REPUBLIC OF KENYA

COUNTY GOVERNMENT OF BOMET
DEPARTMENT OF WATER, IRRIGATION, ENVIRONMENT AND CLIMATE CHANGE.

Tender Name: PROTECTION, SOLARISATION AND DISTRIBUTION OF ARAP KALYA WATER SPRING IN CHESOEN WARD.

TENDER NO: CGB/DWI/07/2026/2027

Negotiation No:2675601.

PREFFERED GROUP: OPEN

CLOSING DATE: FRIDAY 27TH NOVEMBER 2026 AT 1200 LOCAL HOURS

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INVITATION TO TENDER

PROCURING ENTITY: COUNTY GOVERNMENT OF BOMET, P.O BOX 19-20400 BOMET.

NEGOTIATIO NUMBER	TENDER NUMBER	PROJECT NAME	ELIGIBILITY	CATEGORY	BID SECURITY (KSH)
2675601-2026/2027	CGB/DWI/07/2026/2027	PROTECTION, SOLARISATION AND DISTRIBUTION OF ARAP KALYA WATER SPRING IN CHESOEN WARD	OPEN	NCA 7 and above for Water works	2% OF CONTRACT SUM

The County Government of BOMET through the Department of Water and Natural Resources Wishes to invite tender electronically by **IfMIS** for protection of **PROTECTION, SOLARISATION AND DISTRIBUTION OF ARAP KALYA WATER SPRING IN CHESOEN WARD.**

Tendering will be conducted under Open Tender method using a standard tender document. Tendering is open to all qualified and interested Tenderers.

1. ***COUNTY GOVERNMENT OF BOMET)*** invites sealed tenders for the;
TENDER FOR PROTECTION, SOLARISATION AND DISTRIBUTION OF ARAP KALYA WATER SPRING IN CHESOEN WARD.

2. Tendering will be conducted under **open competitive method (national) from Local registered suppliers** *using* a standardized tender document. Tendering is open to all qualified and interested Tenderers.
3. **"Tenderers will be allowed to tender for all the works".**

4. Qualified and interested tenderers may obtain further information and inspect the Tender Documents during office hours ***at the Procurement Office, located along district commissioners Office next to County Treasury*** *during* ***normal working hours(8:00a.m.-5:00p.m.).***

5. A complete set of documents may be purchased or obtained by interested tenders upon payment of a non-refundable fees of (***Kshs 1,000/-)*** in cash or Banker's Cheque and payable to the address given below. Tender documents may be obtained electronically from the Website(s) www.bomet.go.ke. Tender documents obtained electronically will be free of charge.
6. Tender documents may be viewed and downloaded for free from the website www. bomet.go.ke Bidders who download the document from **COUNTY GOVERNMENT OF BOMET** Website MUST register their interest immediately by sendingan email to cgpprocurement@gmail.com stating their names, email, postal and telephone address to facilitate any further clarification or addendum.

7. All Tenders *must be accompanied by* ***a "signed Bid declaration form.***
8. The Tenderer shall chronologically serialize all pages of the tender documents submitted.

9. Completed tenders must be delivered to the tender box located at the Procurement Headquarters on or before **FRIDAY 27TH NOVEMBER 2026 at 1200hours**.

10. Tenders will be opened immediately after the deadline date and time specified above or any dead line dateand time specified later. Tenders will be publicly opened in the presence of the Tenderers' designate representatives who choose to attend at the address below.

Late tenders will be rejected.

The addresses referred to above are:

Address for obtaining further information and for

COUNTY GOVERNMENT OF BOMET.
PROCUREMENT OFFICE
P.O BOX 19-20400 BOMET.

Mandatory requirements

1) Attach a Certified Copy of Certificate of registration/incorporation.
2) Attach a Certified Copy of valid tax compliance certificate/exemption certificate issued by KRA
3) Attach a certified Copy of CR 12 certificate
4) Attach Valid Registration certificate copy with National Construction Authority for Water works; **NCA 7** and above and **MUST** be accompanied by valid current **annual practicing license**
5) Attach a Certified copy of KRA Pin OR VAT certificate issued by KRA
6) Must complete and submit dully filled **form of Tender** in the format provided
7) Attach Dully filled, stamped and signed confidential Business Questionnaire Form
8) Must complete and submit dully filled self-declaration that the person/tenderer is not debarred in the matter of the Public Procurement and Asset Disposal Act,2015 in the format Provided. **-FORM SD1**
9) Must complete and submit dully filled self-declaration that the person/tenderer will not engage in any corrupt or fraudulent practice in the format provided. **FORM SD2**
10) Must Attach dully filled, signed and stamped bills of quantities
11) Attach a Valid copy of a Single Business Permit from BOMET County Government.
12) Must submit valid water licence from the Ministry of water.
13) **MUST** Attach Copies of the national ID/Passport for the directors as per copy of CR12.
14) Must submit a bid security amounting to **Kshs 2% of contract sum** as per the form and format.
15) The document must be serialized, paginated and well bound including attachments.
16) **Pre-Tender Site meeting is Mandatory** and will be **on Friday 20th NOVEMBER 2026 at from 9.00 am local time. – Attach Pre-tender site Certificate**

18) All responses should be submitted both manually and online attaching requisite documents using IFMIS negotiation No. provided, one (1) original of a duly completed tender document in plain sealed envelopes marked

PART 1 – TENDERING PROCEDURES

SECTION I - INSTRUCTIONS TO TENDERERS

A. GENERALPROVISIONS

1.0 Scope of Tender

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

2.0 Fraud and Corruption

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

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

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

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

3.0 Eligible Tenderers

3.1 A Tenderer may be a firm that is a private entity, a state-owned enterprise or institution subject to ITT 3.8, or an individual or any combination of such entities in the form of a joint venture (JV) under an existing agreement or with the intent to enter into such an agreement supported by a letter of intent. In the case of a joint venture, all members shall be jointly and severally liable for the execution of the entire Contract in accordance with the Contract terms. The JV shall nominate a Representative who shall have the authority

to conduct all business for and on behalf of any and all the members of the JV during the tendering process and, in the event the JV is awarded the Contract, during contract execution. Members of a joint venture may not also make an individual tender, be a subcontractor in a separate tender or be part of another joint venture for the purposes of the same Tender. The maximum number of JV members shall be specified in the **TDS.**

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

3.3 A Tenderer shall not have a conflict of interest. Any tenderer found to have a conflict of interest shall be disqualified. A tenderer may be considered to have a conflict of interest for the purpose of this tendering process, if the tenderer:

a) Directly or indirectly controls, is controlled by or is under common control with another tenderer; or

b) Receives or has received any direct or indirect subsidy from another tenderer; or Has the same legal representative as another tenderer; or

c) Has a relationship with another tenderer, directly or through common third parties, that puts it in a position to influence the tender of another tenderer, or

d) influence the decisions of the Procuring Entity regarding this tendering process; or

e) Any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the goods or works that are the subject of the tender; or

f) any of its affiliates has been hired (or is proposed to be hired) by the Procuring Entity as a consultant for Contract implementation; or

g) Would be providing goods, works, or non-consulting services resulting from or directly related to consulting services for the preparation or implementation of the contract specified in this Tender Document; or

h) Has a close business or personal relationship with senior management or professional staff of the Procuring Entity who has the ability to influence the bidding process and:

(i) are directly or indirectly involved in the preparation of the Tender document or specifications of the Contract, and/or the Tender evaluation process of such contract; or

(ii) May be involved in the implementation or supervision of such Contract unless the conflict stemming from such relationship has been resolved in a manner acceptable to the Procuring Entity throughout the tendering

process and execution of the Contract.

3.4 A tenderer shall not be involved incorrupt, coercive, obstructive or fraudulent practice. A tenderer that is proven to have been involved in any of these practices shall be automatically disqualified.

3.5 A Tenderer (either individually or as a JV member) shall not participate in more than one Tender, except for permitted alternative tenders. This includes participation as a subcontractor in other Tenders. Such participation shall result in the disqualification of all Tenders in which the firm is involved. Members of a joint venture may not also make an individual tender, be a subcontractor in a separate tender or be part of another joint venture for the purposes of the same Tender. A firm that is not a tenderer or a JV member may participate as a subcontractor in more than one tender.

3.6 A Tenderer may have the nationality of any country, subject to the restrictions pursuant to ITT3.9. A Tenderer shall be deemed to have the nationality of a country if the Tenderer is constituted, incorporated or registered in and operates inconformity with the provisions of the laws of that country, as evidenced by its articles of incorporation (or equivalent documents of constitution or association) and its registration documents, as the case may be. This criterion also shall apply to the determination of the nationality of proposed subcontractors or sub-consultants for any part of the Contract including related Services.

3.7 A Tenderer that has been debarred from participating in public procurement shall be ineligible to tender or be awarded a contract. The list of debarred firms and individuals is available from the website of PPRA www.ppra.go.ke.

3.8 A Tenderer that is a state-owned enterprise or a public institution in Kenya may be eligible to tender and be awarded a Contract(s) only if it is determined by the Procuring Entity to meet the following conditions, i.e. if it is:

i. A legal public entity of Government and/or public administration,

ii. financially autonomous and not receiving any significant subsidies or budget support from any public entity or Government, and

iii. Operating under commercial law and vested with legal rights and liabilities similar to any commercial enterprise to enable it compete with firms in the private sector on an equal basis.

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

(i) as a matter of law or official regulations, Kenya prohibits commercial relations with that country, or

(ii) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, Kenya prohibits any import of goods or contracting of works or services from that country, or any payments to any country, person, or entity in that country.

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

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

3.11 Pursuant to the eligibility requirements of ITT4.10, a tender is considered a foreign tenderer, if the tenderer is not registered in Kenya or if the tenderer is registered in Kenya and has less than 51 percent ownership by Kenyan citizens. JVs are considered as foreign tenderers if the individual member firms are not registered in Kenya or if are registered in Kenya and have less than 51 percent ownership by Kenyan citizens. The JV shall not subcontract to foreign firms more than 10 percent of the contract price, excluding provisional sums.

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

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

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

4.0 Eligible Goods, Equipment, and Services

4.1 Goods, equipment and services to be supplied under the Contract may have their origin in any country that is not ineligible under ITT3.9. At the Procuring Entity's request, Tenderers may be required to provide evidence of the origin of Goods, equipment and services.

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

5.0 Tenderer's Responsibilities

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

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

5.3 The Tenderer and any of its personnel or agents will be granted permission by the Procuring Entity to enter up on its premises and lands for the purpose of such visit. The Tenderer shall indemnify the Procuring Entity against all liability arising from death or personal injury, loss of or damage to property, and any other losses and expenses incurred as a result of the examination and inspection.

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

B. CONTENTS OF TENDER DOCUMENTS

6.0 Sections of Tender Document

6.1 The tender document consists of Parts 1, 2, and 3, which includes all the sections specified below, and which should be read in conjunction with any Addenda issued in accordance with ITT10.

PART 1: **Tendering Procedures**

Section I: Instructions to Tenderers

Section II: Tender Data Sheet (TDS)

Section III: Evaluation and Qualification Criteria

Section IV: Tendering Forms

PART 2: **Works' Requirements**

Section V: Bills of Quantities

Section VI: Specifications Section

VII: Drawings

PART3: **Conditions of Contract and Contract Forms**

Section VIII: General Conditions (GCC)

Section IX: Particular Conditions of Contract

Section X: Contract Forms

6.2 The Invitation to Tender Notice issued by the Procuring Entity is not part of the Contract documents.

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

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

7.0 Clarification of Tender Document, Site Visit, Pre-Tender Meeting

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

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

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

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

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

8.0 Amendment of Tender Documents

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

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

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

C. PREPARATION OF TENDERS

9.0 Cost of Tendering

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

10.0 Language of Tender

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

11.0 Documents Comprising the Tender

11.1 The Tender shall comprise the following:

i. Form of Tender prepared in accordance with ITT 12;

ii. Schedules including priced Bill of Quantities, completed in accordance with ITT 12 and ITT 14;

iii. Tender Security or Tender-Securing Declaration, in accordance with ITT 19.1;

iv. Alternative Tender, if permissible, in accordance with ITT 13;

v. Authorization: written confirmation authorizing the signatory of the Tender to commit the Tenderer, in accordance with ITT 20.3;

vi. Qualifications: documentary evidence in accordance with ITT 17 establishing the Tenderer's qualifications to perform the Contract if its Tender is accepted;

vii. Conformity: a technical proposal in accordance with ITT 16;

viii. Any other document required in the TDS.

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

12.0 Form of Tender and Schedules

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

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

13.0 Alternative Tenders

13.1 Unless otherwise specified in the TDS, alternative Tenders shall not be considered.

13.2 When alternative times for completion are explicitly invited, a statement to that effect will be included in the **TDS**, and the method of evaluating different alternative times for completion will be described in Section III, Evaluation and Qualification Criteria.

13.3 Except as provided under ITT13.4 below, Tenderers wishing to offer technical alternatives to the requirements of the Tender Documents must first price the Procuring Entity's design as described in the Tender Documents and shall further provide all information necessary for a complete evaluation of the alternative by the Procuring Entity, including drawings, design calculations, technical specifications, breakdown of prices, and proposed construction methodology and other relevant details. Only the technical alternatives, if any, of the Tenderer with the Winning Tender conforming to the basic technical requirements shall be considered by the Procuring Entity.

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

14.0 Tender Prices and Discounts

14.1 The prices and discounts (including any price reduction) quoted by the Tenderer in the Form of Tender and in the Bill of Quantities shall conform to the requirements specified below.

14.2 The Tenderer shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by the Tenderer shall be deemed covered by the rates for other items in the Bill of Quantities and will not be paid for separately by the Procuring Entity. An item not listed in the priced Bill of Quantities shall be assumed to be not included in the Tender, and provided that the Tender is determined substantially responsive notwithstanding this omission, the average price of the item quoted by substantially responsive Tenderers will be added to the Tender price

and the equivalent total cost of the Tender so determined will be used for price comparison.

14.3 The price to be quoted in the Form of Tender, in accordance with ITT 12, shall be the total price of the Tender, including any discounts offered.

14.4 The Tenderer shall quote any discounts and the methodology for their application in the Form of Tender, in accordance with ITT 12

14.5 It will be specified in the **TDS** if the rates and prices quoted by the Tenderer are or are not subject to adjustment during the performance of the Contract in accordance with the provisions of the Conditions of Contract, exceptin cases where the contract is subject to fluctuations and adjustments, not fixed price. In such a case, the Tenderer shall furnish the indices and weightings for the price adjustment formulae in the Schedule of Adjustment Data and the Procuring Entity may require the Tenderer to justify its proposed indices and weightings.

14.6 Where tenders are being invited for individual lots (contracts) or for any combination of lots (packages), tenderers wishing to offer discounts for the award of more than one Contract shall specify in their Tender the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Discounts shall be submitted in accordance with ITT 14.4, provided the Tenders for all lots (contracts) are opened at the same time.

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

15.0 Currencies of Tender and Payment

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

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

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

b) The rates of exchange to be used by the Tenderer in arriving at the local currency equivalent and the percentage(s) mentioned in (a) above shall be specified by the Tenderer in the Appendix to Tender and shall be based on the exchange rate provided by the Central Bank of Kenya on the date 30 days prior to the actual date

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

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

16.0 Documents Comprising the Technical Proposal

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

17.0 Documents Establishing the Eligibility and Qualifications of the Tenderer

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

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

17.3 If a margin of preference applies as specified in accordance with ITT33. 1, national tenderers, individually or in joint ventures, applying for eligibility formational preference shall supply all information required to satisfy the criteria for eligibility specified in accordance with ITT 33.1.

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

17.5 The purpose of the information described **in ITT 17.2** above overrides any claims to confidentiality which a tenderer may have. There can be no circumstances in which it would be justified for a tenderer to keep information relating to its ownership and control confidential where it is tendering to undertake public sector work and receive public sector funds. Thus, confidentiality will not be accepted by the Procuring Entity as a justification for a Tenderer's failure to disclose, or failure to provide required information on its ownership and control.

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

17.7 All information provided by the tenderer pursuant to these requirements must be complete, current and accurate as at the date of provision to the Procuring Entity. In submitting the information required pursuant to these requirements, the Tenderer shall warrant that the information submitted is complete, current and accurate as at the date of submission to the Procuring Entity.

17.8 If a tenderer fails to submit the information required by these requirements, its tenderer will be rejected. Similarly, if the Procuring Entity is unable, after taking reasonable steps, to verify to a reasonable degree the information submitted by a tenderer pursuant to these requirements, then the tender will be rejected.

17.9 If information submitted by a tenderer pursuant to these requirements, or obtained by the Procuring Entity (whether through its own enquiries, through notification by the public or otherwise), shows any conflict of interest which could materially and improperly benefit the tenderer in relation to the procurement or contract management process, then:

i. If the procurement process is still on going, the tenderer will be disqualified from the procurement process,

ii. If the contract has been awarded to that tenderer, the contract award will be set aside, the tenderer will be referred to the relevant law enforcement authorities for investigation of whether the tenderer or any other persons have committed any criminal offence.

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

18.0 Period of Validity of Tenders

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

18.2 In exceptional circumstances, prior to the expiration of the Tender validity period, the Procuring Entity may request Tenderers to extend the period of validity of their Tenders. The request and the responses shall be made in writing. If a Tender Security is requested in accordance with ITT 19, it shall also be extended for thirty (30) days beyond the deadline of the extended validity period. A Tenderer may refuse the request without forfeiting its Tender security. A Tenderer granting their quest shall not be required or permitted to modify its Tender.

19.0 Tender Security

19.1 The Tenderer shall furnish as part of its Tender, either a Tender-Securing Declaration or a Tender Security as specified in the **TDS**, in original form and, in the case of a Tender Security, in the amount and currency **specified in the TDS**. A Tender-Securing Declaration shall use the form included in Section IV, Tender Forms.

19.2 If a Tender Security is specified pursuant to ITT19.1, the Tender Security shall be a demand guarantee in any of the following forms at the Tenderer's option:

i. cash;

ii. a bank guarantee;

iii. a guarantee by an insurance company registered and licensed by the Insurance Regulatory Authority listed by the Authority; or

iv. a guarantee issued by a financial institution approved and licensed by the Central Bank of Kenya, from a reputable source, and an eligible country.

19.3 If an unconditional bank guarantee is issued by a bank located outside Kenya, the issuing bank shall have a correspondent bank located in Kenya to make it enforceable. The Tender Security shall be valid for thirty (30) days beyond the original validity period of the Tender, or beyond any period of extension if requested under ITT 18.2.

19.4 If a Tender Security or Tender-Securing Declaration is specified pursuant to ITT 19.1, any Tender not accompanied by a substantially responsive Tender Security or Tender-Securing Declaration shall be rejected by the Procuring Entity as non-responsive.

19.5 If a Tender Security is specified pursuant to ITT 19.1, the Tender Security of unsuccessful Tenderers shall be returned as promptly as possible upon the successful Tenderer's signing the Contract and furnishing the Performance Security and any other documents required in the TDS.The Procuring Entity shall also promptly return the tender security to the tenderers where the procurement proceedings are terminated, all tenders were determined non-responsive or a bidder declines to extend tender validity period.

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

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

a) if a Tenderer withdraws its Tender during the period of Tender validity specified by the Tenderer on the Form of Tender, or any extension there to provide by the Tenderer; or

b) if the successful Tenderer fails to:

i. sign the Contract in accordance with ITT 47; or

ii. Furnish a Performance Security and if required in the TDS, and any other documents required in the TDS.

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

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

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

20.0 Format and Signing of Tender

20.1 The Tenderer shall prepare one original of the documents comprising the Tender as described in ITT 11 and clearly mark it "ORIGINAL." Alternative Tenders, if permitted in accordance with ITT 13, shall be clearly marked "ALTERNATIVE." In addition, the Tenderer shall submit copies of the Tender, in the number **specified in the TDS** and clearly mark them "COPY." In the event of any discrepancy between the original and the copies, the original shall prevail. However, Complete tender document must be submitted through the IFMIS SUPPLIER PORTAL www.supplier.rteasury.go.ke.

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

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

entries or amendments have been made shall be signed or initialed by the person signing the Tender. However, Complete tender document must be submitted through the IFMIS SUPPLIER PORTAL wwww.supplier.teasury.go.ke.

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

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

D. SUBMISSION AND OPENING OF TENDERS

21.0 Sealing and Marking of Tenders

21.1 Complete tender document must be submitted through the IFMIS SUPPLIER PORTAL www.supplier.rteasury.go.ke as per the requirement contained in the tender document.

22.0 Deadline for Submission of Tenders

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

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

23.0 Late Tenders

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

24.0 Withdrawal, Substitution, and Modification of Tenders

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

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

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

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

25.0 Tender Opening

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

25.2 Tenders will be opened immediately after the deadline date and time specified above or any deadline date and time specified later. Tenders will be publicly opened in the presence of the Tenderers' designated representatives who choose to attend at the address below.

25.3 At the Tender Opening, the Procuring Entity shall neither discuss the merits of any Tender nor reject any Tender (except for late Tenders, in accordance with ITT 23.1).

25.4 The Procuring Entity shall prepare minutes of the Tender Opening that shall include, as a minimum:

a) The name of the Tenderer and whether there is a withdrawal, substitution, or modification;
b) The Tender Price, per lot (contract) if applicable, including any discounts;
c) any alternative Tenders;
d) The presence or absence of a Tender Security, if one was required.
e) Number of pages of each tender document submitted.

E. Evaluation and Comparison of Tenders

26.0 Confidentiality

26.1 Information relating to the evaluation of Tenders and recommendation of contract award shall not be disclosed to Tenderers or any other persons not officially concerned with the

Tender process until information on Intention to Award the Contract is transmitted to all Tenderers in accordance with ITT 43.

26.2 Any effort by a Tenderer to influence the Procuring Entity in the evaluation of the Tenders or Contract award decisions may result in the rejection of its tender.

