision will be final and binding.

27.3 The arbitration shall be conducted in accordance with the arbitration procedure published by the institution named and in the place shown in the **Special Conditions of Contract**.

28 Replacement of Adjudicator

28.1 Should the Adjudicator resign or die, or should the Employer and the Contractor agree that the Adjudicator is not functioning in accordance with the provisions of the Contract, a new Adjudicator will be jointly appointed by the Employer and the Contractor. In case

of disagreement between the Employer and the Contractor, within 30 days, the Adjudicator shall be designated by the Appointing Authority designated in the **Special Conditions of Contract** at the request of either party, within 14 days of receipt of such request.

B. Time Control

29 Program

29.1 Within the time stated in the **Special Conditions of Contract**, the Contractor shall submit to the Project Manager for approval a Program showing the general methods, arrangements, order, and timing for all the activities in the Works.

29.2 An update of the Program shall be a program showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work, including any changes to the sequence of the activities.

29.3 The Contractor shall submit to the Project Manager for approval an updated Program at intervals no longer than the period stated in the **Special Conditions of Contract**. If the Contractor does not submit an updated Program within this period, the Project Manager may withhold the amount stated in the **Special Conditions of Contract** from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Program has been submitted.

29.4 The Project Manager's approval of the Program shall not alter the Contractor's obligations. The Contractor may revise the Program and submit it to the Project Manager again at any time. A revised Program shall show the effect of Variations and Compensation Events.

30. Extension of the

30.1 The Project Manager shall extend the

Intended Completion Date

Intended Completion Date if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining work, which would cause the Contractor to incur additional cost.

30.2 The Project Manager shall decide whether and by how much to extend the Intended Completion Date within 21 days of the Contractor asking the Project Manager for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information. If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended Completion Date.

31. Acceleration

31.1 When the Employer wants the Contractor to finish before the Intended Completion Date, the Project Manager will obtain priced proposals for achieving the necessary acceleration from the Contractor. If the Employer accepts these proposals, the Intended Completion Date will be adjusted accordingly and confirmed by both the Employer and the Contractor.

31.2 If the Contractor's priced proposals for an acceleration are accepted by the Employer, they shall be incorporated in the Contract Price and treated as a Variation.

32. Delays Ordered by the Project Manager

32.1 The Project Manager may instruct the Contractor to delay the start or progress of any activity within the Works.

33. Management Meetings

33.1 Either the Project Manager or the Contractor may require the other to attend a management meeting. The business of a management meeting shall be to review the plans for remaining work and to deal with matters raised in accordance with the early warning procedure.

33.2 The Project Manager shall record the business of management meetings and provide copies of the record to those attending the meeting and to the Employer. The responsibility of the parties for actions to be taken shall be decided by the Project Manager either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.

34. Early Warning

34.1 The Contractor shall warn the Project Manager at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work, increase the Contract Price or delay the execution of the Works. The Project Manager may require the Contractor to provide an estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date. The estimate shall provided by the Contractor as soon as reasonably possible.

34.2 The Contractor shall cooperate with the Project Manager in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the work and in carrying out any resulting instruction of the Project Manager.

C. Quality Control

35. Identifying Defects

35.1 The Project Manager shall check the Contractor's work and notify the Contractor of any Defects that are found. Such checking shall not affect the Contractor's responsibilities. The Project Manager may instruct the Contractor to search for a Defect and to uncover and test any work that the Project Manager considers may have a Defect.

36. Tests

36.1 If the Project Manager instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a Defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no Defect, the test shall be a Compensation Event.

37. Correction of Defects

37.1 The Project Manager shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at Completion, and is defined in the **Special Conditions of Contract**. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.

37.2 Every time notice of a Defect is given, the Contractor shall correct the notified Defect within the length of time specified by the Project Manager's notice.

38. Uncorrected Defects

38.1 If the Contractor has not corrected a Defect within the time specified in the Project Manager's notice, the Project Manager will assess the cost of having the Defect corrected, and the Contractor will pay this amount.

D. Cost Control

39. Bill of Quantities

39.1 The Bill of Quantities shall contain items for the construction, installation, testing, and commissioning work to be done by the Contractor.

39.2 The Bill of Quantities is used to calculate the Contract Price. The Contractor shall be paid for the quantity of the work done at the rate in the Bill of Quantities for each item.

40. Changes in the Quantities

40.1 If the final quantity of the work done differs from the quantity in the Bill of Quantities for the particular item by more than 25 percent, provided the change exceeds 1 percent of the Initial Contract Price, the Project Manager shall adjust the rate to allow for the change.

40.2 The Project Manager shall not adjust rates from changes in quantities if thereby the Initial Contract Price is exceeded by more than 15 percent, except with the prior approval of the Employer.

40.3 If requested by the Project Manager, the Contractor shall provide the Project Manager with a detailed cost breakdown of any rate in the Bill of Quantities.

41. Variations

41.1 All Variations shall be included in updated Programs produced by the Contractor.

42. Payments for Variations

42.1 The Contractor shall provide the Project Manager with a quotation for carrying out the Variation when requested to do so by the Project Manager. The Project Manager shall assess the quotation, which shall be given within seven days of the request or within any longer period stated by the Project Manager and before the Variation is ordered.

42.2 If the work in the Variation corresponds with an item description in the Bill of Quantities and if, in the opinion of the Project Manager, the quantity of work above the limit stated in sub-Clause 38.1 or the timing of its execution do not cause the cost per unit of quantity to change, the rate in the Bill of Quantities shall be used to calculate the value of the Variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the Variation does not correspond with items in the Bill of Quantities,

the quotation by the Contractor shall be in the form of new rates for the relevant items of Work.

42.3 If the Contractor's quotation is unreasonable, the Project Manager may order the Variation and make a change to the Contract Price, which shall be based on the Project Manager's own forecast of the effects of the Variation on the Contractor's costs.

42.4 If the Project Manager decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and the Variation shall be treated as a Compensation Event.

42.5 The Contractor shall not be entitled to additional payment for costs that could have been avoided by giving early warning.

43. Cash Flow Forecasts

43.1 When the Program is updated, the Contractor shall provide the Project Manager with an updated cash flow forecast. The cash flow forecast shall include different currencies, as defined in the Contract, converted as necessary using the Contract exchange rates.

44. Payment Certificates

44.1 The Contractor shall submit to the Project Manager monthly statements of the estimated value of the work executed less the cumulative amount certified previously.

44.2 The Project Manager shall check the Contractor’s monthly statement and certify the amount to be paid to the Contractor within twenty eight (28) days from the receipt of certificate.

44.3 The value of work executed shall be determined by the Project Manager.

44.4 The value of work executed shall comprise the value of the quantities of the items in the Bill of Quantities completed.

44.5 The value of work executed shall include the valuation of Variations, Compensation Events and Variation of Price.

44.6 The Project Manager may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.

44.7 The Project Manager shall not bound to certify any payment, if the net amount, after all retentions and deductions would be less than minimum amount of Interim Payment Certificate stated in the **Special Condition of Contract.**

45. Payments

45.1 Payments shall be adjusted for deductions for advance payments and retention. The Employer shall pay the Contractor the amounts certified by the Project Manager within 28 days of the date of each certificate. If the Employer makes a late payment the Contractor shall be paid interest on the late payment in the next payment. Interest shall be calculated from the date by which the payment should have been made up to the date when the late payment is made at the prevailing rate of interest for commercial borrowing for each of the currencies in which payments are made.

45.2 If an amount certified is increased in a later certificate or as a result of an award by the Adjudicator or an Arbitrator, the Contractor shall be paid interest upon the delayed payment as set out in this clause. Interest shall be calculated from the date upon which the increased amount would have been certified in the absence of dispute.

45.3 Unless otherwise stated, all payments and deductions will be paid or charged in the proportions of currencies comprising the Contract Price.

45.4 Items of the Works for which no rate or price

has been entered in will not be paid for by the Employer and shall be deemed covered by other rates and prices in the Contract.

46. Compensation Events

46.1 The following shall be Compensation Events:

(a) The Employer does not give access to a part of the Site by the Site Possession Date stated in the Special Conditions of Contract.

(b) The Employer modifies the Schedule of Other Contractors in a way that affects the work of the Contractor under the Contract.

(c) The Project Manager orders a delay or does not issue Drawings, Specifications, or instructions required for execution of the Works on time.

(d) The Project Manager instructs the Contractor to uncover or to carry out additional tests upon work, which is then found to have no Defects.

(e) The Project Manager unreasonably does not approve a subcontract to be let.

(f) Ground conditions are substantially more adverse than could reasonably have been assumed before issuance of the Letter of Acceptance from the information issued to Tenderer (including the Site Investigation Reports), from information available publicly and from a visual inspection of the Site.

(g) The Project Manager gives an instruction for dealing with an unforeseen condition, caused by the Employer, or additional work required for safety or other reasons.

(h) Other contractors, public authorities, utilities, or the Employer does not work within the dates and other constraints stated in the Contract, and they cause

delay or extra cost to the Contractor.

(i) The advance payment is delayed.

(j) The effects on the Contractor of any of the Employer's Risks.

(k) The Project Manager unreasonably delays issuing a Certificate of Completion.

(l) Other Compensation Events described in the Contract or determined by the Project Manager shall apply.

46.2 If a Compensation Event would cause additional cost or would prevent the work being completed before the Intended Completion Date, the Contract Price shall be increased and/or the Intended Completion Date shall be extended. The Project Manager shall decide whether and by, how much the Contract Price shall be increased and whether and by how much the Intended Completion Date shall be extended.

46.3 As soon as information demonstrating the effect of each Compensation Event upon the Contractor's forecast cost has been provided by the Contractor, it shall be assessed by the Project Manager, and the Contract Price shall be adjusted accordingly. If the Contractor's forecast is deemed unreasonable, the Project Manager shall adjust the Contract Price based on the Project Manager's own forecast. The Project Manager will assume that the Contractor will react competently and promptly to the event.

46.4 The Contractor shall not be entitled to compensation to the extent that the Employer's interests are adversely affected by the Contractor's not having given early warning or not having cooperated with the Project Manager.

47. Taxes

47.1 The Project Manager shall adjust the Contract

Price if taxes, duties, and other levies are changed between the date 28 days before the submission of Tenders for the Contract and the date of the last Completion certificate. The adjustment shall be the change in the amount of tax payable by the Contractor, provided such changes are not already reflected in the Contract Price or are a result of Clause 49.

48. Currencies

48.1 Where payments are made in currencies other than the Tanzania Shillings, the exchange rates used for calculating the amounts to be paid shall be the exchange rates stated in the Contractor's Tender.

49. Price Adjustment

49.1 The amounts payable to the Contractor, in various currencies pursuant to sub-Clause 44.1, shall be adjusted in respect of the rise or fall in the cost of labor, Contractor's Equipment, Plant, materials, and other inputs to the Works, by applying to such amounts the formulae prescribed in this clause.

49.2 To the extent that full compensation for any rise or fall in costs to the Contractor is not covered by the provisions of this or other clauses in the Contract, the unit rates and prices included in the Contract shall be deemed to include amounts to cover the contingency of such other rise or fall of costs.

49.3 The adjustment to be applied to amount payable to the Contractor as certified in Payment Certificates shall be determined 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 as follows;

$$Pn = a + b\frac{Ln}{Lo} + c\frac{Mn}{Mo} + d\frac{En}{Eo} + etc.$$

where;

Pn is a price adjustment factor to be applied to the amount in each specific currency for the payment of the work carried out in the subject month, where such variations and daywork are not otherwise subject to adjustment;

a is a constant, specified in the **Appendix to Tender**, representing the nonadjustable portion in contractual payments;

b, c, d, etc., are weightings or coefficients representing the estimated proportion of each cost element (labor, materials, equipment usage, etc.) in the Works or sections thereof, net of Provisional Sums, as specified in the **Appendix to Tender**; the sum of a, b, c, d, etc., shall be one;

Ln, Mn, En, etc., are the current cost indices or reference prices of the cost elements in the specific currency of origin for month "**n,**" determined pursuant to Sub-Clause 49.5, applicable to each cost element; and

Lo, Mo, Eo, etc., are the base cost indices or reference prices corresponding to the above cost elements at the date specified in Sub-Clause 49.5

The value of net work done, certified by the Project Manager, in any monthly Interim or Final Certificate as payable by the Employer to the Contractor before deduction of any retention money shall be increased or decreased by an amount of **'F'.**

$$F = PnxPc$$

where;

The effective value **Pc** of work done which is to be subjected to increase or decrease shall be the difference between:

(i) the amount which, in the opinion of the Project Manager, is due to the Contractor under Clause 44 (before deduction of retention money and

before deducting sums previously paid on account) less:

- any amount for payment or repayment of any advance payment;
- any amount for materials on site (if any);
- any amounts for nominated sub-contractors (if any)
- any amounts for any other items based on actual cost or current prices; or
- any sums for increase or decreases in the Contract Price paid under this Sub-Clause

and

(ii) the amount calculated in accordance with (i) above of this Sub-clause and included in the last preceding statement.

49.4 The sources of indices shall be those listed in the **Appendix to Tender,** as approved by the Engineer. Indices shall be appropriate for their purpose and shall relate to the Contractor's proposed source of supply of inputs on the basis of which his Contract Price and expected foreign currency requirements shall have been computed. As the proposed basis for price adjustment, the Contractor shall have submitted with his Tender the tabulation of Weightings and Source of Indices in the **Appendix to Tender**, which shall be subject to approval by the Engineer.

49.5 The base cost indices or prices shall be those prevailing on the day 28 days prior to the latest date for submission of Tenders. Current indices or prices shall be those prevailing on the day 28 days prior to the last day of the period to which a particular Interim Payment Certificate is related. If at any time the current indices are not available, provisional indices as determined by the Engineer will be used, subject to subsequent correction of the amounts paid to the Contractor when the current indices become available

49.6 If the Contractor fails to complete the Works within the time for completion prescribed under Clause 57 adjustment of prices thereafter until the date of completion of the Works shall be made using either the indices or prices relating to the prescribed time for completion, or the current indices or prices, whichever is more favorable to the Employer, provided that if an extension of time is granted pursuant to Clause 28, the above provision shall apply only to adjustments made after the expiry of such extension of time.

49.7 The weightings for each of the factors of cost given in the **Appendix to Tender** shall be adjusted if, in the opinion of the Engineer, they have been rendered unreasonable, unbalanced, or inapplicable as a result of varied or additional work already executed or instructed under Clause 42 or for any other reason.

50. Retention

50.1 The Employer shall retain from each payment due to the Contractor the proportion stated in the **Special Conditions of Contract** until Completion of the whole of the Works.

50.2 On completion of the whole of the Works, half the total amount retained shall be repaid to the Contractor and the other half when the Defects Liability Period has passed and the Project Manager has certified that all Defects notified by the Project Manager to the Contractor before the end of this period have been corrected.

50.3 On completion of the whole Works, the Contractor may substitute retention money with an 'on demand" Bank guarantee.

51. Liquidated Damages

51.1 The Contractor shall pay liquidated damages to the Employer at the rate per day stated in the **Special Conditions of Contract** for each day that the Completion Date is later than the Intended Completion Date. The total amount of liquidated damages shall not exceed the amount defined in the Special Conditions of

Contract. The Employer may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not affect the Contractor's liabilities.

51.2 If the Intended Completion Date is extended after liquidated damages have been paid, the Project Manager shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate. The Contractor shall be paid interest on the overpayment, calculated from the date of payment to the date of repayment, at the rates specified in Sub- Clause 43.1.

52. Bonus

52.1 The Contractor shall be paid a Bonus calculated at the rate per calendar day stated in the **Special Conditions of Contract** for each day (less any days for which the Contractor is paid for acceleration) that the Completion is earlier than the Intended Completion Date. The Project Manager shall certify that the Works are complete, although they may not be due to be complete.

53. Advance Payment

53.1 The Employer shall make advance payment to the Contractor of the amounts stated in the **Special Conditions of Contract** by the date stated in the Special Conditions of Contract, against provision by the Contractor of an Unconditional Bank Guarantee in a form and by a bank acceptable to the Employer in amounts and currencies equal to the advance payment. The Guarantee shall remain effective until the advance payment has been repaid, but the amount of the Guarantee shall be progressively reduced by the amounts repaid by the Contractor. Interest will not be charged on the advance payment.

53.2 The Contractor is to use the advance payment only to pay for Equipment, Plant, Materials, and mobilization expenses required specifically for execution of the Contract. The Contractor shall demonstrate that advance payment has been used in this way by supplying copies of

invoices or other documents to the Project Manager.

53.3 The advance payment shall be repaid by deducting proportionate amounts from payments otherwise due to the Contractor, following the schedule of completed percentages of the Works on a payment basis. No account shall be taken of the advance payment or its repayment in assessing valuations of work done, Variations, price adjustments, Compensation Events, Bonuses, or Liquidated Damages.

54. Performance Securities

54.1 The Performance Security shall be provided to the Employer no later than the date specified in the Letter of Acceptance and shall be issued in an amount and form and by a bank or surety acceptable to the Employer, and denominated in the types and proportions of the currencies in which the Contract Price is payable as specified in the **SCC**. The Performance Security shall be valid until a date 28 days from the date of issue of the Certificate of Completion in the case of a Bank Guarantee, and until one year from the date of issue of the Completion Certificate in the case of a Performance Bond

54.2 Where circumstances necessitate the amendment of the contract after signature, and such amendment is effected, the Employer shall require the Contractor to provide additional Performance Security to cover any cumulative increase of more than ten percent of the Initial Contract Price.

55. Dayworks

55.1 If applicable, the Dayworks rates in the Contractor's Tender shall be used for small additional amounts of work only when the Project Manager has given written instructions in advance for additional work to be paid for in that way.

55.2 All work to be paid for as Dayworks shall be recorded by the Contractor on forms approved by the Project Manager. Each completed form

shall be verified and signed by the Project Manager within two days of the work being done.

55.3 The Contractor shall be paid for Dayworks subject to obtaining signed Dayworks forms.

56. Cost of Repairs

56.1 Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Correction periods shall be remedied by the Contractor at the Contractor's cost if the loss or damage arises from the Contractor's acts or omissions.

E. Finishing the Contract

57. Completion Certificate

57.1 The Contractor shall request the Project Manager to issue a certificate of Completion of the Works, and the Project Manager will do so upon deciding that the work is completed.

58. Taking Over

58.1 The Employer shall take over the Site and the Works within seven days of the Project Manager's issuing a certificate of Completion.

59. Final Account

59.1 The Contractor shall supply the Project Manager with a detailed account of the total amount that the Contractor considers payable under the Contract before the end of the Defects Liability Period. The Project Manager shall issue a Defects Liability Certificate and certify any final payment that is due to the Contractor within 56 days of receiving the Contractor's account if it is correct and complete. If it is not, the Project Manager shall issue within 56 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Project Manager shall decide on the amount payable to the Contractor and issue a payment certificate.

60. Operating and Maintenance Manuals

60.1 If "as built" Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the **Special Conditions of Contract**.

60.2 If the Contractor does not supply the Drawings and/or manuals by the dates stated in the **Special Conditions of Contract**, or they do not receive the Project Manager's approval, the Project Manager shall withhold the amount stated in the **Special Conditions of Contract** from payments due to the Contractor.

61. Termination

61.1 The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.

61.2 Fundamental breaches of Contract shall include, but shall not be limited to, the following:

a) the Contractor stops work for 28 days when no stoppage of work is shown on the current Program and the stoppage has not been authorized by the Project Manager;

b) the Project Manager instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within 28 days;

c) the Employer or the Contractor is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation;

d) a payment certified by the Project Manager is not paid by the Employer to the Contractor within 84 days of the date of the Project Manager's certificate;

e) the Project Manager gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Project Manager;

f) the Contractor does not maintain a Security, which is required; and

g) the Contractor has delayed the completion

of the Works by the number of days for which the maximum amount of liquidated damages can be paid, as defined in the **Special Conditions of Contract**.

h) If the Contractor, in the judgment of the Employer, has engaged in corrupt, coercive, collusive, obstructive or fraudulent practices in competing for or in executing the Contract.

For the purpose of this paragraph:

"corrupt practice means the offering, giving receiving or soliciting of anything of value to influence the action of a public officer in the procurement process or contract execution;

"coercive practice" means impairing or harming, or threatening to impair or harm directly or indirectly, any party or the property of the party for the purpose of influencing improperly the action or that party in connection with public procurement or in furtherance of corrupt practice or fraudulent practice;

collusive practices" means impairing or harming, or threatening to impair or harm directly or indirectly, any part or the property of the Party for the purpose of influencing improperly the action or a part or in connection with public procurement or government contracting or in furtherance of a corrupt practice or a Fraudulent Practice

"fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Government or a public body and includes collusive practices among Tenderer, prior to or after submission designed to establish

tender prices at artificial non-competitive levels and to deprive the Government of the benefits of free and open competition;

"obstructive practice" means acts intended to materially impede access to required information in exercising a duty under this Act;

61.3 When either party to the Contract gives notice of a breach of Contract to the Project Manager for a cause other than those listed under sub-Clause 61.2 above, the Project Manager shall decide whether the breach is fundamental or not.

61.4 Notwithstanding the above, the Employer may terminate the Contract for convenience.

61.5 If the Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site as soon as reasonably possible.

62. Payment upon Termination of Contract

62.1 If the Contract is terminated because of a fundamental breach by the Contractor, the Project Manager shall issue a certificate for the value of the work done and Materials ordered less advance payments received up to the date of the issue of the certificate and less the percentage to apply to the value of the work not completed, as indicated in the **Special Conditions of Contract**. Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be a debt payable to the Employer.

62.2 If the Contract is terminated for the Employer's convenience or because of a fundamental breach of Contract by the Employer, the Project Manager shall issue a certificate for the value of the work done, Materials ordered, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel

employed solely on the Works, and the Contractor's costs of protecting and securing the Works, and less advance payments received up to the date of the certificate.

63. Property

63.1 All Materials on the Site, Plant, Equipment, Temporary Works, and Works shall be deemed to be the property of the Employer if the Contract is terminated because of the Contractor's default.

64. Release from Performance

64.1 If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Employer or the Contractor, the Project Manager shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which a commitment was made.

65. Suspension of Financing

65.1 In the event that the source of financing is suspended to the Employer, from which part of the payments to the Contractor are being made:

(a) The Employer is obligated to notify the Contractor of such suspension within 7 days of having received the financing agency's suspension notice.

(b) If the Contractor has not received sums due it within the 28 days for payment provided for in Sub-Clause 45.1, the Contractor may immediately issue a 14-day termination notice.

66 Force Majeure

66.1 Notwithstanding the provisions of GCC Clauses 30 and 51, the Contractor shall not be liable for forfeiture of its performance security, liquidated damages, or termination for default if and to the extent that it's delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

SECTION V: SPECIAL CONDITIONS OF CONTRACT

SPECIAL CONDITIONS OF CONTRACT

Instructions for completing the Special Conditions of Contract

The following Special Conditions of Contract shall supplement the General editions of Contract. Whenever there is a conflict, the provisions herein shall prevail over those in the General Conditions of Contract. Except where otherwise indicated, all Special Conditions of Contract should be filled in by the Employer prior to issuance of the Tendering Documents. Schedules and reports to be provided by Employer should be annexed.