26.3 Notwithstanding ITT 26.2, from the time of tender opening to the time of contract award, if a tenderer wishes to contact the Procuring Entity on any matter related to the tendering process, it shall do so in writing.

27.0 Clarification of Tenders

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

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

28.0 Deviations, Reservations, and Omissions

28.1 During the evaluation of tenders, the following definitions apply:

i. "Deviation" is a departure from the requirements specified in the tender document;

ii. "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the tender document; and

iii. "Omission" is the failure to submit part or all of the information or documentation required in the Tender document.

29.0 Determination of Responsiveness

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

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

(i) Affect in any substantial way the scope, quality, or performance of the Works specified in the Contract; or

(ii) limit in any substantial way, inconsistent with the tender document, the Procuring Entity's rights or the tenderer's obligations under the proposed contract; or
(iii) if rectified, would unfairly affect the competitive position of other tenderers presenting substantially responsive tenders.

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

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

30.0 Non-material Non-conformities

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

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

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

31.0 Arithmetical Errors

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

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

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

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

32.0 Conversion to Single Currency

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

33.0 Margin of Preference and Reservations

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

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

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

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

34.0 Nominated Subcontractors

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

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

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

35.0 Evaluation of Tenders

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

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

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

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

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

36.0 Comparison of Tenders

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

37.0 Abnormally Low Tenders and Abnormally High Tenders

Abnormally Low Tenders

37.1 An Abnormally Low Tender is one where the Tender price, in combination with other elements of the Tender, appears so low that it raises material concerns as to the capability

of the Tenderer in regards to the Tenderer's ability to perform the Contract for the offered Tender Price or that genuine competition between Tenderers is compromised.

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

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

Abnormally High Tenders

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

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

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

37.6 If the Procuring Entity determines that the Tender Price is abnormally too high because genuine competition between tenderers is compromised (*often due to collusion, corruption or other manipulations*), the Procuring Entity shall reject all Tenders and shall institute or cause competent Government Agencies to institute an investigation on the cause of the compromise, before retendering.

Unbalanced and/or Front-Loaded Tenders

38.1 If in the Procuring Entity's opinion, the Tender that is evaluated as the lowest evaluated price is seriously unbalanced and/or front loaded, the Procuring Entity may require the Tenderer to provide written clarifications. Clarifications may include detailed price

analyses to demonstrate the consistency of the tender prices with the scope of works, proposed methodology, schedule and any other requirements of the Tender document.

38.2 After the evaluation of the information and detailed price analyses presented by the Tenderer, the Procuring Entity may as appropriate:

i. accept the Tender; or
ii. require that the total amount of the Performance Security be increased at the expense of the Tenderer to a level not exceeding 10% of the Contract Price; or
iii. agree on a payment mode that eliminates the inherent risk of the Procuring Entity paying too much for undelivered works; or
iv. reject the Tender,

39.0 Qualifications of the Tenderer

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

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

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

40.0 Lowest Evaluated Tender

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

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

41.0 Procuring Entity's Right to Accept Any Tender, and to Reject Any or All Tenders.

The Procuring Entity reserves the right to accept or reject any Tender and to annul the Tender process and reject all Tenders at any time prior to Contract Award, without there by incurring any

liability to Tenderers. In case of annulment, all Tenders submitted and specifically, Tender securities, shall be promptly returned to the Tenderers.

F. AWARD OF CONTRACT

42.0 Award Criteria

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

43.0 Notice of Intention to enter into a Contract

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

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

44.0 Stand still Period

44.1 The Contract shall not be signed earlier than the expiry of a Standstill Period of 14 days to allow any dissatisfied tender to launch a complaint. Where only one Tender is submitted, the Standstill Period shall not apply.

44.2 Where a Standstill Period applies, it shall commence when the Procuring Entity has transmitted to each Tenderer the Notification of Intention to Enter into a Contract with the successful Tenderer.

45.0 Debriefing by the Procuring Entity

45.1 On receipt of the Procuring Entity's Notification of Intention to Enter into a Contract referred to in ITT 43, an unsuccessful tenderer may make a concern(s) regarding their tender. The Procuring Entity shall provide the debriefing within five days of receipt of the request.

45.2 Debriefings of unsuccessful Tenderers may be done in writing or verbally. The tenderer shall bear its own costs of attending such a debriefing meeting.

46.0 Letter of Award

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

47.0 Signing of Contract

47.1 Upon the expiry of the fourteen days of the Notification of Intention to enter into contract and upon the parties meeting their respective statutory requirements, the Procuring Entity shall send the successful Tenderer the Contract Agreement.

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

47.3 The written contract shall be entered into within the period specified in the notification of award and before expiry of the tender validity period.

48.0 Performance Security

48.1 Within twenty-one (21) days of the receipt of the Letter of Award from the Procuring Entity, the successful Tenderer shall furnish the Performance Security and, any other documents required in the **TDS**, in accordance with the General Conditions of Contract, subject to ITT 38.2 (b), using the Performance Security and other Forms included in Section X, Contract Forms, or another form acceptable to the Procuring Entity. A foreign institution providing a bank guarantee shall have a correspondent financial institution located in Kenya, unless the Procuring Entity has agreed in writing that a correspondent bank is not required.

48.2 Failure of the successful Tenderer to submit the above-mentioned Performance Security and other documents required in the **TDS** or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Tender Security. In that event the Procuring Entity may award the Contract to the Tenderer offering the next Best Evaluated Tender.

48.3 Performance security shall not be required for contract estimated to cost less than the amount specified in the Regulations.

49.0 Publication of Procurement Contract

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

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

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

50.0 Procurement Related Complaint

The procedures for making Procurement-related Complaints shall be specified in the **TDS.**

SECTION III - TENDER DATA SHEET (TDS)

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

A. GENERAL	
ITT1.1	The name of the Tender is **PROTECTION, SOLARISATION AND DISTRIBUTION OF ARAP KALYA WATER SPRING IN CHESOEN WARD.** The Reference number of the Tender is: **CGB/DWI/07/2026/2027-NEG NO: 2675601-2026/2027** The number and identification of the lots (contracts) comprising the Tender are: LOTS ……**N/A**…….
ITT2.3	The information made available to competing firms is as follows: **NONE**
ITT2.4	The firms that provided consultancy services for the contract being tendered for are: ***NONE***
ITT3.10	Maximum number of Joint Venture JV shall be; ***NONE***
	Citizen contractors are encouraged to source locally manufactured items/materials and locally assembled machines, equipment, vehicles, labour etc.
B. CONTENTS OF TENDER DOCUMENTS	
ITT7.1	The Tenderer will submit any request for clarification in writing at the Address ***Provided in the detailed Tender*** **Notice** to reach the Procuring Entity not later than ***7 days*** before bid submission deadline as indicated in the Tender Notice The Procuring Entity will publish the response at the Website;**www.bomet.go.ke**

ITT7.2	There shall be a mandatory pre-tender site visits as specified in the detailed tender notice
ITT7.3	The Tenderer will submit any questions in writing, to reach the Procuring Entity not later than the date specified in TDS- ITT 7.1
ITT7.5	The Procuring Entity's website where Minutes of the pre-Tender meeting and the pre- arranged pretender will be published is ***www.bomet.go.ke*** Non-attendance at the pre-Tender meeting will be a cause for disqualification of a Tenderer
C. PREPARATION OF TENDERS	
ITT8.2	Addendum shall be affected and attached to form part of tender document and failure to attach will lead to disqualification.
ITT11.1(h)	The Tenderer shall submit the following additional documents in its Tender: *As indicated in the Qualification Form/Criteria*
ITT 13.1	Alternative Tenders ***shall not*** be considered. *[If alternatives shall be considered, the methodology shall be defined in Section III, Evaluation and Qualification Criteria.}*
ITT 13.2	Alternative times for completion *shall not be* ***permitted***
ITT 13.4	Alternative technical solutions shall be permitted for the following parts of the Works: ***None***
ITT 14.2	Items against which no rate or price is entered by the Tenderer will be considered as an error and shall lead to disqualification.
ITT 14.5	The prices quoted by the Tenderer shall be: ***fixed***
ITT 15.2	Foreign currency requirements: **not allowed**.
ITT 18.1	The Tender validity period shall be ***140days*** from the specified date of opening as indicated in the invitation to Tender

ITT 18.2	a) The Number of days beyond the expiry of the initial tender validity period will be 60 days. (b) The Tender price shall be adjusted by the following percentages of the tender price: *(i)* By 0 % of *the local currency portion of the Contract price adjusted to reflect local inflation during the period of extension, and* *By 0 % the foreign currency portion of the Contract price adjusted to reflect the international inflation during the period of extension*
ITT 19.1	A Tender-Securing Declaration **shall be** required as per the prescribed form.

ITT 19.2	***Not Applicable***
ITT 19.5	Other documents required are as specified in ***Form No. 3; Contract Agreement***
ITT 19.9	The Procuring Entity will declare the Tenderer ineligible to be awarded contracts by the Procuring Entity for a period of ***two (2)*** years.
ITT 20.1	In addition to the original of the bid Tender document, the number of copies is: ***ONE (1)***
ITT 20.3	The written confirmation of authorization to sign on behalf of the Tenderer shall consist of: *Certificate of Independent Tender Determination* ***Part B of Form of Tender***
D. SUBMISSION AND OPENING OF TENDERS	
ITT 21.3	A tender package or container that cannot fit in the tender box shall be received follows: shall be received at the Supply Chain Management Offices of the location specified in the tender notice. All the tenders shall be submitted through the IFMIS portal electronically
ITT 22.1	For Tender submission purposes only, **all responses should be submitted both manually and online attaching requisite documents using IFMIS negotiation No. provided, one (1) original of a duly completed tender document in plain sealed envelopes marked**
ITT 25.1	Tenderers are to submit Tenders electronically and Manually, they shall follow electronic tender submission procedures
ITT 25.6	The number of representatives of the Procuring Entity to sign is ***at least three w***
E. EVALUATION AND COMPARISON OF TENDERS	
ITT 30.3	*The Tender price shall be adjusted by the following factor(s):* ***Not Applicable.***

ITT 31.2	The error shall be considered a major deviation that leads to disqualification of the tender if the percentage of the error (error over the tender price quoted) is: **more than 0% or less than 0%.**
ITT 32.1	The currency that shall be used for Tender evaluation and comparison purposes is-: ***Kenya Shillings***
ITT 33.2	A margin of preference *shall* apply. *[If a margin of preference applies, the application methodology shall be defined in Section III - Evaluation and Qualification Criteria.]*
ITT 33.4	The invitation to tender is extended to the following groups that qualify for reservations: -**YOUTH**
ITT 34.1	At this time, the Procuring Entity ***does not intend*** to execute certain specific parts of the Works by subcontractors selected in advance.
ITT 34.2	Contractor's may propose subcontracting: Maximum percentage of subcontracting permitted is: **0% *of the total contract amount***. Tenderers

	planning to subcontract more than 10% of total volume of work shall specify, in the Form of Tender, the activity (ies) or parts of the Works to be subcontracted along with complete details of the subcontractors and their qualification and experience.
ITT 34.3	The parts of the Works for which the Procuring Entity permits Tenderers to propose Specialized Subcontractors are designated as follows: **Not Applicable** for the above-designated parts of the Works that may require Specialized Subcontractors, the relevant qualifications of the proposed Specialized Subcontractors will be added to the qualifications of the Tenderer for the purpose of evaluation. **N/A**
ITT 35.2 (d)	Additional requirements apply. These are detailed in the evaluation criteria in Section III, Evaluation and Qualification Criteria.
ITT 37	Abnormally High/low Tenders shall be treated as per the procedure outlined in Section IV, Evaluation and Qualification Criteria
ITT 38	Unbalanced or Front-loaded Tenders shall be treated as per the procedure outlined in Section IV, Evaluation and Qualification Criteria
ITT 48.2	Additional requirements are: As detailed in the Qualification Criteria/Form

ITT 49.1	The procedures for making a Procurement-related Complaint are available from the PPRA website info@ppra.go.ke or complaints @ppra.go.ke. If a Tenderer wishes to make a Procurement-related Complaint, the Tenderer should submit its complaint following these procedures, in writing (by the quickest means available, that is either by hand delivery or email to: For the attention: ***County Secretary*** Procuring Entity: ***County Government of Bomet*** Email address: ***www.bomet.go.ke*** In summary, a Procurement-related Complaint may challenge any of the following: (i) the terms of the Tender Documents; and The Procuring Entity's decision to award the contract.

SECTION IV- EVALUATION AND QUALIFICATION CRITERIA

General Provisions

1.0 General Provisions

1.1 This section contains the criteria that the Employer shall use to evaluate tender and qualify tenderers. No other factors, methods or criteria shall be used other than specified in this tender document. The Tenderer shall provide all the information requested in the forms included in Section IV, Tendering Forms. The Procuring Entity shall use **the Standard Tender Evaluation Document for Goods and Works** for evaluating Tenders.

1.2 Wherever a Tenderer is required to state a monetary amount, Tenderers should indicate the Kenya Shilling equivalent using the rate of exchange determined as follows:

(a) For construction turnover or financial data required for each year - Exchange rate prevailing on the last day of the respective calendar year (in which the amounts for that year is to be converted) was originally established.

(b) Value of single contract - Exchange rate prevailing on the date of the contract signature. Exchange rates shall be taken from the publicly available source identified in the ITT 14.3.

(c) Any error in determining the exchange rates in the Tender may be corrected by the Procuring Entity.

1.3 Evaluation and contract award Criteria

The Procuring Entity shall use the criteria and methodologies listed in this Section to evaluate tenders and arrive at the Lowest Evaluated Tender. The tender that

(i) meets the qualification criteria,

(ii) has been determined to be substantially responsive to the Tender Documents, and

(iii) is determined to have the Lowest Evaluated Tender price shall be selected for award of contract.

2.0 Preliminary examination for Determination of Responsiveness

The Procuring Entity will start by examining all tenders to ensure they meet in all respects the eligibility criteria and other requirements in the ITT, and that the tender is complete in all aspects in meeting the requirements of *"Part 2 – Procuring Entity's Works Requirements",* including checking for tenders with unacceptable errors, abnormally low tenders, abnormally high tenders and tenders that are front loaded. The Standard Tender Evaluation Report for Goods and Works

for evaluating Tenders provides clear guidelines on how to deal with review of these requirements. Tenders that do not pass the Preliminary Examination will be considered irresponsive and will not be considered further.

[The Procuring Entity will provide the preliminary evaluation criteria. To facilitate, a template may be attached or clearly described all information and list of documentation to be submitted by Tenderers to enable preliminary evaluation of the Tender]

3.0 Tender Evaluation (ITT 35)

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

a. **Alternative Completion Times,** if permitted under ITT 13.2, will be evaluated as follows:
……**N/A**……

b. **Alternative Technical Solutions** for specified parts of the Works, if permitted under ITT 13.4, will be evaluated as follows: ……N/A……

c. **Other Criteria; i**f permitted under ITT 35.2(d): ……**N/A**…….....

4.0 Multiple Contracts

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

OPTION 1

If a tenderer wins only one Lot, the tenderer will be awarded a contract for that Lot, provided the tenderer meets the Eligibility and Qualification Criteria for that Lot.

If a tenderer wins more than one Lot, the tender will be awarded contracts for all won Lots, provided the tenderer meets the aggregate Eligibility and Qualification Criteria for all the Lots. The tenderer will be awarded the combination of Lots for which the tenderer qualifies and the others will be considered for award to second lowest the tenderers.

OPTION 2

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

5.0 Alternative Tenders (ITT 13.1)

An alternative if permitted under ITT 13.1, will be evaluated as follows:

The Procuring Entity shall consider Tenders offered for alternatives as specified in Part2-Works Requirements. Only the technical alternatives, if any, of the Tenderer with the Best Evaluated Tender conforming to the basic technical requirements shall be considered by the Procuring entity.

6.0 Margin of Preference

6.1 If the TDS so specifies, the Procuring Entity will grant a margin of preference of fifteen percent (15%) to be loaded one valuated price of the foreign tenderers, where the percentage of shareholding of Kenyan citizens is less than fifty-one percent (51%).

6.2 Contractors applying for such preference shall be asked to provide, as part of the data for qualification, such information, including details of ownership, as shall be required to determine whether, according to the classification established by the Procuring Entity, a particular contract or group of contractors qualifies for a margin of preference.

6.3 After Tenders have been received and reviewed by the Procuring Entity, responsive Tenders shall be assessed to ascertain their percentage of shareholding of Kenyan citizens. Responsive tenders to shall be classified into the following groups:

(i) Group A: tenders offered by Kenyan Contractors and other Tenderers where Kenyan citizens hold shares of over fifty-one percent (51%).

(ii) Group B: tenders offered by foreign Contractors and other Tenderers where Kenyan citizens hold shares of less than fifty-one percent (51%).

6.4 All evaluated tenders in each group shall, as a first evaluation step, be compared to determine the lowest tender, and the lowest evaluated tender in each group shall be further compared with each other. If, as a result of this comparison, a tender from Group A is the lowest, it shall be selected for the award. If a tender from Group B is the lowest, an amount equal to the percentage indicated in Item 3.1 of the respective tender price, including unconditional discounts and excluding provisional sums and the cost of day works, if any, shall be added to the evaluated price offered in each tender from Group B. All tenders shall then be compared using new prices with added prices to Group Band the lowest evaluated tender from Group A. If the tender from Group A is still the lowest tender, it shall be selected for award. If not, the lowest evaluated tender from Group B based on the first evaluation price shall be selected.

7.0 Post qualification and Contract award (ITT 39), more specifically,

a. In case the tender was subject to post-qualification, the contract shall be awarded to the lowest evaluated tenderer, subject to confirmation of pre-qualification data, if so required.

b. In case the tender was not subject to post-qualification, the tender that has been determined to be the lowest evaluated tenderer shall be considered for contract award, subject to meeting each of the following conditions.
   (i) The Tenderer shall demonstrate that it has access to, or has available, liquid assets, unencumbered real assets, lines of credit, and other financial means (independent of any contractual advance payment) sufficient to meet the construction cash flow of Kenya Shillings.
   (ii) Minimum average annual construction turnover of Kenya Shillings *[insert amount]*, equivalent calculated as total certified payments received for contracts in progress and/or completed within the last) *[insert of year]* years.
   (iii) At least.....(*insert number)* of contract(s) of a similar nature executed within Kenya, or the East African Community or abroad, that have been satisfactorily and substantially completed as a prime contractor, or joint venture member or sub-contractor each of minimum value Kenya shillings ….....equivalent.
   (iv) Contractor's Representative and Key Personnel, which are specified as_____
   (v) Contractors key equipment listed on the table "Contractor's Equipment" below and more specifically listed as *[specify requirements for each lot as applicable]*____
   (vi) Other conditions depending on their seriousness.

c) History of non-performing contracts:

Tenderer and each member of JV in case the Tenderer is a JV, shall demonstrate that Nonperformance of a contract did not occur because of the default of the Tenderer, or the member of a JV in the last __(*specify years*). The required information shall be furnished in the appropriate form.

d) **Pending Litigation**

Financial position and prospective long-term profitability of the Single Tenderer, and in the case the Tenderer is a JV, of each member of the JV, shall remain sound according to criteria established with respect to Financial Capability under Paragraph (i) above if all pending litigation will be resolved against the Tenderer. Tenderer shall provide information on pending litigations in the appropriate form.

e) **Litigation History**

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

SECTION IV: EVALUATION AND QUALIFICATION CRITERIA CONTD…

This Section contains all the factors, methods and criteria that the Employer shall use to evaluate applications. The information to be provided in relation to each factor and the definitions of the corresponding terms are included in the respective Application Forms.

1) Eligibility Requirements
2) Historical Contract Non-Performance
3) Financial Situation
4) Technical/Engineering Works Experience
5) Program of Works and Work Methodology
6) Key Professional and Technical Site Staff
7) Major Plant and Equipment to be used in the Project

Item No.	Qualification Subject	Qualification Requirement	*Document to be Completed/provided by Tenderer*	*For Procuring Entity's Use (Qualification met or Not Met)*
A. MANDATORY/ QUALIFICATION FORM SUMMARY				
1	Nationality	Nationality in accordance with ITT 3.0	Forms ELI - 1.1, 1.2 and 1.3, with attachments	
2	Goods, equipment and services to be supplied under the contract	To have their origin in any country that is not determined ineligible under ITT 4.1	Forms ELI - 1.4	
3	Conflict of Interest	No conflicts of interest in accordance with ITT 3.3	Form of Tender	
4	**PPRA** Eligibility	Not having been declared ineligible by the PPRA as described in ITT 3.7	Form of Tender - **Form SD 1**	
5	State- owned Enterprise	Meets conditions of ITT 3.8	Forms ELI - 1.1 and 1.2, with attachments	
6	Appendix to Form of Bid	Form properly filled & signed	Appendix to Form of Bid in the Prescribed Format	
7	Suspension Based on Execution of Tender/Proposal Securing Declaration by the Procuring Entity	Not under suspension based on execution of a Tender/Proposal Securing Declaration pursuant to ITT 19.8.	To be confirmed from Internal records by the procuring entity	

8	Pending Litigation	Tender's financial position and prospective long-term profitability still sound according to criteria established in 3.1 and assuming that all pending litigation will NOT be resolved against the Tenderer	Form CON - 1	
Item No.	Qualification Subject	Qualification Requirement	Document to be Completed/provided by Tenderer	For Procuring Entity's Use (Qualification met or Not Met)
9	Litigation History	No consistent history of court/arbitral award decisions against the Tenderer for the last three (3) years.	Form CON - 1	
10	Declaration of Fair employment laws and practices	Bidders shall declare they are not guilty of any serious violation of fair employment laws and practices and will be bound to abide by the industry CBA at minimum	Form CON - 2	
11	Declaration of Knowledge / Pre bid conference	Attend Pre-Tender Site Visits as per TDS, ITT 7.1	Form CON - 3	
		Bidders to sign attendance register		
		Certificate must be signed by the Employer's representative		
		Bidders to send Technical Persons for the Site Visit – Min Qualifications –		
		Diploma in Civil Engineering		
12	Tender Security	2% of the contract sum	2% of the contract sum	

13	Priced Bill of Quantities	Fill all rates, and amounts,	Bills of Quantity in the Prescribed Format	
		NO Alterations of the Quantities accepted,		
		All bidders own Corrections must be Countersigned		
		NO Errors noted in the Bills of Quantities		

Item No.	Qualification Subject	Qualification Requirement	*Document to be Completed/provided by Tenderer*	*For Procuring Entity's Use (Qualification met or Not Met)*
14	Annual Practicing License with the National Construction Authority	Proof of registration with the National Construction Authority in Class 7 and above Water Contractor.	Copy of Current NCA Practicing License	
15	Tax Obligations for Kenyan Tenderers	Has produced a current tax clearance certificate or tax exemption certificate issued by the Kenya Revenue Authority in accordance with ITT 4.15.	*Provide Valid Tax Compliance Certificate*	
16	Must submit a bid security amounting to **Kshs 2% of contract sum** as per the form and format.	Must submit a bid security amounting to **Kshs 2% of contract sum** as per the form and format.	**Kshs 2% of contract sum**	

17	Serialization of the Bid	Bidders shall sequentially serialize all pages of each tender submitted. Any written Pages or document attached or inserted Documents MUST be sequentially serialized.	The Serialization MUST be numerically sequential starting from Numeric 1.	
18	Completeness of tender document	The person or persons signing the bid **shall** initial all pages of the bid where entries have been made. Bidders shall own all alterations made to the tender document. Bidders shall duly fill all relevant forms/schedules provided for in the document that requires entries	All relevant Forms/ Schedules shall be duly filled All relevant Forms/ Schedules shall be duly filled	

B. TECHNICAL EVALUATION				
Item No.	**Qualification Subject**	**Qualification Requirement**	***Document to be Completed/provided by Tenderer***	***For Procuring Entity's Use (Qualification met or Not Met)***
1	History of Non - performing contracts	Non-performance of a contract did not occur as a result of contractor default for the last three (3) years. On-performance shall be deemed to have occurred by evidence of: Termination Letter and Liquidated damages, warning letters or any other relevant document from the procuring entity.	Form CON-1 If a bidder fails to disclose, shall be disqualified Reference to be made to procuring Authority's records. A bidder with any history of non-performance earns zero (0) marks. The procuring entity may seek more information regarding nonperformance history from relevant authorities and available records	5 Marks
2	Financial Capabilities	(i) Bidders shall provide audited balance sheets or, if not required by the laws of the Tenderer's country, other financial statements acceptable to the Procuring Entity, for the last 2 years shall be submitted and must demonstrate the current soundness of the Tenderer's financial position and indicate its prospective long-term profitability (as demonstrated by Financial Evaluation ratios).	Form FIN - 3.1, with attachments. i. Audited accounts All pages must be initialed and stamped by both a practicing Auditor registered with ICPAK and one of the Directors. · Financial Ratios Computation shall be made for the following Ratios and marks awarded to each of the ratios: Working Capital Debt to Equity Ratio Current ratio Operating Cash Flow ratio	3 Marks 2 Marks

Item No.	Qualification Subject	Qualification Requirement	*Document to be Completed/provided by Tenderer*	*For Procuring Entity's Use (Qualification met or Not Met)*
		(ii) 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. The Tenderers shall also demonstrate, to the satisfaction of the Procuring Entity, that it has adequate sources of finance to meet the cash flow requirements on works currently in progress and for future contract commitments.	Line of credit and Bank Statements Bank statements from a reputable Bank, signed and stamped (for the Last Six Months)	5 Marks 2marks
	Average Annual Construction Turnover	Minimum average annual construction turnover of Kenya Shillings Three Million (3,000,000), equivalent calculated as total certified payments received for contracts in progress and/or completed within the last 2 years.	Form FIN - 3.2 Attachments include Financial Statements	3 Marks

Item No.	Qualification Subject	Qualification Requirement	*Document to be Completed/provided by Tenderer*	*For Procuring Entity's Use (Qualification met or Not Met)*
3	General/Specific Construction Experience	Experience with minimum value of ***KShs. Three Million (3,000,000)*** under general construction contracts substantially completed in the last ***[2 years]*** prior to the applications submission deadline.	Form EXP -4.1 **Attach Letters of Award and Completion Certificates**	4 Marks (2 Marks for each General Construction project)
		Participation in contract (s) of a similar nature with minimum cumulative value of ***KShs. Three Million (3,000,000)*** in the last [2 years] prior to the applications submission deadline.	Form EXP 4.2(a)&(b) Provide **Letters of Award and Completion Certificates**	5 Marks
4	Contractor's Representative and Key Personnel	Curriculum Vitae (CVs) of the Proposed Key Staff must be presented in the provided format and duly signed by the proposed individual. Copies of certificates and Annual Practicing Licenses (for Engineers) and Academic Certificates for all staff is mandatory;	Schedule F (Form PER. 1 and PER. 2)	20Marks
5	Contractors' key equipment	· Bidders shall declare they have possession/Ownership/lease agreements of various equipment as proposed to be used in the Project by providing Logbooks that demonstrate proof of ownership		10 Marks

6	Work methodology	Adequacy and quality of the proposed methodology	Provided a detailed Work Methodology: Procedure on execution of activities as outlined in the BoQs Allocation of machinery/labour in execution the activities Procedures in quality control of the activities described in BoQs **Work plan*/Program of Works (PoW)*** • PoW Resourced with Equipment-Min. allocation pursuant to the ***Schedule E of Technical Proposal*** - – To be submitted in A3 Size Paper well legible Fonts • PoW details BoQ Quantities, Units and Rates PoW is superimposed with Cash Flow Projections as detailed in ***Schedule A*** of the technical proposal	25 Marks

7	Work Safety management	Proposals on workers' safety & accident prevention		6 Marks
8.	Company Directors Residence	Bidder shall declare their ward of residence in the Self Declaration form-FORM SD1.	Self-Declaration form-FORM SD1	10 Marks

Note: -The pass mark is 70 marks, any bidder who scores below the pass mark shall be treated as non-responsive and therefore shall not be evaluated further

C. FINANCIAL EVALUATION:

The lowest evaluated bidder shall be subjected to Financial Evaluation which includes but is not limited to **sensitivity analysis** of the **rates** to **detect abnormally low bids or abnormally high bids or unbalanced tenders or front-loaded**.

Treatment of Abnormally Low Bid/Abnormally high Bid/ Unbalanced bid

The Procuring Entity may undertake an analysis of bidders' rates which are potentially lower/higher than the known prevailing market rates. The bidders shall be required to provide objective justification including supporting documents on the derivation of their rates within stipulated time to the Procuring Entity (***See Schedule G, Part I&II on Derivation of Rates***).

In addressing the above criteria, the following steps shall be undertaken by the Procuring Entity;

Identify: The Procuring Entity identifies a potential Abnormally Low/High Bid based on comparison with known prevailing market rates or with the project's total cost estimate.

a. **Evaluate**: The Procuring Entity clarifies with the Bidder/proposer (hereafter the Bidder). The Bidder prepares a justification of their price based on the request from the Procuring Entity. The procuring Entity fully analyzes the Bidder's justification to verify if it is an Abnormally Low/High Bid. Due diligence may be carried out by the Procuring Entity on the bidder's documentation.

b. **Determination**: The Procuring Entity fully documents the decision to accept or reject the Bid and executes appropriate action(s)/recommendation(s).

In view of the above, the procuring Entity shall evaluate and analyze the Bidders' submissions against the known prevailing market rates and cost estimation guidelines. The analysis of the bidder's justification shall take into account all evidence provided in response to the request.

Accordingly, the Procuring Entity's relevant committee shall make a recommendation to the Accounting Officer.

D. POST QUALIFICATION: The procuring entity may verify the documents provided by the bidder with the issuing authority.

APPENDIX TO THE TECHNICAL QUALIFICATION CRITERIA

ITEM	DESCRIPTION			POINT SCORE SCALE
1	**HISTORY OF NON – PERFORMANCE**			**Max 5**
2	**KEY PERSONNEL**			**Max 20**
	Site Agent (Max 8 marks)	Qualification	Bsc Civil Engineering/Water Engineering	4
			Registered Engineer	1
			HND in Civil Eng/Water Eng.	3
			Dip in Civil Eng/Water Eng.	2
		Experience	> 8 years and above	3
			3-7 years	2
			0 -2 years	1
	Surveyor (Max 6 marks)	Qualification	Diploma in Survey (Minimum)	3
			Certificate in Survey	2
		Experience	> 6 Years	3
			3 – 5 Years	2
			0-3Years	1
	Foreman (Max 6marks)	Qualification	Diploma in Civil Engineering (Minimum)	3
			Certificate in Civil Engineering	2
		Experience	> 6 Years	3
			3 – 5 Years	2
			0-3Years	1

3	**PLANT AND EQUIPMENT**		**Max 10**
	Tipper(Max 2marks)	Owned	2
		Leased	1
	Water Bowser(Max 2marks)	Owned	2
		Leased	1
	Vibrator(Max 2marks)	Owned	2
		Leased	1
	Pick up(Max 2marks)	Owned	2
		Leased	1
	Concrete Mixer(Max 2marks)	Owned	2
		Leased	1

4	**FINANCIAL CAPABILITY**		**Max 15**
	Financial statements	The financial accounts, balance sheets, profit and loss statements are certified by reputable audit firm/Auditor. (Last **two** Years)	3
		The Bank statements are from a reputable Bank. Contact information to be availed (Last Six Months)	2
		Computations for the following financial ratios from the latest audited accounts: • Working capital Ratio • Debt to Equity Ratio • Current Ratio • Operating cash flow Ratio	2
	Financial Information / Current work	Provide average turn-over figures for the last two (2) years	3
		Provide undertaking from the bank providing current line of credit specific to the tender	5

5	**WORK METHODOLOGY**		**Max 25**
		Signed work programme chart and cash flow estimate	0-10
		Detailed method statement on how to carry out the intended works	0-15
6	**WORK SAFETY MANAGEMENT**		**Max 6**
	Proposals on workers' safety & accident prevention		6
7.	**EXPERIENCE**		**Max 9**
	General Experience with minimum value of ***KShs. Three Million (3,000,000)*** **(**Attach Letters of Award and Completion Certificates –atleast 2no-for each project for the last 2 years***)***		4
	Participation in contract(s) of a similar nature with minimum value of ***KShs. Three Million (3,000,000)*** in the last [2 years] prior to the applications submission deadline.		5
8.	**RESIDENCE**		**Max 10**
	Company Directors Residence from the ward of project to be implemented		**10**
	Company Directors Residence from BOMET County		**5**
	TOTAL		**MAX 100**

QUALIFICATION FORMS

1.0 Foreign Tenderers 40% rule

Item	Description of work item	Description location of source	Cost in Kenyan Shillings	Comments (if any)
A	**LOCAL LABOUR**			
1				
2				
3				
4				
B				
1				
2				
3				
C	**LOCAL MATERIALS**			
1				
2				
3				
4				
D				
1				
2				
3				
E				
1				
2				
3				
	TOTAL COST LOCAL CONTENT			
	PERCENTAGE OF LOCAL CONTENT			

3. FORM EQU: EQUIPMENT

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

<table>
<tr><td colspan="3">Item of Equipment</td></tr>
<tr><td rowspan="2">Equipment Information</td><td>Name of Manufacturer</td><td>Model and Power Rating</td></tr>
<tr><td>Capacity</td><td>Year of Manufacture</td></tr>
<tr><td rowspan="2">Current Status</td><td colspan="2">Current Location</td></tr>
<tr><td colspan="2">Current commitments</td></tr>
<tr><td>Source</td><td colspan="2">Indicate source of Equipment</td></tr>
<tr><td></td><td colspan="2">☐ Owned ☐ Rented ☐ Leased ☐ Specially manufactured</td></tr>
<tr><td>Owner</td><td colspan="2">Name of Owner</td></tr>
<tr><td></td><td colspan="2">Address of Owner</td></tr>
<tr><td></td><td>Telephone</td><td>Contact Name and Title</td></tr>
<tr><td></td><td>Fax</td><td>Telex</td></tr>
<tr><td>Agreements</td><td colspan="2">Details of rental / lease / manufacture agreements specific to the project</td></tr>
</table>

3. FORMPER-1

Contractor's Representative and Key Personnel Schedule

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

1	**Title of Position: Contractor's Representative**	
	Name of Candidate:	
	Duration of appointment:	
	Time Commitment for this position	
	Expected time schedule for this position	
2	**Title of Position: …….**	
	Name of Candidate:	
	Duration of appointment:	
	Time Commitment for this position	
	Expected time schedule for this position	
3	**Title of Position: …….**	
	Name of Candidate:	
	Duration of appointment:	
	Time Commitment for this position	
	Expected time schedule for this position	
4	**Title of Position: …….**	
	Name of Candidate:	
	Duration of appointment:	
	Time Commitment for this position	
	Expected time schedule for this position	

4. FORMPER-2

Resume and declaration – Contractor's Representative and Key Personnel

Name of Tenderer		
Position [As per Form Per1]		
Personal Information	Name:	Date of Birth:
	Address:	Email:
	Professional Qualifications	
	Academic Qualifications	
	Language proficiency *(Language and levels of speaking, reading and writing skills)*	
Details	Address of procuring entity	
	Telephone	Contact (Manager or Personnel officer)
	Fax	Email Address
	Job Title	Years with the Procuring Entity

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

Project	**Role**	**Duration of involvement**	**Relevant Experience**
[Main Project Details]	*[Roles and Responsibilities on the Project]*	*[Time in Role]*	*[Describe the experience relevant to this project]*

DECLARATION

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

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

Commitment	Details
Commitment to duration of contract:	
Time Commitment	

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

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

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

Signature……... Date: (Day, Month, Year) ……...

Countersignature of authorized representative of the Tenderer:

Signature……... Date: (Day, Month, Year) ……

TENDERERS QUALIFICATION WITHOUT PREQUALIFICATION

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

6.1 FORMELI – 1.1 TENDERER INFORMATION FORM

DATE:……

ITT NO. AND TITLE:……...

Tenderer's Name:……..
In case of Joint Venture, Name of each Member: ……
Tenderer's actual or intended country of registration: ……...
Tenderer's actual or intended year of Incorporation: …….
Tenderer's Legal address (In country of registration):
Tenderer's Authorized representative information: Name:…….. Address:…….. Telephone / Fax Numbers:…….. Email address:…….
1. Attached copies of original documents of: • Articles of Incorporation (or equivalent documents of constitution or Association) and or documents of registration of the legal entity named above in accordance ITT3.6 • In case of JV, letter of intent to form JV or agreement in accordance with ITT3.5 • In case of state owned enterprise or institution in accordance with ITT3.8, documents establishing 2. Included are the organizational chart, a list of Board of Directors and the beneficial ownership

6.2 FORMELI – 1.2 TENDERER JV INFORMATION FORM

(To be completed by each member of JV)

DATE:……

ITT NO. AND TITLE:……...

Tenderer's JV Name:……..
JV Member's Name: ……..….
JV Member's country of registration: ……...
JV Member's Year of constitution:…….
JV Member's legal address in the Country of Constitution: ……
Tenderer's Authorized representative information: Name:…….. Address:…….. Telephone / Fax Numbers:…….. Email address:…….
1. Attached copies of original documents of: • Articles of Incorporation (or equivalent documents of constitution or Association) and or documents of registration of the legal entity named above in accordance ITT43.6 • In case of state owned enterprise or institution, documents establishing legal and financial autonomy operation in accordance with commercial law and they are not under the supervision of the procuring entity in accordance with ITT3.8 2. Included are the organizational chart, a list of Board of Directors and the beneficial ownership

6.3 FORM CON - 2

TENDERER'S NAME……..

DATE:……

JV MEMBER'S NAME……

ITT NO. AND TITLE:……...

Non – Performance Contracts in accordance with Section III,Evaluation and Qualification Criteria			
☐ Contract non – performance did not occur since 1st January 2020 specified in Section III, Evaluation and Qualification Criteria, Sub Factor 2.1 ☐ Contract(s) not performed since 1st January 2020 specified in Section III, Evaluation and Qualification Criteria, requirement 2.1			
Year **(***Insert year)*	**Non – Performed portion of contract** **(***Insert amount and percentage)*	**Contract Identification** *(Indicate complete contract name/number and any other identification)* *Name of Procuring Entity* *Address of Procuring Entity* *Reasons for non-performance*	**Total Contract Amount (Current value,currency,exchange rate and Kenya Shilling equivalent)**
Pending Litigation, in accordance with Section III,Evaluation and Qualification Criteria			
☐ No pending litigation in accordance with Section III,Evaluation and Qualification Criteria, sub factor 2.3			
☐ Pending litigation in accordance with Section III,Evaluation and Qualification Criteria, sub factor 2.3 as indicated below			
Year of dispute	**Amount in dispute (currency)**	**Contract Identification**	**Total Contract Amount (currency), Kenya Shilling Equivalent (exchange rate)**
		Contract Identification: __ __ __ __ Name of Procuring Entity Address of Procuring Entity: Matter in dispute: __ __ __ __ __ __ Party who initiated the dispute: Status of dispute:_____	

		Contract Identification: Name of Procuring Entity: Address of Procuring Entity: Matter in dispute: Party who initiated the dispute: Status of dispute:	

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

☐ No Litigation history in accordance with Section III,Evaluation and Qualification Criteria, sub factor 2.4

☐ Litigation History in accordance with Section III,Evaluation and Qualification Criteria, sub factor 2.4 as indicated below

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

…….. …….

Signature and Stamp of Bidder (Date)

6.4 FORM FIN – 3.1

Financial situation and performance

TENDERER'S NAME……..

DATE……

JV MEMBER'S NAME……
ITT NO. AND TITLE……...

6.4.1 Financial data

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

Cash Flow from Operating Activities					

6.4.2 Sources of Finance

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

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

6.4.3 Financial Statements

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

a) reflect the financial situation of the Tenderer or in case of JV member, and not an affiliated entity (such as parent company or group member).
b) be independently audited or certified in accordance with local legislation.
c) be complete, including all notes to the financial statements.
d) correspond to accounting periods already completed and audited.

Attached are copies of financial statements for the years required above; and complying with the requirements

6.5 FORM FIN – 3.2
Average Annual Construction Turnover

Annual Turnover Data (Construction Only)			
Year *(Indicate year)*	**Amount and Currency** (insert amount and indicate currency)	**Exchange Rate**	**Kenya Shilling Equivalent**
Average Annual Construction Turnover			

6.6 FORM FIN – 3.3
Financial Resources

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

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

6.7 FORM FIN – 3.4
Current Contract Commitments / Works in Progress

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

6.8 FORM EXP – 4.1
General Construction Experience

TENDERER'S NAME…….

DATE……..……

JV MEMBER'S NAME……
ITT NO. AND TITLE……...

Starting Year	Ending Year	Contract Identification	Role of Tenderer
		Contract Name…… Brief Description of the works performed by the Tenderer …… …… Amount of Contract …… Name of Procuring Entity …… Address ……	
		Contract Name…… Brief Description of the works performed by the Tenderer	

		…… …… Amount of Contract …… Name of Procuring Entity …… Address ……	
		Contract Name…… Brief Description of the works performed by the Tenderer …… …… …… Amount of Contract …… Name of Procuring Entity …… Address ……	

FORM – 4.2(b)
Construction Experience in Key Activities

TENDERER'S NAME……..

DATE……

JV MEMBER'S NAME……

SUB CONTRACTOR'S NAME (AS PER ITT34)
ITT NO. AND TITLE……...

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

1. **KEY ACTIVITY ONE**:……..

Similar Contract No.	**Information**			
Contract Identification				
Award Date				
Completion Date				
Role in Contract	Prime Contractor	Member in JV	Management Contractor	Sub-Contractor
Total Contract Amount			Kenyan Shilling	
Quantity (Volume, number or rate of production as applicable) performed under the contract per year or part or part of the year.	Total quantity in contract (i)	Percentage participation (ii)	Actual quantity performed (i) x (ii)	
Year 1				

Year 2			
Year 3			
Year 4			
Procuring Entity's Name			
Address: Telephone / Fax Number: Email:			
Description of the key activities in accordance with sub factor 4.2(b) of section III			

2. **Activity Two……**
3. **Activity Three……**

OTHER FORMS

FORM OF TENDER

INSTRUCTIONS TO TENDERERS

i) The Tenderer must prepare this Form of Tender on stationery with its letterhead clearly showing the Tenderer's complete name and business address.

ii) All italicized text is to help Tenderer in preparing this form.

iii) Tenderer must complete and sign CERTIFICATE OF INDEPENDENT TENDER DETERMINATION and the SELF DECLARATION OF THE TENDERER attached to this Form of Tender.

iv) The Form of Tender shall include the following Forms duly completed and signed by the Tenderer.

- *Tenderer's Eligibility-Confidential Business Questionnaire.*
- *Certificate of Independent Tender Determination.*
- *Self-Declaration of the Tenderer.*

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

To:……..

(Insert Complete Name of Procuring Entity)

Dear Sirs,

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

……

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

The percentage or amount quoted above does not include provisional sums, and only allows not more than two foreign currencies.

2. We undertake, if our tender is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Engineer's notice to commence, and to complete the whole of the Works comprised in the Contract within the time stated in the Particular Conditions of Contract.

3. We agree to adhere by this tender until_____*[Insert date],* and it shall remain binding upon us and may be accepted at any time before that date.

4. Unless and until a formal Agreement is prepared and executed this tender together with your written acceptance thereof, shall constitute abinding Contract between us. We further understand that you are not bound to accept the lowest or any tender you may receive.