SCC Clause	GCC Clause	Description
1.	1.1	The Employer is **DISTRICT EXECUTIVE DIRECTOR,** **SONGWE DISTRICT COUNCIL,** **P.O.BOX 77, MKWAJUNI,** **SONGWE.** The Project Manager is: **----------** _____ _____ _____ The name and identification number of the Contract is: **PROPOSED CONSTRUCTION OF EMERGENCY MEDICAL DEPARTMENT BUILDING AND THREE IN ONE SEMI DETACHED STAFF HOUSE URBAN TYPE AT SONGWE DISTRICT CUNCIL** **TENDER NO. SDC/184/W/2021-2022/03** The Works consist of : i. Construction of Emergency Department Balding and Three in One Semi Detached Staff House Urban Type at Songwe District Council The Commencement Date shall be*:* **SEVEN (7) DAYS AFTER OFFICIAL SITE POSSESSION** The Intended Completion Date for the whole of the Works shall be: **16 CALENDAR WEEKS AFTER COMMENCEMENT DATE**

		The following documents also form part of the Contract: • Bid Submission Form • Form of Agreement • Letter of Acceptance • Special Contract Data • General Conditions of Contract • Priced Bill of Quantities • Specifications • Drawings • Any other document forming part of the contract (Minutes of clarifications/negotiation, anti-bribery memorandum)
		Indicate whether sectional completion is specified: **N/A**
		List other documents that form part of the contract if any: **MINUTES OF NEGOTIATION MEETING**
2.	3.1	The language of the Contract documents is **ENGLISH LANGUAGE** The law that applies to the Contract is the **TANZANIAN LAW**
3.	8.1	Include the Schedule of Other Contractors if any: **N/A**
4.	9.1	Include the CV of Key Personnel that would be engaged in the proposed works.
5.	13.1	The minimum insurance covers shall be: (a) loss of or damage to the Works, Plant, and Materials ***Limited to contract amount***; (b) loss of or damage to Equipment ***Limited to contract amount***; (c) loss of or damage to property (except the Works, Plant, Materials, and Equipment) in connection with the Contract ***Limited to contract amount***; and (d) personal injury or death ***Limited to contract amount***.
6.	14.1	Site Investigation Reports available to the Tenderer are: **None**
7.	15.1	The other measures include: a. Minimising the number of migrant workers employed on the project and household in the site camp. b. Providing access to voluntary counselling and testing (VCT). c. Providing psychological support and health care including prevention and treatment of opportunistic infections for workers infected and affected, as well as their families. d. Providing condoms (male and female) to workers.
8.	23.1	The Site Possession Date shall be:. **Immediately after signing the contract.**

9.	27.2	Hourly rate of Fees payable to the Adjudicator is: **To be determined by National Construction Council of Tanzania.** Types of reimbursable expenses to be paid to the Adjudicator include: **To be determined by National Construction Council of Tanzania.**
10.	27.3	Arbitration will take place at **any venue selected and agreed by the Client, Contractor and the Arbitrator** in accordance with rules and regulations of the United Republic of Tanzania**.**
11.	28.1	Appointing Authority for the Adjudicator: **To be determined by National Construction Council of Tanzania.**
B. Time Control		
12.	29.1	The Contractor shall Submit a revised Program for the Works within **Fourteen (14)** days of delivery of the Letter of Acceptance.
13.	29.3	The period between Programme updates is **Seven (7)** days.
14.		The amount to be withheld by the Project Manager in the case the contractor does not submit an updated programme is: ***Ten (10) percent of the amount of the value certified***
C. Quality Control		
15	38.3	A penalty for lack of performance if the contractor has not corrected a defect within a specified time: ***100% of the cost of having the defect correct.***
D. Cost Control		
16.	44.7	Minimum amount of Interim Payment Certificate will be: ***15% of contract price up to a scope of 75% of work progress.***
17	45.1	The interest rate: **BOT interest rates**
18.	46.0	The following events shall also be Compensation Events: ***N/A***
19.	48.0	The exchange rates for calculating the amounts to be paid shall be: **BANK OF TANZANIA EXCHANGE RATES.**
20.	49.1	The contract **is not** subject to price adjustment in accordance with Clause 49 of the General Conditions of Contract.
21.	50.1	The amount of retention is **ten percent (10%)** of value of works of Interim Payment Certificate'. Limit of retention: **10**% of contract price.
21.	51.1	The amount of liquidated damages is: **0.15 PERCENT OF CONTRACT PRICE PER DAY.**
22.	51.1	The maximum amount of liquidated damages must be equivalent to the amount of the performance security: **10**% ***of contract price***
23.	52.1	The Bonus for early completion is: **N/A**
24.	53.1	The amount of advance payment shall be: ***Forty percent (40%) of contract price payable to the***

		contractor not later than 28 days after submission of Unconditional Advance Payment Bank Guarantee Bond.
		Monthly Recovery of Advance Payment: **N/A**
25.	54.0	The Performance Security shall be **ten (10) percent** of the contract price in the form of Bank Guarantee acceptable to the employer in accordance with **GCC 54.1** The standard form of Performance Security acceptable to the Employer shall be **an Unconditional Bank Guarantee** of the type presented in Section IX of the Tendering Documents
		E. Finishing the Contract
26.	60.0	Schedule of Operating and Maintenance Manuals**: N/A**
27. 28.	60.1 60.2	The date by which operating and maintenance manuals are required is: **N/A** The date by which "as built" drawings are required is: **Before completion certificate is issued.** The amount to be withheld for failing to produce "as built" drawings by the date required: **10% of advance payment amount.** The amount to be withheld for failing to produce operating and maintenance manuals by the date required: **N/A**
29.	61.2 (g)	The maximum amount of liquidated damages is **10**% of the final contract price.
30	62.1	The percentage to apply to the value of the work not completed, representing the Employer's additional cost for completing the Works, is **2.5% of the value of the work not completed.**

SECTION VI: SPECIFICATIONS

TECHNICAL SPECIFICATIONS FOR PROPOSED CONSTRUCTION OF EMERGENCY MEDICAL DEPARTMENT AND STAFF HOUSE BUILDINGS.

1.0 EXCAVATION AND EARTHWORK

1.1 Nature of excavation

The contractor/Project Engineer must ascertain for him the nature of the material to be excavated and price work accordingly as no allowance will be made beyond the contract sum of any alleged ignorance in this respect.

1.2 Excavations generally

Excavations have been measured from the drawings including the Engineer's site plan showing existing contours. It is the responsibility of the contractor/Project Engineer to check the commencing levels prior to commencing the work as no extra payment will be made in respect of any alleged excavations carried out due to the commencing levels being above that shown upon the drawings without the prior written agreement of the Structural Engineer prior to commencement of excavation.

1.3 Site clearance

The contractor shall clear the construction areas within the site of all bushes, roots, boulders, natural obstructions, rubbish and any other natural or artificial obstructions, which would interfere with construction of buildings, roads, paths and drains.

1.4 Over-site excavation

Excavated material suitable for back-filling around foundations and for making up levels under roads, floors etc., is to be kept separate from soil spoil heaps and to be re-used as directed or spread and levelled on the site at the end of excavation operations when found to be surplus. The amount of any such disposal will be measured on site by the Quantity Surveyor. Vegetable soil is not to be used for back filling around foundations.

1.5 Excavation for foundations and structures

Excavations for foundations and the reinforced concrete structure shall be to the widths, depths and levels to accommodate the structure shown on the drawings. Working space has been allowed for in the measurement of excavation quantities in accordance with the rules of measurement laid down elsewhere in these bills, namely 1.00m from the face of any work which required formwork over 1m deep below the starting level of excavation and 0.30m from the face of any work which requires formwork not exceeding 1m deep below starting level of excavation. Generally, formwork has not been measured for plain concrete foundations or column base sand, therefore, excavations for these have been measured, net. Formwork has been measured to reinforced concrete foundation and column bases and all faces of columns and walls and working space excavation has been measured and included

accordingly. Adjustments to excavations widths as measured will therefore be made only in the case of the Structural Engineer ordering the addition of formwork to plain concrete foundations etc., or the omission of formwork to reinforced concrete foundations or column bases. Ordinary use of planking and strutting along foundations to prevent earth fall sand to save concrete will not be considered as formwork.

1.6 Inspection

When the excavations have been made to the sizes and depths required from thedrawings, the Structural Engineer shall be called to the site immediately for an inspection, and upon approval the Contractor shall proceed with the work to prevent rainwater or other surface water draining into the foundations. The excavations are to be left open until any variation in depth has been measured and agreed.

1.7 Excavation below required depths

Should any excavation be made below the levels or lines shown on the drawings or otherwise required by the Structural Engineer, the contractor must fill up the resultant over-excavation to the proper levels or lines with concrete nominal mix (1:4:8) at his own expense (see "concrete work").

1.8 Filling

The fill shall be clean, selected coarse sand or gravel. It should be taken from borrow pits if the soil on the site is found to contain too much fines and to have too low plasticity limit to be used as fill. The fill shall be deposited in horizontal layers of max. 200mm Thickness. As soon as possible after the fill is laid out, it should be compacted in min. three passes of a vibratory-roller and/or vibrating- plate compactor. The equipment to be used must be approved by the Engineer.

At each area (control area) of 500m2-compacted fill, three field density tests (e.g.by the sand-replacement method) should be taken randomly. The Control area to be accepted if all three test results are above 97% of the max. Density as determined at a homogenous mixing of all three samples by the Standard Proctor Method. Otherwise, repeat the test, each time with three new samples until the above requirement is met or re-compact and test again.

1.9 Return, fill in and ram

Return, fill in and ram suitable filling material as described above around foundations and other concrete structure in layers not exceeding 150mm thick and carefully ram and consolidate with power rammer. No filling in shall be executed until concrete foundations etc., have been inspected and approved by the Structural Engineer. Regardless of the means of back filling and compaction adopted, the contractor is responsible not only for the standard of the work but also for any possible damage of the permanent work or adjacent structure.

1.10 Levelling

No item is measured for levelling and consolidating ground and rates for excavation must include for levelling and preparing the ground for concrete or other works including ramming or rolling.

1.11 Soil sterilization

Anti-termite treatment is to be carried out by an approved specialist firm who will be required, upon completion of the soil sterilization, to furnish a written guarantee qualifying the following: -That the chemicals applied comply with the requirements specified herein for chemical concentration and rates of application.
That the treatment will remain effective against termite infestation for a period of five years.
The free re-treatment by the firm of any areas showing signs of infestation before the expiry of the five-year period.
The chemicals used shall be one of the following: -
i) Gamalin 0.5% applied in oil solution or water emulsion.
ii) Benzene hexachloride, 0.8% of gramma isomer applied in oil solution or water emulsion.
iii) Chlordane 1.0% applied in solution or water emulsion.
iv) Dieldrin 0.5% applied in oil solution or water emulsion.
v) Lindane; 0.8% in oil solution or water emulsion
vi) Pentachlorophenol; 5% in oil solution.
vii) Trichlorobenzene; 1 part to 3 parts oil.

Some of the chemicals listed above are toxic to animal and plant life and must therefore, be applied only with caution by an experienced person. Where individual water supply systems are proposed precautions must be taken to prevent in filtering and endangering the water supply. Treatment shall not be made when a soil of fill is excessively wet or immediately after heavy rain. Precautions must also be taken to prevent disturbance of the treatment by animals or human contact with the treated soil. The treated area is to be covered as quickly as possible after treatment.

The rate of application is to be 5 litres per square metre and the areas measured include those under floor and round wall and column foundations. The contractor shall notify the structural engineer in sufficient time before the filling of foundation trenches and laying of concrete floor bed in order that the Architect/Engineer may nominate a specialist firm to execute the soil sterilization. Any additional costs caused by the contractor not rendering sufficient prior notice to the Architect/Engineer will be borne entirely by the Contractor.

1.12 Disposal of surplus excavated material

Surplus excavated material will be carted away from the vicinity of the walls and deposited, spread and levelled on areas to be allocated by the Structural Engineer, reasonably adjacent to the site.

1.13 Disposal of water

The contractor shall keep the excavations free from standing water and silt (or excavated material softened by water) and he shall include for the cost of pumping, construction of temporary drains; soak-way pits, etc., as deemed necessary to achieve this. An item has been included for this in the Bills in each relevant section. The cost of pumping to dispose of any spring or running water has been covered by a Provisional Sum. If spring or running water is encountered the cost of any pumping ordered by the Structural Engineer will be paid for in accordance with the Day works schedule.

1.14 Planking and strutting

Sides of all excavations must be supported in order to prevent falls from or collapse of the earth face. The "Planking and Strutting" is deemed to include any method or methods, which the contractor elects to adopt to uphold, protect and maintain the sides of excavations. The contractor will be responsible for any consequences of his failure in this respect including clearing away fallen materials and any extra concrete or other works including formwork ordered by the Structural Engineer due to such failure. An item has been included in these Bills in each relevant section.

1.15 Hardcore

Hardcore shall be hard crushed stone to pass a 100mm ring in all directions. No sand, quarry dust or fine material will be permitted. All hardcore beds shall be topped with a layer of fine stone or aggregates minimum size 12mm to fill the voids on the surface to receive concrete beds. Rates for hardcore shall include foretelling or finishing or laying to falls and consolidating by rolling as described for “Filling" above.

2.0 CONCRETE WORK

2.1 Materials and workmanship generally

The recommendations of the recent British Standard Codes of Practice BS 8110 for the Structural use of reinforced concrete in buildings shall be deemed to be incorporated in these preamble clauses unless otherwise specifically stated.

2.2. Materials generally

All materials to be used in the works shall conform as to quality and description as specified hereunder and shall be equal to approved samples. In particular, no materials shall be used until approved samples shall be supplied to the Consulting Engineer for approval at least one week before ordering in bulk and delivery to the site. Any material delivered to the site, which has not been previously approved by the Structural Engineer shall be the Contractor's liability. All materials shall be transported, handled and stored on site so as to preclude damage deterioration or contamination. All condemned materials are to be removed from the site within 24 hours.

2.3 Cement

The cement, unless otherwise specified on the drawings shall be Ordinary Portland Cement of approved manufacture, delivered in the manufacturer's bags and shall comply in all respects with the requirements of the latest British Standard 12. The consignments of cement shall be delivered in sealed bags and shall be stored on the site so as to be used in the order in which they are delivered. The structural engineer shall have the right to take samples for testing in accordance with BS 12 and the contractor is to obtain current certificates of test from the manufacturer prior to bulk deliveries. Under no circumstances is High Alumina Cement to be used.
Rapid hardening cement may be used in lieu of ordinary Portland cement only with the prior approval of the Architect/Engineer or Engineer, provided that all conditions applying to its use are strictly observed. Any additional expenses in connection with the use of such cement shall be borne by the Contractor.

2.4 Aggregate generally

All aggregate shall be from approved reputable sources and shall be strong, hard, durable or limited porosity, free from dust, soft materials, earth or other extraneous matter, and washed and / or screened by the Contractor if so required by the Structural Engineer. Samples shall be provided as often as called upon by the Structural Engineer for testing in accordance with BS. 882. Normal aggregates will have particle densities of greater than 2000 Kg / m3 but not exceeding 3,000Kg/ m3. Only approved materials shall be used. Graded samples of all types of aggregate shall, after approval, be kept on site behind glass for visual checking of subsequent deliveries for grading, shape and where applicable, color. Aggregate shall be stored on site on paved areas with divisions between each type of aggregate, and shall be used in the order in which they are received on site. No aggregate shall be stored directly on the ground.

2.5 Fine Aggregate

The Contractor shall ensure that the grading of fine aggregate shall be such thatnotmore than 10% by weight shall exceed 5mm in size and not more that 10%byweight shall pass a sieve BS. No. 100. Between these limits the gradingshallconform to the grading for either zone, 1, 2 or 3 (B.S.882).

2.6 Coarse aggregate

Coarse aggregate shall be clean, well-graded crushed granite stone or other equal and approved stone from an approved quarry and washed if required by the Structural Engineer. The pieces shall be angular or rounded in shape and shall have granular or crystalline or smooth (but not glassy) non-powdery surface. Flakey and laminated pieces, mica and shale shall only be present in such quantities as not to affect

adversely the strength and durability of the concrete. The four nominal aggregate sizes shall be 40mm (1½"); 20mm (3/4"); 10mm(3/8"); 6mm (¼"); and the grading when analyzed as described in BS. 812 shall be within the limits given in BS. 882. Structural Engineer will specify sizes of aggregates to be used in specific areas. For most work 20 mm maximum size aggregates will be used. The nominal maximum size of coarse aggregates should be not greater than ¼ of the minimum thickness of concrete section or element.

2.7 Water

Water used for mixing of concrete, washing out of shuttering and similar purpose shall be clean, fresh and free from organic impurities in amounts likely to impair the quality of the concrete and should comply to requirements of BS 5328and BS 3148:1980 "Methods of test for water for making concrete".

2.8 Admixtures

Structural Engineer will approve all concrete admixtures after submission of specifications or proprietary brands and relevant trial mix verification at site by Contractor. Admixtures to comply with BS 5075 "Concrete Admixtures".

2.9 Steel reinforcement

Steel for reinforced concrete shall comply with the following specification: -
i) Mild steel rod reinforcement shall comply with BS. 4449.
ii) High tensile steel reinforcement shall be either cold worked deformed steel bars of circular octagonal section complying with BS. 4461 or hot rolled deformed high tensile bars having a guaranteed minimum yield stress of460 N/mm2 and other physical qualities in accordance with BS. 4449
iii)Welded steel fabric reinforcement shall comply with BS. 4483
iv) BS. 8110, the structural use of reinforced concrete in buildings.
All steel reinforcement shall be supplied by an approved manufacturer; and the contractor may be required to obtain a manufacturer's test certificate in respect of steel reinforcement supplied. In the absence of such a test certificate, the contractor may be required to submit samples to be tested at the contractor's expense in such manner as to comply with BS 8110 requirements. The steel shall be stored so that it is kept clean and reasonably free from rust The placing of all reinforcement shall be checked by the Engineer and in no circumstances are concrete to be deposited around any steel that has not been passed. At least twenty-four hours' notice shall be given to the Engineer that reinforcement will be ready for inspection.

2.10 Bending and fixing of reinforcement

All bending, cutting and fixing to be in compliance with the British Standard code of Practice, BS 8110 and BS 4466 Bending schedules are incorporated in the contract drawings. The number, size, form and position of all reinforcement shall unless otherwise directed or permitted by the Architect/Engineer, be strictly in accordance with the drawings. Bars shall be of the required lengths, and lapping, except where indicated on the drawings, is not permitted unless approved by the Engineer Overall dimensions shall not be exceeded and shall not be less than 6mm below the required dimensions. The sizes of links and the like shall be within tolerance of 3mm under or over the specified dimensions. Any tolerance in the total length of the bar as cut shall be taken up in the end hooks or other approved portions of the bar. The internal radius of the bends at corners of links and the like shale qual half the diameter of the bar embraced by the link.

Laps in bars of random lengths shall be staggered in such a way that no more than1/3 of bars having same number are to be lapped in the same section. The steel reinforcement shall be assembled and fixed in the form of a rigid cage. To prevent displacement before or during concreting the bars shall be secured teach other with approved wire. Concrete distance blocks shall, unless otherwise directed, be used between the reinforcement and the bottom and sides of the forms to ensure correct concrete cover to the bars, as specified on the drawings. The specified cover shall be provided and maintained within the specified tolerance.

The minimum clear distance between adjacent bars shall be 25mm horizontally and 25mm vertically. Spacer bars shall be inserted at such intervals that the bars do not perceptibly sag. Great care must be taken to ensure the correct positioning of beam and column starter bars and to secure projecting bars against displacement both during and after concreting. At the time of fixing and when concrete is being placed, all reinforcement shall be free from oil, paint, grease excessive dust and scale or any other coating, which would destroy its bond with the concrete.

2.11 Formwork to produce a fair face board finish (wrought formwork)

Formwork described as wrought shall be constructed of or lined with 100mmwide planed boards well cramped together or plywood to leave a fair smooth finish in the exposed concrete face when the shuttering is removed.

2.12 Construction and Movement joints

The positioning, type and frequency of construction joints are to conform to requirement of BS 8110 and be approved by Engineer. Methods of forming movement joints to follow drawings and the requirements of BS 8110.

2.13 Concrete grades

Only designed concrete mixes complying with BS 5328 shall be used. Concrete must comply with the requirements set out in the following table according to the grades (This is for guidance only)

GRADE NOMINAL

MIX
MAX WATER
CEMENT
RATIO
BY WEIGHT
MINIMUM
CRUSHING
STRENGTH OF
WORKS TEST
CUBES (N/mm2)
7 DAYS 28
DAYS
30 1:1:2 20mm 0.50 20 30
25 1:1½:3 20mm 0.55 17 25.5
20 1:2:4 20mm 0.60 14 20
15 1:3:6 25mm 0.60 8 14
10 1:4:8 40mm 0.60 - 10

2.14 Concrete Production, Supervision and Tests

Concrete should be produced in accordance with BS 5328 which requires tests to be made on constituent materials in accordance with relevant British Standards and control tests be made on concrete to ensure compliance with specified requirement. Engineer will in addition approve procedures for placing, compacting, curing and working in hot weather. Concrete should meet appropriate requirements specified in BS 5328 for

a) Characteristic compressive strength
b) Specified mix proportions
c) Maximum and minimum cement content
d) Maximum free water/cement ratio
e) Workability
f) Air content of concrete
g) Temperature of fresh concrete
h) Density of fully compacted concrete.

2.15 Preliminary cube tests

The contractor shall specify the sources from which the aggregate will be obtained and shall deliver at his own cost sufficient materials enable preliminary cube tests to be carried out and approved by the Engineer. The Contractor will be responsible for submitting his proposals for the concrete mix proportions together with aggregate grading curves to the Architect/Engineer for approval and for the payment of the fees of an approved Testing Authority in carrying out the crushing tests. The strength of the preliminary cubes must be a minimum of 33% above those in the above table, which is the minimum works strength. The approval of any mix by the Engineer will not relieve the contractor of the responsibility for ensuring that all concrete used in

the works obtain the minimum works strength shown above. In proportioning the concrete, the quantity of cement shall be determined by weight and the quantities of fine and coarse aggregate by either volume or weight, due allowance being made for the moisture content of the aggregate. Only sufficient water shall be added to the cement and aggregate during mixing to produce a concrete having sufficient workability to enable it to be well consolidated, to be worked into the corners of the shuttering and around the reinforcement, to give the specified surface finish and to have the specified strength. When a suitable amount of water has been determined the resulting consistency shall be maintained throughout the corresponding parts of the work and the slump test or compaction factor test shall be carried out from time to time to ensure the maintenance of this consistency. In no case should the slump be more than 65mm as determined by the standard slump test nor should the compaction factor be more than 0.87 as determined by the standard compaction factor test as described in BS. 1881.Should the Contractor wish to use patent, plasticizing compounds or other admixes, those shall be approved by the Engineer and be used in accordance with the manufacturer's publications.

2.16 Work cube tests

Work cube tests shall be made throughout the contract. Each cube shall be inscribed with the date of manufacture and identification mark. A record shall be kept for each batch of cubes showing the position in the works which the concrete represents, the date of manufacture, the mixture and slump of the concrete, particulars of the cement and aggregate used, a statement of whether or not the cubes were vibrated and other information relating to the subsequent history of the cubes.

The cube shall be made, cured and tested in accordance with the requirements of BS. 1881 when directed by the Engineer and in his presence or that of the Approved Testing Authority. A sample of concrete shall be taken at random on eight separate occasions during each of the first 5 days of using that mix.

Thereafter at least one sample shall be taken on each day any concrete of that particular mix is used. From each sample four cubes shall be made two for testing at 7 days and two for testing at 28 days. The works cube results shall be examined both individually and in consecutive (but not overlapping) sets of four, for which the average and the range of each set are calculated. The mix proportions shall be modified to increase the strength if, in the first and consecutive (but not overlapping) sets, any of the following conditions are not satisfied: -

i) Not more than 2 individual results of the 40-cube test should fall below the specified work cube strength.

ii) No value of the range in any set should exceed 4 times the designed standard deviation.

iii) Not more than one set should have an average, which is less than the specified strength plus 1.1/3 times the designed standard deviations.

iv) No value of the average for any set should be less than the specified strength plus the designed standard deviation.

2.17 Quality control requirements

After 10 consecutive sets of results have been obtained the overall average and the standard deviation of the 40 results shall be calculated and any appropriate modifications made. Subsequently, if any of the foregoing conditions are not satisfied, the overall average and the standard deviation of the previous consecutive 40 results, including the non-complying sets, should be calculated and the appropriate steps taken if the overall average strength twice the standard deviation is less than the specified work cube strength.

2.17.1 Supervision

A competent person shall be employed whose duty shall be to supervise all stages in the preparation and placing of the concrete. He shall supervise all tests on the materials and cubes and the maintenance and calibration of mixing and measuring plant. This person shall also be responsible for keeping an accurate record of the dates on which concrete is poured and where. Where the Engineer is not satisfied with the performance of concrete supervisor, he shall recommend to the Architect/Engineer for removal from site.

2.17.2 Batching and mixing plant

The quantities of cement and of fine and coarse aggregate shall be determined by weight. The amount of water added shall be measured, allowance being made for the water content of the aggregate. The accuracy of weighing and measuring equipment shall be 2.½%. Measuring equipment for water shall be maintained in clean serviceable condition.

2.18 Workmanship

2.18.1 Placing of reinforcement

Reinforcement shall be accurately placed and maintained in the position described on the drawings or elsewhere to the entire satisfaction of the Engineer. Bars intended to be in contact at passing points shall be securely wired together with 16gauge annealed soft iron tying wire. Binders and the like shall tightly embrace the bars and any slackness or misplacement of bars shall be rectified before the Engineer is called for inspection.

Spacers of approved design shall be used for ensuring the correct positioning of the bars and diagonal wiring shall be provided to ensure rigidity of all assembled units

of reinforcement. The vertical distance required between successive layers of bars in beams or similar members shall be maintained by the provision of mild steel spacer bars inserted at such intervals that the main bars do not perceptibly sag between spacers. The rates for reinforcement must include for all requisite wiring, spacers and precast concrete blocks to maintain the required spacing and cover. All bars are to be bent in accordance with BS. 4466, 1969.Cover of concrete to the reinforcement shall be, unless shown otherwise: -

Columns - 40mm minimum to main bars
Base - 50mm minimum to main bars
Beams - 25mm minimum to main bars
Slab - 15mm minimum to main bars
Wall - 25mm minimum to main bars
Raft slab - 100mm minimum to main bars

Splices to future work shall be covered in a manner approved by the Engineer to prevent rusting and deterioration. Before any concreting is carried out the approval of the Engineer as to the correctness of the fixed reinforcement shall be obtained but such approval shall not remove the responsibility for the correctness of the placing from the contractor. During concreting a competent steel fixer shall be in attendance on the concrete gang to make minor adjustments to the position of bars should they become displaced.

2.18.2 Formwork generally

Formwork design and construction should take into account of safety and surface finish required and to conform to requirements of BS 8110 and BS 5975.Dimensional deviations of insitu concrete shall be to limitations set in BS 5606All formwork and moulds shall be rigidly constructed to accurate shape and dimensions as described on the drawings and to requirement of BS 5975. Timber shall be well seasoned, free from loose knots and be of a kind and thickness that will avoid deflection and warping, remaining true to line and level. Faces in contact with the concrete shall be free from adhering grout, projecting nails, splits or other defects and shall be coated with an approved mould oil so as to prevent grout adhering to them, care being taken to prevent such coatings from any contact with the reinforcement.

Formwork shall be braced and strutted to prevent deformation under the weight and pressure of the wet concrete, construction loads, winds and other forces. The bottoms of beam boxes shall be erected with an upward camber so as to prevent downward deflection. Maximum tolerances, which will be permitted in the finished concrete work, are to BS 5606 as follows: -

Dimensions less than 3m + 3mm
Dimensions between 3m & 15m + 6mm
Dimensions over 15m + 10mm

Joints in the moulds of formwork shall be carefully made so as to prevent leakage of cement grout and particular care shall be exercised to this respect for moulds in which it is intended to place vibrated concrete. Openings in the formwork for

inspection of the inside and for the escape of water used for washing out accumulated debris shall be formed in such a manner that they can effectively be closed before placing the concrete. Formwork connections and joints shall be constructed so as to permit easy removal of the formwork, but shall be so secured as to retain correct shape under pressure exerted by the wet concrete during placing, vibration, setting and hardening. If any wire ties passing through the concrete or bolts are used, measures shall be taken to prevent rust, stains on the finished work and any holes left by the removal of such ties shall be made good. Formwork shall be provided for top faces of sloping work and anchored to prevent floatation, but this shall apply only where the slope exceeds 15 degrees. The formwork for beams and slabs shall be erected so that the sides of the beams and soffits of the slabs can be removed without disturbing the beam bottoms. Props for an upper story shall be placed directly over these in the story immediately below and the lowest prop shall bear upon work sufficiently strong to carry this load. If formwork of columns; walls and other deep sections is erected to the full heights, one side shall be left open and shall be built up in sections as placing of the concrete proceeds. Before concreting, bolts and fixings shall be in position. Cores and other devices used for the forming of openings, holes, pockets, chases, recesses and other cavities shall be fixed to the formwork and no subsequent holes shall be cut in any concrete without the Architect/Engineer's approval

2.18.3 Mixing of Concrete

All concrete shall be mixed in batch mixing machines Hand mixing shall not be permitted. All mixing machines shall be of the fixed drum types and not smaller in size than 0.40/0.28 CM drum mixers will not be permitted. The mixer shall be of the type equipped with an accurate measuring device designed so that no unauthorized person can tamper with the valve or vary the quantity of water delivered once this has been approved and set. The mixing procedure to be adopted by the Contractor shall be approved by the Architect/Engineer. Mixing of each shall be approved by the Engineer. Mixing of each batch shall continue until the concrete is uniform in color and, in any case, for not less than two minutes after all the materials and the water is used in the drum. The entire contents of the drum shall be discharged before the materials for the succeeding batch are fed into the drum. Upon completion of the day's mixing, the drum shall be thoroughly cleaned free of adhering concrete.

2.18.4 Distribution of Concrete

The concrete shall be distributed from the mixer to the position required by approved means, which do not cause separations or otherwise impair the quality of the concrete. All equipment shall be cleaned before commencing mixing and distribution and be kept free from set concrete. All concrete must be in position and consolidated before the initial set is commenced and the contractor shall ascertain the initial setting time for the brand of cement being used and ensure that his means of distribution are such that it is impossible for concrete to have set prior to

placing. Distribution by means of mortar pane generally will be permitted, but for important large structures such as slabs, large beds and elsewhere instructed by the Engineer the minimum requirements shall be wheelbarrows, ramps and runaways over the reinforcement.

2.18.5 Placing of Concrete

Before placing of concrete commences, the formwork shall be examined and any accumulated water and rubbish lying therein shall be removed. The concrete shall be placed as near to its permanent position as is practicable and shall not be worked along the formwork to that position. It shall not be dropped from height not handled in a manner likely to cause separation of the aggregate or loss of the cement matrix. In columns and other similar members, the bottom shall be first filled to a depth of between 150mm and 200mm with a cement mortar consisting of sand, cement and water with the sand and cement in the same proportion as that specified for the general mix in that member. The mortar shall have a consistency such that it will work up the formwork and fill in spaces, which may occur due to close spacing of reinforcement in the splice. This mortar must be placed immediately in advance of the concrete and shall not be allowed to attain its initial set before placing the main concrete for the member. Each layer of concrete, while being placed, shall be consolidated by the approved methods of ramming/ tamping or mechanical vibration so as to form a dense homogeneous material free from honeycombing water and air holes or other blemishes. Concrete shall be placed continuously until completion of the part of the work between the specified construction joints. Approved working joints shall be made whenever stopping of concrete placing occurs. In general, concrete shall be placed in a single operation to the full thickness and depth of slabs, beams and similar members and, in any case, shall be placed in horizontal layers' not exceeding 750mm deep in walls, columns and other similar members: -

2.18.6 Vibration

Mechanical vibrators or hand tamping must be used in placing all reinforced concrete work unless the Engineer has approved specially designed mixes and preliminary work cube test results have been obtained without their use. Rates for all reinforced concrete work includes for this. Where mechanical vibration is required the contractor shall allow for using two vibrators at any one time.

2.18.7 Working joints

Working joints shall be of an approved shape and placed at right angles to the axis of the member. The contractor shall submit his proposals for the design and position of all joints on a drawing to the Architect/Engineer for his approval well before construction is commenced. The position of day-to-day working joints may be determined so as to meet the requirements of the contractor's concreting programme.

Wherever new concrete is to be placed against concrete that has hardened, the face of the old concrete shall be cut back not less than 20mm and all-loose particles removed. The face shall then be wire brushed and thoroughly cleaned with water and then coated with a neat cement grout immediately before placing the concrete shall be well rammed and compacted against the prepared face before the neat cement grout sets.

2.18.8 Protection of Concrete

Newly placed concrete shall be protected by approved means from rains, sun and dry winds, and exposed faces shall be kept moist with polythene sheets or hessian coverings or other approved means for at least 7 days. Under no circumstances shall concrete be worked upon until it has reached a cube strength of140kg per square centimeter. Immature concrete shall be protected from damage by falling debris excessive loading vibrations, running or standing water, abrasives or other influences likely to impair the quality or strength of the finished work

2.18.9 Concrete in Excavation.

The length and widths of the excavation shall be as necessary for the proper construction of work below ground and in accordance with the Preambles contained in the section 'Excavation and Earthwork'. Blinding concrete has been measured for the net width required for concrete structure and foundations belowground level. Blinding has not been measured to the extra width, if any required for working space. The depths shall be decided by the Architect/Engineer where these are not given on the drawings. Any obstructions or unusual solids encountered during the excavation shall be reported to the Architect/Engineer and dealt with as then instructed.

2.18.10 Removal of formwork.

The period elapsing between placing the concrete and removing the formwork shall be sufficient to allow the concrete to mature to the extent of being able to maintain its own weight and any constructional and structural loads impose without damage. The Architect/Engineer's approval for the removal of the formwork shall be as tabulated below:

Position of Formwork _ Minimum striking Time

_ Vertical sides of wall, columns, beams, etc 2 days
Soffits of beams & slabs (props left) 7 days
_ Slab and props 14days
Bottom boards of piles _ (intermediate support left in 12 days)
_ Soffits of beams under 6m span _ 16 days
_ Additional: Period for each 0.6m span in
_ Excess of 6m span with a maximum of 28 days

The formwork shall be removed in all cases by gradual easing without jarring and the process shall be such that the sharp edges of the concrete are not chipped and

spilled away. If the imposition of a load is anticipated, props shall be provided in an approved manner after removal of the formwork and before the imposition of the loads.

2.18.11 Surface finishes

Upon removal of the formwork any honeycombing or damaged surfaces or other imperfections shall be reported to the Architect/Engineer. No surfaces shall be repaired or otherwise treated until an inspection has been carried out by the Architect/Engineer and his instructions or approval to remedial work (if any) have been given or obtained. Concrete surfaces, which are to be plastered or rendered, are to be hacked or roughened by an approved means to form a key. Sawn formwork is measured for all surfaces requiring support and subsequently concealed or plastered.

2.19. Precast Concrete

Where precast concrete members are specified, these shall be constructed in moulds of approved design and samples from the moulds shall be approved before quality production of the member is commenced to requirement of BS8110. Large precast members shall be lifted only at points, which will not damage the member, and if necessary temporary bracing of timber shall be used to case the member until it is in position. Small lintels and other small members may be cast in-situ at no extra cost at the contractor's option. Allowance must in all cases be made for any extra reinforcement to counteract temporary stresses whilst handling, transporting and hoisting precast concrete members. Moulds for precast units described as finished fair on exposed surfaces shall be lined with plywood or hard board to leave a fair finish on the exposed concrete face when the mould is removed.

The concrete shall be of the grade specified on the drawings but with maximum aggregate size 12mm and shall be thoroughly vibrated in the moulds and shall not be removed until seven days after placing the concrete. Care must be taken that no concrete is allowed to become prematurely dry and the fresh concrete must be carefully protected from the rain, sun and wind by means of 'Sisal-kraft' paper, well-wetted sacking, wet sand or other approved means. This protective layer and the concrete itself must be kept continuously wet for at least seven days after the concrete has been placed. Prices for precast concrete shall include for all moulds, reinforcement as specified, hoisting and fixing in the position required. bedding and pointing as described and temporary props and other necessary supports.

2.20 Sub-contractors work Incorporated in the Structure

It shall be the contractor's responsibility to co-ordinate sub-contractors and others for incorporating any electrical conduit, plumbing fixtures and pipes, bolt holes, etc., in the concrete members as required and shown on the drawings. The contractor shall submit details of cable and pipe runs to the Architect/Engineer before the work is put in hand and shall have the Architect/Engineer's approval of the layout. No holes or chases shall be cut on concrete without the approval of the Architect/Engineer.

2.21 General
No holes or chases are to be cut in any part of the reinforced concrete construction without first consulting the Architect/Engineer. No part of the reinforcement shall be used for conducting electrical current. Notice must be taken of any appearing on the drawing and not mentioned in these preambles.

2.22 Movements and Separation Joints
Movement joints shall comprise of Bitumen impregnated soft board or similar approved. Joints topping are to be 'Plastic' or similar approved hot poured rubber bitumen compound. Pointing to vertical joints is to be 'Plastic joint' or similar approve bituminous putty applied with a gun. Joints are to be at least 12mm deep and the gap is to be formed either by raking cut (in the case of expanded polystyrene) or by temporary wooden battens of the required width and 12mm deep.
Rates for the expansion or separation joint shall include all necessary labour and the materials described above, temporary supports and cutting where required to line with concrete surfaces finished to falls. Formwork has been measured as separate item to one side only of expansion joints.

2.23 Mortise and Pockets
Mortise or pockets for holding down bolts or dowels shall be formed in concrete to the size and shapes shown on the drawings. Mortises shall be formed by the use of expanded polystyrene blocks of the required shapes and sizes carefully and accurately placed and maintained in position whilst the concrete is poured. Rates for mortises shall include for all necessary templates and raking out and the complete removal of the polystyrene when the concrete has set. No deduction from concrete quantities have been made for any mortise, pocket or any other void in the concrete of 0.05 cubic meter or less and the Contractor may take this into account when pricing. Grouting up has been measured separately.

3.0 WALLING

3.1 Water
Water shall be as previously specified in 'concrete work.'

3.2 Cement
Cement shall be as previously specified in 'concrete work'.

3.3. Fine Aggregate
Fine aggregate shall be as previously specified in 'concrete work.'

3.4 Coarse Aggregate
Coarse aggregate shall be as previously specified in 'concrete work' and shall comprise aggregate of 6, 10 and 20mm grading in equal proportions.

3.5 Lime

Hydrate limes for cement/lime mortars shall comply with B.S.890 semi-hydraulic class 'B' calcium limes

3.6 Bricks and Clay blocks

Clay bricks and blocks, solid and hollow, shall comply with B.S.3921: 1974. The Architect/Engineer shall approve the manufacturer and/or supplier of clay bricks and clay blocks The vertical joints of one course should not be less than a quarter-brick from the vertical joints of the courses above and below.

Where strength is critical, bricks with one frog only should be laid with the frog upwards so that it is automatically flushed with mortar.

3.7 Joints

The joints of brickwork may be finished by one of the following methods.

i) With a flush joint as the work proceeds this joint being formed of the actual mortar used in bedding the bricks.

ii) Struck or recessed joint formed in the mortar as the work proceeds when it has gone some way towards setting. Recessed pointing must be even and not varying in-depth where not recommended otherwise the recess shall be6mm deep.

iii) Joints raked out while mortar is soft and cleaned down and pointed at completion. When the joints are raked out and pointed later the pointing mortar should be of composition similar to that of the bedding mortar.

iv) Joints raked out and left as key for plaster or roughcast.

3.8 Concrete Blocks

Solid and hollow concrete blocks for walls comply with BS. 6033/2028 type 'A 'except that the recommended mix shall be 1:3:6 cement; fine and coarse aggregate respectively by volume and are to have sharp arises. Blocks are to be manufactured on site in approved block making machines and shall be solid or two cavity hollow types as specified on the drawings. No damaged blocks shall be used in walling and half or other part blocks required to maintain bond shall be cut true and even.

The concrete is to be placed into the moulds in thin layers and shall be properly tamped or vibrated to secure complete consolidation without voids or flaws produce smooth surfaces and sharp straight corners. Blocks shall be cast on loose pellets and after removal from the moulds shall be carefully stored under for at least24 hours before the pellets are removed. The blocks shall thereafter be stored under cover for a further seven days protected from the sun and drying of the blocks may commence on the ninth day after manufacture and no blocks may be used within 14 days of their production.

The compressive strength of the type 'A' concrete blocks shall be not less than: - Average of 13 blocks 50 kg. per square centimeter (700 lbs. per square inch) Lowest individual blocks 40kg. per square centimeter (580 IBS per square inch) Concrete louvre blocks shall be of an approved type and manufacture. They shall be with inclined faces and have overall size 450 x 150 x 150mm (excluding lip protruding outside he bedding face).

3.9 Fair face work

Walls described as finished with a fair face shall be constructed with blocks selected for their uniformity of size and with a smooth exposed face with no chips, blemished, pinholes or cracks. Walling shall be pointed with a neat flush joint as work proceeds and on completion shall be brushed down and left thoroughly clean.

3.10 Mortar

The mortar used for walling shall be composed of one part of cement to two parts of hydrated lime to nine parts of sand (1:1:6) measured in gauge boxes and thoroughly mixed dry and preferably with an approved mixing platform with water added afterwards until all parts are completely incorporated and brought toe proper consistency and used within the hour. No partially or wholly set mortar will be allowed to be re-used or re-mixed.

3.11 Workmanship

All blocks and stone to be wetted before laying out the top of walling where left off, shall be well wetted before recommencing building, walls to be kept wet three days after building. All walling to be built true, plumb and level with all perpends vertical and in line and work shall not rise more than 900mm above the adjoining work and all such risings are to be properly raked back.

3.12 Damp proof course

Damp proof course between foundations walls and the oversite concrete slab shall be hessian based bitumen strip to BS. 743 type 5A the same width as the block walls. The damp proof course shall be bedded in cement mortar (1:4) with150mm-end laps and full width at passing and angles. Damp proof courses required on all external and internal foundation walls.

4.0 ASPHALT WORK

4.1 Generally

The asphalt work shall be executed complete by an approved specialist subcontractor.

4.2 Asphalt for tanking

Asphalt for tanking and damp proofing shall be mastic asphalt and shall comply in all respects with BS. 1097 and shall be applied in three coats with 150mm laps on horizontal work and 75mm laps on vertical with a two-coat asphalt fillet at all

internal angles. In laying asphalt in basements the contractor must take the following precautions and his prices must include for 1these: -

i) Immediately upon completion the horizontal asphalt must be protected by covering it with a fine concrete screed of not less than 50mm thickness, in order to avoid damage by dumping of steel reinforcement rods, spillage of oil etc.

ii) The vertical asphalt, the angle fillets and the offsets (if any) must be protected as quickly as possible by the erection of the skin walls or of main structural walls as the case may be.

iii) In particular piercing the asphalt membrane by driving nails, puncturing asphalt membrane by reinforcement roads or other materials, using asphalt membrane as a base for strutting and dropping petrol, oil or other solvents particularly from the contractor's plants, upon the asphalt or upon the surrounding area, must be avoided. It is essential that pumping operation be maintained on wet site until protective loading coats and protective walls are complete and fully set.

4.3 Asphalt for paving

Asphalt for paving, roads and footways shall be mastic asphalt and shall comply in all respects with BS. 1446 (natural rock aggregate) and BS. 1447 (limestone aggregate) shall be applied in strict accordance with the Architect/Engineer's (or his representative) specifications and instructions.

4.4. Asphalt for roofing

Asphalt for roofing shall be mastic asphalt and shall comply in all respects with BS.988 (mastic asphalt for roofing-limestone aggregate) or BS. 1162 (mastic asphalt for roofing-natural rock asphalt aggregate) and shall be applied in two coats, to a final thickness of 20mm. The composition of asphalt shall be in accordance with BS. 988 Table III columns. Where roofing is to be used by vehicular traffic for example, car park etc. the asphalt to be used will be as for paving. The laying of the roofing shall be in conformity in with C.P.144 (roof coverings part 2, mastic asphalt) and the covering shall be laid on an insulating membrane of blacks heating to BS. 747 type 4A. The rates inserted in the bills of quantities for roofing must allow for the cost of the sheathing felt, as it is not measured separately.

4.5 Preparation of surfaces

All surfaces to receive asphalt are to be dry and rough, groove or otherwise prepared and finished to the requirements and to the entire satisfaction of the asphalt sub-contractor and the Architect/Engineer.

4.6 Melting asphalt on site

Asphalt blocks shall be broken into pieces of convenient size and carefully melted in cauldron or mechanically agitated mixers, on the site at a temperature not exceeding215 C or the Molten material may be delivered to the site in mechanically agitated mixers.