5. We, the undersigned, further declare that:

   i) *No reservations:* We have examined and have no reservations to the tender document, including Addenda issued in accordance with ITT 8;

   ii) *Eligibility:* We meet the eligibility requirements and have no conflict of interest in accordance with ITT 3 and 4;

   iii) *Tender-Securing Declaration:* We have not been suspended nor declared ineligible by the Procuring Entity based on execution of a Tender-Securing or Proposal-Securing Declaration in the Procuring Entity's Country in accordance with ITT 19.8;

(iv) Conformity: We offer to execute in conformity with the tendering documents and in accordance with the implementation and completion specified in the construction schedule, the following Works: *[insert a brief description of the Works];*

(v) Tender Price: The total price of our Tender, excluding any discounts offered in item 1 above is: *[Insert one of the options below as appropriate]*

(vi) **Option1,** incase of one lot: Total price is: [*insert the total price of the Tender in words and figures, indicating the various amounts and the respective currencies*]; Or

Option2, in case of multiple lots:

a) *Total price of each lot* [*insert the total price of each lot in words and figures, indicating the various amounts and the respective currencies*]; and

b) *Total price of all lots* (sum of all lots) [*insert the total price of all lots in words and figures, indicating the various amounts and the respective currencies*];

vii) Discounts: The discounts offered and the methodology for their application are:

viii) The discounts offered are: [*Specify in detail each discount offered.*]

ix) The exact method of calculations to determine the net price after application of discounts is shown below: [*Specify in detail the method that shall be used to apply the discounts*];

x) *Tender Validity Period:* Our Tender shall be valid for the period specified in TDS 18.1 (as amended, if applicable) from the date fixed for the Tender submission deadline specified in TDS 22.1(as amended, if applicable), and it shall remain binding upon us and may be accepted at any time before the expiration of that period;

xi) *Performance Security:* If our Tender is accepted, we commit to obtain a Performance Security in accordance with the Tendering document;

xii) *One Tender Per Tender:* We are not submitting any other Tender(s) as an individual Tender, and we are not participating in any other Tender(s) as a Joint Venture member or as a subcontractor, and meet the requirements of ITT3.4, other than alternative Tenders submitted in accordance with ITT 13.3;

xiii) *Suspension and Debarment:* We, along with any of our subcontractors, suppliers, Engineer, manufacturers, or service providers for any part of the contract, are not subject to, and not controlled by any entity or individual that is subject to, a temporary suspension or a debarment imposed by the Public Procurement Regulatory Authority or any other entity of the Government of Kenya, or any international organization.

xiv) *State-owned enterprise or institution:* [*select the appropriate option and delete the other*] [*We are not a state- owned enterprise or institution*]/[*We are a state-owned enterprise or institution but meet the requirements of ITT 3.7*];

xv) *Commissions, gratuities, fees:* We have paid, or will pay the following commissions, gratuities, or fees with respect to the tender process or execution of the Contract: *[insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity]*

Name of Recipient	Address	Reason	Amount

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

xvi) *Binding Contract:* We understand that this Tender, together with your written acceptance thereof included in your Letter of Acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed;

xvii) *Not Bound to Accept:* We understand that you are not bound to accept the lowest evaluated cost Tender, the Most Advantageous Tender or any other. Tender that you may receive;

xviii) *Fraud and Corruption:* We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf engages in any type of Fraud and Corruption;

xix) *Collusive practices:* We hereby certify and confirm that the tender is genuine, non-collusive and made with the intention of accepting the contract if awarded. To this effect we have signed the "Certificate of Independent Tender Determination" attached below.

xx) We undertake to adhere by the Code of Ethics for Persons Participating in Public Procurement and Asset Disposal, copy available from__(*specify website*) during the procurement process and the execution of any resulting contract.

xxi) We, the Tenderer, have completed fully and signed the following Forms as part of our Tender:

a) Tenderer's Eligibility; Confidential Business Questionnaire – to establish we are not in any conflict to interest.

b) Certificate of Independent Tender Determination – to declare that we completed the tender without colluding with other tenderers.

c) Self-Declaration of the Tenderer– to declare that we will, if awarded a contract, not engage in any form of fraud and corruption.

d) Declaration and commitment to the Code of Ethics for Persons Participating in Public Procurement and Asset Disposal.

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

Name of the Tenderer..... (Insert complete name of person signing the Tender)

Name of the person duly authorized to sign the Tender on behalf of the Tenderer:

…….

**[*insert complete name of person duly authorized to sign the Tender*]

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

……

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

…….

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

Date signed_____day of_____,_____

Notes

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

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

APPENDIX TO FORM OF BID

(This appendix forms part of the bid)

CONDITIONS OF CONTRACT	CLAUSE	AMOUNT
Law of contract		Laws of Kenya
Language and form of communication for the contract		English
Bid Security (Bank Guarantee or reputable insurance company approved by PPRA Only)		**Kshs 2% of contract sum**
Amount of Performance Security (Unconditional Bank Guarantee)	10.1	5% of BID Sum in the form of Unconditional Bank Guarantee or cash retentions (Insurance bonds shall not be accepted)
Program to be submitted	14.1	Not later than 14 (Fourteen) days after issuance of Order to Commence
Cash flow estimate to be submitted	14.3	Not later than 14 (Fourteen) days after issuance of Order to Commence
Minimum amount of Third Party Insurance	23.2	**0.3%** of the contract value
Period for commencement, from Engineer's order to commence	41.1	14 days
Time for completion	43.1	3 (Three) months
Amount of liquidated damages	47.1	KShs. 5,000.00 per day
Limit of liquidated damages	47.1	10% of Contract Sum
Defects Liability period	49.1	2 (Two) months
Percentage of Retention	60.3	10% of Interim Payment Certificate
Limit of Retention Money	60. 3	5% of Contract Sum
Minimum amount of interim payment certificates	60.2	30% of contracted sum
Time within which payment to be made after Interim Payment Certificate signed by Engineer	60.10	45 days
Time within which payment to be made after Final Payment Certificate signed by Engineer	60.10	45 days
Amount of Advance	60.12	N/A

Advance Payment Security	60.12	Full amount of the advance in the form of Unconditional Bank Guarantee (Insurance bonds shall not be accepted)
Appointer of Arbitrator/Adjudicator	67.3	The Chartered Institute of Arbitrators (Kenya)
Notice to Employer and Engineer	68.2	The Employer's address is: The County Secretary, County Government of BOMET, P.O. Box 19-20400 BOMET The Engineer's address is: The Chief Officer, Water & Natural resource P.O. Box 19-20400 BOMET

CONDITIONS OF CONTRACT	AMOUNT/DESCRIPTION	CONDITIONS OF CONTRACT CLAUSE
Approximate Weightings for Price Adjustment Formula	See Table A below	70.3
Weightings and Indices	Where necessary, in the table B below, bidders shall (a) indicate their amounts of local currency payment, (b) indicate their proposed source and base values of indices for the different foreign currency elements of cost, (c) derive their proposed weightings for local and foreign currency payment as indicated in table B below, and (d) list the exchange rates used in the currency conversion	70.3 , 70.4 and 70.5

Table A Approximate Weightings for Price Adjustment

Description of Index	*% Range of Weighting*
Fixed ("A")	8
Labour	8 – 12
Fuels and Lubricants	12 – 22
Equipment and Spares	35 – 40
Cement	8 – 12
Reinforcement and Steel products	1 – 3
Explosives	1 – 5
Bitumen and Bituminous products	15 – 25
Total	100

NOTE: [a] Denotes that this should be used as guidance to bidders and for purpose of checking their submissions, the Employer has estimated and provided a range of acceptable weightings for related major construction inputs in accordance with the potential range of construction methodologies, based on estimated cost in a common currency.

Table B: Bidder's proposed weighting

Index Code	*Index Description*	*Source of Index*	*Base value and date*	*Bidder's proposed weighting*
	Non adjustable	Civil Engineering Cost Indices from Kenya National Bureau of Statistics. For equipment & spares, the official indices from source country shall apply	The Indices prevailing at 28days before tender submission deadline shall apply	A:_____0.08___ b: _____ c: _____ d: _____ e: _____
			Total	1.00

Signature of Bidder……..……Date ……

(*Failure to sign this appendix will imply the bidder doesn't accept the above conditions and hence disqualified*)

TENDERER'S ELIGIBILITY-CONFIDENTIAL BUSINESS QUESTIONNAIRE

Instruction to Tenderer

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

Tenderer's details

	ITEM	**DESCRIPTION**
1	Name of Procuring Entity	
2	Reference Number of the Tender	
3	Date and Time of Opening of the Tender	
4	Name of Tenderer	
5	Full address and Contact Details of the Tenderer	1) Country 2) City 3) Location 4) Building 5) Floor 6) Postal Address 7) Name and Email of contact Person
6	Current Trade License Registration Number and Expiring Date	
7	Name, Country and Full address *(postal and physical addresses, email and telephone number)* of Registering Body / Agency	
8	Description of Nature of Business	
9	Maximum value of business which Tenderer handles	

10	State if Tenders Company is listed in stock exchange, *(give name and full address (postal and physical addresseses,email and telephone number)* of stock exchange	

General and Specific Details

Sole Proprietor, provide the following details.

Name in full_____Age_____

Nationality_____Country of Origin_____

Citizenship _____

Partnership, provide the following details.

	Name of Partners	**Nationality**	**Citizenship**	**% shares owned**
1				
2				
3				
4				

Registered Company, provide the following details.

i) Private or public Company _____

ii) State the nominal and issued capital of the Company

Nominal Kenya Shillings (Equivalent).....

Issued Kenya Shillings (Equivalent).....

iii) Give details of Directors as follows.

	Name of Partners	**Nationality**	**Citizenship**	**% shares owned**
1				
2				
3				

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

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

If yes, provide details as follows.

	Name of Person	Designation in the Procuring Entity	Interest or relationship with Tenderer

Conflict of Interest disclosure

	Type of Conflict	**Disclosure YES or NO**	**If YES, provide details of relationship with Tenderer**
1	Tenderer is directly or indirectly controls, is controlled by or is under common control with another contractor		
2	Tenderer receives or has received any direct or indirect subsidy from another tenderer		
3	Tenderer receives or has received any direct or indirect subsidy from another tenderer		
4	Tender has a relationship with another tenderer, directly or through common third parties, that puts it in a position to influence the tender of another tenderer, or influence the decisions of the Procuring Entity regarding this tendering process.		
5	Any of the Tenderer's affiliates participated as a consultant in the preparation of the design or technical specifications of the works that are the subject of the tender.		

6	Tenderer would be providing goods, works, non-consulting services or consulting services during implementation of the contract specified in this Tender Document.		
7	Tenderer has a close business or family relationship with a professional staff of the Procuring Entity who are directly or indirectly involved in the preparation of the Tender document or specifications of the Contract, and/or the Tender evaluation process of such contract.		
8	Tenderer has a close business or family relationship with a professional staff of the Procuring Entity who would be involved in the implementation or supervision of the such Contract.		
9	Has the conflict stemming from such relationship stated in item 7 and 8 above been resolved in a manner acceptable to the Procuring Entity throughout the tendering process and execution of the Contract		

Certification

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

Full Name_____Title or Designation……

_____ _____

(Signature) *(Date)*

A. CERTIFICATE OF INDEPENDENT TENDER DETERMINATION

I, the undersigned, in submitting the accompanying Letter of Tender to the……[Name of Procuring Entity] for: ……[Name and number of tender] in response to the request for tenders made by: ….....[Name of Tenderer] do hereby make the following statements that I certify to be true and complete in every respect:

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

1. I have read and I understand the contents of this Certificate;
2. I understand that the Tender will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am the authorized representative of the Tenderer with authority to sign this Certificate, and to submit the Tender on behalf of the Tenderer;
4. For the purposes of this Certificate and the Tender, I understand that the word "competitor" shall include any individual or organization, other than the Tenderer, whether or not affiliated with the Tenderer, who:
    a) has been requested to submit a Tender in response to this request for tenders;
    b) could potentially submit a tender in response to this request for tenders, based on their qualifications, abilities or experience;
5. The Tenderer discloses that [check one of the following, as applicable]:
    a) The Tenderer has arrived at the Tender independently from, and without consultation, communication, agreement or arrangement with, any competitor;
    b) The Tenderer has entered into consultations, communications, agreements or arrangements with one or more competitors regarding this request for tenders, and

c) The Tenderer discloses, in the attached document(s), complete details thereof, including the names of the competitors and the nature of, and reasons for, such consultations, communications, agreements or arrangements;

6. In particular, without limiting the generality of paragraphs (5) (a) or (5) (b) above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
    a. prices;
    b. methods, factors or formulas used to calculate prices;
    c. the intention or decision to submit, or not to submit, a tender; or
    d. the submission of a tender which does not meet the specifications of the request for Tenders; except as specifically disclosed pursuant to paragraph (5) (b) above;

7. In addition, there has been no consultation, communication, agreement or arrangement with any competitor regarding the quality, quantity, specifications or delivery particulars of the works or services to which this request for tenders relates, except as specifically authorized by the procuring authority or as specifically disclosed pursuant to paragraph (5) (b) above;

8. The terms of the Tender have not been, and will not be, knowingly disclosed by the Tenderer, directly or indirectly, to any competitor, prior to the date and time of the official tender opening, or of the awarding of the Contract, whichever comes first, unless otherwise required by law or as specifically disclosed pursuant to paragraph (5) (b) above.

Name……Title……..Date……

SELF-DECLARATION FORMS

FORM SD1

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

I, ……., of Post Office Box.....being a resident of **(Input your ward)** …….. in the Republic of.....do hereby make a statement as follows: -

1. THAT I am the Company Secretary/Chief Executive/Managing Director/Principal Officer/Director of..... *(insert name of the Company)* who is a Bidder in respect of Tender No.....for ……. *(insert tender title/description)* for..... *(insert name of the Procuring entity)* and duly authorized and competent to make this statement.

2. THAT the aforesaid Bidder, its Directors and subcontractors have not been debarred from participating in procurement proceeding under Part IV of the Act.

3. THAT what is deponed to herein above is true to the best of my knowledge, information and belief.

…… …… ……
(Title) (Signature) (Date)

Bidder Official Stamp

FORM SD2

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

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

1. THAT I am the Chief Executive/Managing Director/Principal Officer/Director of ….....*(insert name of the Company)* who is a Bidder in respect of Tender No…….. for.....*(insert tender title/description)* for.....*(insert name of the Procuring entity)* and duly authorized and competent to make this statement.

2. THAT the aforesaid Bidder, its servants and/or agents /subcontractors will not engage in any corrupt or fraudulent practice and has not been requested to pay any inducement to any member of the Board, Management, Staff and/or employees and/or agents of……. *(insert name of the Procuring entity)* which is the procuring entity.

3. THAT the aforesaid Bidder, its servants and/or agents /subcontractors have not offered any inducement to any member of the Board, Management, Staff and/or employees and/or agents of…..... *(name of the procuring entity)*

4. THAT the aforesaid Bidder will not engage/has not engaged in any corrosive practice with other bidders participating in the subject tender

5. THAT what is deponed to herein above is true to the best of my knowledge, information and belief.

……(Title) (Signature) (Date)

Bidder's Official Stamp

DECLARATION AND COMMITMENT TO THE CODE OF ETHICS

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

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

Name of Authorized signatory.....

Sign.....
.

Position.....
.

Office address..... Telephone.....

E-mail.....

Name of the Firm/Company.....

Date.....

(Company Seal/Rubber Stamp
where applicable) Witness

Name.....

Sign.....

Date.....

APPENDIX 1-FRAUD AND CORRUPTION

(Appendix 1 shall not be modified)

1.0 Purpose

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

2.0 Requirements

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

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

1) a person to whom this Act applies shall not be involved in any corrupt, coercive, obstructive, collusive or fraudulent practice; or conflicts of interest in any procurement or asset disposal proceeding;

2) A person referred to under subsection (1) who contravenes the provisions of that sub-section commits an offence;

3) Without limiting the generality of the subsection (1) and (2), the person shall be—
   a) disqualified from entering into a contract for a procurement or asset disposal proceeding; or
   b) if a contract has already been entered into with the person, the contract shall be voidable;

4) The voiding of a contract by the procuring entity under subsection (7) does not limit any legal remedy the procuring entity may have;

5) An employee or agent of the procuring entity or a member of the Board or committee of the procuring entity who has a conflict of interest with respect to a

procurement—

a) shall not take part in the procurement proceedings;
b) shall not, after a procurement contract has been entered into, take part in any decision relating to the procurement or contract; and
c) shall not be a subcontractor for the bidder to whom was awarded contract, or a member of the group of bidders to whom the contract was awarded, but the subcontractor appointed shall meet all the requirements of this Act.

6) An employee, agent or member described in subsection (1) who refrains from doing anything prohibited under that subsection, but for that subsection, would have been within his or her duties shall disclose the conflict of interest to the procuring entity;

7) If a person contravenes subsection (1) with respect to a conflict of interest described in subsection (5) (a) and the contract is awarded to the person or his relative or to another person in whom one of them had a direct or indirect pecuniary interest, the contract shall be terminated and all costs incurred by the public entity shall be made good by the awarding officer. Etc.

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

a) Defines broadly, for the purposes of the above provisions, the terms set forth below as follows:

i) "corrupt practice" is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;
ii) "fraudulent practice" is any act or omission, including misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain financial or other benefit or to avoid an obligation;
iii) "collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;
iv) "coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
v) "obstructive practice" is:

- deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede investigation by Public Procurement Regulatory Authority (PPRA) or any other appropriate authority appointed by Government of Kenya into allegations of a corrupt, fraudulent, coercive, or collusive practice; and/or threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or

- acts intended to materially impede the exercise of the PPRA's or the

appointed authority's inspection and audit rights provided for under paragraph 2.3 e. below.

b) Defines more specifically, in accordance with the above procurement Act provisions set forth for fraudulent and collusive practices as follows:

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

c) Rejects a proposal for award[1] of a contract if PPRA determines that the firm or individual recommended for award, any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/ or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;

d) Pursuant to the Kenya's above stated Acts and Regulations, may sanction or recommend to appropriate authority(ies) for sanctioning and debarment of a firm or individual, as applicable under the Acts and Regulations;

e) Requires that a clause be included in Tender documents and Request for Proposal documents requiring (i) Tenderers (applicants/proposers), Consultants, Contractors, and Suppliers, and their Sub-contractors, Sub- consultants, Service providers, Suppliers, Agents personnel, permit the PPRA or any other appropriate authority appointed by Government of Kenya to inspect[2] all accounts, records and other documents relating to the procurement process, selection and/or contract execution, and to have them audited by auditors appointed by the PPRA or any other appropriate authority appointed by Government of Kenya; and

f) Pursuant to Section 62 of the above Act, requires Applicants/Tenderers to submit along with their Applications/Tenders/Proposals a "Self-Declaration Form" as included in the procurement document declaring that they and all parties involved in the procurement process and contract execution have not engaged/will not engage in any corrupt or fraudulent practices.

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

[2] Inspections in this context usually are investigative (i.e., forensic) in nature. They involve fact-finding activities undertaken by the Investigating Authority or persons appointed by the Procuring Entity to address specific matters related to

investigations/audits, such as evaluating the veracity of an allegation of possible Fraud and Corruption, through the appropriate mechanisms. Such activity includes but is not limited to: accessing and examining a firm's or individual's financial records and information, and making copies thereof as relevant; accessing and examining any other documents, data and information (whether in hard copy or electronic format) deemed relevant for the investigation/audit, and making copies thereof as relevant; interviewing staff and other relevant individuals; performing physical inspections and site visits; and obtaining third party verification of information

FORM OF TENDER SECURITY - DEMAND BANK GUARANTEE

Beneficiary:_____

Request for Tenders No:_____

Date:_____

TENDER GUARANTEE No.:_____

Guarantor: _____

1. We have been informed that_____(herein after called "the Applicant") has submitted or will submit to the Beneficiary its Tender (herein after called "the Tender") for the execution of _____under Request for Tenders No._____("the ITT").

2. Furthermore, we understand that, according to the Beneficiary's conditions, Tenders must be supported by a Tender guarantee.

3. At the request of the Applicant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of_____(_____) upon receipt by us of the Beneficiary's complying demand, supported by the Beneficiary's statement, whether in the demand itself or a separate signed document accompanying or identifying the demand, stating that either the Applicant:

   a) Has withdrawn its Tender during the period of Tender validity set forth in the Applicant's Letter of Tender ("the Tender Validity Period"), or any extension there to provided by the Applicant; or

   b) Having been notified of the acceptance of its Tender by the Beneficiary during the Tender Validity Period or any extension thereto provided by the Applicant, (i) has failed to execute the contract agreement, or (ii) has failed to furnish the Performance.

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

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

_____

[signature(s)]

3.0 FORM OF TENDER SECURITY (TENDER BOND)

[The Surety shall fill in this Tender Bond Form in accordance with the instructions indicated.] BOND NO.____

1. BY THIS BOND *[name of tenderer]* as Principal (herein after called "the Principal"), and *[name, legal title, and address of surety],* **authorized to transact business in** *[name of country of Purchaser],* as Surety (herein after called "the Surety"), are held and firmly bound unto *[name of Purchaser]* as Obligee (herein after called "the Purchaser") in the sum of *[amount of Bond]*[5] *[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.

2. WHERE AS the Principal has submitted or will submit a written Tender to the Purchaser dated the……..Day of....., , for the supply of *[name of Contract]* (herein after called the "Tender").

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

   a) Has withdrawn its Tender during the period of Tender validity set forth in the Principal's Letter of Tender ("the Tender Validity Period"), or any extension thereto provided by the Principal; or

   b) having been notified of the acceptance of its Tender by the Purchaser during the Tender Validity Period or any extension thereto provided by the Principal; (i) failed to execute the Contract agreement; or (ii) has failed to furnish the Performance Security, in accordance with the Instructions to tenderers ("ITT") of the Purchaser's Tendering document.