4.7 Dusting of buckets

Buckets used for carrying molten asphalt shall be dusted with a fine inert dust. On no account shall ashes or oil be used for this purpose

4.8 Laying of asphalt

Asphalt shall be laid in bays generally not exceeding 2 metres wide and succeed in coats shall be laid breaking joint. Junctions between bays and fillets shall be properly married, the laid asphalt being heated by the application of the hot material, the whole being worked so that the joints are neatly made. Air pockets and stains on the asphalt will not be permitted and the finished asphalt work shall be not ring hollow over any parts of its surfaces. Joints in all asphalt work shall be made and complete fusion obtained to make them watertight. Fillets shall be run at all internal angles and at least in two operations.

5.0 ROOFING

5.1 Vermiculite lightweight screed

Vermiculite lightweight screed shall be mixed in the proportions of 6 parts by volume of vermiculite Grade 5 to 1 part of Ordinary Portland Cement with approximately 2 parts of clean potable water to give a density of 700 kg. perm3.
Vermiculite screed is to be finished to receive a topping coat of water proofed cement and sand (1:4).

5.2 Roof waterproofing

The waterproofing shall be carried out with cement and sand (1:4) waterproofed with 'Puddle' or other equal and approved waterproofing compound in strict accordance with the manufacturer's printed instructions.

5.3 Bitumen felt roofing

5.3.1 Generally

Bitumen felt roofing shall be executed by a specialist subcontractor to approved by the Architect/Engineer.

5.3.2 Materials

Bitumen felt roofing (or built up roofing) shall be in accordance with BS. 747(roofing felts). The roofing shall be composed of three layers of single roofing felt of specified quality; weight and make.

5.3.3. Fixing

Bitumen felt roofing shall be carried in accordance with the requirements of CP144 part 1:1968, (built up bitumen felt). The roof screed must be laid to falls of not less than 1 degree from horizontal and the screed must be thoroughly dried before laying of bituminous is commenced. The first layer shall be partially bonded to the roof deck with bitumen to allow sufficient easing of vapor pressure. The second layer shall be fully bonded to thirst layer with minimum 150mm laps at ends and edges in bitumen. The top layer shall be similarly bonded to the second layer.

5.4. Aluminum roofing

5.4.1 Materials
Aluminum roofing shall be resin coated aluminum roof sheeting manufactured by ALUCO, and shall conform to the requirements of BS 2855 or 3455. The gauge and the surface finish of the sheets shall be as recommended by the manufacturer, in writing, and approved by the Architect/Engineer. All accessories shall be of aluminum alloy. Whenever trough sheets and heavy trough sheets are used they shall comply with the requirements of BS 3428 type 'A' for trough sheets and type 'B' for heavy trough sheets.

5.4.2 Fixing

The sheets shall be fixed to steel angle or timber purlins with aluminum alloy bolts and nuts. The bolts shall be at least 50mm longer in the shank than the purlin to which they are fixed. All bolts shall have approved washers. Fixing of the sheet must conform strictly to the printed instructions or otherwise to the requirements of CP 143 part 1 BS 2855.

5.5 Galvanized sheet roofing

5.5.1 Materials
Galvanized sheet roofing shall be corrugated iron as manufactured by GALCO and shall comply with BS. 3083:1959: Hot dipped galvanized corrugated steel sheets for general purposes. In addition to the manufacturer's recommendation. The gauge and the surface finish of the sheets shall be specified and approved by the Architect/Engineer.

Accessories shall comply with BS. 1091: 1963 "Pressed steel gutters, rain water pipes, fittings and accessories".

5.5.2 Fixing
The sheets shall be fixed to steel angle or timber purlins with roofing nails, bolts and nuts or any other accessory to be approved by the Architect/Engineer. Fixing of the sheet must conformstrictly to the printed instructions or otherwise to the requirements of CP 143 part 2 BS. 2855:1962. NOTE: ASPHALT FOR ROOFING SEE UNDER TRADE "ASPHALT WORK"

6.0 CARPENTRY

6.1 Timber generally

The timber used for carpentry shall be sound, well-conditioned, properly seasoned to suit the particular use and free from defects or combination of defects rendering it unsuitable for the purpose intended. All timber used structurally shall comply with the relevant requirements of and graded in accordance with the Export of Timber Ordinance (cap. 288); The export and Grading of Timber Rules 1969All timber is to be ordered as soon as the Contract is signed and is to be delivered to the site for open stacking for as long as possible before use. All timber will be inspected by the Architect/Engineer upon arrival at the site and if not approved by him shall be removed from the site forthwith. Notwithstanding the Architect/Engineer's approval, any timber incorporated in the Works found to bein any way defective before the expiry of the Defects Liability Period shall be removed and replaced at the sole expense of the Contractor. Timber shall be free from live borer beetle or other insect attack when brought to the site. The Contractor shall be responsible to the end of the Defects Liability Period for executing any work necessary to eradicate insect attack at his own expense including the replacement of timber attacked or suspected of being attacked not withstanding that the timber may have been inspected already and passed fit for use.

6.2 Moisture content

All timber shall be seasoned to a moisture content; if not otherwise specified of not more than 15% The Contractor must allow for the costs of any kiln drying which may be necessary to obtain this figure.

6.3 Samples and testing

The Architect/Engineer/ engineer shall be entitled to select any samples he may reasonably require of materials or prototype of special construction elements for the purpose of testing (e.g. for moisture content; identification of species, strength etc.)

6.4 Protection

All timber delivered to the site shall be stored under cover clear of the ground and protected from sun and dampness and shall be stored in a satisfactory manner to prevent attack of termite, insects or fungi.

6.5 Softwood

Timber for structural use, including rafters, purlins etc. shall be of Grade II strength and Grade 1 appearance. The softwood shall be a seasoned cypress, cedarpine orpodo-carpus, which shall be pressure impregnated with the full cell process as described below, but the contractor's attention is drawn to the Day works Schedule where the basic price of various timber requires pricing, in the event of one of these timbers being selected as an alternative then these basic rates will be used in calculating new rates for the item of carpentry concerned.

6.6. Pressure impregnation

The softwood described as pressure impregnated shall be treated with the "Celcure A" or "Tanolith C" full cell process. Timber must be seasoned to a moisture content not exceeding 25% before being treated. The treatment shall be to the minimum standard of: -
Solution concentration - 2 %
Absorption of preservative - 520 liters per cubic meter
Net dry salt retention -10.4 kg. per cubic meter
After treatment the timber shall be seasoned to the specified moisture content. Cut ends and faces of timber sawn, drilled and cut after treatment are to be swabbed literally with approved preservative until saturated, allowed to dry and then treated with a second coat and rates for timber must include for this.

Approved preservatives are: -
Atlas A. Brunophen Nr. 2, Cuprinol Clear or Water Repellent Clear Enscle
Woodtreat 55.
Hardwood for structural and roof timbers shall be third grade scantlings, strength group E or other suitable and approved durable hardwood.

6.8 Preservative treatment
On delivery to the site all structural hardwood is to be treated with two coats of an approved timber preservative. After fixing, the hardwood is to be touched up as required with approved timber preservative.

The timber preservative shall be coal tar creosote to BS. 144 or other equal and approved applied either by brush or by spraying in accordance with the manufacturer's instructions. Cut ends and faces of timber sawn, drilled and cut after treatment are to be swabbed literally with approved preservatives until saturated, allowed to dry and

6.9 Nails
Nails shall be galvanized and comply with B.S.1202 and screws with BS. 1210.Screwsshall be brass unless otherwise described. Bolts, nuts and washers shall comply with BS. 916 and rag-bolts, coach screws and other accessories shall comply with BS. 1494. Washers shall be square minimum 3mm thick and 38mmsides.
6.10 Workmanship
"Unwrot" or sawn timber shall be as left from the saw and shall be the full dimensions stated. All carpentry shall be executed with workmanship of the best quality. Scantlings and boarding shall be accurately sawn and shall be of uniform width and thickness throughout. All carpentry work shall be left with sawn faces except where particularly specified to be wrot. All carpentry shall be accurately set out in strict accordance with the drawings All structural timbers shall be framed or jointed together with as is most appropriate in the circumstances in accordance with the rules of good practice.

Joints must be executed in strict conformity with the drawings. All joints shall be secured with a sufficient number of nails disposed as shown on the drawings and rates must include for the jointing of timbers. Surfaces must been good contact over the whole area of the joint before securing. Holes for nails must be pre-drilled under size, holes for bolts must be bored slightly oversize from both sides of the timber and washers must be used under the nut which must be tightened sufficiently to permanently secure the joint but not to crush the timber.

7.0 JOINERY

7.1 General
The provisions contained in the carpentry section shall apply also in the joinery section where applicable.

7.2 Hardwood
Joinery is to be executed in approved prime, select and locally available hardwood. Hardwood generally will be Mninga (Pterocarpus angolansis) but hardwood for fittings and built in furniture may be Mkangazi (African Mahogany-Khaya nyasica) unless specifically described otherwise.

7.3 Workmanship
All timber shall be wrot by machine dressing on exposed faces, with all machine marks sanded out, unless otherwise specified. The dimensions and thickness given in these Bills of Quantities are finished (unless otherwise stated). In the event of nominal sizes being stated, an allowance of3mm should be allowed for each wrought face. The joinery shall be worked strictly in accordance with the details drawings and is to be framed up and put together as soon as possible, and is to be stored for as long as possible before being wedged up. All joints and angles are to be glued and where necessary cross-tongued with hardwood tongues, and surfaces finished clean and smooth with machine marks sand papered out before fixing.

Should any of the joinery work shrink, wind or fly unduly before the end of the maintenance period of the contract, the work is to be taken down, and new work fixed in its place, together with any other works, which may thereby be affected at the Contractor's sole expense. Where joinery is described as screwed, this is deemed to include sinking the head of the screws and pelleting with similar timber and grain in with finished joinery. Screws unless otherwise specified, shall be brass. In pricing the items, the contractor will allow for nails and screws and fixing, all labours, cuttings, notching, havling, mortising, tenoning and welding except where otherwise provided. Rates are also to include for one coat approved priming paint on all concealed surfaces. Allow in the rates for easing and adjusting all doors, and leave in perfect working order.

7.4 Flush doors

Flush doors shall consist of hardwood core or framing covered with 6mmplywood both sides and complying where applicable with the requirements of BS.459, Part 2 and 2A. Doors described as skeleton framed shall consist of framing75mm wide to all stiles, top and bottom rails, with suitable blocks to receive mortise locks on each long edge.

Doors described as solid core shall comprise a solid core of vertical lamination. All flush doors shall be edged all round with 25mm thick hardwood lippingwith6mm'exterior' quality plywood as described below. All flush doors shall be perfectly plain on both faces and free from all waves, ripples or distortions of any kind. Any door, which, after the application of paint or polish shows any defects of this nature, shall be removed and replaced at the Contractor's expense.Samples of flush doors, which the contractor intends to use must be first submitted to the Architect/Engineer for his approval.

7.5 Plywood

Plywood shall be of Tanzania manufacture, manufactured from tropical hardwoods of the first grade with BS 145, and unless otherwise stated shall be 'interior' quality. Where stated to be of ' exterior' quality, the plywood shall be W.B.P. bonded weatherproof grade. Where veneered plywood is specified, samples must be submitted to the Architect/Engineer for his prior approval.

7.6 Blackboard

Blackboard shall be of Tanzania manufacture and comply with BS. 3444 and shall be of moisture resistant quality.

7.7. Chipboard

Chipboard shall comply with BS. 2604 resin-bonded wood chipboard.

7.8 Plugging

All work described as plugged shall be fixed with brass screws to plugs formed by drilling concrete, wall, etc. with a screw of suitable "philplug", "Rawplastic", orother approved plugging compound in accordance with the manufacturer's instructions.

7.9 Protection

Any fixed joinery which, in the opinion of the Architect/Engineer is liable to become damaged in any way shall be cased and protected by the Contractor until the completion of the works and the contractor must allow for this in his rates as no separate item for protection has been measured.

7.10 Ironmongery

All ironmongery will be fixed with matching screws to be supplied by the contractor/Client and the contractor must allow for adjusting locks and striking plates and handling over all keys on completion of the contract with identifying tags

attached. The contractor must also allow for oiling locks and hinges and leaving them imperfect working order. All ironmongery shall be manufactured by Union, Yale, Dryad or Newman-Tonks
Ltd. or other equal and approved by the Architect/Engineer/Engineer.
The following standard abbreviations have been used to describe the finish to ironmongery: -
S.C.P. - Satin Chrome Plate
C.P. - Chrome Plate (polished)
S.A.A. - Silver Anodised Aluminium

8.0 STRUCTURAL STEEL WORKS

8.1 Generally
Steel angles, tees, channels and plates are to be wieldable mild steel grade 434 in accordance with B.S.4360.

8.2 Welding
Electrodes for welding are to be in accordance with current British Standard in application All welds are to be fillet welds of 5mm by size unless otherwise indicated.

8.3 Bolts
Bolts are to be black bolts in accordance with BS 4190 and all nuts, bolts and washers are to be hot dip galvanized. Bolt holes shall have a diameter of the bolt.

8.4 Painting
All steel work is to be thoroughly cleaned, wire brushed and painted with two coats of red lead primer at the workshop and one finishing coat for aluminum paint. After erection any damage to the paint is to be made good and a further finishing coat applied.

9.0 METALWORK

9.1 Mild steel
Mild steel shall comply with B.S.15, Grade 1, and the sizes of all small section shall be in accordance with B.S.4 and 4A.

9.2 Galvanized work
Iron and steel, where galvanized shall comply with B.S.729, Part 1, entirely coated with zinc after fabrication by complete immersion in a zinc bath in one operation and all excess carefully removed. The finished surface shall be clean and uniform.

9.3 Aluminum

Aluminum shall be of the alloys described in and shall comply with B.S.1470.Aluminum sheet for flashings shall be soft tamper, super purity S1 or S1A) and knotless than 18 S.W.G(1.2mm) in thickness.

9.4 Smithing, welding and cutting

All smithing, welding; cutting and bending shall be soundly and neatly executed, care being taken not to overheat. All flame cut edged and welds shall be neatly ground off on completion. All welds shall be 8mm fillet welds to comply with Code of Practice 1856 unless shown otherwise.

9.5 Bolts

Mild steel bolts, nuts and washers shall comply with B.S.916 for black bolts with hexagonal heads and nuts, High Tensile Steel Bolts and nuts shall be in accordance with B.S.3139.

9.6 Anchor bolts

Anchor bolts in concrete for steel work, etc., are to be self-drilling anchor bolts of one of the following types: -
Phillips redhead concrete anchors,
Raw plug super drill anchors,
Split self-drilling anchors,
Rates are to include for fixing complete with washer.

9.7 Louvre windows

Louvre windows frames are to be aluminum with a clear anodized finish as manufactured by NACO and obtainable from Casements Africa Ltd., or other equal and approved by the Architect/Engineer.

9.8 Metal doors

Steel for metal doors shall conform to the requirements of BS. 1245:1975.

9.9 Burglar bars

Burglar bars shall be as specified by the Architect/Engineer. The bars shall be cleaned and painted as described on trade of painting on metalwork.

9.10 Structural hollow sections

All hollow sections are to be connected by electric welding. For butt welds the fusion surfaces of each member must be aligned and prepared.

9.11 Mild steel tubing

Mild steel tubing shall be in accordance with BS 1387:1975 with screwed sockets and joints.

9.12 Shop inspection

The Architect/Engineer shall grant full facilities and any necessary assistance for inspection of materials and assembled parts in the contractor's (or his Sub-Contractor) workshops. At least two weeks' notice shall be given to the Architect/Engineer in writing prior to the dispatch of finished components to the site to enable the Architect/Engineer to inspect and approve the materials and workmanship at the workshops. Approval of work at the workshop does not relieve the Contractor of his obligations to carry out the work complete at the site to the Architect/Engineer's satisfaction in accordance with the contract.

9.13 Marking

All components delivered to the site are to be marked in paint with the Mark number in accordance with any shop and erection drawings.

9.14 Storage

All components are to be stored at site in proper racks provided for the purpose which provide full support to each member and to avoid any deflection and distortion. Steel work is to be stored at least 250mm clear of the ground and temporary protection is to be provided for protection against water and damage from any other source.

9.15 Erection

Rates for all metalwork are to include for the complete erection including any temporary supports required and any necessary templates and wedges.

10.0 PLUMBING AND ENGINEERING INSTALLATION

10.1 PART ONE: GENERAL REQUIREMENT

10.1.1 SCOPE OF WORK

10.1.1.1 This specification contains general requirements for Plumbing services and associated equipment for water supply installations, sanitary installation, Gas installation and firefighting installations and equipment.

10.1.1.2 The scope of work shall incorporate the supply, installation, testing and commissioning of the Plumbing services and associated equipment for water supply installation, sanitary installations, gas installations and firefighting installations and equipment.

10.1.2.0 GENERAL CONDITIONS

10.1.2.1 The Contractor shall use a qualified approved plumber to perform the plumbing and engineering installation as a domestic subcontractor.

10.1.2.2 These specifications shall be read in conjunction with the specifications of the rest of the works. No claim will be entertained on the grounds of failure in this regard.

10.1.3.0 MATERIALS

10.1.3.1 Submission of Samples
The Contractor shall submit a list of suppliers from whom he proposes to purchase the materials necessary for the execution of the works. The Contractor shall be required to submit samples of the materials for approval. Samples shall be taken in accordance with the relevant British Standard where possible. No source of supply shall be changed without prior approval of the Engineer.

10.1.3.2 Rejected materials
All sub-standard materials or materials which become damaged or deteriorate so as not to comply with the specification shall be rejected and shall be removed from the site and replaced at the Contractor's expense.

10.1.4.0 SAFETY
Safety precautions throughout the execution of the Works shall comply to the Safety Acts as enacted and operating in the Republic of Tanzania.

10.2.0 PART TWO: GENERAL SPECIFICATION

10.2.1 EXECUTION OF THE WORK

10.2.1.1 The works shall be carried out by a specialist appropriately certified by the relevant Authorities and Boards for the type and/or value of the installations contained herein. Where no particular Specification is given for any material or item of work, the latest edition of relevant British Standard Specification shall apply. In the event of any disagreement between the information shown on the drawing and the specification, the drawing shall take precedence.

10.2.2.0 EXTENT OF WORK

10.2.2.1 The work includes, unless otherwise specified, supply, installation, testing and commissioning and delivering up clean and in working order the installations shown in the drawings and specified in these General and Particular Specifications. Water supply shall be from rainwater harvesting system from laboratory roof with plastic storage tank, cold water pipes and associated fittings, valves, sanitary appliances including all necessary taps, overflows and discharge fittings, firefighting

installations and equipment, and all labor, materials, tools and instruments necessary to execute the work in a first class manner, even such labor or materials which are not specifically mentioned herein but necessary for completion of the work.

10.2.2.2 The Contractor shall be responsible for ensuring that runs for floors or wall chases, holes to cut or left will be marked out at the appropriate stage of the structural work. The Contractor shall undertake all modifications demanded by the Authorities in order to comply with current regulations, and produce all certificates, if any, from the Authorities without extra charge.

10.2.3.0 EXTENT OF CONTRACTOR'S DUTIES

10.2.3.1.1.1.1 At commencement of the work, the Contractor shall investigate and report to the Architect/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 this stage place orders for the materials in question and copy the orders to the Architect/Engineer. Failure to do so shall in no way relieve the Contractor from supplying the specified materials and equipment in time.

10.2.3.2 Where the Contractor wishes to propose an alternative method of construction or material to that specified for any part of work, full details shall be submitted for approval. The acceptance or otherwise of any alternative shall be entirely at the discretion of the Architect/Engineer. Materials supplied by others for installation and/or connection by the Contractor shall immediately be reported to the Architect/Engineer. The Contractor shall be responsible for verifying all dimensions relative to his work by actual measurements taken on the site.

10.2.3.3 As built drawings

At practical completion and before final payment certificate is issued, the Contractor shall provide a complete set of "As Built" record drawings of the entire installation. Drawings shall be in a scale and size approved by the Architect/Engineer and submitted in hard bound volumes for each service of water supply installation, sanitary installations, Gas installation and firefighting systems. Shop drawings, spare parts list, operation and maintenance manual of equipment installed shall be submitted together with the "As Built Drawings".

10.2.4.0 QUALITY OF MATERIALS AND WORKMANSHIP

10.2.4.1 Materials and workmanship

10.2.4.1.1 All materials, equipment and accessories are to be new and in accordance with the requirements of the current rules and regulations where such exist, or in their absence with the relevant British Standards. Uniformity of the type and

manufacture of the equipment or accessories is to be preserved as far as practicable throughout the whole work.

10.2.4.1.2 The Contractor shall, if required by the Architect/Engineer, submit samples of materials to the Architect/Engineer for his approval before placing on order. If in this general specification, the practice is adopted of specifying particular item as "similar" to that of a particular product, it is to be clearly understood that this is to indicate the type and quality of the equipment required. No attempt is being made to give preference to the equipment supplied by the firm whose name or product is quoted. Where particular manufacturers are specified herein, no alternative makes will be considered, and the Architect/Engineer shall be allowed to reject any other makes.

10.2.4.1.3 The Contractor will be entirely responsible for all materials, apparatus, equipment, etc. furnished by him in connection with his work and shall take all care to protect all parts of finished work from damage until handed over.

10.2.4.1.4 The work shall be carried out by competent workmen under skilled supervision. The Architect/Engineer shall have the Authority to have any of the work taken down or changed, which is executed in an unsatisfactory manner.

10.2.4.2 Pipes and Pipe Fittings

10.2.4.2.1 All pipes exposed on faces of walls, unless otherwise specified, shall be fixed at least 25 mm clear of adjacent surfaces with approved holder-bats built into walls, cut and pinned to walls in cement mortar, where fixed to woodwork, suitable clips shall be used.

10.2.4.2.2 All pipes specified as fixed to ceilings, roofs or roof structures shall be fixed with approved mild steel hangers cut and pinned to ceilings, roofs or roof structures. Where three or more tubes are fixed to ceilings, roofs or roof structure close to each other, they shall be fixed in position, which leaves the lower surfaces at the same horizontal level, unless otherwise specified.

10.2.4.2.3 Pipes shall be fixed to true lines, parallel to adjacent lines of the building unless otherwise specified. Where insulated, pipes shall be fixed with the insulation at least 25 mm clear of adjacent surfaces. The spacing for fixings for internally located piping shall be in accordance with BS 6700: 1987 Table 17.

10.2.4.2.4 Each support shall take its due proportion of the weight of the pipe and shall allow free movement for expansion and contraction. All pipes specified as chased into walls shall have the wall face neatly cut and chased, the tubing wedged and fixed and plastered over. Where pipes are laid in trenches care shall be taken to ensure that fittings are not strained.

10.2.4.2.5 All formed bends shall be made so as to retain the full diameter of the pipe. Sleeves shall be provided where pipes pass through walls and solid floors to allow movement of the pipes without damage to the structure. The overall length of the sleeves shall be that it projects at least 2 mm beyond the finished thickness of the wall or partition.

10.2.5.0 TAPS AND VALVES.

10.2.5.1 Taps and valves shall be in accordance with the following Standards:
Draw-off taps and stop valves shall comply with BS 1010 Part 2: 1973.
Copper alloy gate and check valves shall comply with BS 5154: 1991.
Copper floats for ball valves shall comply with BS 1968: 1953 and
plastic floats for the same shall comply with BS 2456: 1990.
Sluice valves shall comply with BS 5163: 1991.
Draining taps shall comply with BS 2879:1988.

10.2.5.2 All valves and cocks shall have the same flow areas, as the corresponding pipes and shall be accessible for operation and maintenance and suitably labelled by an approved method. Stop valves shall be fixed in positions shown on the drawings to form branch services for group control, or where else specified.

10.2.5.3 All valves, cocks and taps shall be of the correct pressure rating according to the recommendations of the relevant British Standards or the local authority. At commencement of the contract, the Contractor shall, if necessary, ask the Architect/Engineer for guidance on this point.

10.2.6.0 SANITARY AND OTHER APPLIANCES

The appliances shall be fixed in the positions shown on the drawings or as directed by the Architect/Engineer. The Contractor shall include in his rates for providing all necessary screws, bolts, etc. together with all jointing material required and also for temporarily erecting and securing fittings and in the required position of service and discharge pipes, taking down, storing and fixing after completion of wall finishing, permanently fixing and connecting to service and discharge. Care shall be taken at all times and particularly after fixing to protect appliances from damage. Upon completion of the work all appliances shall be cleaned for plaster, paint, etc. and carefully examined for defects.

10.2.7.0 FIRE FIGHTING EQUIPMENT

10.2.7.1 The specified firefighting equipment shall be supplied and installed by the Contractor in the position shown on the drawings.

10.2.7.2 Supply, installation and maintenance of firefighting equipment shall be in accordance with the following British Standards BS 5306: Fire extinguishing installations and equipment on premises:

Part 0: 1986: Guide for the selection of installed systems and other fire equipment.

Part 3: 1985: Code of practice for selection, installation and maintenance of portable fire extinguishers

BS 5499: Fire safety signs, notices and graphic symbols

Part 1:1995: Specification for fire safety signs

10.2.8.0 GAS INSTALLATION SPECIFICATION

10.2.8.1 All male gas tap assemblies shall be supplied with 3/8" BSP (BS 2779G3/8" B) male shank 60mm long. Shanks shall be supplied with flat ends suitable for connection with 3/8" BSP female threaded connectors.

i) 10.2.8.2 The male gas tap assembly shall require a 17mm diameter hole drilling in the work surface. Care shall be taken to ensure that the outlet nozzles are in a suitable position so that the safety lever has sufficient clearance to function correctly and is clearly visible from distance. Anti-rotation nuts shall be used for added security.

10.2.8.3 Gas supplies shall be within the range of 20 to 25 M bars air pressure and supplied by means of copper tubing. As with all gas valves and appliances, assemblies shall be soundness tested on a regular basis to ensure safety.

10.2.84 Emergency Eye Wash with two streams with ABS bowl shall be provided to give an immediate deluge of water that should dilute and wash away injurious materials, such as caustic acids, fire, radioactive materials.

10.2.8.5 A manual shutoff valve at the pipe entry to each laboratory shall be provided.

10.2.8.6 Gas pipes shall be ventilated along their run by being exposed or/and by the enclosure being punctuated to provide adequate ventilation to avoid explosion due to a buildup of gas in the case of leakage.

10.2.8.7.1.1.1 Gas pipes shall be well supported particularly where they are part of a flexible overhead servicing system or at a height accessible to pupils

10.2.9.0 INSPECTION AND TESTING OF COMPLETED INSTALLATIONS

10,2.9.1 Testing equipment shall be supplied by the Contractor for the period of execution of works. The equipment shall be set up and maintained inaccurate working order throughout the period of use.

10.2.9.2 The Contractor shall provide all necessary testing apparatus and facilities for testing the installations and any defective work shall be replaced immediately and shall be subject of re-testing until found satisfactory.

10.2.10.0 INSPECTION AND TESTING OF WATER SUPPLY PIPE WORK

10.2.10.1 **Testing for underground pipelines**

10.2.10.1.1 The installation to be tested shall be inspected for compliance with thedrawings and specifications. Significant variations shall be investigated and corrected, if required, before proceeding with the test.

10.2.10.1.2 After laying, jointing and anchoring, the pipeline shall be slowly and carefully filled with water so that all the air is expelled and tested under pressure. If water from supplier's mains is used for filling the pipeline under test, the main shall be disconnected from the pipeline before the test is begun.

10.2.10.1.3 Testing shall be carried out in accordance with BS 6700: 1987 5886, appropriate to the material of the pipeline. Interim tests shall be applied to every pipeline. For buried pipelines these shall be carried out before backfilling is placed over the joints. Long pipelines shall be tested in sections as work proceeds. Final tests shall be carried out only when all relevant works complete. Completion for buried pipelines includes back filling, compaction and surface finish.

10.2.10.1.4 The test pressure shall be at least twice the working pressure of the pipeline. Precautions shall be taken to ensure that the required test pressure is not exceeded. Pressure gauges shall be checked and re-calibrated, where necessary, before the test. To avoid the risk of contamination, water used for testing shall be obtained from a potable supply.

10.2.10.1.5 Before accepting a pipeline, a check shall be made that valve and hydrant boxes are properly aligned, that suitable operating keys are provided which can be easily fitted to the valves and, in the case of deep valves, that adequate extension spindles are installed.

10.2.11.0 INSPECTION AND TESTING OF SANITARY PIPE WORK

10.2.11.1 Inspections and tests should be made during the installation of the discharge System in accordance with BS 5572: 1978, as the work proceeds, to ensure that the pipe work is properly secured and clear of obstructing debris and superfluous matter and that all work which is to be concealed is free from defects before it is finally enclosed.

10.2.11.2 The completion of the discharge system should be meticulously inspected to ensure that the recommendations of the code have been observed and that no cement droppings, rubble or other objects are left in the pipes and that no jointing material projects into the pipe bore. When this has been done, tests for soundness of the pipe work and for performance should be made.

10.2.12.0 INSPECTION AND TESTING OF FIRE EXTINGUISHING INSTALLATIONS

10.2.12.1 The date and programme of acceptance tests shall first be notified to all parties involved, and a joint inspection of the system shall then be made. Before Test in commences, an indemnity shall be obtained, signed by the client or the person responsible for the premises at the time.

10.2.12.2 The agreed test programme shall then be carried through and the following shall be recorded:

The date and time of inspection/test
The responsible person carrying out/witnessing tests
The test programme
The test results and conclusions
Any external factors significantly affecting the test
Subsequent action agreed to be required
The work carried out as a result of external factors and the result test if any
The final test report.

10.2.13.0 INSPECTION AND TESTING OF GAS INSTALLATIONS

10.2.13.1 All drop gas tap assemblies shall be tested to 5psi before leaving the factory. All gas installations incorporating Vultex Labline drop lever gas tap assemblies shall not exceed 75 Mbar test pressure to ensure that the sealing and lubricating media is not displaced.

10.2.13.2 Detailed inspection of fume cupboards, gas pipe work and controls shall be carried out at least once a year

10.3.0 PART THREE: PARTICULAR SPECIFICATION

10.3.1.0 PLUMBING

External plumbing for water supply shall be of polyethylene pipes, UPVC pipes for underground rainwater collection system and polypropylene pipes for internal plumbing while vulcathene chemical waste pipes shall be used for both internal and external drainage.

10.3.2.0 STORAGE TANKS
Overhead water storage tanks with capacity of 3000 litres, Simtank 1.70metres diameter and 1.7 metres height on 1.5 metres blockwork tower shall be provided.

10.3.3.0 FIRE FIGHTING
12 kg ABC dry powder portable fire extinguishers shall be provided.

10.3.4.0 WASTE WATER DISPOSAL
Soak-away pit shall be provided with manhole constructed of block work.

10.3.5.0 CHEMICAL WASTE DISPOSAL
Emergence eye wash sink with two streams with ABS bowl inclusive of fittings shall be provided.

10.3.6.0 SOLID WASTE DISPOSAL

10.3.6.1 Movable plastic bins of capacity of 20 liters shall be provided for temporary collection of solid waste.

10.3.6.2 Incinerator constructed in blockwork and lined with clay burnt bricks inside shall be used for burning solid waste that cannot be buried.

10.3.6.3 Ventilated Improved Pit Latrine (V.I.P.) shall be provided.

11.0 FLOOR, WALL AND CEILING FINISHINGS

11.1 Sand
Sand for backings, floor and wall finishes is to comply with B.S.1199, Table 1.

11.2 Aggregate
Coarse aggregate is to be as described for 'concrete work'.

11.3 Cement
Cement is to be as described for 'Concrete Work'.

11.4 Lime
Lime is to be non-hydraulic hydrated lime to B.S.890 Class 'A' obtained from an approved source and run into putty at least 24 hours before use.

11.5 Workmanship

All concrete beds or slabs shall be thoroughly brushed if necessary and well wetted and flushed over with a cement and sand (1:1) grout immediately before screeds or paving are laid.

Screeds and cement paving shall be laid in accordance with the relevant BS. Code of practice. Working joints between bays of the floor finish should be placed in accordance with the Architect/Engineer's instructions and will be plain butt joints placed over joints in the concrete bed under. Paving's shall be damp cured withstand or sawdust and kept damp for at least 7 days after laying.

All surfaces to be plastered or rendered must be brushed clean and well wetted before plaster is applied. Joints of walling shall be raked out and concrete hacked to form a key. Care shall be taken to see that paving and plastering do not dry out prematurely

Adequate time intervals must be left between successive coats in two coat work in order that the drying shrinkage of the undercoat may be substantially complete. All internal and external angles shall be pencil rounded.

11.6 Insitu pavings generally

Before laying in-situ floor finishes, the concrete beds are to be thoroughly hacked for key, cleaned off, thoroughly wetted with clean water and coated with a stiff cement slurry and rates for screed granolithic and terrazzo paving are to include for this. They are also to include for all necessary curing and protecting until the building is handed over to the Employer.

11.6.1 Cement and sand paving

The cement and sand paving shall be in the proportions of 1:3 by volume and incorporating or treated with an approved hardener. A mix referred to as 1:4 shall mean 1440kgs (1m3) of cement and 4m3 of sand. All other mixes shall be construed in a like manner.

11.6.2 Concrete paving

The concrete paving shall be in the proportions of 1:2:4 by volume, the coarse aggregate used shall not exceed 10mm nominal size. It shall be troweled smooth with a steel float. If the contractor wishes to use a power float he is to seek the approval of the Architect/Engineer who may require him to complete a sample area before granting permission.

11.6.3 Terrazzo paving

The in-situ terrazzo shall consist of white or colored cement and marble aggregate; the colors of the cement and aggregate shall be selected by the Architect/Engineer. The mix shall comprise three parts of 6mm nominal aggregate to one-part colored

cement by volume. The aggregate shall be clean and granular and shall not contain flakey particles or duct. The underbid shall be cement and sand 1:4 by volume.

The terrazzo topping shall laid to a minimum of 12mm thickness in a plastic condition while the underbid is still green and this should be watered to minimize absorption from the topping. The terrazzo must be well taped into position and rolled with a suitable hand roller. The topping should be allowed to take an initial set and then any surface voids must be grouted up with neat cement of the same color used in the mix. The sacking for at least 72 hours. When dry and hard, the surface shall be machine polished by grinding with carborundum or other stone discs of suitable grade and with rotary polishing pads.

11.6.4 Tyrolean rendering

Tyrolean rendering is to be applied in four coats to obtain a total thickness of22mm and adequate time intervals must be allowed between successive coats in order that the drying shrinkage at each undercoat may be completed. The first coat shall consist of cement, lime putty and sand mixed at a minimum thickness of10mm and finished with a wood float finish. The second, third and fourth coats shall consist of one part of natural cement to four parts of fine white chippings including color pigment to approval applied with an approved " flicking machine" so that the first coat is completely covered and a thickness of 12mm obtained.

11.6.5 Internal plaster

Internal plaster shall be applied in two coats and adequate time intervals must be allowed between successive coats in order that the drying shrinkage of the undercoat may be substantially complete. The first coat must be well scratched keyed and wetted to receive the finishing coat. The finishing coat shall be finished smooth with a steel float but care must be taken not to overwork the surface in order to minimize the incidence of shrinkage cracks. All internal and extern angles shall be pencil rounded.

Internal plaster, unless otherwise described, shall be lime plaster of 15mmminimum overall finished thickness applied in two coats. the first coat consisting of cement, lime putty and sand mixed in the proportions of (1:2:9). The finishing coat shall be a skin coat comprising cement and lime putty in the proportion of (1:10).

Cement plaster is to be employed where specified on the drawings and is to be applied in two coats of approximately equal thickness to a total of 15mm minimum overall finished thickness. The composition of both coats shall be the same and shall comprise cement and sand (1:4) but a small percentage addition (not more than 10%) lime putty may be permitted if the Architect/Engineer considers that this will reduce the incidence of shrinkage cracks.

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

11.6.6 "Sandtex" finish

'Sandtex' finish shall consist of one-part white cement to four parts sand by volume applied in two coats in the manner as described for internal plastering to a total thickness of 15mm and the final coat wet brushed to expose the sand to a texture to be approved by the Architect/Engineer.

11.7. Wall tiling

Glazed wall tiles shall be from an approved manufacturer and shall confirm with the requirements of BS. 1281. Tiles shall be with slightly rounded or 'cushion' 'edges' and unless otherwise described shall be 150 x 150 x 6mm thick. Tiles shall be laid with continuous straight joints and internal angles shall be butt jointed. Rounded on edge tiles shall be used on all external angles and edges of panels. Tiles shall be bedded in approved tile adhesive and pointed in white cement. Backings to tiles are to be cement and sand in the proportion of 1:4 rendering in one coat to a minimum thickness of 12mm troweled smooth.

11.8 Wood block flooring

Parquet tile flooring shall be as manufactured by Italwood Ltd. Dar Es Salaam Tanzania or other equal and approved by the Architect/Engineer. It shall be laid on a smooth screed and fixed with approved adhesive. It shall be finally sanded and finished with two coats of Ronseal Hard glaze.

11.9. PVC Flooring

PVC. tile flooring shall be used according to specified standards with an approved base. The selected colors to be used shall be approved by the Architect/Engineer.

12.0 GLAZING

12.1 General

Glass generally shall comply with the requirements of B.S.952 and shall be freeform bubbles, specks wave, flows or any other defects. Clear sheet glass shall be 24 or 32 oz. (4 or 5mm nominal thickness) flat drawn sheet of ordinary glazing quality. Glass for louvre blades shall be clear sheet flat drawn or rough cast obscured rolled glass to the thickness shown on the drawings with all exposed edges ground and polished.

12.2 Putty

The putty shall be hard setting tropical putty to B.S.544

12.3 Workmanship

All glass is to be accurately cut to fit easily into rebates with a tolerance of 2mmall

round. It is to be well puttied at the back and to the sprigged with non- ferrous pins. The putty is to be mostly trimmed and cleaned off and care must be taken that it does not show beyond the slight lines of the sachets. All rebates must be treated with one coat of lacquer (as described under 'Painting' hereafter) prior to glazing.

12.4 Cleaning and protection
The contractor must allow in his rates for the protection of all work in this section and for replacing any cracked, scratched, broken or defective glass prior to handing over to the Employer. He must also allow for cleaning all the windows inside and out and other glass on completion with an approved window cleaner and wash leather and for removal of all paint splashes.

13.0 PAINTING

13.1 Color range
All painting shall be carried out in colors selected by the Architect/Engineer.

13.2 Materials
Paints generally shall be ready mixed and supplied by one of the manufacturers listed below and delivered to the site in sealed containers clearly labelled with the manufacturer's name, type of paint and color. Oil based priming paint shall comply with B.S.2521-2524 inclusive.
Leyland Paints (T) Ltd
Robbialac Paints (T) Ltd
Sadolins Paints (T) Ltd
Goldstar Paints Tanzania Ltd
Paints are to be used strictly in accordance with the manufacturer's instructions and no contamination by mixing with other brands or materials will be permitted. Thinning is only permitted in so far as it is in accordance with the manufacturer’s printed instructions.

13.3 Preparation
All surfaces to receive treatment are to be clean and dry before paint application and surface irregularities are to be removed by filling or the use of suitable abrasives.

13.4 Plastered surfaces
Internal plastered wall surfaces generally are to be treated with plastic emulsion paint. Surfaces are to be allowed to dry out thoroughly prior to paint application. All crack and surfaces imperfection are to be cut back and filled with patent filler in accordance with the manufacturer's instructions and rubbed down to a true and even surface.
Apply one primer coat thinned with water and two subsequent coats of Leyland's Leymure Co-polymer' or other approved plastic emulsion paint inaccordancewith the manufacturer's instructions. Where specified internal plastered wall surfaces are to be

painted gloss. In addition to the preparation described above, apply one coat of Leyland's P 20 or other approved alkali, resistant primer and flat down with 320 grade 'wet or dry' abrasive paper. Apply two coats Leyland's Leylac Polymeric gloss finish or other equal and approved gloss paint lightly rubbed down coats in accordance with the manufacturer's instructions.

13.5 Woodwork preparations

Large knots in woodwork are to be cut back and replaced with sound wood or scorched back and after priming the surface made good with stopping. All knots are to be treated with two thin coats and patent knotting free from resin.
After priming all nail holes and other imperfections shall be filled with stopping and the whole surface rubbed down to a smooth even finish. The stopping must be 'Scadofil' or other approved make.

13.6 Metalwork

All rust and loose scale on steel and ironwork must be removed by wire brushing and rubbing with emery paper. Where patches of ingrained rust cannot be removed they are to be thoroughly rubbed down and treated with one coat of 'Galvafroid' or other zinc paint in accordance with manufacturer's instructions. One coat of zinc chromate primer will then be applied followed by two undercoats and one finishing coat of gloss paint as described for woodwork above. The contractor is to note that where mild steel burglar bars are housed into wood frames the full length of the bar is to be treated before fixing.
Galvanised metalwork is to receive one coat of white spirit or mordant degreasing solution washed off prior to the application of calcium plumbate primer followed by two undercoats and one finishing coat of gloss as previously described.
galvanized metalwork is to be painted only where instructions are given by the Architect/Engineer as in some cases galvanized metalwork is to be left untreated.

14.0 DRAINAGE

14.1 Generally

The preambles for the previous trade sections are applicable to this section together with the following preambles. The drainage is to be carried out in accordance with the directions of the Architect/Engineer and the requirements of the Byelaws. No length of drain is to be covered until it has been tested and passed.

14.2 PVC drain pipes

PVC Drain pipes comply with ISO R161 (4kg/cm2) 'Pipes of plastic materials for the transport of fluids.

The drainpipes shall be spigot and socket glued joints.

14.3 Cast iron drain pipes

Shall be centrifugal cast (spun) iron drainpipes with spigot and socket to BS.437 thoroughly coated inside and outside, alternatively similar pipes but class 'B' in accordance with BS. 1211 may be used according to availability. Fittings shall be in accordance with BS.1130.

Pipes shall be jointed with asbestos yarn and caulked with molten lead or jointed with special jointing compound all to approval.

14.5 Concrete drain pipes

Precast concrete pipes shall be in general conformity with BS. 556. Concrete cylindrical pipes and fittings. The concrete mix used for the manufacture of ordinary pipes shall not be weaker than grade '30'. For foul water drainage sulphate resisting concrete pipes shall always be used. The manufacturer of sulphate resisting pipes shall be in general conformity with BS. 556.

The concrete mix not weaker than grade '30'. Pipes up to and including45cm diameter shall be un-reinforced and shall incorporate spigot and socket type joints. Pipes above 45cm diameter shall be reinforced with not less than steel fabric required by British Standard BS 8110 or the equivalent in mild steel and shall have spigot and socket joints or if the Architect/Engineer so approved shall have open type joints.

The main reinforcement to be in circumferential direction. Pipes reinforcement shall be placed midway between the inner and outer surfaces of the concrete. In socketed pipes the reinforcement shall be extended continuously from the pipe barrel into the socket, the longitudinal bars cranked as necessary. No wall thickness of the pipe barrels is specified but the reinforcement (if any) and the wall thickness must be so balanced that the pipes are in conformity withB.S.556 and the test specified therein.

14.6 Pitch impregnated fibre drainpipes

Pitch impregnated fiber pipes, couplings and fittings shall comply with BS. 2760N Part 1 and 2.

14.7 Manholes

Manholes shall be constructed on drain lines in the positions indicated or wherever ordered by the Architect/Engineer. Manholes on pipe drains be constructed with an-in-situ base in concrete grade"20" which shall be raised to form the benching and invert of the manhole. The benching and channels shall be carefully formed to shape according to the number, diameter and positions of the incoming and outgoing pipes. The channels in the manholes base shall have circular inverts. The benching shall be sloped towards the channels at a gradient of 1 in 6 or as otherwise detailed on the drawings.

Benching shall be carried out in concrete grade "20" and rendered with 15mm 1:3cement mortar. Rendering to be carried out in sulphate resisting cement for foul water drainage. The ends of all entering the manholes are to be carefully cut to shape to suit the internal dimensions of the manholes and are to be as short as possible and are to be surrounded with 150mm concrete up to the first pipe joint. The manhole shall be constructed in accordance with the drawings for typical and special manholes. Manholes cast iron steps for manholes shall comply with BS. 1247. All steps be hot dip galvanized after manufacture.
Manhole covers and frames shall be in accordance with the requirements of BS.497 and as specified on the drawings.

14.8 Concrete beds etc
Concrete beds shall be grade "15" laid to correct falls, 300mm wider than the external diameter of the pipe. Rates are to include for laying in two parts, the first part being laid on the trench bottom 75mm thick and allowed to set before pipe laying is commenced. Individual pipes shall be firmly supported on precast concrete blocks placed immediately behind the socket and in such a manner that each pipe is accurately position in both line and level and the underside of the barrel is at least 75mm above the top of the concrete.

After the joints have been made and the pipelines satisfactorily tested, the first layer of the concrete bed shall be thoroughly washed down and cleaned and the remainder of the bedding concrete (and the launching or surrounding concrete where required) shall be placed and consolidated under and around the pipe in such manner as not to cause any damage or disturbance to the pipe or joints.
The contractor is to ensure that his, method of placing this second layer of concrete is such that the full length of each pipe is fully supported. The overall depth of beds is to be in accordance with the table given on the drawings. Where pipes are specified to be haunches, the bed shall be brought up with the second layer of concrete to a minimum overall depth of 150mm to the underside of the barrel of the pipes plus, half the diameter of the pipe and then sloped up to the top of the barrel of the drain pipes. Where pipes are specified to be surrounded, the bed shall be brought up with the second layer of concrete to a minimum overall depth of150mm to the underside of the barrel of the pipe and then completely surrounded with concrete with 150mm minimum cover all round. Rates for this item are to include for any formwork required.