   Then the Surety undertakes to immediately pay to the Purchaser up to the above amount upon receipt of the Purchaser's first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser shall state

that the demand arises from the occurrence of any of the above events, specifying which event(s) has occurred.

4. The Surety hereby agrees that its obligation will remain in full force and effect upto and including the date 30 days after the date of expiration of the Tender Validity Period set forth in the Principal's Letter of Tender or any extension thereto provided by the Principal.

5. IN TESTIMONY WHEREOF, the Principal and the Surety have caused these presents to be executed in their respective names this day of

PRINCIPAL……...SURETY……

Corporate Seal (where appropriate)

Signature…….Signature……

(Printed Name and Title) *(Printed Name and Title)*

[5]*The amount of the Bond shall be denominated in the currency Kenya shillings or the equivalent amount in a freely convertible currency.*

4.0 FORM OF TENDER-SECURING DECLARATION

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

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

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

To.....*[insert complete name of Purchaser]*

I/We, the undersigned, declare that:

1. I/We understand that, according to your conditions, bids must be supported by a Tender-Securing Declaration.

2. I/We accept that I/we will automatically be suspended from being eligible for tendering in any contract with the Purchaser for the period of time of [insert number of months or years] starting on [insert date], if we are in breach of our obligation(s) under the bid conditions, because we–(a) have withdrawn our tender during the period of tender validity specified by us in the Tendering Data Sheet; or (b) having been notified of the acceptance of our Bid by the Purchaser during the period of bid validity, (i) fail or refuse to execute the Contract, if required, or (ii) fail or refuse to furnish the Performance Security, in accordance with the instructions to tenders.

3. I/We understand that this Tender Securing Declaration shall expire if we are not the successful Tenderer(s), upon the earlier of:
   a) our receipt of a copy of your notification of the name of the successful Tenderer; or
   b) thirty days after the expiration of our Tender.

4. I/We understand that if I am/we are/in a Joint Venture, the Tender Securing Declaration must be in the name of the Joint Venture that submits the bid, and the Joint Venture has not been legally constituted at the time of bidding, the Tender Securing Declaration shall be in the names of all future partners as named in the letter of intent.

Signed.....Capacity /Title (Director, Partner or Sole proprietor)

Name:……

Duly authorized to sign the bid for and on behalf of:

……(Insert Complete Name of Tenderer)

Dated on This Day ……..of.....(Insert date of signing and seal or stamp)

5.0 APPENDIX TO TENDER

Schedule of Currency requirements

Summary of currencies of the Tender for ……

(Insert name of section of the works)

Name of Currency	Amounts Payable
Local Currency……..	
Foreign Currency # 1:……	
Foreign Currency # 1:……	
Foreign Currency # 1:……	
Provisional sums expressed in local currency ……	(To be entered by the procuring entity)

6.0 TECHNICAL PROPOSAL

The tender shall complete these sections as a Technical proposal to indicate how he/she intends to proceed with the works. The Procuring entity will review these Proposals and determine the extent to which they meet the required standards to complete the works.

6.1 Site Organization

[insert Site Organization information]

6.2 Method Statement

[insert Method Statement]

6.3 Mobilization Schedule

[insert Mobilization Schedule]

6.4 Construction Schedule

[insert Construction Schedule]

PART 2: WORK REQUIREMENTS

SECTION VI: BILLS OF QUANTITIES

PREAMBLE TO BILL OF QUANTITIES

1. The Bills of Quantities forms part of the Contract Documents and are to be read in conjunction with the Instructions to Bidders, Conditions of Contract Parts I and II, Specifications and Drawings.

2. The brief description of the items in the Bills of Quantities is purely for the purpose of identification, and in no way modifies or supersedes the detailed descriptions given in the Conditions of Contract and Specifications for the full direction and description of work and materials.

3. The Quantities set forth in the Bills of Quantities are estimated, representing substantially the work to be carried out, and are given to provide a common basis for bidding and comparing of Bids. There is no guarantee to the Contractor that he will be required to carry out all the quantities of work indicated under any one particular item or group of items in the Bill of Quantities. The basis of payment shall be the Contractor's rates and the quantities of work actually done in fulfilment of his obligation under the Contract.

4. The prices and rates inserted in the Bills of Quantities will be used for valuing the work executed, and the Engineer will only measure the whole of the works executed in accordance with this Contract.

5. A price or rate shall be entered in ink against every item in the Bills of Quantities with the exception of items that already have Provisional sums affixed thereto. The bidders are reminded that no “nil” or “included” rates or “lump-sum” discounts will be accepted. The rates for various items should include discounts if any. Bidders who fail to comply will be disqualified.

6. Provisional sums (including Day works) in the Bills of Quantities shall be expended in whole or in part at the discretion of the Engineer in accordance with Sub-Clause 52.4 and Clause 58 of Part I of the Conditions of Contract.

7. The price and rates entered in the Bills of Quantities shall, except insofar as it is otherwise provided under the Contract, include all Constructional plant to be used, labour, insurance, supervision, compliance testing, materials, erection, maintenance of works, overheads and profits, taxes and duties (excluding VAT) together with all general risks, liabilities and obligations set out or implied in the Contract, transport, electricity and telephones, water, use and replenishment of all consumables, including those required under the contract by the Engineer and his staff.

8. Errors in the pricing of the Bills of Quantities will be corrected in accordance with Clause 29 of instructions to bidders.

9. The whole cost of complying with the provisions of the Contract shall be included in the Items provided in the priced Bill of Quantities, and where no Items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Work.

10. General directions and descriptions of work and materials are not necessarily repeated or summarized in the Bill of Quantities. References to the relevant sections of the Contract documentation shall be made before entering prices against each item in the priced Bill of Quantities.

11. "Authorised" "Directed" or "Approved" shall mean the authority, direction or approval of the Engineer.

12. Unless otherwise stated, all measurements shall be net taken on the finished work carried out in accordance with the details shown on the drawings or instructed, with no allowance for extra cuts or fills, waste or additional thickness necessary to obtain the minimum finished thickness or dimensions required in this contract. Any work performed in excess of the requirements of the plans and specifications will not be paid for, unless ordered in writing by the Engineer.

13. Units of Measurement and abbreviations used herein shall have the following meanings:

Unit	Abbreviation	Unit	Abbreviation
cubic meter	m^3 *or* cu m	millimeter	mm
hectare	ha	month	mth
hour	hr	number	No.
kilogram	kg	provisional sum	P.S.
kilometre	km	square meter	m^2 *or* sq m
lump sum	L.S.	square millimeter	mm^2 *or* sq mm
meter	m	vehicle	veh
metric ton (1,000 kg)	t	week	wk
	mths		

BILL OF QUANTITIES					
PROTECTION, SOLARATION, AND DISTRIBUTION OF ARAP KALYA WATER SPRING IN CHESOEN WARD					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
No.				Kshs	Kshs
1	**BILL NO.1 - PRELIMINARIES**				
1.1	Clear site and remove overgrown vegetation, accumulated silt and fallen branches to expose the spring eye	SM	40		
1.2	Construction sign post: Fabricate a metallic sign post with a display area of 2m high x 1.5m wide and a support frame of 1.5m above ground level clearance and concreted (grade 20) on the ground 300mm below the ground level as directed by the project manager.	No.	2		
1.3	Allow provisional sum of Ksh 500,000 for the Resindent Engineer and staff supervision	Item	1		
1.4	Allow a prime Cost for charges in compliance with Enviromental and Social Management plan (ESMP), cost to include Monitoring.	Item	1		
1.5	Allow a prime Cost for charges in compliance with WRA regulation cost to include an abstraction permit	Item	1		
1.6	Allow a prime Cost for utilization during Stakeholder Engagement to include but not limited to public partitcipation, PMC meetings, Monitoring & Evaluation and grievance redress	Item	1		
1.7	All profits and overheads on items 1.3, 1.4,1.5,1.6,1.7& 1.8	%			
	TOTAL FOR PRELIMINARIES CARRIED TO SUMMARY				

BILL OF QUANTITIES					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
No.				Kshs	Kshs
2	**BILL NO.2 - SPRING EYE PROTECTION**				
	Provide materials and construct a masonry proection wall complete with abstraction chamber, sump chamber as per the drawings provided (All concrete should be added an approved water proofing admixture at the ratio 1:2 (1 bag of cement to 2kg admix)				
2.1	Excavate to remove top soil n.e 250mm deep	SM	30		
2.2	Excavate for footing not exceeding 1.50m deep.	CM	25		
2.3	Back filling selected excavated materials around foundation as directed by the engineer	CM	3		
2.4	250mm thick filling: deposit, spread, level and compact: to receive blinding	SM	10		
2.5	50mm murram blinding to surface of hardcore.	SM	10		
2.6	Polythene sheet damp proofing;500gauge	SM	10		
2.7	Supply materials and construct 150mm concrete 1:2:4 (class 25/20) R.C slab	CM	6		
	Medium quarry dressed natural stone walling in cement and sand (1:3)mortar:20 gauge x 25mm wide hoop iron reinforcement and column-wall ties in every alternate course:				
2.8	200mm walling	SM	75		

2.9	Provide and place.by handpacking approved hard core to fill the spring box chamber as directed by the supervising engineer.	Tons	6		
2.10	Provide and install lockable 600mmX600mm steel cover and casement painted for inspection as directed by the engineer	No	1		
	SUB-TOTAL FOR PROTECTION OF SPRING EYE CARRIED TO SUMMARY				
	BILL OF QUANTITIES				
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
No.				Kshs	Kshs
3	**BILL NO.3 -SUMP CONSTRUCTION AND AN OFFTAKE CHAMBER**				
	Construct a 25M³ masonry sump as per the drawings provided (All concrete should be added an approved water proofing admixture at the ratio 1:2 (1 bag of cement to 2kg admix)				
3.1.0	**SITE CLEARANCE**				
3.1.1	Clear the site of all brushes,grass and shrubs and dispose them as directed.	m^2	19		
3.2.0	**EARTHWORKS**				
	Excavation				
	Excavation shall include for strutting, shutterimg, stabilising excavated surfaces and keeping excavations free of water by bailing out, pumping or other means and preparation of the excavated surfaces (Excluding disposal of excavated material)				
3.2.1	Topsoil; maximum depth n.e 0.25 m	m^3	26		
		114			
3.2.2	Topsoil; maximum depth n.e 0.25	m^3	26		

	m - 0.5 m				
3.2.3	In rock material maximum depth 0.5 - 2.5 m	m^3	26		
	Filling				
	Filling to completed structures including compaction as specified				
3.2.4	Selected excavated material other than topsoil, rock, or artificial hard material	m^3	7		
3.2.5	Rock material (Hard Core) distance of haul n.e. 1 km	m^3	8		
	SUB-TOTAL CARRIED OVER TO THE NEXT PAGE				
	SUB-TOTAL BROUGHT FORWARD FROM PREVIOUS PAGE				
3.4.0	**IN SITU CONCRETE AND BLOCK MASONRY WORKS**				
	Provide materials and mix concrete to the specified class; cement to BS 12 and place as directed by the Supervising Engineer				
	-				
3.4.1	Blinding Concrete, 50 mm thick Class 15/40 to base of the Tank and Scour valve Chamber	m^2	26		
3.4.2	Reinforced Conrete Class 25/20 to the Base Slab	m^3	4		

3.4.3	Ditto for Roof Slab	m^3	4		
3.4.4	Ditto for Base of washout Chamber	m^3	1		
	WALLING				
	Masonry Block Work for Walls as shown in drawings				
	Rates for Masonry blocks to include for Supply, Dressing, and Curing				
3.4.5	225 mm thick	m^2	36		
	-				
3.4.6	Ditto for 2 No. (1000 x 1000 x 2000 mm) Lockable Valve Chambers. The Chambers must have metal tangs for acces	m^2	6		
	SUB-TOTAL CARRIED OVER TO THE NEXT PAGE				
	SUB-TOTAL BROUGHT FORWARD FROM PREVIOUS PAGE				
	-				
3.5.0	**CONCRETE ANCILLARIES**				
	Dimensions as per details on Drawings of specific structural				
	Formwork : Rough finish; Plane vertical				
3.5.1	External sides of foundation slab width > 0.4 < 1.22	m^2	10		

3.5.2	External side of roof slab internal sides of parapet walls width > 0.2 < 0.4m	m^2	2		
3.5.3	Sides of columns; width > 0.4 < 1.22 mm	m^2	4		
3.5.4	Internal sites of the roof slab	m^2	26		
	-				
	Reinforcement; plain round steel bars to BS4449				
	Rateto include for cutting, bending, supporting, tying and securing reinforcement				
	-				
3.5.5	Nominal size 6 mm	Kgs.	0		
3.5.6	Nominal size 8 mm	Kgs.	174		
	Reinforcement; deformed high yield steel bars to BS 4449				
	Rate to include for cutting, bending, supporting tying and securing reinforcement				
	-				
3.5.7	Nominal size 10 mm	Kgs.	88		
	SUB-TOTAL CARRIED OVER TO THE NEXT PAGE				
	SUB-TOTAL BROUGHT FORWARD FROM PREVIOUS PAGE				
	MISCELLANEOUS WORKS (Rates to include for provision and laying)				

3.5.8	1:3 cement sand mortar screed placed on reservoir floor and walls as shown on drawings to facilitate reservoir drainage	m^2	92		
3.5.9	Supply and place water proof cement	Kgs.	30		
3.5.10	Supply and place lime in plaster	Kgs.	35		
3.5.11	Supply and place bondex joint as specified in the drawing	Kgs.	15		
	-				
3.6.0	**PIPEWORK , FITTINGS AND VALVES**				
	Supply, lay and joint pipe fittings & valves. Include for excavation & backfilling of pipe trenches. Steel Pipe Fittings to PN 10.				
	Rates to include washers, bolts, nuts, rubber caskets and other accessories				
3.6.1	**INLET PIPE WORK AND BENDS**				
	BENDS				
	-				
3.6.2	90^0, 150 mm dia threaded Long Radius Bend in trenches depth n.e. 2500 mm	No.	4		
	SUB-TOTAL CARRIED OVER TO THE NEXT PAGE				

	SUB-TOTAL BROUGHT FORWARD FROM PREVIOUS PAGE				
	STRAIGHT SPECIALS AND VALVES				
	-				
3.6.3	150 mm dia Flanged GI pipes	m	24		
3.6.4	80 mm dia, 0.5 m Long, Threaded GI Spigot (for inlet pipe)	No.	1		
3.6.5	**SCOUR & OVERFLOW PIPEWORK**				
	SCOUR				
	STRAIGHT SPECIALS				
3.6.5.1	80 mm dia threaded GI Pipe. Rates to include for provision of Sockets.	m	12		
3.6.5.2	80 mm dia, 2.0 m Long threaded GI Pipe	No.	1		
3.6.5.3	80 mm dia, GI Long nipple	No.	2		
3.6.5.4	80 mm dia, GI Union	No.	1		
	VALVE				
	-				
3.6.6	80 mm dia Gate Valve (Pegler) To BS5163, hand operated with hand wheel	No.	1		
	OVER FLOW				
	STRAIGHT SPECIALS				
3.6.7	80mm dia, 0.5m Long GI Spigot	No.	1		
3.6.8	80 x 80 mm dia GI Tee	No.	1		

	SUB-TOTAL CARRIED OVER TO THE NEXT PAGE				
	SUB-TOTAL BROUGHT FORWARD FROM PREVIOUS PAGE				
3.7.0	**PIPEWORK - MANHOLES AND PIPEWORK ANCILLARIES**				
	-				
3.7.1	Rectangular section ditches; line; cross-sec area not exceeding 0.25m^2 to take Washout Drainage pipe	m	5		
	Rate to include supply and fixing and inclusive of foundations where applicable				
	-				
3.7.2	Galvanised mild steel ladders. The ladders should be of rounded steel bars of 25mm dia.	No.	1		
	-				
3.7.3	Locakable mild steel sheet metal covers for access; 1100 x 1100 x 20 mm	No.	2		
	-				
3.7.4	Ventilators, 80mm dia. To include for Elbows and GI Straigths	No.	2		
	-				
	SUB-TOTAL FOR SUMP CARRIED TO SUMMARY				

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
No.				Kshs	Kshs
4	**BILL NO.4 – RISING MAIN AND PIPELINE NETWORK**				
4.1.0	**CHAMBER & NEW PIPELINE**				
4.1.1	Supply and install 600mmx600mm precast reinforced concrete cover to the sump chamber to include holding hooks for lifting	No	1		
4.1.2	Supply and install pre-fabricated 10mm stainless steel screen including a 2" 3m long G.I pipe at spring sump connecting to the new sump chamber.	No	1		
4.1.3	Prepare Chamber surfaces using steel wire brush, remove worn out plaster work and re-plaster using cement sand mortar ratio1:3 steel trowelled to perfection.	SM	48		
4.2.0	***Supply the following pipes join and lay as required. GI pipes to be joined using sockets. Cost to include all the necessary fittings***				
4.2.1	Supply & lay joint 2" G.I class B pipes including an end cap for the washout and overflow pipe	LM	12		
4.2.2	Construct 1000X1000X800mm masonry chamber with 500X500mm concrete covers for gate valves and water meter installation	N0	2		
4.3.0	**Offtakes**				
4.3.1	Provide fittings for offtakes at designated points as directed by the supervising engineer.Fittings to include tees of saddle clamps,gate valves and end caps	No.	4		

4.3.2	Construct a community water point at at base of stand pipe comprising of a support masonry or brick walls at 122esignated points	No.	4		
	SUB-TOTAL CARRIED OVER TO THE NEXT PAGE				
	SUB-TOTAL BROUGHT FORWARD FROM PREVIOUS PAGE				
4.3.0	**PIPELINE TO THE STORAGE TANK**				
4.3.1	Excavate and backfill trenches both in common soil materials and soft rocks depth equal but not exceeding 1.5m or otherwise specified for Trunk main pipeline.	M^3	1,813		
4.3.2	Earth work in excavation by manual means in trenches (600mm wide n.e1.0 m in depth) including dressing of sides and ramming of bottoms, lift up to 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, All kinds of soil.	CM	50		
4.3.3	Supply and install DN50 Cold Water Meter, DN50 Non-Return Valve, DN50 Sluice Valve and all other assorted fittings necessary for testing and commissioning of the system. Water meters to be as specified in Clause 404.10 of the specifications.Meters to meet WASPA technical guidelines and not less than R160. All meters to be installed with an approved strainer	NO	1		

4.3.4	Providing and laying including all fittings and butt fusion High Density Polyethylene (H.D.P.E) Pipes, DN63, PN 16.	LM	1,300		
4.3.5	Providing and laying including all fittings and butt fusion High Density Polyethylene (H.D.P.E) Pipes, DN50, PN 12.5. For distribution network	LM	2,400		
4.4.0	**TREE PLANTING**				
4.4.1	Allow a provisional sum for planting of at least 50 Bamboo trees and establishment of a tree nursery at the spring site	PC sum	1		
	SUB-TOTAL FOR RISING MAIN PIPELINE NETWORK AND TREE PLANTING CARRIED TO SUMMARY				
BILL OF QUANTITIES					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
No.				Kshs	Kshs
5	**BILL NO.5 – 50M^3 STORAGE TANK**				
5.1.0	SITE CLEARANCE				
5.1.1	Clear the site of all brushes,grass and shrubs and dispose them as directed.	M^2	25		
5.2	EARTHWORKS				
	Excavation				
	Excavation shall include for strutting, shutterimg, stabilising excavated surfaces and keeping excavations free of water by bailing out, pumping or other means and preparation of the excavated surfaces (Excluding disposal of excavated material)				
5.2.1	Topsoil; maximum depth n.e 0.25 m	m^3	40		
5.2.2	Topsoil; maximum depth n.e 0.25 m – 0.5 m	m^3	40		

5.2.3	Materials other than topsoil, rock or artificial hard material maximum depth 0.5 – 1 m	m^3	79		
5.2.4	Materials other than topsoil, rock or artificial hard material maximum depth 1 – 1.5 m	m^3	79		
5.2.5	Materials other than topsoil, rock or artificial hard material maximum depth 1.5 – 2m	m^3	79		
5.2.6	E & O for Excavation in Soft Rock material (Provisional)	m^3	3		
	Disposal of Excavated Material				
	Approved material shall be retained for backfilling and unsuitable material shall be disposed to tip as directed by the Engineer				
5.2.7	Topsoil distance of haul n.e. 0.5km	m^3	40		
5.2.8	Material other than topsoil or rock distance of haul n.e. 1 km	m^3	79		
	SUB-TOTAL CARRIED OVER TO THE NEXT PAGE				
	SUB-TOTAL BROUGHT FORWARD FROM PREVIOUS PAGE				
5.3.0	**IN SITU CONCRETE**				
	Provide materials and mix concrete to the specified class; cement to BS 12 and place as directed by the Supervising Engineer				
	Blinding Concrete				

5.3.1	Blinding Concrete, 75 mm thick Class 15/40 to base of the Tank	m^2	24		
5.3.2	Ditton for base of Valve Chambers	m^2	3		
5.3.3	Reinforced Conrete Class 25/20 to the Base Slab	m^3	12		
5.3.4	Ditto for Roof Slab	m^3	6		
5.3.5	Ditto for Base of Chambers (1 No. 1000 x 1000 x 1000 mm Chambers for Offtake and Washouts)	m^3	1		
5.4.0	**WALLING**				
	Masonry Block Work for Walls as shown in drawings				
	Rates for Masonry blocks to include for Supply, Dressing, and Curing				
5.4.1	225 mm thick	m^2	100		
	-				
5.4.2	Ditto for 1 No. (100 x 100 x 1200 mm) Scour Valve Chambers	m^2	20		
	-				
	-				
	-				
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	-				
	-				
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	SUB-TOTAL CARRIED OVER TO THE NEXT PAGE				
	SUB-TOTAL BROUGHT FORWARD FROM PREVIOUS PAGE				
5.5.0	**CONCRETE ANCILLARIES**				