14.9 Trenches and manhole excavation and back filling
The bottom of drain trenches is to be trimmed and consolidated to correct levels and gradients. If any trenches are over- excavated the contractor to fill up to the proper depth at his own expense with concrete grade "10" where required. Rates for drain trenches are to include for grading bottoms, any necessary planking and strutting and keeping the excavations free from water, returning, filling in and ramming

ground over and disposing of surplus material to spoil heaps on site. They shall also include for sieving and hand filling trenches where required for the first 300mm over the drainpipes. Back filling shall be executed with selected material in 150mm layers (300mm layers if a mechanical rammer is used) each layer being well rammed and watered to obtain the maximum compaction. Care be taken to ensure that no stone or other work is placed within 300mm of such work.
Rates for manhole excavation shall include for levelling the bottoms. All surface material including top soil which differs in any nature whatsoever from the substrata, shall in every case be carefully set aside and stored separately from other excavated materials. No claim for extras will be allowed for setting aside topsoil for later use.

14.10 Pipe laying and jointing generally

All laying and jointing of pipes shall conform generally with C.P. 301. Each cast iron, or concrete pipe shall be tested for soundness before laying by striking with a hammer and any pipe or joint which does not ring true or which shows in any other way any sign of being defective shall be regretted. Each pipe shall be laid accurately to line and gradient so that the finished pipeline shall be in a straight line both in horizontal and vertical planes. The contractor shall fix properly painted and securely positioned sight rail, the levels and positioning of which shall be checked by the Architect/Engineer's representatives before the rails are used and as often thereafter as may be necessary. There shall be at no time less than three sight rails in position on each length of pipeline under construction to any one gradient and the sight rails shall be situated vertically above the line of pipes or immediately adjacent there.

14.10.1 Jointing PVC Drain pipes

The type of joint used for drain PVC pipe is cemented spigot and socket. The jointing procedure is as follows: -
i) The spigot end shall be chamfered
ii) Clean spigot and socket with wet cloth and let dry
iii) Un-grease spigot and socket with acetone
iv) Mark length of joint and spigot
v) Apply first a relatively thick layer of cement onto spigot and then a thin layer into socket
vi) Flush home the joint to the mark quickly and give at once a 90 twist.
vii) Remove pressed out cement
viii) Do not disturb the joint for five minutes whilst cement is hardening
The cement used shall be supplied by the factory, which is supplying the pipe.

14.10.2: Jointing precast concrete pipes

The contractor shall adopt such measures as may be approved by the Architect/Engineer to ensure that every laid down pipe is concentric with previously laid pipes with which it joints. Unless otherwise approved pipes shall be laid in an up-gradient direction and the spigot shall be laid in the direction of the flow. Before

commencing the laying operation, the contractor shall ensure that the portions of pipe, which come into contact with jointing materials, are perfectly clean. Cement mortar joints for concrete pipes with spigot and socket joints shall be
made as follows: -

i) Before commencing the jointing operation the socket of the previously placed pipe and the spigot of the new pipe shall be cleaned and thoroughly soaked with water.

ii) The spigot shall be wrapped one complete lap with tarred hemp spun yarn and the new pipe shall be carefully drawn towards the previously laid pipes that the spigot enters the full depth into the socket of the previously laid pipe. The new pipe shall then be adjusted and fixed in its correct positioning line, level and gradient and the yarn shall be caulked tightly home into the socket. On completion of this operation the yarn shall not fill more than one quarter of the total depth of the socket.

iii) The remainder of the socket shall be completely filled with cement mortar consisting of one part of cement (sulphate resisting cement for foul water drainage) to three parts of sand. The mortar filling shall terminate flush with the socket and shall be neatly troweled to a smooth finish completely around the pipe.

iv) To assist the curing of the mortar the contractor shall cover the joints immediately after they are made with a layer of hessian which shall be kept continuously wet during daylight hours and he shall further adopt such other measures as the Architect/Engineer may direct all at the Contractor's expense.

14.11 Position of floor gullies etc.
The contractor shall before be positioning floor gullies duck-foot bends for ventilating stacks etc. consult the Architect/Engineer in order to ensure the correct position of these. Failure to do so, shall in no way relieve the contractor from positioning floor gullies, duck-foot bends for ventilating stacks etc. in positions, the Architect/Engineer later may direct.

14.12 Testing
After the drains are laid and jointed and before the trenches are filled in, they are to be tested in the presence of the Architect/Engineer's representatives. The drains shall be tested in lengths between manholes or such shorter lengths as there presentative or the Architect/Engineer may approve.

Water shall be passed into the length under test until such time as all the air has been expelled and the line is full of water and subjected to a head of 1500mm at the upstream end. The test shall be considered to be satisfactory if there is no visible leakage, see page or weeping from any of the pipes of joints and if the head of water

in a 76mm diameter upstand tube fitted at the upstream does' not fall at a rate faster than 12mm per minute per 30 meters' length. The contractor shall make such time allowance as may be necessary for the pipe to absorb water being subjected to test.

Manholes are to be tested for water- tightness in the same way as for drains by filling with water but not exceeding 1500mm head. The contractor is to supply all testing apparatus and materials necessary for these tests and provide all labor and assistance required. Any failure whatsoever in the drainage system to withstand the specified tests and any defects appearing are to be made good and the drains re-tested to the satisfaction of the Architect/Engineer.

15.0 EXTERNAL WORKS - ROADS AND PARKINGS:

15.1.0 Earthworks

15.1.1 Dimensions;
All earthworks shall be executed to the plan, dimensions lines, slopes, widths and levels shown on the Drawings or supplied by the Engineer. Typical cross-sections and details shall be subject to variation to accord with the contours, levels and falls shown on the Drawings or supplied.

15.1.2 Protection of earthworks
Earthworks shall be properly protected at all times against the risk of damage from natural causes. The Contractor shall take every precaution against damage from sudden storms by phasing the works and by covering, pumping, shoring and forming temporary drains and sumps. Earthworks shall be excavated at all times to levels and falls, which effect drainage. No work shall be carried out which allows the possibility of water to stand in any construction area. Any earthworks, whether under construction or complete, which suffer damage shall be removed and the work made good with materials and methods required by the Engineer at the Contractor's expense.

15.1.3 Drainage of earthworks
Earthworks shall be executed at all times to levels and slopes, which effect drainage. Water shall not be permitted to stand in construction area at any time. It may be necessary to keep the excavation clear of water by pumping, in which case the contractor shall allow for this. The Contractor shall provide, maintain and operate the pumping equipment, and shall construct such drains and sumps as may be necessary to remove the water from the excavations. shall be dealt with in such a manner as will prevent the surfaces on or against which structures will be constructed from any deterioration of their natural conditions, or from such condition as improved by work executed under the Contract.

15.1.4 Spoil

Spoiling of surplus or unsuitable excavated material within the site may not be permitted and the Contractor's rates for excavation should therefore include for running to an external spoil tip approved by the appropriate authority. No borrow pits shall be opened on the site.

15.1.5 Formation

The formation is defined as the surface obtained after completion of earthworks, i.e. the top surface of the sub-grade and the underside of the initial layer of construction

15.1.6 Topsoil

Surface spoil shall be removed from all construction areas to the depth stated or required by the Engineer. Sufficient soil shall be stockpiled on site to enable minimum thickness of 150mm to be returned to those areas, which are designated for grassing or landscaping, and the remainder shall be run to spoil. The Contractor is to exercise care to ensure that topsoil, is not contaminated with subsoil or construction materials. Should this occur he shall supply replacement topsoil in quality approved by the Engineer at his own expense.

15.1.7 Placing of fill material

Material selected for use as fill shall be approved by the Engineer and shall generally, be selected from that obtained during excavation work. Fill shall be placed in layers with upper surfaces parallel to the finished surface of the works and with compacted thicknesses not exceeding those shown on the Drawings unless otherwise agreed by the Engineer. Layers shall be of uniform thickness after placing any lower make-up layers. The layers shall be of a length suited to the progress of the plant employed in placing
and compacting in order to avoid exposure. All roots, other organic matter, unsuitable material or deleterious substances shall be removed from fill before compaction commences. Fill layers shall be compacted to 90% BS. Compaction throughout their depth except for the final layer under the formation, which shall be, compacted to 95%
BS. Compaction for a minimum depth of 150mm.
The completed surface of the formation and of other fill areas shall be within the following tolerances of the levels and gradients shown on the Drawings or directed by the Engineer.
Formation + 0mm - 50mm
Other fill areas + 50mm - 50 mm

15.1.8 Excavation

Excavation shall be carried out in a manner ensuring that the excavation plant and vehicles used do not cause rutting or damage to the sub-grade. Excavation shall be to the levels shown on the Drawings or instructed by the Engineer. Should excavation reveal sub-grade material, which is unsuitable in the opinion of the Engineer such

material shall be removed and replaced by, approved fill material compacted in layers as specified.
Where instructed by the Engineer, the Contractor shall scarify the sub-grade to a depth of 150mm and the material shall be re-compacted to 95% BS. Compaction. Alternatively, where so instructed he shall compact the undisturbed subgrade to 95% BS. Compaction.

The completed surface of the formation and of other cut areas shall be within the following tolerances of the levels and gradients shown on the Drawings ordirected by the Engineer:
Formation + 0mm - 50mm
Other cut areas + 50mm - 50mm

15.1.9 Construction control testing;
All earthworks shall be subject to construction control testing. For each excavated surface and each layer of fill, the Contractor shall carry out compaction tests at the rate directed by the Engineer.
When the test results demonstrate the area of formation or fill complies in all respects with the requirements of this Specification, he shall apply to the Engineer for approval. Such application shall identify the boundaries of the area submitted and shall be accompanied by a copy of the test results. Upon receipt of an application for approval the Engineer will generally approve the area or layer submitted, but reserves the right to order without unreasonable delay such further tests as he considers to be necessary. This procedure will be relaxed at the discretion of the Engineer as soon as the Contractor consistently achieves by his methods and plant the standards required.

15.1.10 Excavation for structures and services

Excavation shall be carried out to the line and depths shown on the drawings or to such other lines and depths as the Engineer may direct. Excavation shall be of sufficient size to enable the Works to be properly constructed. The faces and beds of all excavations shall be properly trimmed and cleaned of all loose stone, dirt or other debris. The bottom 150mm of material shall not be removed until just before placing of the blinding concrete, mass concrete foundations or bedding as the case may be.
The Contractor shall report to the Engineer when a secure bottom to the excavations have been obtained and is ready for the construction of the new work, and when approval has been obtained the new work shall be constructed without delay. Any work constructed in excavations before they have been inspected and approved shall, if so directed, be removed and new work substituted after approval, all at the Contractor's expense.

15.1.11 Supports for excavations

The sides of pits, trenches and other excavations shall, where necessary, be adequately supported to the satisfaction of the Engineer by timber or by other approved means. Should slips of material occur in trenches or pits the work for excavating and making good shall be carried out by the Contractor at his own cost to the Engineer's approval.

15.1.12 Back-filling excavations for structures and services

Excavations shall be back-filled with approved selected excavated material or imported approved material only after the work has been measured and approved by the Engineer. All filling shall be deposited in layers with a compacted thickness not exceeding150mm. The material shall be compacted to 90% BS compaction for its full depth. Timber and framing shall be withdrawn ahead of the layer to be compacted, care being taken to keep the sides of the excavation solid and to fill completely all spaces left by withdrawn timber.

15.1.13 Over excavation

Over-excavation in depth and width for pavement works shall be rectified at the Contractor's expense by returning approved selected fill material and compacting to Specification. Over excavation in depth for structures and services works shall be rectified by refilling with mass concrete but over excavation in width can be made good returning approved selected fill material and compacting to Specification, all at the Contractor's expense.

15.1.14 Use of explosives;

Except in exceptional circumstances the use of explosives will not be permitted. However, should blasting be permitted, it may only take place at times agreed withthe Engineer and the Contractor will be responsible for observing allconditions set forth in Government and Local Authorities Regulations.

Adequate warning must be given to road users and any persons in the neighborhood when blasting is about to take place. The Contractor shall indemnify the Employer against any claims for damages to persons or property on or near the site from any cause whatsoever arising out of the use of explosives.

The Contractor will be held solely responsible for and must immediately make good to the approval of the Engineer any damage that may occur through the use of explosives. No claim for extras whatsoever will be considered as a result of prohibition by the Public Authorities from the use of explosives.

15.1.15 Grass

Where instructed by the Engineer the Contractor will provide suitable grass and plant, water, weed, cut, maintain and deliver up the same in good condition at the end of the maintenance period. Planting should take place immediately before a rainy season and should be carried out in accordance with good horticultural practice. Areas, which do not cover or die before they are properly established should be

replaced, so that all areas to be grassed are delivered up in a wholly satisfactory condition.

15.2.0 Pavement construction

15.2.1 Preparation:
Prior to the construction of each pavement layer, the previously prepared formation or layer shall be thoroughly cleaned of all foreign substances. Any ruts or soft spots which occur or any deviation from the specified tolerances or degree of compaction shall be corrected by scarifying, removing and/or adding approved material, relaying and re-compacting the unsatisfactory areas to the required density and to the required lines and levels. Should any damage occur to the formation or a pavement layer prior to the construction of the next layer, it shall be rectified to the satisfaction of the Engineer at the expense of the Contractor.

15.2.2. Alignment and level control
Stakes, boards and boning rods of substantial construction shall be furnished, set and maintained by the Contractor, in order that the works will conform to the lines and levels shown on the Drawings. The stakes shall be set at intervals not exceeding 25 meters in lines parallel with the center line and not parallel with the center line and not more than 25 meters apart. Stakes, boards and boning rods shall be painted in such a manner as to indicate clearly the lines and levels to be worked to for each layer of pavement.

15.2.3 Thickness and surface tolerances:
The thickness of each pavement layer shall be such that the depths from the required finished surface levels of the pavement to the surface of each pavement layer shall nowhere be less than the depths shown on the Drawing. The surfaces of each layer other than the final layer be lower than the required surface within the tolerances stated below, provided that any such deficiency shall be made good at the Contractor's expense by increasing the thickness of the course above the surface in question. Each layer of pavement shall be finished to a surface profile parallel to the finished surface of the pavement shown on the drawings with the level of tolerances shown below:
Variation permitted (mm)
Sub base + 0-40
Road base + 0-25
Surfacing + 6- 6

The finished surface of all pavements shall be such that when tested with straight edge 3 meters long placed in any position and direction, there shall not be any gap greater than 5mm between the bottom of the straight edge and the surface of the pavement. In addition to this requirement, there shall not be any deflection exceeding 10mm from a straight line between any two longitudinal point's 30 meters apart.

Neither of these requirements shall apply across crowns. These smoothness tolerances apply to straight profiles and equivalent smoothness tolerances shall be applied to vertical curves

15.2.4 Gravel sub-base

The material used shall be good quality naturally occurring gravel. It shall be subject to suitable testing at the direction of the Engineer to show that it has a 4days soaked CBR of not less than 30% at 100% BS. Compaction. The grading of the material shall show a smooth grading curve parallel to and within the limits stated below. The material shall have a Plasticity Index not exceeding 20%The sub-base material shall be spread to the full width of the cross-section and to loose thicknesses so that after compaction the finished thicknesses will be those specified. Oversize pieces shall be removed or separately broken down. The method of compaction shall be approved by the Engineer and shall be such as to compact the material to 100% BS. compaction through its full depth. Control testing shall be carried out if directed by the Engineer.

BS. Sieve size Percentage passing
37.5mm 100
20mm 80-100 100
10mm 55-80 80-100 100
5mm 40-60 50-75 80-100
2.36mm 30-50 35-60 50-80
1.18mm 40-65
600 microns 15-30 15-35
300 microns 20-40
75 microns 5-15 5-15 10-25

15.2.5 Gravel road base

The material used shall be best quality naturally occurring laterite or gravel from a source approved by the Engineer. It shall be subject to suitable testing at the direction of the Engineer to show that it has a 4 day soaked CBR of not less than60% at 100% BS. Compaction. The grading of the material shall show a smooth grading curve parallel to and within the limits stated below. The material shall have a Plasticity Index not exceeding12%

Immediately before applying the road base, the surface of the sub-base shall in all respects comply with the specification and be thoroughly clear of all loose of foreign matter. The road base material shall be placed on the prepared sub-base by an approved method to a thickness, which on compaction will result in the thickness required. If necessary, the moisture content of the material shall be adjusted to ensure optimum compaction. Immediately following the placing, the layer shall be compacted by approximately16 passes of an 8 tons pneumatic- tyred roller or

equivalent passes of a vibrating or smooth-wheeled roller, to 100% BS. Compaction. Rolling shall progress from the sides to the center of the areas under construction. Areas inaccessible to the roller shall be compacted by mechanical plate compactors. Control testing shall be carried out if directed by the Engineer.

15.2.6 Crushed stone road base;

The aggregates for crushed stone road base shall be obtained from approved sources and consist of hard, tough, heavy, compact, approved rock. After crushing it shall be roughly cubical in shape, free from flat, flakey, elongated, softer decomposed pieces, excess dust and any dirty, acids or other deleterious substances. The rock from which the stone is to be produced shall have an Aggregate Crushing Value not exceeding 25% a Los Angeles Abrasion Value not exceeding 35% and a Flakiness Index not exceeding 30%. The grading limits of the material shall be within and approximately parallel to curves defined by the following limits:

BS Sieve % passing
50 100
37.5 95 – 100
20 65 – 80
10 40 – 60
5 30 – 50
1 20 – 38
0.425 12 – 24
0.075 5 – 13

Before commencing spreading and compaction the Contractor shall determine the maximum dry density and optimum moisture content of the material for each layer in accordance with BS. 1377.Mixing, handling, transporting, pacing, spreading and compacting of the crushed stone shall take place whilst it is in a moist condition and in such a manner as to avoid segregation. The Contractor shall as necessary and further water so that compaction is carried out within the range of - 2% to + 0.5% of the optimum moisture content. The material shall be spread by means of a mechanical paver, which shall be to the approval of the Engineer and be capable of spreading the crushed stone
material in an even manner without segregation to a thickness which will give the required finished thickness. No material shall be delivered to the paver over previously compacted material.

Spreading shall commence at the high point of a pavement cross-section and finish at the low point or points. Where, in the opinion of the Engineer, segregation has occurred the material in the affected area shall be cut out and replaced. The material shall be compacted initially with a self-propelled pneumatic tyred roll and followed by a heavy vibrating roller until all visible movement under
the wheels' ceases.

Any voids appearing in the surface shall be filled with crusher fines, watered andre-compacted until a hard dense layer is obtained. Compaction shall proceed from the sides to the centre of the lane under construction or from one side towards previously compacted material. The crushed stone layer shall be compacted to100% BS.

Compaction. Areas inaccessible to the roller shall be compacted by mechanical plate compactors. Control testing shall be carried out if directed by the Engineer.

15.2.7 Protection of pavement layers:
No construction traffic shall run over the exposed formation or over sub-base layers. Sub-base, or road base material where no sub-base is specified, shall be laid on the formation as soon as the last 150mm of material protecting it has been removed, in a continuous operation, and no formation shall be opened which cannot quickly be covered with sub-base or road base respectively. The placing of the road base shall be followed as soon as practicable by the placing of the surfacing.

15.2.8 Prime coat
A prime coat shall be applied to the road base before the premix or asphalt surfacing; or surface dressing. The surface shall be thoroughly swept by brooms, all laitance, loose and foreign material removed and the clean surface of the base and hard particles in the layer exposed as a mosaic. All loose material shall be wept well clear of the area to be primed. The surface shall be checked for line, cross-fall and level and made good as necessary an approved by the Engineer before any bitumen prime is applied. Where required by the Engineer, immediately prior to the application of prime, the surface shall be lightly sprayed with water but not saturated.
The prime coat shall be sprayed immediately after the preparation of the stone layer is completed and approved. The type of prime coat shall be medium curing cutback bitumen MC 30 grade. The rate of spray will be as directed by the Engineer between 0.5 lit/m2 - 1.0 lit/m2. The quantity used must give complete coverage with a slight trace of run off in places. Should the Contractor find that at the rate of spray directed the coverage is inadequate, or there is too much runoff, he shall immediately inform the Engineer and amend the spray as directed.

The prime should penetrate about 3 to 6mm and dry to a matt surface in 24
hours, leaving no pools of bitumen on the surface. During spraying all kerbs, headwalls, drains and the like which are liable to bed is figured by splashing of bitumen shall be protected, and any such feature which is accidentally marred by bitumen, shall be cleaned with a suitable solvent or if this is not possible removed and made good at the Contractor's expense.

15.2.9 Chippings
Chippings used for surface dressing should be single sized, cubical in shape, clean and free from dust, strong, durable and not susceptible to polishing under the action of traffic. These should be selected in accordance to British Standard BS 63,"Single sized road-stone and chippings". Samples of chippings should be tested for grading. flakiness index, aggregate crushing value and when so instructed by the Engineer, the polished stone value and aggregate abrasion value, before the start of surface dressing operation or when new supplies are delivered.

Maximum aggregate crushing value (ACV) for surface dressing chippings should be between 20 to 35%

Aggregate abrasion value (AAV) will be 14 for side and estate roads and 12 for highways (traffic up to 1000 vehicles /lane/day)

Nominal size will be 6,10,14 and 70mm. "Flaky" chippings are those with thickness (smallest dimension) which is less than 0.6 of their nominal size.

15.2.9.1 The previously primed surface shall be swept clean with brooms and the debris deposited well clear of the surface to be surfaced, any defects of the surface shall be made good as directed by the Engineer and no binder shall be applied until the surface has been approved by the Engineer. The binder for surface dressing shall be straight run hot bitumen of grade80/100 pen applied by a bitumen distributor complying with BS 1707 at a temperature between 145 degrees and 205oC.

15.2.9.2 Dressing

During spraying all kerbs, head walls, drains and the like which are liable to bed is figured by splashing of bitumen shall be protected, and any such feature which is accidentally marred by bitumen, shall be cleaned with a suitable solvent, or if this is not possible, removed and made good at the Contractor's expense Immediately after the binder has been applied, clean dry stone chippings shall be spread at the rate directed by the Engineer. Directly the stone chippings have been
spread they shall be rolled initially so that the whole area receives at least one pass within ten minutes of the bitumen being sprayed. Immediately after the initial rolling, any area, which is deficient in chippings, shall be made good by hand spreading. Brooming of the material to effect redistribution of chippings will not be permitted. The number of passes of the roller shall be laid down by the Engineer, but shall be at least two. A certain amount of crushing under the roller is permissible, but should any general shattering occur, the Engineer may direct that rolling shall cease, regardless of the number of passes completed Pneumatic tyred rollers are preferred for rolling of all bitumen seal work though finishing with smooth steel-wheeled rollers may be permitted with the approval of the Engineer. No rollers or construction equipment shall be permitted to park on the completed work.
The road shall not be opened to traffic until the bitumen has attained sufficient viscosity to prevent stones being removed, and not earlier than 24 hours in the case of the first application of chippings.
Unless allowed otherwise by the Engineer, the area shall not be opened to works traffic before the application of the full number of specified coats. After traffic has been permitted to run on surface dressing for a period of at least fortnight, all loose material shall be swept to the side, collected up and disposed of. No windrow of loose chippings shall be allowed to accumulate at the sides.

15.2.10 Asphaltic concrete surfacing

Asphaltic concrete surfacing courses shall comprise a mixture of well-graded aggregate, filler and penetration grade bitumen. The coarse aggregate shall consist of clean crushed rock, as free as practicable from flat, elongated, soft and weathered pieces and dust, dirt and deleterious matter. It shall have an Aggregate Crushing Value not exceeding 25% and Flakiness Indexless than 30% The fine aggregate may consist of stone screenings or natural sand free from clay and organic matter. The filler may consist of cement, hydrated lime or stone dust. The bitumen shall be straight run of grade 80/100 penetration. The combined grading of aggregates and filler shall show a smooth grading curve parallel to and within the limit is set out below:

BS. Sieve size Percentage passing
Wearing course Base course
14mm 80-100 75-95
5mm 54-72
52-70
2.36mm 42-58 40-56
1.18mm 34-48 32-46
600 microns 26-38 24-36
300 microns 18-28 16-26
150 microns 12-20 10-18
75 microns 6-12 6-12
Bitumen content
In addition to the above requirements both wearing course and base course material shall when compacted exhibit the following Marshall test values: Minimum stability 250kg flow value, between 2 - 5 m Control testing to ensure compliance with these requirements shall be carried out as directed by the Engineer.
The surfacing material shall be mixed in a purpose- made mixing plant of the weigh batch or continuous mixing type in good order and approved by the Engineer, shall be transported to the works in clean covered vehicles and laid by a self-propelled mechanical spreader/finisher without delay. The mix temperature when placed in the spreader shall not be less than 135oC. and the mix shall be rolled immediately after laying and before the temperature falls below 120oC.
Compaction shall be by an 8 - 10 tons smooth- wheeled roller of roll width greater than 450mm or by pneumatic- tyred roller of equivalent mass. The material shall be rolled from side to center in a longitudinal direction. Cold joints shall be formed on a new cut vertical face and painted with hot bitumen. Rolling shall continue until all roll marks are eliminated and 98% of the laboratory density is obtained. Rollers shall not stand on newly laid surfacing.

15.2.11 Kerbs, edgings and quadrants

Kerbs, edgings and quadrants may be supplied in precast concrete to BS. 340 or dressed hard stone to the approval of the Engineer. In the latter case, kerbs will be accepted without batter and in random lengths. They shall be bedded and hunched in concrete and the joints are to be pointed in 1:3 cement mortar. The price is to include

for excavating; supplying; laying (to radius of required), jointing and back-filling and all materials necessary for completion.

15.2.12 White line markings:
White line markings where specified shall be painted in long life chlorinated rubber road marking paint.

16.0 ELECTRICAL INSTALLATION

16.1.1 General Conditions
The Contractor shall use a qualified approved electrician to perform the Electrical works i.e. the Main Contractor is allowed to sublet electrical installation part to approved Electrical Contractor as domestic Sub-contractor. This specification is to be read in conjunction with "General Conditions of the contract" and any general or particular specification and drawings listed in section six of this bidding documents.
Minor details not shown or specified herein but necessary for proper installation and operation shall be included in the Contractor's estimates. Any apparatus, appliances, material or work not shown on drawings but mentioned in the specification or vice versa, or any incidental accessories necessary to make work complete and perfect in all respects and ready for operation, even if not particularly specified, shall be furnished delivered, and installed by the Contractor without any additional expense to the employer.
With submission of bid, the contractor shall give written notice to the Engineer of any materials or apparatus believed inadequate or unsuitable, in violation of laws, regulations, and any necessary item(s) or work omitted. In the absence of such notice, it is mutually agreed that the Contractor has included the cost of all required items in his proposal, and that he will be responsible for the approved satisfactory functioning of the entire system without extra compensation.

16.1.2 Contractor's Conditions
The Contractor's conditions of sale or contract shall not stand against nor invalidate this specification.

16.1.3 Statutory Regulations.
All work shall be carried out in accordance with the requirements of the current edition of the 'Regulations' for the Electrical Equipment of Buildings issued by the Institution of Electrical Engineers. In the specification references to the I.E.E. Regulations are to the 17th Edition.

16.1.4 Symbols
Symbols used on the drawings shall have the meanings assigned to them according to the accompanying legend or the legend of a drawing with reference as directed by the Notes.

16.1.5 Materials & Equipment

Materials and Equipment shall be of first quality and approved and shall comply with the specification of the British Standards Institution where relevant at the date of contract. The Contractor shall, if so required, submit samples of all materials and equipment for approval if those material are those not specified in the Bills of Quantities.

Where the material and / or equipment is specified in the Bills of Quantities followed by approval equal, it is so named or described for the purpose of establishing standard of materials and workmanship to which the Contractor shall adhere. Should the Contractor install the material or method in question before receiving approval from the proper authorities the Engineer shall at his discretion direct the Contractor to remove the materials in question immediately. The fact that this material has been installed shall have no bearing or influence on the decision by the Engineer. All equipment shall be fully tropicalized.

16.1.6 Builder's works

The Contractor shall be responsible for the supply and correct positioning of all fittings and supports and shall be required

16.1 TECHNICAL SPECIFICATIONS I

16.1.1 General Conditions

The Contractor shall use a qualified approved electrician to perform the Electrical works i.e. the Main Contractor is allowed to sublet electrical installation part to approved Electrical Contractor as domestic Sub-contractor. This specification is to be read in conjunction with "General Conditions of the contract" and any general or particular specification and drawings listed in section six of this bidding documents.

Minor details not shown or specified herein but necessary for proper installation and operation shall be included in the Contractor's estimates. Any apparatus, appliances, material or work not shown on drawings but mentioned in the specification or vice versa, or any incidental accessories necessary to make work complete and perfect in all respects and ready for operation, even if not particularly specified, shall be furnished delivered, and installed by the Contractor without any additional expense to the employer. With submission of bid, the contractor shall give written notice to the Engineer of any materials or apparatus believed inadequate or unsuitable, in violation of laws, regulations, and any necessary item(s) or work omitted. In the absence of such notice, it is mutually agreed that the Contractor has included the cost of all required items in his proposal, and that he will be responsible for the approved satisfactory functioning of the entire system without extra compensation.

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Symbols used on the drawings shall have the meanings assigned to them according to the accompanying legend or the legend of a drawing with reference as directed by the Notes.

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Materials and Equipment shall be of first quality and approved and shall comply with the specification of the British Standards Institution where relevant at the date of contract. The Contractor shall, if so required, submit samples of all materials and equipment for approval if those material are those not specified in the Bills of Quantities.

Where the material and / or equipment is specified in the Bills of Quantities followed by approval equal, it is so named or described for the purpose of establishing standard of materials and workmanship to which the Contractor shall adhere. Should the Contractor install the material or method in question before receiving approval from the proper authorities the Engineer shall at his discretion direct the Contractor to remove the materials in question immediately. The fact that this material has been installed shall have no bearing or influence on the decision by the Engineer. All equipment shall be fully tropicalized.

16.1.6 Builder's works

The Contractor shall be responsible for the supply and correct positioning of all fittings and supports and shall be required to mark out all holes and chases, but the cutting away, grouting-in and making good shall be the responsibility of the Contractor to ensure that all the builders work is carried out to the requirements of the various parties concerned, e.g. TANESCO, etc.

16.1.7 Cooperation with other trades

The Contractor shall give full cooperation to other trades and shall furnish any information necessary to permit the work of other trades to be installed satisfactorily and with least interference or delay.

Where the Electrical work will be installed too close to work of other trades, or in manner evidently to interfere with the work of other trades, he shall assist in working out space conditions to make a satisfactory adjustment. If the Contractor installs his work before coordinating with other trades or so as to cause any interference with

work of other trades, he shall make necessary changes in his work to correct the condition without extra charge.
The variation between equipment manufacturers requires complete coordination of all trades. Therefore, the Contractor, who offers, for consideration, substitute or equal products of reliable manufacturer, has to be responsible for all changes that affect his installation and the installation of equipment of other trades.

16.1.8 Setting out and final position of electrical gear
The Contractor shall be responsible for all site measurements with respect to the setting out his own works such Builder's works as may be necessary for others to execute. All drawings shall be read in conjunction with the latest Architect/Engineer, Structural, and Services drawings available on site prior to commencing work at all stages of the work. Special attention shall be paid to areas where the electrical gear must be placed in relation to benches, working tables, wall units, cabinets, wall tiling, patterned walls or ceiling, kitchen areas, etc. Where wiring and conduit runs are indicated diagrammatically the exact position shall be agreed upon with Engineers on site. The Contractor shall include for a position variation of 0.5 metre from that of any items shown. Where symmetry is the determining factor for the positions the reference points or lines shall be measured as accurately as possible.
The Electrical Contractor shall maintain accurate records of all deviations in work as actually installed from work indicated on the drawings, on completion of the project, or when requested by the Engineers the Contractors shall deliver two (2) complete sets of prints to the Engineers.

16.1.9 Access to plant rooms
It shall be the responsibility of the Contractor to ensure that all equipment ordered in respect of contract is to be contracted in such a manner that it may, if necessary be dismantled to enable it to pass down through the building to street level. He shall also ensure that the systematic installation of plant room equipment is planned so that the largest items of equipment can be installed.
16.1.10 Distribution boards and switch gear
Where applicable the switchboards shall be of the type and size specified in this specification or Bills of Quantities but care should be taken if the manufacturer offers the latest version of the type specified that the differences do not affect the Design. If such change occurs, the Contractor shall provide all the drawings and specifications as supplied by the Manufacturer, for the new version to the Engineers for approval before ordering/installing the equipment. The location of Distribution Boards (DB) shall be as specified herein or in the drawings. Where two or more DB's is shown on the drawings the Contractor shall prepare drawings indicating his proposed arrangement details prior to proceeding with the instillation.
The Neutral bar of each S.P.N. and T.P.N. fuse or Miniature Circuit Breakers(MCB) irrespective of the outgoing circuit shown shall have same sequence as the phase cables are connected to the M.C. B's. This shall apply to earth bars when installed.
The following refers to M.C.B. Distribution Boards:

The spare ways not showing current ratings will be fitted with removable blanking plates and accessories for future breakers.

If spare ways show current ratings then breakers must be fitted.

16.1.11 Cables

All cables used in Contract shall be manufactured in accordance with the current appropriate BS Specifications, which are as follows:

Rubber Insulated cables and flexible cords B.S.S. 6500

P.V.C. Insulated cables and flexible cords B.S.S. 6004

P.V.C. Insulated Armored cable B.S.S. 6346

Butyl Rubber Insulated Cables B.S.SD. 6101V

The Contractor will, at the Engineer's discretion, be required to submit samples of cables for the Engineer's approval: The Engineer reserves the right to call for cables of an alternative manufacturer without any extra cost being incurred. No cable of C.S.A. less than 1.5 mm2 shall be used unless otherwise specified.

16.1.12 Armoured P.V.C. Insulated and sheathed cables

Shall be 600/1000- volt grade with standard copper conductors. The wire amour of the cable shall be used wholly as an earth continuity conductor and the resistance of the wire amour shall not be more than twice that of the largest current carrying conductor of the cable.

Where cables enter Switchgear and other apparatus, they shall be made off with proper glands for this type of cable, with the whole gland enclosed in a P.V.C shroud. When lugs are soldered to cable ends any exposed conductor shall be taped with P.V.C. Tapes to thickness of the original insulation, the taping being taken partly over barrel of the cable lug. The color of the tape shall be the same as the original insulation.

Where cables rise from floor level to Switchgear, etc. they shall be protected by P.V.C. conduit to a height of 600mm from the finished floor level, whether the cable is to run on the surface or recessed into the wall.

All P.V.C. S.W.A. cables run inside the building shall be fixed in rising ducts or concealing by means of die cast cable hooks or clamps, of appropriate size to suit cables, fixed by studs and back nuts to their channel sections, Type C.S.I. Alternatively by B.I.C.C. claw type cleating system with die cast cleats and galvanized mild steel back straps or similar approved equal method for one or two cables runs together, the cleats shall be fixed to special channel section supports or back straps described above, which shall in turn be secured to walls or ceilings of ducts by row bolts.

Where armoured cables are run outside the buildings they shall be laid underground with protecting concrete interlocking cover tiles laid over, which shall be provided and laid under this Contract. All the excavations and reinstatements of ground will be carried out by the Main Contractor also the Contractor shall be responsible for sanding of the trenches on top of which he shall lay the cables.

Depth of laying low voltage cable shall be 450mm minimum but 600mm to the top of cable tiles where planting is indicated on the drawing.
Any damage to the serving or sheathing of cables shall be brought to the Engineers notice in writing and their instructions that it should be repaired or replaced is to be carried out.

16.1.13 P.V.C insulated cables
These cables shall be of the non-braided type as C.M.A reference 6491x600/1000-volt grade cables, or equal approval cables for all service shall be in accordance with the schedules and the Electrical Regulations.

16.1.14 Heat resisting cable
Final connection to all lighting fittings (and other equipment where a temperature in excess of 65 0C is likely to be experienced) shall be made using silicone rubber insulated cable or equal approved.

16.1.15 Conduit installation
Conduit shall be Heavy gauge P.V.C. or steel as specified in the Bills of Quantities, of 20mm minimum diameter and made to applicable B.S.I. standards. Steel Conduit and fittings shall black enamel finish, unless otherwise specified for indoor use and outdoors-galvanized finish shall be used. Cable capacity of conduit shall be in accordance with the appropriate tables of I.E.E. Regulations and sufficiently large to allow easy draw in or withdrawal of any one or all cables. A conduit run shall neither have more than two (2) right-angle bends or equivalent nor more the 10m without the provision of a draw inbox.
Conduit shall be installed in such a way that there is segregation of lighting, general-purpose power installations telephone, alarm systems etc. as outlined in the Regulations.
In poured, reinforced concrete columns and slabs the fitting and boxes shall be laid and fixed in position to prevent displacement during mechanical vibration, and shall be sealed to prevent the ingress of cement.
Conduits installed on surface shall be unobtrusive and runs shall be symmetrical and in keeping with the building design. The routes of all surface conduits shall be approved by the Engineer and/or Architect/Engineer on site before installation. The crossing of expansion joints and feeders to work benches from floors shall be made with flexible conduit connecting each end of the P.V.C. conduit, care shall be taken to ensure that the flexible conduit/conduit connector are correctly installed and will not become disconnected when the expansion and contraction takes place. Where permanent wiring is not installed a draw wire shall be left in all such conduits.

16.1.16 Labelling
All main switches, circuits breakers, isolators and distribution boards shall be labelled showing the area and service fed them, and where not otherwise immediately obvious, their source of supply. The circuits fed from the DB shall be marked on a card fixed to the inside of the lid or as shall be agreed with the

Engineers. The card must indicate without ambiguity the location of all the outlets fed from each distribution way and the size of the fuse or circuit breaker rating. All control switches, isolators, starters, etc., shall be labelled to indicate the item or apparatus controlled, the supply voltage and phase.
Where socket outlets and/or single phase isolators in any one room area are connected to more than one phase, all such outlets and isolators shall be labeled indicate the phase to which they are connected and where required by the Engineers, a warning label shall be provided and fixed as directed to indicate the presence of 415 volts between outlets on different phases.

16.1.17 Final sub-circuits
The wiring of each final sub-circuit shall be electrically separated from that of every other final sub-circuit. For all lighting and socket outlets wiring shall be carried out in the "Looping in" system, and there shall be no joints whatsoever. The wiring sizes for lighting circuits and socket outlets are shown on the drawing. If not shown, then the sizes specified in I.E.E. Regulations shall be assumed.

16.1.18 Lighting fittings
The Contractor shall supply and fix all lighting fittings and lamps of number, and size indicated on the drawings manufactured and designed to comply with BS4533/EN 60598. Fittings shall be assembled and cleaned and if necessary any suspension tubes cut and screwed to provide the right mounting height. All fittings and pendants shall be fixed to conduit boxes with brass R/H screws. The whole of the metal work in each lighting fittings shall be effectively bonded to earth. In case of ball and/or knuckled joints, short lengths of flexible cable shall be provided bonded to the metal work on either side of the joints.

Where lamp holders are supported by flexible cable, the holders shall have "cord grip" arrangement, and in case of metal shades earthing screws be provided on each of the holders. In case of rectangular shaped ceiling fittings, the extreme ends of the fittings shall be secured to suitable support in addition to central conduit bot fittings.

16.1.19 Electric lamps
All lamps shall conform with the specifications of the appropriate B.S.I. suitable for normal stated supply voltage. Prior to installation, the Contractor shall enquire of and conform to the direction of the Engineers as to the color of fluorescent lamps to be installed.

16.1.20 Switches
Where multi-gang switch assemblies are used the switches shall be connected so that their layout relative to each other on the switch-plate conforms, as far as practical, to the layout of the groups of appliances controlled. Generally, switches shall be

mounted at a height of 1400mm above finished floor level, and 150mm from the doorframe.

16.1.21 Socket outlets

Unless otherwise specified, socket outlets shall be mounted 300mm above finished floor level except those on top workbenches, which shall be, installed as detailed drawings. Where two or more points are shown adjacent to each other on the drawing, e.g. Socket outlet and telephone outlet, they shall be lined up vertically or horizontally on the center lines of the units concerned.

Normally the units shall be lined up on vertical center lines, but where it is necessary to mount units at low level they shall be lined up horizontally. Switches shall be of the type(s) given in the Schedule of Materials/Bills of Quantities of this specification, and shall conform to BS 3676. Steel flush mounting boxes for switches shall conform to BS 4662.Socket outlets for general A.C supplies shall be 13 Ampere complying with BS 1363and of the type specified in the Schedule of materials/Bills of Quantities. Flush and surface mounting boxes for sockets outlets shall be designed and manufactured to comply with BS4662 and BS 5733 respectively.

16.1.22 Telephone outlets

Telephone outlets shall be installed in preparation rooms as shown in thedrawings. Final wiring for the telephone system shall be carried out by others, however the Contractor shall lay conduits and draw wires as outlined in the drawings.

16.1.23 Fume Cabinets

Fume cabinets and similar apparatus shall be controlled either by local switch of suitable rating fitted with a neon indicator connected in a radial circuit. Final connections to the cabinets shall be by butyl rubber silicone rubber or other approved heat resisting cables run in flexible conduit, which shall commence at flush circular conduit box situated beside the equipment.

16.1.24 Earthing

The Contractor shall be responsible for providing and installing all necessary electrodes, earthling conductors; clamps; connectors and to ensure that the entire installation is installed in accordance with the I.E.E. Regulations. Earth plates shall not be permitted.

The Earth resistance shall be tested in the manner described in the latest edition of the I.E.E. Regulations by the Contractor in the presence of Engineer, and the Contractor shall be responsible for the supply of all test equipment. An Earthing Terminal must be provided at each box or other enclosure to which accessories are to be attached. The earth leads to each distribution board shall not be less than half the cross sectional area of the feeder.

16.1.25 Testing and inspection

On completion of the entire installation or as may be deemed necessary by engineer, the Contractor shall test all wiring and connections for:

Earth continuity
Neutral Earth loop impedance
Insulation Resistance
Earth Resistance

All tests shall be in accordance with the Electrical Regulations in case power is not connected at the time of handover the Contractor shall ensure that a suitable generator set is availed for the purpose of completing the tests. All related costs shall be borne by the Contractor. The Contractor shall provide the Test Certificates which must be set out as indicated in the Electrical Regulations with additions where necessary to including functional tests and other tests, and shall be signed by the Engineer who shall be present at all site tests.

All the apparatus, attendance and assistance necessary, together with all skilled labor, shall be provided by the Contractor. The Contractor shall advice the Engineers of a suitable date for the fin inspection, which shall be prior to the date of handover of the Main contract. This shall be after:

All boards Switchgear, outlets etc., have been cleared and damaged paint work made good.
All lamps are in-situ and working
All tests described above have been carried out and certificates produced.
All labelling has been completed
All conduit lids are secured
All unused blanking holes have been blanked off
All builder's work has been made good round outlets etc. to the Engineers satisfaction and all surplus paint cleaned off on items of electrical equipment. Any faults defects, or omissions or faulty workmanship, incorrectly positioned or installed parts of the installation made apparent by such inspections or tests, shall be rectified by the Contractor at his own expense.

16.2.0 TECHNICAL SPECIFICATIONS II

16.2.2 Main switch

Location of main distribution board as shown in drawings is for tendering purposes only. The Engineer shall decide actual position on site after determining the exact mains entry point.

16.2.3 Distribution boards

Distribution boards shall be installed at positions and height shown on drawings. All breakers and other apparatus shall only be accessible through the door; only

incorporated isolators shall be accessible from outside. Typewritten or stenciled labels showing each circuit shall be fixed on the inside of the door.
The circuits of the DB's shall have phase arrangement in accordance with that shown on the diagrams. However, it shall be the responsibility of the Contractor to tong test the load to the satisfaction of the Engineer.

16.2.4 Wiring system
All internal wiring shall be carried out in PVC insulated single core cables run inn on-metallic conduits either concealed in chases cut in solid partition walls, or casting-situ in concrete structure or fixed on the surface of walls or ceiling member shall be fixed by spacer bar saddles fixed not more than 1 meter apart. The Contractors shall install PVC pipes to accommodate the supply cables into and out of the building as proposed on drawings.

16.2.5 Fittings and accessories
Type and makes of fittings and accessories have been specified in the bills of quantities. The specifications are meant to ensure a good standard of quality of materials. Any other fittings must first be inspected and approved before being used.
16.2.6 Installation of boxes for accessories
All boxes shall be of metallic type. The installation of boxes shall be made with great care and they shall be set plumb and true. Care shall be exercised to ensure that outlet boxes are set flush with wall finish so that cover plates will neither protrude beyond the surface of the wall nor be sprung out of shape by the outlet box being set too deep in the wall.
16.2.7 Builders work
The Contractor shall take special care in the location of conduits so that same will not clash with required locations for and proper grading of water, drain pipes etc, and he shall take special pains to refer to the drawings covering such requirement so as to ensure his equipment is installed in proper relation to other apparatus.

16.2.8 Earthing
Earthing shall be done as recommended in IEE Regulations for Electrical Installation of Buildings. Each unit shall have its own earthing points consisting of an earthing inspection chamber and copper electrodes.

16.2.9 Final testing and inspection
On Completion of the entire installation and before handover, inspection shall be carried out as given in part I of these specifications.

****

SECTION VII: DRAWINGS

Insert here a list of Drawings. The actual Drawings, including site plans, should be attached to this section or annexed in a separate folder.