	Dimensions as per details on Drawings of specific structural				
	Formwork : Rough finish; Plane vertical				
5.5.1	External sides of foundation slab width > 0.4 < 1.22	m^2	8		
5.5.2	External side of roof slab internal sides of parapet walls width > 0.2 < 0.4m	m^2	5		
5.5.3	Sides of columns; width > 0.4 < 1.22 mm	m^2	10		
5.5.4	Internal sites of the roof slab	m^2	30		
	MISCELLANEOUS WORKS (Rates to include for provision and laying)				
5.5.5	1:3 cement sand mortar screed placed on reservoir floor and walls as shown on drawings to facilitate reservoir drainage	m^2	120		
5.5.6	Supply and place water proof cement	Kgs.	50		
5.5.7	Supply and place lime in plaster	Kgs.	50		
5.5.8	Supply and place bondex joint as specified in the drawing	Kgs.	50		
	SUB-TOTAL CARRIED OVER TO THE NEXT PAGE				
	SUB-TOTAL BROUGHT FORWARD FROM PREVIOUS PAGE				
5.6.0	**PIPEWORK , FITTINGS AND VALVES**				

	Supply, lay and joint pipe fittings & valves. Include for excavation & backfilling of pipe trenches. Steel Pipe Fittings to NP 10				
5.6.1	**INLET PIPE WORK AND BENDS**				
	BENDS				
	-				
5.6.1.1	90^0 , 80 mm dia threaded Long Radius Bend in trenches depth n.e. 2500 mm	No.	2		
5.6.1.2	80 mm dia 90^0 GI Elbow	No.	1		
	STRAIGHT SPECIALS				
	-				
5.6.1.3	80 mm dia Threaded GI pipe (Class B - Riser for inlet pipe)	m	5.3		
5.6.1.4	80 mm dia, 0.5 m Long, Threaded GI Spigot (for inlet pipe)	No.	2		
5.6.2	**OUTLET PIPE WORK (DRAW OFF)**				
	-				
	BELLMOUTHS				
5.6.2.1	Flanged adaptor, 80 mm dia.	No.	1		
	BENDS				
5.6.2.2	80 mm dia , 0.5 m long threaded GI spigot	No.	1		
5.6.2.3	80 mm dia GI Flange	No.	1		
5.6.2.4	80 mm dia, 90 degrees , GI Long Radius Bend	No.	1		
		127			

	SUB-TOTAL CARRIED OVER TO THE NEXT PAGE				
	SUB-TOTAL BROUGHT FORWARD FROM PREVIOUS PAGE				
	ADAPTOR				
	-				
5.6.2.5	80 x 80 mm dia GI adaptor	No.	1		
5.6.2.6	25 x 25 mm dia GI adaptor	No.	1		
	STRAIGHT SPECIALS				
5.6.2.8	80 mm dia threaded GI Pipe (Rates to include for provision of Sockets)	m	12		
5.6.2.9	80 mm dia, 0.5 m Long threaded GI Pipe	No.	12		
5.6.3	**SCOUR & OVERFLOW PIPEWORK**				
	SCOUR				
5.6.3.1	80 mm dia GI Flanged as shown in drawings	No.	1		
5.6.3.2	80 mm dia, 90^0 Double flanged long radius bend	No.	2		
	STRAIGHT SPECIALS				
5.6.3.3	80 mm dia threaded GI Pipe (Rates to include for provision of Sockets)	m	12		
5.6.3.4	80 mm dia, 0.5 m Long threaded GI Pipe	No.	12		
	VALVE				
	-				
5.6.3.5	810 mm dia Gate Valve To BS5163, hand operated with hand wheel	No.	1		
5.6.3.6	Flanged adaptor, 80mm dia	No.	1		

	OVER FLOW				
5.6.3.7	Flanged bell mouth 80 mm dia.	No.	1		
	SUB-TOTAL CARRIED OVER TO THE NEXT PAGE				
	SUB-TOTAL BROUGHT FORWARD FROM PREVIOUS PAGE				
	STRAIGHT SPECIALS				
5.6.3.8	80mm dia, 0.5m Long GI Spigot Single flanged GI Pipe	No.	1		
5.6.3.9	Flanged spigot 2500mm length with puddle flange 400mm from flanged end, 80mm dia.	No.	1		
	DRAINAGE PIPEWORK				
5.6.3.11	90^0 Double socket short radius bend, 80mm dia	No.	2		
	STRAIGHT SPECIALS				
5.6.3.12	Plain ended spigot, 400mm length, 80mm dia.	No.	2		
5.6.3.13	Plain ended spigot, 2000mm length, 80mm dia	No.	1		
5.7.0	**PIPEWORK - MANHOLES AND PIPEWORK ANCILLARIES**				
	Rate to include supply and fixing and inclusive of foundations where applicable				
5.7.1	Galvanised mild steel ladders (To fit as directed by the Supervisng Engineer)	No.	1		
	-				
5.7.2	Locakable mild steel sheet metal covers for access; 1100 x 1100 x 20 mm	No.	1		
	-				

5.7.3	Ventilators, 80mm dia.	No.	2		
5.8.0	**Finishes**				
5.8.1	25mm thick cement: sand (1:4) screed to surfaces with 12mm thick lime steel trowelled smooth finish on columns	SM	5		
5.8.2	Gloss painting to columns- code provided by Engineer	SM	120		
5.8.3	Brand and paint the tank as directed by the Engineer	PC sum	1		
	-				
	SUB-TOTAL FOR STORAGE TANK CARRIED TO SUMMARY				
BILL OF QUANTITIES					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
No.				Kshs	Kshs
6	**BILL NO.6 - SOLAR PUMPING AND FENCING**				
6.1.0	***Supply and delivery to site, installation and commission testing of the following;***				
6.1.1	A submersible electric solar powered pump set of capacity 10m³ /hr against a total head of 130m. Complete with PV Solar modules capable of driving the submersible pumpset (*A power of safety of 1.7 to be applied to the PV solar panels to ensure the pump can run efficiently)*. A switchbox/Control Unit, with Isolator, with all installation accessories including mounting frame on the steel tower, cables, lightening arrestor & 2no. security Lights.	LS	1		
6.2.0	**Fencing**				

6.2.1	Provide all materials and erect 2m high -14 Gauge chainlink fence held in place with 6 strand galvanized barbed wire on 2.4m high 100mm dia. Concrete posts at 2.5m center to center mortised in 1:3:6 mass concrete surround (provisional)	LM	50		
6.2.2	Fabricate, supply and install Double leave steel gate comprising of 80mm dia. End posts 2.5M long. Gate dimensions to be 3.0M x 2.0M high with 1.2M wide pedestral gate. The gate to be of 50 x 25mm R.H.S. framing with 50mm x 25mm dia. Grilles spaced at 150mm centres welded to frame.	No	1		
	SUB-TOTAL CARRIED OVER TO THE NEXT PAGE				
	SUB-TOTAL BROUGHT FORWARD FROM PREVIOUS PAGE				
6.3.0	**SOLAR SUPPORT STRUCTURE**				
6.3.0	**Sub-structure works**				
6.3.1	Clear site and excavate to remove top soil n.e 250mm	SM	25		
6.3.2	Excavate for tower foundation n.e 1500mm	CM	30		
6.3.3	Return, fill and ram approved materials around the pad footing	CM	28		

6.4.0	**Concrete Work**				
6.4.1	Concrete grade 15/20 - 50mm thick blinding	CM	1.25		
6.4.2	Reinforced concrete grade 25/20 in 400mm thick foundation	CM	5		
6.4.3	Ditto in Cat ladder pad footing	CM	0.05		
6.4.4	Reinforced concrete grade 25/20 to Starter collumns threaded with nuts and washers to take bolts.	CM	0.3		
6.4.5	Supply and installation of 4No. 8mm thick 500mm x 500mm steel base plate with hole to receive vertical pillars.	SM	1		
6.4.6	Ditto but to 1N0. to the cat ladder	SM	1		
6.4.7	Provide and install 16N0. H.D 25mm diameterX600mm long bolts placed 250mm centre to centre, anchored 525mm in starter column concrete	N0	16		
6.4.8	Ditto but to 4No. 250mm long	No	4		
	SUB-TOTAL CARRIED OVER TO THE NEXT PAGE				
	SUB-TOTAL BROUGHT FORWARD FROM PREVIOUS PAGE				
6.5.0	**Reinforcement**				
6.5.1	Steel reinforcement cut, bend & placed in position, unit price to include cutting, bending & placing in position with binding wire				

6.5.2	12mm diameter high tensile steel (0.89kg/m) in base footing	KG	25		
6.5.3	16mm diameter high tensile steel (1.58kg/m) in Starter columns	KG	15		
6.5.4	10mm diameter high tensile steel (0.62kg/m2) in stirrups	KG	15		
	SUB-TOTAL FOR SOLAR PUMPING SOLAR SUPPORT STRUCTURE AND FENCING CARRIED TO SUMMARY				
BILL OF QUANTITIES					
ITEM	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
No.				Kshs	Kshs
7.0	**BILL NO.7 - CHAIN LINK COMPOUND FENCE**				
	CLEARANCE				
7.1.1	Clear the Fence line of all scattered bushes, grass and trees; grab up roots and make 300mm deep trench.	SM	70		
	EXCAVATION				
7.1.2	Excavation holes for fencing size 300 mm diameter and 600 mm deep and fixed at 2.5M center to centre	CM	16		
7.1.3	Excavate a 200 mm wide trench and 200mm deep around the fencing area to allow for fixing of chain link to the ground and concreting as shal be directed by the client's engineer.	CM	12		
	CONCRETE POSTS				
7.1.4	Supply and fix approved 9ft high concrete posts with not more than 2.5m spacing c-c and install as shall be directed by engineer on site.	NO	50		

7.1.5	Supply and fix corner and straining concrete posts each supported by two struts as well as at both sides of the gate.	NO	16		
	CONCRETE SURROUND				
7.1.6	Mass concrete mix 1:3:6 in footing surround, well compacted and rounded (200mm breath, 200mm deep and raised at least 150mm above ground level.	CM	7		
	CHAIN LINK				
7.1.7	Provide and put in 2.5mm plain wire as approppriate, to run 6 times along fence to afix chainlink with approppriate wire, not more that 400mm centres	LM	150		
7.1.8	Provide and put in place 14 GAUGE chain link fence 7ft (2100mm) high with 150mm end laps, whole length stretched tight, with binding wire fastening chainlink to plain wire.	LM	150		
	SUB-TOTAL CARRIED OVER TO THE NEXT PAGE				
	SUB-TOTAL BROUGHT FORWARD FROM PREVIOUS PAGE				
7.2	**GATE**				
7.2.1	Supply and install 2400x1800mm double leave steel grill gate to 250x250mm concrete columns complete with iron mongery (use 50mmx25mmx6mm SHS with 38mmx25mmx6mm vertical members). Provide for epoxy primer paint with 2 coats of final gloss paint	No.	1		
7.2.2	Provide, cut and place 10mm square twisted steel rebars in gate columns and 600mmx600mm footing	kg	20		

7.2.3	Ditto 8mm twisted steel rebars as stirrups in column @150mm	kg	15		
	Mass concrete class C20/25 in:				
7.2.4	250mmx250mm Gate columns	CM	2		
	Formwork to;				
7.2.5	Column edges over 150mm but not exceeding 250 mm girth	SM	5		
	SUB-TOTAL FOR FENCING CARRIED TO SUMMARY				

BILL OF QUANTITIES					
ITEM	DESCRIPTION				AMOUNT
No.	**SUMMARY PAGE**				Kshs
					AMOUNT
1.0	PRELIMINARIES				
2.0	SPRING BOX AND CHAMBERS				
3.0	25M^3 SUMP				
4.0	RISING MAIN AND PIPELINE NETWORK				
5.0	50M3 MASONRY STORAGE TANK				
6.0	SOLAR PUMPING AND SOLAR SUPPORT STRUCTURE				
7.0	FENCING				

	SUBTOTAL				
	ADD 16% VAT				
GRAND TOTAL FOR ARAP KALYA WATER SPRING					

Signed and Stamped……..……...…. Date……...

SPECIFICATIONS

102 LOCATION OF CONTRACT

The Project is located in Chesoen Ward, Bomet Central Sub County, Bomet County.

103 EXTENT OF CONTRACT

The works to be executed under the contract shall comprise mainly but are not limited to the following:

a) Spring development and protection
b) Any other activity not listed above but may be deemed necessary and instructed by the Engineer.
c) Maintenance of the works during the construction period. The defects liability period shall be 2 months.

104 PROGRAMME OF EXECUTION OF THE WORKS

The contractor shall provide the works programme, required under clause 8 of the Conditions of Contract, within 14 days of receipt of the Engineer's Order to commence work. The programme shall be co-ordinated with climatic and other conditions to provide for the completion of the works in the order and by the time specified.

The Contractor shall carry out the contract in accordance with the programme agreed with the Engineer, but he shall in no manner be relieved by the Engineer's approval of the programme, of his obligation to complete the works in the prescribed order and by the prescribed completion date and he shall from time to time review his progress and make such amendments to his rate of execution of the works as may be necessary to fulfil his obligations.

105 ORDER OF EXECUTION OF WORKS

In addition to Clause 105 of the Standard Specification the Contractor shall carry out the Works such that a continuous and consecutive output of fully completed work is achieved.

107 TAKING OVER CERTIFICATE

The minimum works for which a certificate will be issued under clause 48 of the conditions of Contract shall be at least 30% of the works substantially completed.

109 NOTICE OF OPERATIONS

Add the following sub- Clause. Notification Terms It shall be the Contractor's responsibility to notify the Engineer when any item of works scheduled are completed and ready for approval, and the contractor shall give sufficient notice to allow control test to be performed. Explosive and Blasting The requirements of the Laws of Kenya governing explosives and other requirements and regulations of Government of Kenya and other authorities shall be complied with. No explosives of any kind shall be used without prior written consent of the Engineer. The Contractor shall be solely responsible for the provision, handling, and storage and transporting of all explosives, ancillary materials and all other items of related kind whatsoever required for blasting.

120 PROTECTION OF EXISTING WORKS AND SERVICES

The Contractor shall acquaint himself with the position of all existing services such as sewers, water drains, cables for electricity and telephone, lighting and telephone poles, water mains, etc., before commencing any excavation or other work likely to affect the existing services. The cost of all plant, equipment and materials, labour, technical and professional staff, transport and the like necessary for determining the locations of existing services, including the making good of any damage caused to such services all to the satisfaction of the Engineer, shall be deemed to be included in the tender rates. No other payment shall be made for the costs of such operations, nor for the making good of damage caused thereby to the existing services. The Contractor shall be held responsible for injury to existing structures, works or services and shall indemnify and keep indemnified the Employer against any claims in this respect (including consequential damages).

124 LAND FOR ALL CAMPS SITES AND FOR THE CONTRACTOR'S OWN PURPOSES, INCLUDING TEMPORARY WORKS.

Notwithstanding Clause 124 of the Standard Specification all requirements of land for temporary works and construction purposes shall be to the approval of the Engineer but the Contractor will make all necessary arrangements with the property owners concerned and pay all charges arising therefrom. On or before completion of the Contract, the Contractor shall remove all temporary works and shall restore all such land to the condition in which it was immediately prior to the occupation thereof as far as is reasonable and practicable. No separate payment will be made to the Contractor on account of these items and the Contractor must make due allowance for them in his rates.

Notwithstanding Clause 120 of the Standard Specifications, the Contractor shall be required to appoint competent surveyors who will liaise with the Engineer on matters related to the demarcation of the existing road reserve, site measurements, removal and reinstatement of existing services.

128 STORAGE OF MATERIALS

All materials shall be stored on Site in a manner approved by the Engineer and the Contractor shall carefully protect from the weather all work and materials which may be affected thereby.

129 TEST CERTIFICATES

When instructed by the Engineer the Contractor shall submit certificates of test from the suppliers of materials and goods required in connection with the works as the Engineer may require. Such certificates shall certify that the materials or goods concerned have been tested in accordance with the requirements of the specifications and shall give the results of all the tests carried out. The Contractor shall provide adequate means of identifying the materials and goods delivered to the site with the corresponding certificates.

131 SIGNBOARDS

The Contractor shall provide and erect two (2) publicity signs on the site as directed. The Engineer shall, as shown in the Drawings, direct the minimum dimensions and thickness of the steel framework and sheet. The framework and sheet shall be prepared and painted black, while the ring at the top of the

supporting frames shall be painted white. The wordings and BOMET County logo shall be printed on backlit sticker paper resistant to the effects of weather using reflectorized paint or material approved by the Engineer. The colours, fonts and heights of the letters shall be as indicated on the attached drawings and as directed by the Engineer.

Signboard shall be removed and transported to RD's Yard at the end of Defects Liability Period.

132.7 ENGINEER'S LABORATORY AND SURVEY EQUIPMENT

The Contractor shall provide Engineer's laboratory as shown in the Book of Drawings and provide all the laboratory equipment, reagents and survey equipment as required by the Engineer. The Contractor shall be paid under appropriate bill items in the Bills of Quantities or on provision of receipts as required by the Engineer.

The Contractor may be directed to pay for stationery, equipment or reagents that are foresaid and also pay for servicing and repair of the laboratory equipment being used on the project. The Contractor shall provide, install and maintain in a good state of repair, such laboratory, survey and other equipment as listed for the duration of the contract.

Such equipment shall be of approved manufacture, and shall be made available to the Engineer for the Engineer's exclusive use throughout the Contract, not later than three (3) weeks after the Engineer's order to supply. All equipment shall be ready to use and complete to perform the tests.

The equipment shall revert to the Employer on completion of the Contract Any delays to the Contractor or the Contractor's activities caused by the Engineer being unable to perform survey work, field or laboratory tests due to the Contractor's failure to supply and/or maintain the said equipment shall be deemed to have been caused entirely by the Contractor's own actions, and any consequences of such delays shall be interpreted as such.

The payment to comply with this requirement is provided in the Bill of Quantities and ownership of all equipment shall revert to the Employer after the completion of the Works.

Failure by the Contractor to provide or maintain the equipment shall make him responsible to bear all costs that may be incurred as a result of the Engineer's staff using alternative means of communication, including delays in supervision and approval of Works by the Engineer. List of Laboratory and Survey Equipment shall revert to the Employer at the end of the Contract. The laboratory equipment shall be purpose-made for use in highways materials testing laboratories and shall comply with the relevant British (BS) or American (AASHTO) Standards.

Resident Engineer's Laboratory Furniture and Equipment

As listed in Appendix to Item 01-80-032 and 01-80-033 of the bills of quantities.

Resident Engineer's Survey Equipment

As listed in Appendix to Item 01-80-034 of the bills of quantities.

132.1 ENGINEER'S REPRESENTATIVE OFFICE

The Contractor may be instructed by the Engineer under clause 13.4 of the General Conditions of Contract to make payments of general receipted accounts for such items as stationery, stores, furniture and equipment, claims and allowances for supervision personnel and any miscellaneous claims or the Engineer may direct the Contractor to purchase or pay for the above. The Contractor will, on provision of receipts, be paid under appropriate bill items in the BoQ.

The Contractor, when instructed, shall provide and install at the Engineer's office the Equipment specified below with a dealer's certificate and warranty:

Three years' warranty

Satellite Phone Docking Station

Office docking adaptor that allows you to use Thuraya XT and XT-PRO satellite or equivalent phones indoors.

Easy to install and operate, the FDU-XT supports Voice, Data and Fax transmissions. It comes complete with satellite and GPS antennas with 25m cables to ensure seamless satellite connectivity.

Size 221 x 176 mm

Voice call External telephone connection,

Auxiliary handset connection Fax call

External G3 fax connection Power Universal AC/DC power supply: 110 – 240V; Input power DC 12V/24V/34V

115 FDU-XT Features:

High-quality voice transmissions: Supports high-quality voice transmissions via an auxiliary handset, speakerphone or any analog extension telephone Multi-functional: The FDU-XT charges the satellite phone while docked in the cradle GmPRS services: Supports GmPRS services with a USB port or DTE Circuit switched data: Supports circuit switched data service at speeds of up to 9.6 kbps Fax services: Supports selected Group3 analog fax machines and PC fax at speeds of up to 9.6 kbps PABX connection: Supports PABX connection

132.3 COMMUNICATION FOR THE ENGINEEER

Internet and e-mail services Where directed, the contractor shall provide 24 hours' terrestrial or wireless internet connectivity with minimum throughput speed of 128kilobytes per second for the exclusive use by the Engineer, including all accessories and Terminal Equipment and pay for all associated installation, maintenance and usage charges throughout the duration of the contract. The contractor shall allow for the provision and maintenance of internet connectivity and associated costs as per Appendix to item 01-80-026 of the Bills of Quantities.

137 ATTENDANCE UPON THE ENGINEER AND HIS STAFF

The costs, for attendance required by this Clause 137, shall be as specified in the attached table: -

Designation	Number

Resident Engineer	1
Assistant Resident Engineer	1
Surveyor	1
Senior Inspector	1
Inspectors	4

138 VEHICLES AND DRIVERS FOR THE ENGINEER AND HIS STAFF AND METHOD OF PAYMENT

In addition to provisions of the Clause 138 of the Standard Specification, the Contractor shall when have instructed to do so provide, fuel and maintain in good working conditions, with driver, the number and type of vehicle specified in the Bill of Quantities for exclusive use of the Engineer and his staff throughout the Contract.

The Contractor shall insure comprehensively the vehicles for any licensed driver and shall provide competent drivers during normal working hours and whenever required by the Engineer. Should any vehicle supplied not be in road worthy condition, the Contractor shall provide equivalent replacement vehicle until such time as the original vehicle is repaired to the satisfaction of the Engineer and returned for use.