SECTION VIII: BILL OF QUANTITIES

SECTION IX: TENDER FORMS

1. Form of Contract Agreement

This Agreement, made the [*day*] day of [*month*], [*year*] between [*name and address of Employer*] (hereinafter called "the Employer") and [*name and address of Contractor*] (hereinafter called "the Contractor") of the other part.

Whereas the Employer is desirous that the Contractor execute [*name and identification number of contract*] (hereinafter called "the Works") and the Employer has accepted the Tender by the Contractor for the execution and completion of such works and the remedying of any defects therein in the sum of *[contract price in words and figures]* (hereinafter called "Contract Price").

Now this Agreement witnesseth as follows:

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to, and they shall be deemed to form and be read and construed as pert of this Agreement.

2. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all respects with the provisions of the Contract.

3. the Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects wherein the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

In Witness whereof the parties thereto have caused this Agreement to be executed the day and year first before written.

The Common Seal of _____

Was hereunto affixed in the presence of:_____

Signed, Sealed, and Delivered by the said_____

In the presence of: _____

Binding Signature of Employer_____

Binding Signature of Contractor _____

2. Form of Tender

[date]

To: *[name and address of Employer*]

We offer to execute the [*name and identification number of contract]* in accordance with the Conditions of Contract accompanying this Tender for the Contract Price of *[amount in numbers], [amount in words] [name of currency].*

The Contract shall be paid in the following currencies:

Currency	**Percentage payable in currency**	**Rate of exchange: one foreign equals [*insert local]***	**Inputs for which foreign currency is required**
(a)			
(b)			

The advance payment required is:-

Amount	**Currency**
(a)	
(b)	

We accept the appointment of [*name proposed in Tender Data Sheet] as the* adjudicator.

[or]

We do not accept the appointment of [*name proposed in* Tender Data Sheet*]* as the Adjudicator, and propose instead that [*name*] be appointed as Adjudicator, whose daily fees and biographical data are attached.

We are not participating, as tenders, in more than one Tender in this tendering process other than alternative tenders in accordance with the tendering documents.

With reference to ITT Sub-Clause 3.11, it is our intention to subcontract approximately [*insert the percent*] percentage of the Tender /Contract Price, details of which are provided herein.

Our firm, its affiliates or subsidiaries, including any subcontractors or suppliers for any part of the contract has not been declared ineligible by the Government of the United Republic of Tanzania under Tanzania's laws or official regulations or by an act of compliance with a decision of the United Nations Security Council.

The following commissions or gratuities of fees have been paid or are to be paid by us to agents relating to this tender, and to contract execution if we are awarded the contract:-

Name and address of agent or recipient	Amount and currency	Purpose of commission or gratuity

(if none has been paid or is to be paid, state "none")

This tender and your written acceptance of it shall constitute a binding Contract between us.

We understand that you are not bound to accept the lowest or any Tender you receive.

We hereby confirm that this tender complies with the tender validity and Tender Security required by the tendering documents and specified in the Tender Data Sheet.

Authorized Signature:_____

Name and Title of Signatory: _____

Name of Tenderer: _____

Address: _____

Appendix to Tender

Schedule of Adjustment Data

[In Tables A, B, and C, below, the Tenderer shall (a) indicate its amount of local currency payment, (b) indicate its proposed source and base values of indices for the different foreign currency elements of cost, (c) derive its proposed weightings for local and foreign currency payment, and (d) list the exchange rates used in the currency conversion. In the case of very large and/or complex works contracts, it may be necessary to specify several families of price adjustment formulae corresponding to the different works involved.]

Table A. Local Currency

Index code	Index description	Source of index	Base value and date	Tenderer's related currency amount	Range of weighting Proposed by the Procuring Entity	Tenderer's proposed weighting
	Nonadjustable	—	—	—	**a: _____***	**a: _____***
					b: ------ to ------*	**b: _____**
					c: ------- to ------*	**c: _____**
					d: ------- to -----*	**d: _____**
					e: ------- to ------*	**e: _____**
					etc.	**etc.**
				Total		**1.00**

* To be entered by the Procuring Entity

Table B. Foreign Currency

State type: ..... [If the Tenderer wishes to quote in more than one foreign currency, this table should be repeated for each foreign currency.]

Index code	Index description	Source of index	Base value and date	Tenderer's related source currency in type/amount	Equivalent in Foreign Currency 1	Range of weighting Proposed by the Procuring Entity	Tenderer's proposed weighting
	Non-adjustable	–	–	–		**a: _____*** **b: ------ to ------*** **c: ------- to ------*** **d: ------- to -----*** **e: ------- to ------*** **etc.**	**a: _____*** **b: _____** **c: _____** **d: _____** **e: _____** **etc.**
Total							**1.00**

* To be entered by the Procuring Entity

Table C. Summary of Payment Currencies

For ……..[insert name of Section of the Works]

[Separate tables may be required if the various sections of the Works (or of the Bill of Quantities) will have substantially different foreign and local currency requirements. The Employer should insert the names of each Section of the Works.]

Name of payment currency	A Amount of currency	B Rate of exchange (local currency per unit of foreign)	C Local currency equivalent C = A x B	D Percentage of Net Tender Price (NBP) $\frac{100xC}{NBP}$
Local currency _____		**1.00**		
Foreign currency #1 _____				
Foreign currency #2 _____				
Foreign currency # _____				
Net Tender Price				**100.00**
Provisional sums expressed in local currency	*		*	
TENDER PRICE				

* To be entered by the Procuring Entity

Authorized Signature:_____

Name and Title of Signatory: _____

Name of Tenderer: _____

Address: _____

3. Letter of Acceptance

[letter head paper of the Employer]

[*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 Special Conditions of Contract*] for the Contract Price of the equivalent of [*amount in numbers and works*] [*name of currency*], as corrected and modified in accordance with the Instructions to Tenderer is hereby accepted by our Agency.

(a) We accept that [*name proposed by Tenderer*] be appointed as Adjudicator.

(a) We do not accept that [*name proposed by Tenderer*] be appointed as adjudicator, and by sending a copy of this letter of acceptance to [*insert the name of the Appointing Authority*], we are hereby requesting [*name*], the Appointing Authority, to appoint the adjudicator in accordance with Clause 40.1 of the Instructions to Tenderer.

You are hereby instructed to proceed with the execution of the said works in accordance with the Contract documents

Authorized Signature: _____

Name and Title of Signatory: _____

Name of Agency:_____

Attachment: Contract

4. Qualification Information

Form of Qualification Information

To establish qualifications to perform the contract the Tenderer shall provide information requested in form

1. Individual Tenderer or Individual Member of Joint Ventures

1.1 Eligibility

Constitution or legal status of Tenderer: [*attach copy*]

Place of registration: [*insert]*

Principal place of business: *[insert*]

Registration/ Certificate of Incorporation [attach]

Current Business License [*attach]*

Conflict of Interest – No conflict of interest in accordance with ITT 3.6 [should be declared in the Form of Tender]

Government-owned entity – meet conditions of ITT 3.8 [Attach legal status]

Experience

1.2 Work performed as prime Contractor on works of a similar nature and volume over the last [*PE to insert number*] years.

S/No.	Project Name and Country	Name of Employer and full address	Contractor Participation	Type of Work Performed	Year	Value of Contract
1.						
2.						
3.						

To comply with this requirement, works cited should be at least 70 per cent complete.

Experience as prime contractor, sub-contractor in at least a number of Contracts [*PE to insert number of contracts*] for the past [*PE to insert number*] years, each with a minimum value [*PE to insert minimum value in TZS*] that have been successfully and substantially completed and that are similar to the proposed works.

Also list details of work under way or committed, including expected completion dates.

S/No.	Name of Contract	Employer's Contact Address, Tel, Fax	Value of Outstanding Work [Current US$ Equivalent]	Estimated Completion Date	Average Monthly Invoicing Over Last Six Months [US$/month)]
1.					
2.					
n-1					
N					

1.3 Equipment and Plants

Major items of Contractor's Equipment proposed for carrying out the works.
List all information requested below

List all information requested below

S/No.	Item of equipment *[PE to list required equipment]*	Description, make, and age (years)	Condition (new, good, Poor) and number available	Owned, leased (from whom?) or to be purchased (from whom?)
1.				
2.				
3.				
n-1				
n				

1.4 Personnel

Qualifications and experience of key personnel proposed for administration and execution of the Contract. (CVs of all key proposed key personnel shall be attached)

S/No.	Position *[PE to list required key personnel]*	Name	Years of Experience (General Experience) *[PE to list required Years of Experience]*	Years of experience in proposed position *[PE to list Years of Experience]*
1.				
2.				
3.				
n-1				
n				

1.5 Subcontracting

Proposed sub-contractor and firms involved. Refer to ITT Sub-Clause 3.11 and Clause 8 of General Conditions of Contract

S/No.	Sections of the Works	Value of subcontract	Subcontractor (name and address)	Experience in similar work
1.				
2.				
n-1				
n				

1.6 Average Annual Construction Turnover

Minimum average annual construction turnover of TZS [*PE to insert amount*], calculated as total certified payments received for contracts in progress and/or completed within the last [*PE to insert number*] years, divided by [*PE to insert number*] years.

Annual turnover data (construction only)			
Year	**Amount Currency**	**Exchange Rate**	**TZS Equivalent**
Year 1			
Year 2			
Year 3			
Year 4			
Year 5			
		Average Annual Construction Turnover★	

★ Total TZS equipment for all years divided by the number of years.

1.7 Financial Situation and Performance

Financial reports for the number of years [*PE to specify number of years*]. Balance sheets, profit and loss statements, auditors' reports, etc.

[**List below and attach copies**.]

The submitted financial reports must demonstrate the current soundness of the Tenderer's financial position and indicate its prospective long term profitability.

i) Average Coefficient of Current Ratio ≥ 1.1
ii) Average Coefficient of Debt Ratio≤ 0.75
iii) Average Coefficient of Interest Coverage Ratio ≥ 5.0
iv) Debt Equity Ratio ≤ 3.0

Information in this table should be extracted from the financial reports submitted.

Type of Financial information in (TZS)	Historic information for previous (TZS equivalent)				
	Year 1	Year 2	Year 3	Year4	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					

1.8 Financial Capability

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 TZS [*PE to insert the amount*] for the subject contract(s) net of the Tenderer other commitments

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.

Source of financing	Amount (TZS Equivalent)
1.	
2.	
3.	
4.	

1.9 Name, address, and telephone, telex, and facsimile numbers of banks that may provide references if contracted by the Employer.

1.10 Litigation History

Information on current litigation in which the Tenderer is involved.

S/No.	Other party(ies)	Cause of dispute	Amount involved
1.			
2.			

1.11 Occupation Health and Safety Policy

Information regarding Occupation Health and Safety Policy and Safety Record of the Tenderer

1.12 Proposed Work Programme

Proposed Program (work method and schedule). Descriptions, drawings, and charts, as necessary, to comply with the requirements of the tendering documents.

2. Joint Ventures

2.1 The information listed in 1.1 – 1.11 above shall be provided for each partner of the joint venture.

2.2 The information in 1.11 & 1.12 above shall be provided for the joint venture.

SECTION X: FORMS OF SECURITY

1. Tender-Securing Declaration

Date: *[insert **date** (as day, month and year)]*
Tender No.: *[insert **number of tendering process**]*
Alternative No.: *[insert **identification No if this is a Tender for an alternative**]*

To: *[insert **complete name of Procuring Entity**]*

We, the undersigned, declare that:

We understand that, according to your conditions, Tenders must be supported by a Tender-Securing Declaration.

We accept that we will automatically be suspended from being eligible for tendering in any contract with the Procuring Entity for the period of time determined by the Authority, if we are in breach of our obligation(s) under the Tender conditions, because we:

a) have withdrawn or modified our Tender during the period of tender validity specified in the Form of Tender;

(b) Disagree to arithmetical correction made to the tender price; or

(c) have been notified of the acceptance of our Tender by the Procuring Entity during the period of tender validity, (i) fail or refuse to execute the Contract, if required, failure to sign the contract if required by Procuring Entity to do so or (ii) fail or refuse to furnish the Performance Security or to comply with any other condition precedent to signing the contract specified in the tendering documents., in accordance with the ITB. We understand this Tender Securing Declaration shall expire if we are not the successful Tenderer, upon the earlier of (i) our receipt of your notification to us of the name of the successful Tenderer; or (ii) twenty-eight days after the expiration of our Tender.

Signed: *[insert signature of person whose name and capacity are shown]* In the capacity of *[insert legal capacity of person signing the Tender Securing Declaration]*

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

Duly authorized to sign the Tender for and on behalf of: *[insert **complete name of Tenderer**]*

Dated on _____ day of _____, _____ *[insert **date of signing**]*

Corporate Seal (where appropriate)

2. Tender Security (Bank Guarantee)

*[If required, the **Bank/Tenderer** shall fill in this Bank Guarantee form in accordance with the instructions indicated in brackets.]*

_____
[insert bank's name, and address of issuing branch or office]

Beneficiary: *[insert name and address of Procuring Entity]*

Date: *[insert date]*

TENDER GUARANTEE No.: *[insert number]*

We have been informed that *[insert name of the Tenderer; if a joint venture, list complete legal names of partners]* (hereinafter called "the Tenderer") has submitted to you its tender dated *[insert date]* (hereinafter called "the Tender") for the execution of *[insert name of Contract]* under Invitation for Tenders No. *[insert IFT number]* ("the IFT").

Furthermore, we understand that, according to your conditions, Tenders must be supported by a Tender Guarantee.

At the request of the Tenderer, we *[insert name of bank]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *[insert amount in figures expressed in the currency of the Procuring Entity's Country or the equivalent amount in an international freely convertible currency]* (*[insert amount in words]*) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Tenderer is in breach of its obligation(s) under the tender conditions, because the Tenderer:

(a) have withdrawn or modified our Tender during the period of tender validity specified in the Form of Tender;

(b) Disagreement to arithmetical correction made to the tender price; or

(c) having been notified of the acceptance of our Tender by the Procuring Entity during the period of tender validity, (i) fail or refuse to execute the Contract, if required, failure to sign the contract if required by Procuring Entity to do so or (ii) fail or refuse to furnish the Performance Security or to comply with any other condition precedent to signing the contract specified in the tendering documents., in accordance with the ITT.

This Guarantee shall expire: (a) if the Tenderer is the successful Tenderer, upon our receipt of copies of the Contract signed by the Tenderer and of the Performance Security issued to you by the Tenderer; or (b) if the Tenderer is not the successful Tenderer, upon the earlier of (i) our receipt of a copy of your notification to the Tenderer that the Tenderer was unsuccessful, or (ii) twenty-eight days after the expiration of the Tenderer's Tender.

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

_____

[signature(s) of authorized representative(s)]

3. Form of Tender Security (Tender Bond)

*[If required, the **Surety/Tenderer** shall fill in this Tender Bond Form in accordance with the instructions indicated in brackets.]*

BOND NO. *[insert Bond number]*

BY THIS BOND *[insert name of Tenderer; if joint venture, insert complete legal names of partners]* as Principal (hereinafter called "the Principal"), and *[insert name, legal title, and address of Surety],* **authorized to transact business in** *[insert name of country of Employer],* as Surety (hereinafter called "the Surety"), are held and firmly bound unto *[insert name of Procuring Entity]* as Obligee (hereinafter called "the Procuring Entity") in the sum of *[insert amount in figures expressed in the currency of the Procuring Entity's Country or the equivalent amount in an international freely convertible currency] [insert amount in words]*, for the payment of which sum, well and truly to be made, we, the said Principal and Surety, bind ourselves, our successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Principal has submitted a written Tender to the Procuring Entity dated the *[number]* day of *[month], [year]*, for the construction of *[insert name of Contract]* (hereinafter called the "Tender").

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal:

(1) have withdrawn or modified our Tender during the period of tender validity specified in the Form of Tender;

(2) Disagreement to arithmetical correction made to the tender price; or

(3) having been notified of the acceptance of our Tender by the Procuring Entity during the period of tender validity, (i) failure to sign the contract if required by Procuring Entity to do so or (ii) fail or refuse to furnish the Performance Security or to comply with any other condition precedent to signing the contract specified in the tendering documents.

(a)

then the Surety 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.

The Surety hereby agrees that its obligation shall remain in full force and affect up to and including the date 28 days after the date of expiration of the Tender validity as stated in the Invitation to Tender or extended by the Procuring Entity at any time prior to this date, notice of which extension(s) to the Surety being hereby waived.

IN TESTIMONY WHEREOF, the Principal and the Surety have caused these presents to be executed in their respective names this *[insert number]* day of *[month], [year]*

Principal: _____	Surety: _____ Corporate Seal (where appropriate)
_____ *[insert signature(s) of authorized representative(s)]*	_____ *[insert signature(s) of authorized representative(s)]*
_____ *[insert printed name and title]*	_____ *[insert printed name and title]*

4. Performance Bank Guarantee [Unconditional]

[The **bank/successful Tenderer** providing the Guarantee shall fill in this form in accordance with the instructions indicated in brackets, if the Employer requires this type of security.]

[insert bank's name, and address of issuing branch or office]

Beneficiary: *[insert name and address of Employer]*

Date: *[insert date]*

PERFORMANCE GUARANTEE No.: *[insert Performance Guarantee number]*

We have been informed that *[insert name of Contractor]* (hereinafter called "the Contractor") has entered into Contract No. *[insert reference number of the Contract]* dated with you, for the execution of *[insert name of Contract and brief description of Works]* (hereinafter called "the Contract").

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

At the request of the Contractor, we *[insert name of Bank]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *[insert amount in figures]* (*[insert amount in words])*, such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire no later than twenty-eight days from the date of issuance of the Taking-Over Certificate, calculated based on a copy of such Certificate which shall be provided to us, or on the [*insert number* day of *[insert month], [insert year],* whichever occurs first. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

[signature(s) of an authorized representative(s) of the Bank]

5. Performance Bond

*[The **Surety/successful Tenderer** providing the Bond shall fill in this form in accordance with the instructions indicated in brackets, if the Employer requires this type of security]*

By this Bond, *[insert name and address of Contractor]* as Principal (hereinafter called "the Contractor") and *[insert name, legal title, and address of surety, bonding company, or insurance company]* as Surety (hereinafter called "the Surety"), are held and firmly bound unto *[insert name and address of Employer]* as Obligee (hereinafter called "the Employer") in the amount of *[insert amount of Bond] [insert amount of Bond in words]*, 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.

Whereas the Contractor has entered into a Contract with the Employer dated the *[insert number]* day of *[insert month]*, *[insert year]* for *[insert name of Contract]* in accordance with the documents, plans, specifications, and amendments thereto, which to the extent herein provided for, are by reference made part hereof and are hereinafter referred to as the Contract.

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 Employer to be, in default under the Contract, the Employer having performed the Employer's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

(1) complete the Contract in accordance with its terms and conditions; or

(2) obtain a Tender or Tenders from qualified Tenderer for submission to the Employer for completing the Contract in accordance with its terms and conditions, and upon determination by the Employer and the Surety of the lowest responsive Tenderer, arrange for a Contract between such Tenderer and Employer 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 the Employer to the Contractor under the Contract, less the amount properly paid by the Employer to the Contractor; or

(3) pay the Employer the amount required by the Employer to complete the Contract in accordance with its terms and conditions up to a total not exceeding the amount of this Bond.

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

Any suit under this Bond must be instituted before the expiration of one year from the date of issuance of the Certificate of Completion.

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Employer named herein or the heirs, executors, administrators, successors, and assigns of the Employer.

In testimony whereof, the Contractor has hereunto set its hand and affixed its seal, and the Surety has caused these presents to be sealed with its corporate seal duly attested by the signature of its legal representative, this *[insert day]* day of *[insert month]*, *[insert year]*.

Signed by *[insert signature(s) of authorized representative(s)]*
on behalf of *[name of Contractor]* in the capacity of *[insert title(s)]*

In the presence of *[insert name and signature of witness]*
Date *[insert date]*

Signed by *[insert signature(s) of authorized representative(s) of Surety]*
on behalf of *[name of Surety]* in the capacity of *[insert title(s)]*

In the presence of *[insert name and signature of witness]*
Date *[insert date]*

6. Bank Guarantee for Advance Payment

[Bank's Name, and Address of Issuing Branch or Office]
Beneficiary:_____ *[Name and Address of Employer]*
Date: _____

ADVANCE PAYMENT GUARANTEE No.: _____

We have been informed that *[name of Contractor]* (hereinafter called "the Contractor") has entered into Contract No. *[reference number of the contract]* dated _____ with you, for the execution of *[name of contract and brief description of Works]* (hereinafter called "the Contract").

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

At the request of the Contractor, we *[name of Bank]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *[amount in figures]* () *[amount in words]* upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract because the Contractor used the advance payment for purposes other than the costs of mobilization in respect of the Works.

It is a condition for any claim and payment under this guarantee to be made that the advance payment referred to above must have been received by the Contractor on its account number _____ at _____ *[name and address of Bank]*.

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as indicated 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 eighty (80) percent of the Contract Price has been certified for payment, or on the ___ day of _____, 2___, whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

Yours truly,
Signature and seal: _____
Name of Bank/Financial Institution: _____
Address: _____
Date: _____

SECTION XI: FORMS OF INTEGRITY

UNDERTAKING BY TENDERER ON ANTI – BRIBERY POLICY/ CODE OF CONDUCT AND COMPLIANCE PROGRAMME
(Made under Regulation 78 (2) of GN 446 of 2013

Each tenderer must Submit a statement, as part of the tender documents, in either of the formats in this section.

MEMORANDUM (Format 1)

(Regulation 78(2) of the Public Procurement Regulations, 2013 - Government Notice No. 446 of 2013… ……)

This company _____*(name of company)* places importance on competitive Tendering taking place on a basis that is free, fair, competitive and not open to abuse. It is pleased to confirm that it will not offer or facilitate, directly or indirectly, any improper inducement or reward to any public officer their relations or business associates, in connection with its Tender, or in the subsequent performance of the contract if it is successful.

This company has an Anti-Bribery Policy/Code of Conduct and a Compliance Program which includes all reasonable steps necessary to assure that the No-bribery commitment given in this statement will be complied with by its managers and employees, as well as by all third parties working with this company on the public sector projects, or contract including agents, consultants, consortium partners, sub- contractors and suppliers. Copies of our Anti-Bribery Policy/Code of Conduct and Compliance Program are attached

Authorized Signature:_____

Name and Title of Signatory: _____

Name of Tenderer: _____

Address: _____

MEMORANDUM (Format 2)

(Regulation 78(2) of the Public Procurement Regulations, 2013 - Government Notice No.446 of 2013.)

This company _____*(name of company)* has issued, for the purposes of this Tender, a Compliance Program copy attached -which includes all reasonable steps necessary to assure that the No-bribery commitment given in this statement will be complied with by its managers and employees, as well as by all third parties working with this company on the public sector projects or contract including agents, consultants, consortium partners, subcontractors and suppliers')"

Authorized Signature:_____

Name and Title of Signatory: _____

Name of Tenderer: _____

Address:_____