Payment for the vehicles up to 5,000Km shall be by months. Payment for mileage above 5,000Km shall be made at a rate per kilometer.

The payment shall be inclusive of all fuels, lubricants, servicing, insurance, maintenance, drivers and repairs. The rate shall include any overtime the driver might be due or any other allowance to the normal working hours. Payment shall be made under relevant items in Bills of Quantities No. 1. The vehicles provided under this clause shall revert to the Contractor.

139 MISCELLANEOUS ACCOUNTS

The Contractor maybe instructed by the Engineer to make payments of general miscellaneous accounts for such items as stationary, stores and equipment and miscellaneous supervision personnel and claims or the Engineer may direct the

Contractor to purchase or pay for the above. The Contractor will be paid on a prime cost basis plus a percentage for overheads and profits under appropriate items in the Bills of Quantities.

140 PAYMENT OF OVERTIME FOR ENGINEER'S JUNIOR STAFF

If the Contractor wishes to execute permanent work outside the Engineer's normal working hours, as stated in Clause 108 of this Specification, then the payment for the overtime for Engineer's support staff shall be paid by the Contractor, at the latest Ministry of Labour rate.

142 ENVIRONMENTAL PROTECTION

The Contractor shall comply with the Statutory Regulations in force in Kenya regarding environmental protection and waste disposal, and shall liaise with the National Environmental Management Agency (NEMA). Within four (4) weeks of the order to commence work, the Contractor shall prepare and submit a specific Environmental Management Plan for the project and his operations, relating to the approved Environmental Impact Assessment.

The Environmental Management Plan shall outline potential environmental hazards and risks, and provide an action plan to deal with the hazards, minimise the risks, and mitigate adverse environmental impacts, and include a general decommissioning plan covering all relevant aspects of the project. The Environmental Management Plan shall identify monitoring indicators and reporting requirements.

The Contractor shall be required to submit environmental progress reports to the Engineer every three (3) months.

The Contractor shall ensure so far as is reasonably practicable and to the satisfaction of the Engineer; that the impact of the construction on the environment shall be kept to a minimum and that appropriate measures are taken to mitigate any adverse effects during the construction.

(a) The Contractor shall exercise care to preserve the natural landscape and shall conduct his construction operations so as to prevent any unnecessary destruction, scarring, or defacing of the natural

surroundings in the vicinity of the work. Except where clearing is required for permanent works, all trees, native shrubbery, and vegetation shall be preserved and shall be protected from damage by the Contractor's construction operations and equipment. All unnecessary destruction, scarring, damage or defacing resulting from the Contractor's operations shall be repaired, replanted, reseeded or otherwise corrected as directed by the Engineer, and at the Contractor's expense.

(b) The Contractor shall ensure that measures are in place to control soil erosion and water pollution, by use of berms, dykes, silt fences, brush barriers, dams, sediment basins, filter mats, netting, gravel, mulches, grasses, slope drains, contour banks, and other erosion control devices and methods. Temporary erosion control provisions shall be coordinated with permanent erosion control features to assure economical, effective and continuous measures throughout the period of the works. The Contractor's attention is drawn to the requirements of Clause 502, in that works need to be progressively finished so that permanent vegetation can establish quickly to mitigate soil erosion and erosion of drains.

(c) The Contractor shall provide all the labour, equipment, materials, and means required and shall carry out proper and efficient measures wherever and as often as necessary to minimise the dust nuisance.

(d) The Contractor shall comply with all applicable Kenyan laws, orders and regulations concerning the prevention, control and abatement of excessive noise. Blasting, use of jackhammers, pile driving, rock crushing, or any other activities producing high-intensity impact noise may be performed at night only upon approval of the Engineer.

CONDITIONS OF CONTRACT PART I – GENERAL CONDITIONS OF CONTRACT

The Conditions of Contract Part 1 – General Conditions shall be those forming Part 1 of the Conditions of Contract for works of Civil engineering construction second Edition 2017, an update of the FIDIC 1999 Conditions of Contract for Construction (Red Book), First Edition, prepared by the Federation Internationale des Ingenieurs Conseils (FIDIC)

Copies of the FIDIC Conditions of Contract can be obtained from:

FIDIC Secretariat

P.O. Box 86

1000 Lausanne 12

Switzerland

Fax: 41 21 653 5432

Telephone: 41 21 653 5003

CONDITIONS OF CONTRACT PART II (CONDITIONS OF PARTICULAR APPLICATION)

SUBCLAUSE 1.1 – DEFINITIONS

For the purpose of the Contract Documents the words and expressions below shall have the following meanings:

Amend this sub-clause 1.1.31 as follows:

The “Employer” is the County Government of BOMET, represented by the CECM – Environment, Water, Tourism and Natural resources.

Amend this sub-clause 1.1.35 as follows:

The “Engineer” is the Chief Officer – Water and Natural resoutces.

Amend this sub-clause 1.1.36 as follows:

The “Engineer Representative” is the Engineer in charge of the programme.

Amend this sub-clause 1.1.41 as follows:

The “Laws” means Laws of Kenya

Amend this sub-clause 1.1.10 as follows:

"Contract" means the written agreement between the Employer and the Contractor, to which these General Conditions are annexed.

Amend this sub-clause 1.1.87 as follows:

"The Works" means the works to be executed and completed under the Contract.

Amend this sub-clause 1.1.80 as follows:

"Temporary Works" shall include items to be constructed which are not intended to be permanent and form part of the Works.

Amend this sub-clause 1.1.30 as follows:

"Drawings" and "Specifications" mean the Drawings and Specifications referred to in the Contract and any modification thereof or addition thereto furnished by the Engineer or submitted by the Contractor and approved in writing by the Engineer in accordance with the Contract.

Amend this sub-clause 1.1.15 as follows:

"Bill of Quantities" is the document in which the Contractor indicates the cost of the Works, on the basis of the foreseen quantities of items of work and the fixed unit prices applicable to them.

Amend this sub-clause 1.1.13 as follows:

"Contract Price" means the sum agreed in the Contract as payable to the Contractor for the execution and completion of the Works and for remedying of any defects therein in accordance with the Contract.

"Site" means the land and other places on, under, in or through which the Works or Temporary Works are to be constructed.

SUBCLAUSE 1.4 - INTERPRETATION

Words importing persons or parties shall include firms or companies and words importing the singular only shall also include the plural and vice versa where the context requires.

SUBCLAUSE 1.4 - LANGUAGE AND LAW

The Contract document shall be drawn up in the **ENGLISH LANGUAGE**.

Communication between the Contractor and the Engineer's Representative shall be in this given language. The Laws applicable to this Contract shall be the Laws of the Republic of Kenya.

SUBCLAUSE 1.5 – PRIORITY OF CONTRACT DOCUMENTS

Delete the documents listed 1- 11 and substitute: (

1) The Contract Agreement (if completed)
2) The Letter of Acceptance;
3) The form of Bid and Appendix to form of Bid;
4) The Conditions of Contract Part II;
5) The Conditions of Contract Part I;
6) The Special Specifications;
7) The Standard Specification;
8) The Drawings;
9) The priced Bills of Quantities
10) other documents as listed in the Appendix to form of Bid

SUBCLAUSE 3.2 - ENGINEER'S DUTIES AND AUTHORITY.

a) The Engineer shall provide administration of Contract as provided in the Contract Documents. In particular, he shall perform the functions hereinafter described.

b) The Engineer shall be the Employer's representative vis-à-vis the Contractor during construction and until final payment is due. The Engineer shall advise and consult with the Employer. The Employer's instructions to the Contractor shall be forwarded through the Engineer. The Engineer shall have authority to act on behalf of the Employer only to the extent provided in the Contract Documents as they may be amended in writing in accordance with the Contract. The duties, responsibilities and limitations of authority of the Engineer as the Employer's representative during construction as set forth in

the Contract shall not be modified or extended without the written consent of the Employer, the Contractor and the Engineer.

c) The Engineer shall visit the Site at intervals appropriate to the stage of construction to familiarize himself generally with the progress and quality of the Works and to determine in general if the Works are proceeding in accordance with the Contract Documents. On the basis of his on-site observations as an Engineer, he shall keep the Employer informed of the progress of the Works.

d) The Engineer shall not be responsible for and will not have control or charge of construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Works or the Temporary Works. The Engineer shall not be responsible for or have control or charge over the acts or omissions of the Contractor (including the Contractor's failure to carry out the Works in accordance with the Contract) and of Sub-contractors or any of their agents or employees, or any other persons performing services for the Works, except if such acts or omissions are caused by the Engineer's failure to perform his functions in accordance with the contract between the Employer and the Engineer.

e)) The Engineer shall at all times have access to the Works wherever and whether in preparation or progress. The Contractor shall provide facilities for such access so that the Engineer may perform his functions under the Contract.

f) Based on the Engineer's observations and an evaluation of the documentation submitted by the Contractor together with the invoices, the Engineer shall determine the amounts owed to the Contractor and shall issue Certificates for Payment as appropriate.

g) The Engineer shall review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for conformity with the design concept of the Works and with the provisions of the Contract Documents. Such action shall be taken with reasonable promptness so as to cause no delay. The Engineer's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

h) The Engineer shall interpret the requirements of the Contract Documents and judge the performance thereunder by the Contractor. All interpretations and orders of the Engineer shall be consistent with the intent of and reasonably inferable from the Contract Documents and shall be in writing or in the form of drawings. Either party may make a written request to the Engineer for such interpretation. The Engineer shall render the interpretation necessary for the proper execution of the Works with reasonable promptness and in accordance with any time limit agreed upon. Any claim or dispute arising from the interpretation of the Contract Documents by the Engineer or relating to the

execution or progress of the Works shall be settled as provided in Clause 71 of these General Conditions.

i) Except as otherwise provided in the Contract, the Engineer shall have no authority to relieve the Contractor of any of his obligations under the Contract nor to order any work involving delay in completion of the Works or any extra payment to the Contractor by the Employer, or to make any variations to the Works.

j) In the event of termination of the employment of the Engineer, the Employer shall appoint another suitable professional to perform the Engineer's duties.

k) The Engineer shall have authority to reject work which does not conform to the Contract Documents. Whenever, in his opinion, he considers it necessary or advisable for the implementation of the intent of the Contract Documents, he will have authority to require special inspection or testing of the work whether or not such work be then fabricated, installed or completed. However, neither the Engineer's authority to act nor any reasonable decision made by him in good faith either to exercise or not to exercise such authority shall give rise to any duty or responsibility of the Engineer to the Contractor, any subcontractor, any of their agents or employees, or any other person performing services for the Works.

l) The Engineer shall conduct inspections to determine the dates of Substantial Completion and Final Completion, shall receive and forward to the Employer for the Employer's review written warranties and related documents required by the Contract and assembled by the Contractor, and shall issue a final Certificate for Payment upon compliance with the requirements of Clause 47 hereof and in accordance with the Contract.

m) If the Employer and Engineer so agree, the Engineer shall provide one or more Engineer's Representative(s) to assist the Engineer in carrying out his responsibilities at the site. The Engineer shall notify in writing to the Contractor and the Employer the duties, responsibilities and limitations of authority of any such Engineer's Representative(s).

SUBCLAUSE 4.2 - PERFORMANCE SECURITY

Replace the text of Sub-clause 4.2 with the following:

“The Contractor shall provide security for his proper performance of the Contract within 14 days after receipt of the Letter of Acceptance and must be valid up to twenty-eight days after issuance by the Engineer of the Certificate of Final Completion. The Performance Security shall be in the form of a bank guarantee as stipulated by the Employer in the Appendix to Bid. The Performance Security shall be issued by a bank incorporated in Kenya.

The Contractor shall notify the Engineer when providing the Performance Security to the Employer.

ADD NEW SUBCLAUSE;

SUBCLAUSE 4.2.4 - COST OF PERFORMANCE SECURITY

The cost of complying with the requirements of this clause shall be borne by the Contractor.

SUBCLAUSE 4.3 - CONTRACTOR'S REPRESENTATIVE

Add the following at the end of the first paragraph of sub-clause 4.3: "The Contractor shall, within Fourteen (14) days of receipt of the Engineer's order to commence the works inform the Engineer in writing the name of the Contractor's Representative and the anticipated date of his arrival on site. The Contractor shall also submit a specimen signature of his proposed Site Agent /Manager who **SHALL** be the only signatory to payment of certificates/Monthly statements from the Contractor."

Add the following Sub-clause 4.3.1

'SUBCLAUSE 4.3.1- LANGUAGE ABILITY AND QUALIFICATIONS OF CONTRACTOR'S AUTHORISED AGENT

Unless otherwise stated in the tender document, the Contractor's Agent or Representative on the site shall have a minimum qualification of a Diploma in Civil/Highway Engineering and shall be able to read and write English fluently. The Contractor's Agent or Representative shall have at least 5 years' relevant experience as a Site Agent or equivalent.

ADD THE FOLLOWING SUB-CLAUSE 'SUBCLAUSE 4.3.2 - QUALIFICATION AND LANGUAGE ABILITY OF SUPERINTENDING STAFF

Unless otherwise stated in the Tender document, the Contractor's superintending staff shall meet the following minimum qualifications: Should have a working knowledge of English or Kiswahili. Should any of the superintending staff not be able to meet this condition, the Contractor shall propose to the Engineer arrangements for provision of a sufficient number of interpreters of approved qualifications. The Engineer, at his discretion, may amend, approve or reject such arrangements or reject deployment of superintending staff not meeting the language requirements. The Engineer may at any time during the duration of the Contract amend any approved arrangements made for interpreters, which shall be implemented at the Contractors expense.

The key staff listed below must have academic qualifications from government-recognized institutions or equivalent institutions of the levels set out in Section 5, Part 6.

- Site Agent

Qualifications as above shall be subject to verification and approval on site by the Engineer or his representative on site before commencement of the said works.'

SUB CLAUSE 4.10 - INSPECTION OF SITE

The Contractor shall be deemed to have inspected and examined the site and its surroundings and to have satisfied himself before submitting his Tender and signing the Contract as to all matters relative to the nature of the land and subsoil, the form and nature of the Site, details and levels of existing pipe lines, conduits, sewers, drains, cables or other existing services, the quantities and nature of the work and materials necessary for the completion of the Works, the means of access to the Site, and the accommodation he may require, and in general to have himself obtained all necessary information as to risk contingencies, climatic, hydrological and natural conditions and other circumstances which may influence or affect his Tender, and no claims will be entertained in this connection against the Employer. The Employer in no way guarantees completeness nor accuracy of the soil, materials, subsurface and hydrological information made available to the Contractor at the time of bidding or at any other time during the period of the Contract.

SUB CLAUSE 4.11 - SUFFICIENCY OF TENDER

The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his Tender for the construction of the Works and of the rates and prices, which rates and prices shall, except in so far as it is otherwise provided in the Contract, cover all his obligations under the Contract and all matters and things necessary for the proper execution and completion of the Works.

SUBCLAUSE 4.13.1 – INTERFERENCE WITH TRAFFIC

Supplement Sub-Clause 4.13 by adding the following sub clause 4.13.1: “The Contractor will be permitted to use existing public roads for access to the site. The Contractor shall pay vehicle license tax and road maintenance duty in accordance with relevant regulations and shall obtain any necessary permits or licenses from relevant authorities for transporting his equipment.”

Add the following sub clause 4.14.1:

SUBCLAUSE 4.14.2 – REINSTATEMENT AND COMPENSATION FOR DAMAGES TO PERSONS AND PROPERTY

The Contractor shall reinstate all properties whether public or private which are damaged in consequence of the construction and, maintenance of the works to a condition as specified and at least equal to that prevailing before his first entry on them.

If in the opinion of the Engineer the Contractor shall have failed to take reasonable and prompt action to discharge his obligations in the matter of reinstatement, the Engineer will inform the Contractor in writing of his opinion, in which circumstances the Employer reserves the right to employ others to do the necessary work of reinstatement and to deduct the cost thereof from any money due or which shall become due to the Contractor. The Contractor shall refer to the Employer without delay all claims which may be considered to fall within the provisions of Clause 17.4.

SUBCLAUSE 4.17 – CONTRACTOR'S EQUIPMENT, TEMPORARY WORKS AND MATERIALS:

Add "The Contractor shall be at liberty to deliver and withdraw equipment as and when needed for the undertaking of works under this contract according to the equipment deployment schedule and work program approved. If a particular equipment is required and the contractor is unable at the required time to avail the said equipment, the contractor shall be expected to notify the Engineer of the possible reasons and adjustments made to such delays.

No Provisions shall be made for any claims on Idle Equipment.

SUBCLAUSE 4.18 - PROTECTION OF THE ENVIRONMENT

Add Paragraph (d) of Sub-Clause 4.18 as follows: Notwithstanding the Contractor's obligation under Sub-Clause-paragraph (a), (b) and (c) of Sub-Clause 4.18 of the Conditions of Contract, the Contractor shall observe the following measures with a view to reducing or elimination adverse environmental effects by the site works:

i. All quarries and borrow pits shall be filled and landscaped to their original state after extraction of construction material
ii. Soil erosion due to surface runoff or water from culverts or other drainage structures should be avoided by putting in place proper erosion control measures that shall include, but are not limited to grassing and planting if trees
iii. Long traffic diversion roads shall be avoided so as to minimize the effect of dust on the surrounding environment. In any case all diversions shall be kept damp and dust free
iv. Spillage of oils, fuels and lubricants shall be avoided and if spilt, shall be collected and disposed off in such a way as not to adversely affect the environment
v. Rock blasting near settlement areas shall be properly coordinated with the relevant officers of the Government so as to minimize noise pollution and community interference.

SUBCLAUSE 4.8 – ROYALTIES

Add at the end of this Sub-Clause the following sentence: "The Contractor shall also be liable for all payments or compensation if any that are levied in connection with the dumping of part or all of any such material." Add The Contractor shall be solely responsible for any Cess and any other fees that the County/Region May levy on materials, goods or transportation within the Region

5.0 ASSIGNMENT AND SUBCONTRACTING

a) Assignment of Contract

The Contractor shall not, except after obtaining the prior written approval of the Employer, assign, transfer, pledge or make other disposition of the Contract or any part thereof or of any of the Contractor's rights, claims or obligations under the Contract.

b) Subcontracting

In the event the Contractor requires the services of subcontractors, the Contractor shall obtain the prior written approval of the Employer for all such subcontractors. The approval of the Employer shall not relieve the Contractor of any of his obligations under the Contract, and the terms of any subcontract shall be subject to and be in conformity with the provisions of the Contract.

c) Assignment of Subcontractor's Obligations

In the event of a subcontractor having undertaken towards the Contractor in respect of the work executed or the goods, materials, Plant or services supplied by such subcontractor for the Works, any continuing obligation extending for a period exceeding that of the Defects Liability Period under the Contract, the Contractor shall at any time after the expiration of such Period, assign to the Employer, at the Employer's request and cost, the benefit of such obligation for the unexpired duration thereof.

ADD NEW SUBCLAUSE 6.1.1 – EMPLOYMENT OF LOCAL PERSONNEL

The Contractor is encouraged, to the extent practicable and reasonable, to employ staff and labour with appropriate qualifications and experience who are Kenya citizens.

SUBCLAUSE 6.2.1 – FAIR WAGES

The Contractor shall, in respect of all persons employed anywhere by him in the execution of the Contract, and further in respect of all persons employed by him otherwise than in the execution of the Contract in every factory, Workshop or place occupied or used by him for the execution of the Contract, observe and fulfil the following conditions:

(a) The Contractor shall pay rates of wages, observe hours of labour and provide conditions of labour, housing, amenities and facilities not less favourable than those required by the latest Regulation of Wages (Building and Construction Industry) Order as of the time of bid submission, and subsequent amendments thereto, or in any wage scales, hours of work or conditions agreed by the Ministry of Labour or other Government Department in consultation with the appropriate wage fixing authority and generally recognized by other

employees in the district whose general circumstances in the trade or industry in which the Contractor is engaged are similar.

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

(c) Where the absence of established rates of wages, hours and conditions of labour or the dissimilarity of the general circumstances in the trade of industry in which the Contractor is engaged prevent the Contractor from observing rates of wages, hours and conditions of labour ascertained under sub-paragraph (a) and (b) above the Contractor in fixing the rates of wages, hours and conditions of labour of his employees shall be guided by the advice of the Labour Department.

(d) The Contractor shall recognize the freedom of his employees to be members of trade unions.

(e) The Contractor shall maintain records in English of the time worked by, and the wages paid to, his employees. The Contractor shall furnish to the Engineer or Employer, if called upon to do so, such particulars of the rates, wages and conditions of labour as the Employer or Engineer may direct.

(f) The Contractor shall at all times during the continuance of the contract display, for the information of his employees in every factory, workshop or place occupied or used by him for the execution of the Contract, a copy of this clause together with a notice setting out the general rates of wages, hours and conditions of labour of his employees.

(g) The Contractor shall be responsible for the observance of this clause by sub-Contractors employed in the execution of the works.

SUBCLAUSE 6.2.2 – BREACH OF FAIR WAGES CLAUSE

Any Contractor or Sub-Contractor who is found to be in breach of Fair Wages Clause shall cease to be approved as a Contractor or Sub-Contractor for such period as the Permanent Secretary for the Ministry of Transport and Infrastructure may determine.

Should a claim be made to the Employer alleging the Contractor's default in payment of Fair Wages of any workman employed on the Contract and if proof thereof satisfactory to the Employer is furnished by the Labour Authority, the Employer may, failing payment by the Contractor, pay the claims out of any monies due or which may become due to the Contractor under the Contract.

SUBCLAUSE 6.4 – LABOUR STANDARDS

(a) The Contractor shall comply with the existing local labour laws, regulations and labour standards

(b) The Contractor shall formulate and enforce an adequate safety program with respect to all work under his contract, whether performed by the Contractor or subcontractor. The Contractor has assurance from the Employer of

cooperation where the implementation of these safety measures requires joint cooperation.

(c) Upon written request of the Employer the Contractor shall remove or replace any of his employees employed under this Contract.

Add the following Sub-Clause 6.4.1 and 6.4.2.

ADD SUBCLAUSE 6.4 .1 – COMPENSATION FOR INJURY

The Contractor shall in accordance with the Workmen's Compensation Act of the Laws of Kenya and any other regulations in force from time to time pay compensation for loss or damage suffered in consequence of any accident or injury or disease resulting from his work to any workman or other person in the employment of the Contractor or any Subcontractor.

SUBCLAUSE 6.4.2 – REPORTING OF ACCIDENTS

The Contractor shall report to the Engineer details of any accident as soon as possible after its occurrence. In the case of any fatality or serious accident, the Contractor shall, in addition, notify the Engineer immediately by the quickest available means. The Contractor shall also notify the relevant authority whenever the Laws of Kenya require such a report.

SUBCLAUSE 6.5.1 – RESTRICTION ON WORKING HOURS

If the Contractor requests permission to work by night as well as by day, then if the Engineer shall grant such permission the Contractor shall not be entitled to any additional payments for so doing. All such work at night shall be carried out without unreasonable noise or other disturbance and the Contractor shall indemnify the Employer from and against any liability for damages on account of noise or other disturbance created while or in carrying out night work and from and against all claims, demands, proceedings, costs, charges and expenses whatsoever in regard or in relation to such liability.

In addition, the Contractor will be required to provide, for any work carried out at night or recognized days of rest, adequate lighting and other facilities so that the work is carried out safely and properly. "In the event of the Engineer granting permission to the Contractor to work double or rotary shifts or on Sundays, the Contractor shall be required to meet any additional costs to the Employer in the administration and supervision of the Contract arising from the granting of this permission.

SUBCLAUSE 6.7 – RECORDS OF SAFETY AND HEALTH

Add the following at the end of the Sub clause: "The Contractor shall maintain such records and make such reports concerning safety, health and welfare of persons and damage to property as the Engineer may from time to time prescribe."

SUBCLAUSE 8.3 PROGRAMME

AMEND SUB CLAUSE 8.3(h) as follows:

The Contractor shall allow in his programme all published Kenya public holidays including but not limited to the following per calendar year during which the Contractor shall not be permitted to work.

- New Years Day (1st January)
- Good Friday
- Easter Monday
- Labour day (1st May)
- Madaraka Day (1st June)
- The month of Ramadhan
- IddUlFitr
- Mashujaa Day (20th October)
- Jamhuri day (12th December)
- Christmas Day (25th December)
- Boxing day (26th December)

The Contractor shall also allow per calendar year for a further 2 unspecified public holidays which may be announced by the Government of Kenya with no prior notification upon which he shall not be permitted to work.

SUBCLAUSE 8.3 - PROGRAMME

Add at the end of the last paragraph; 'Failure by the Contractor to submit the Revised Work Program in the prescribed format and within the stipulated period shall be considered a violation of his contractual obligations and a Notice for Termination shall be issued to the Contractor.'

ADD NEW SUBCLAUSE 8.3.1- CASHFLOW ESTIMATE

The time within which the detailed cash flow estimate shall be submitted shall be as specified in the Appendix to the Form of Bid.

SUBCLAUSE 8.5 – EXTENSION OF TIME FOR COMPLETION

Add at the end of Sub-Clause 8.5 (c) the following: "Neither rains falling within the rainy seasons as occurs in Kenya nor floods caused by such rains shall be deemed exceptional weather conditions such as may fairly entitle the Contractor to an extension of time for the completion of the work."

SUBCLAUSE 8.8 – REDUCTION OF LIQUIDATED DAMAGES

Add the following paragraphs at the end of this Sub-Clause: "There shall be no reduction in the amount of liquidated damages in the event that a part or a section of

the Works within the Contract is certified as completed before the whole of the Works comprising that Contract.

The Employer shall pay no bonus for early completion of the Works to the Contractor. The sum stated in the Appendix to Bid as liquidated damages shall be increased by a sum equivalent to any additional amount payable by the Employer to the Contractor in respect of an increase in costs in such a period that would not have been incurred by the Contractor if the works had been completed by the due date for completion prescribed by Clause 8.3.

" Add The Employer may, without prejudice to any other method of recovery, deduct the amount of such damages from any monies due or to become due to the Contractor, and after the limit of deduction prescribed in the Appendix to tender is reached, the Contract shall be considered due for Termination.

SUBCLAUSE 11.0 – DEFECTS LIABILITY PERIOD

Defects liability period shall start for Instructed works immediately the works are certified as Complete by the Engineer. The period of Defects liability shall be prescribed in the Appendix to the Contract.

SUBCLAUSE 11.1 – COMPLETION OF OUTSTANDING WORK AND REMEDYING DEFECTS

Add

At the time of End of Defects Liability Inspection, no defect arising from the permanent works existing shall be acceptable for taking over. The Inspection team shall verify and satisfy themselves that all the outstanding works and defects arising out of the works have been attended to sufficiently. Routine Maintenance works/PBC Works shall also be inspected at the time of End of Defects Liability Inspection and should comply to the specifications of the PBC Works.

SUBCLAUSE 12.4 – OMMISIONS OF QUANTITIES

Start the paragraph with: Items of Works described in the Bills of Quantities for which no rate or price has been entered in the Contract shall be considered as included in other rates and prices in the Contract and will not be paid for separately by the Employer. Add the following Sub-Clause 58.4:

SUBCLAUSE 13.1 – VARIATIONS

Add the following at the end of the last paragraph

No such variations in any way shall contravene the requirements of Public Procurement and Disposal Act of 2015 and the amendments thereof.

SUBCLAUSE 13.1. – VALUATION AND VARIATIONS

Add new Clause 13.1.1 No change in the unit rates or prices quoted shall be considered for items included in the schedule of Day works rates, or Provisional Sums and items, or for any item in the BOQ.

SUBCLAUSE 13.4 – PROVISIONAL ITEMS

Provisional items shall be read as Provisional Sums and shall be operated as such in accordance with Sub Clauses 13.4.

SUBCLAUSE 13.5 – DAYWORKS

Add the following at the end of Sub-Clause 13.5:

The work so ordered shall immediately become part of the works under the contract. The Contractor shall, as soon as practicable after receiving the Day works order from the Engineer undertake the necessary steps for due execution such work. Prior to commencement of any work to be done on a Dayworks basis, the Contractor shall give an advance notice to the Engineer stating the exact time of such commencement.

Add new clause 13.8 – VARIATIONS EXCEEDING 25 PERCENT

Subject to requirements of Public Procurement and Disposal Act of 2015 and the amendments thereof, variations above 25 percent critical to the proper function of the completed works and without which part or whole of already specified work in the bill of quantities cannot be adequately executed may constitute ground for Contract termination by either parties. In which case, the Engineer shall give 28-day notice to the Contractor with a copy to the Employer of such occurrence. The Contract shall terminate at the expiry of the notice.

SUBCLAUSE 14.15 – CURRENCY OF PAYMENT

The Contract Price shall be designated in Kenyan Currency. All work performed by the Contractor under the Contract shall be valued in Kenya Shillings using the rates and prices entered in the Bills of Quantities together with such other increases to the Contract Price, except for variation of price payments in accordance with Clause 70.1.

SUBCLAUSE 14.2.1 – ADVANCE PAYMENT

(a) “At the request of the Contractor, The Employer MAY make an interest free advance payment to the contractor for the cost of mobilization in respect of the Works, in a lump sum of any amount not exceeding ten (10) percent of the Contract Price named in the Letter of Acceptance and Letter of Award. Non-Payment or delayed payment of the Advance shall not be a cause for any claim whatsoever.
The Contractor is expected to have adequate financial resources to mobilise and execute the works with due diligence without the advance payment being

made. Payment of such advance amount will be due under a separate certification by the Engineer after:

i. Provision by the Contractor of the Performance Security in accordance with Clause 10 of the Conditions of Contract, and
ii. Provision by the Contractor of a Bank Guarantee which shall remain effective until the advance payment has been completely repaid by the Contractor out of current earnings under the Contract and certified accordingly by the Engineer. (

(b) A form of Bank guarantee acceptable to the Employer is included in the Tender Documents. The advance payment shall be used by the Contractor exclusively for mobilization expenditures, in connection with the works. The advance payment shall not be subject to retention money.

(c) The advance payment shall be repaid with percentage reductions from the monthly interim payments certified by the Engineer. The reimbursement of the lump sum advance payment shall be made by deductions from the interim payments and where applicable from the balance owing to the contractor. Reimbursement shall begin when the amount of the sums due under the Contract reaches 20% of the original contract sum. It shall have been completed by the time 80% of the contract sum is reached.

(d) The amount to be repaid by way of successive deductions shall be calculated by the means of the formula:
RI = A(x-X) / (80%-20%)
Where: RI = the amount to be reimbursed.
A = the amount of the advance which has been granted.
x = the amount of proposed cumulative payments as a percentage of the original amount of the contract.
This figure will exceed 20% but not 80%. X = the amount of the previous cumulative payments as a percentage of the original amount of the Contract.
This figure will be below 80% but not less than 20%. (e) With each reimbursement the guarantee will be reduced accordingly.

SUBCLAUSE 14.5 MATERIALS FOR PERMANENT WORKS

With respect to materials brought by the Contractor to the site for incorporation into the permanent works, the Contractor shall,

- Receive a credit in the month in which these materials are brought to site,
- Be charged a debit in the month in which these materials are incorporated in the permanent works.

Both such credit and debit to be determined by the Engineer in accordance with the following provisions. No credit shall be given unless the following conditions shall have been met to the Engineers Satisfaction The materials are in accordance with the specifications for the works;

a) The materials have been delivered to site and are properly stored and protected against loss, damage or deterioration;

b) The Contractors record of the requirements, orders receipts and use of materials are kept in a form approved by the Engineer, and such records are available for inspection by the Engineer;
c) The Contractor has submitted a statement of his cost of acquiring and delivering the materials and plant to the Site, together with such documents as may be required for the purpose of evidencing such cost;
d) The materials are to be used within a reasonable time.

The amount to be credited to the Contractor shall not be more than 75% of the Contractor's reasonable cost of the materials delivered to site, as determined by the Engineer after review of the documents listed in subparagraphs (a) (iv) above; The amount to be debited to the Contractor for any materials incorporated into the works shall be equivalent to the credit previously granted to the Contractor for such materials pursuant to Clause (b) above as determined by the Engineer.

SUBCLAUSE 19.2 - INSURANCE TO BE PROVIDED BY THE CONTRACTOR

Without limiting his obligations and responsibilities, the Contractor shall insure immediately following signature of this Contract, in the joint names of the Employer and the Contractor (a) for the contract period against all loss or damage from whatever cause arising, other than cause of Force majeure as defined in clause 66 of these General Conditions, and (b) against loss or damage for which the Contractor is responsible, in such manner that the Employer and the Contractor are covered for the contract period stipulated and are also covered during the Defects Liability Period for loss or damage arising from a cause occurring prior to the commencement of the Defects Liability Period and for any loss or damage occasioned by the Contractor in the course of any operations carried out by him for the purpose of complying with his obligations under Clause 47 hereof:

a) The Works, together with the materials and Plant for incorporation therein, to their full replacement cost, plus an additional sum of ten (10) per cent of such replacement cost, to cover any additional costs of and incidental to the rectification of loss or damage including professional fees and the cost of demolishing and removing any part of the Works and of removing debris of whatsoever nature;

b) The Contractor's equipment and other things brought on to the Site by the Contractor to the replacement value of such equipment and other things;

c) An insurance to cover the liabilities and warranties of Section 52(4); Such insurance shall be effected with an insurer and in terms approved by the Employer, which approval shall not be unreasonably withheld, and the Contractor shall, whenever required, produce to the Engineer the policy or policies of insurance and the receipts for payment of the current premiums.

19.2.1 DAMAGE TO PERSONS AND PROPERTY

The Contractor shall (except if and so far as the Contract provides otherwise) indemnify, hold and save harmless and defend at his own expense the Employer, its officers, agents, employees and servants from and against all suits, claims, demands, proceedings, and liability of any nature or kind, including costs and expenses, for injuries or damages to any person or any property whatsoever which may arise out of or in consequence of acts or omissions of the Contractor or its agents, employees, servants or subcontractors in the execution of the Contract. The provision of this Clause shall extend to suits, claims, demands, proceedings and liability in the nature of workmen's compensation claims and arising out of the use of patented inventions and devices. Provided always that nothing herein contained shall be deemed to render the Contractor liable for or in respect of or with respect to:

a) The permanent use or occupation of land by the Works or any part thereof;

b) The right of the Employer to construct the Works or any part thereof on, over, under, or through any land.

c) Interference whether temporary or permanent with any right of light, airway or water or other easement or quasi-easement which is the unavoidable result of the construction of the Works in accordance with the Contract.

d) Death, injuries or damage to persons or property resulting from any act or neglect of the Employer, his agents, servants or other contractors, done or committed during the validity of the Contract.

19.2.2 LIABILITY INSURANCE

a) Obligation to take out Liability Insurance

Before commencing the execution of the Works, but without limiting his obligations and responsibility under Clause 20 hereof, the Contractor shall insure against his liability for any death, material or physical damage, loss or injury which may occur to any property, including that of the Employer or to any person, including any employee of the Employer by or arising out of the execution of the Works or in the carrying out of the Contract, other than due to the matters referred to in the proviso to Clause 22 hereof.

b) Minimum Amount of Liability Insurance

Such insurance shall be effected with an insurer and in terms approved by the Employer, which approval shall not be unreasonably withheld, and for at least the amount specified in the contract. The Contractor shall, whenever required by the Employer or the Engineer, produce to the Engineer the policy or policies of insurance and the receipts for payment of the current premiums.

c) Provision to Indemnify Employer

The insurance policy shall include a provision whereby, in the event of any claim in respect of which the Contractor would be entitled to receive indemnity under the policy, being brought or made against the Employer, the insurer shall indemnify the Employer against such claims and any costs, charges and expenses in respect thereof.

19.2.3 ACCIDENT OR INJURY TO WORKMEN

a) The Employer shall not be liable for or in respect of any damages or compensation payable at law in respect or in consequence of any accident or injury to any workman or other person in the employment of the Contractor or any sub-Contractor, save and except an accident or injury resulting from any act or default of the Employer, his agents or servants. The Contractor shall indemnify, hold and save harmless the Employer against all such damages and compensation, save and except as aforesaid, and against all claims, proceedings, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

b) Insurance Against Accident, etc., to Workmen

The Contractor shall insure against such liability with an insurer approved by the Employer, which approval shall not be unreasonably withheld, and shall continue such insurance during the whole of the time that any persons are employed by him for the Works and shall, when required, produce to the Engineer such policy of insurance and the receipt for payment of the current premium. Provided always that, in respect of any persons employed by any subcontractor, the Contractor's obligation to insure as aforesaid under this sub-

clause shall be satisfied if the subcontractor shall have insured against the liability in respect of such persons in such manner that the Employer is indemnified under the policy but the Contractor shall require such subcontractor to produce to the Engineer when required such policy of insurance and the receipt for the current premium, and obtain the insertion of a provision to that effect in its contract with the subcontractor.

19.2.4 REMEDY ON CONTRACTOR'S FAILURE TO INSURE

If the Contractor shall fail to effect and keep in force any of the insurances referred to in hereof, or any other insurance which he may be required to effect under the terms of the Contract, the Employer may in any such case effect and keep in force any such insurance and pay such premium as may be necessary for that purpose and from time to time deduct the amount so paid by the Employer as aforesaid from any monies due or which may become due to the Contractor, or recover the same as a debt due from the Contractor.

ADD SUB CLAUSE 19.3 - EXCLUSIONS

“There shall be no obligation for the insurances in Sub-Clause 19.2 to include loss or damage caused by the risks listed under Sub-Clause 18.1

ADD SUB CLAUSE 19.4 – MINIMUM AMOUNT OF INSURANCE

Add the following at the end of this Clause: “.. with no limits to the number of occurrences”.

ADD SUBCLAUSE 19.5 – INSURANCE NOTICES

Each policy of insurance effected by the Contractor for purposes of the Contract shall include a provision to the effect that the Insurer shall have a duty to give notice in writing to the Contractor and Employer of the date when a premium becomes payable. This shall not be more than thirty (30) days before that date and the policy shall remain in force until thirty (30) days after the giving of such notice.

ADD SUBCLAUSE 19.6 – NOTIFICATION TO INSURERS

It shall be the responsibility of the Contractor to notify insurers under any of the insurance referred to in sub clauses 19.1 and 19.2 on any matter or event, which by the terms of such insurance are required to be so notified. The Contractor shall indemnify and keep indemnified the Employer against all losses, claims, demands, proceedings, costs, charges and expenses whatsoever arising out of or in consequence of any default by the Contractor in complying with the requirements of this Sub-Clause whether as a result of avoidance of such insurance or otherwise.

SUBCLAUSE 21.1 – ADJUDICATION

Delete the entire sub clause 21.1 and add the following; “The Adjudicator shall be appointed by the Chartered Institute of Arbitrators (Kenya) unless the appointment is agreed by the parties within 7 (seven) days of the notice to adjudication. The

adjudication process shall be conducted according to the Laws of Kenya and the Rules of the Chartered Institute of Arbitrators (Kenya)."

SUBCLAUSE 21.5 – AMICABLE SETTLEMENT

Delete the entire sub clause 21.3 and add the following; "Where notice to of intention to commence adjudication as to a dispute has been in accordance with sub clause 21.1, the parties shall attempt to settle such dispute in amicably before the commencement of Adjudication; provided that, unless the parties otherwise agree, Adjudication may be commenced on or after the 14th (fourteenth) day after the day on which notice of intention to commence adjudication of such dispute was given, even if an attempt at amicable settlement thereto has been made."

SUBCIAUSE 21.6 – ARBITRATION

Delete the entire sub clause 21.6 and add the following; "Any dispute in respect of which: The decision, if any, of the Adjudicator has not become final and binding pursuant to sub clause 67.1, and Amicable settlement has not been reached within the period stated in sub clause 67.2, shall be finally settled, under the Laws of Kenya and the Arbitration Rules of the Chartered Institute of Arbitrators (Kenya Branch) by one or more arbitrators appointed by the Chartered Institute of Arbitrators (Kenya Branch). Neither party shall be limited in the in the proceedings before such arbitrator/s to the evidence or arguments put before the Adjudicator for the purpose of obtaining his said decision pursuant to sub clause 21. Arbitration may be commenced prior to or after completion of the works, provided that the obligations of the Employer, the Engineer and the Contractor shall not be altered by reason of the arbitration being conducted during the progress of the works.

CLAUSE 22 – BRIBERY AND COLLUSION

Add new Clause 22.1:

"The Contractor shall not:

a) Offer or give or agree to give to any person in the service of the Government of Kenya any gift or consideration or any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of this or any other contract to which the Government of Kenya is a party or for showing or forbearing to show favour or disfavor to any person in relation to this or any other contract for the Government of Kenya.
b) Enter into this or any other contract with the Government of Kenya in connection with which commission has been paid or agreed to be paid by or on his behalf or to his knowledge, unless before the contract is made particulars of any such commission and of the terms and conditions of any agreement for the payment thereof have been disclosed in writing to the Employer.

Any breach of this condition by the Contractor or by anyone employed by him or acting on his behalf (whether with or without the knowledge of the Contractor) or the commission of any offence by the Contractor or by anyone employed by him or acting on his behalf in relation to this or any other contract to which the Government of Kenya is a party shall entitle the Employer to determine the Contract and/ or to recover from the Contractor the amount or value of any such gift, consideration or commission.

Any dispute or difference of opinion arising in respect of either the interpretation, effect or application of this condition or of the amount recoverable hereunder by the Employer from the Contractor shall be decided by the Employer, whose decision shall be final and conclusive.

TECHNICAL SPECIFICATIONS

GENERAL

Provision of equipment material and labour

The Contractor shall provide all equipment, transport, consumable materials and labour necessary for the satisfactory completion of the works in compliance with the specifications herein. The Engineer reserves the right to inspect plant and materials prior to Contractor selection, and may reject plant or material that in his/her opinion is substandard or inappropriate. The Contractor shall provide full descriptions of all plants to be deployed for these works. The Contactor shall present method statements describing in detail the proposed approach to work.

The Contactor shall provide summary detail of the experience of key personnel to be deployed for these works.

Occupation of site

The Employer will provide land on which the works shall be constructed. The Contractor shall be given possession of such parts of the site that he requires for activities related to construction works including storage of raw materials, equipment and setting up of camp during the period of Contract provided his operation does not interfere with the daily activities of the Employer.

The Contractor shall not enter upon or occupy with men, tools, equipment and materials any land other than the land or right of way provided by the Employer

Diligent performance

The Contractor shall at all times perform the Works diligently and in accordance with sound professional practice. He/she shall not proceed from one stage of works to another without the express permission of the Engineer.

Decisions regarding temporary halt, discontinuing of any element or part of any element of these works, or abandonment of these works, shall be discussed jointly between the Contractor and the Engineer before any further actions are authorised by the Engineer. The Engineer's decision shall be final.

The Engineer will require a written submission justifying any steps taken by the successful bidder without the Engineer's approval. An unsatisfactory explanation shall lead to non-payment for works undertaken without prior agreement, and may be included for consideration as liquidated damages.

Drawings

The project drawings shall comprise

(a) The drawings provided by the engineer

(b) Such other drawings and/or sketches as are issued from time to time by the

Engineer to deal with design modifications in response to on-site conditions

Record drawing

As the work proceeds the Contractor shall mark-up 'As Built' details on a set of prints of the Contract Drawings modified to portray the works as actually constructed and issue to the Engineer's representatives for approval within 7 days of completion of the works covered by each drawing.

Level datum

It shall be the responsibility of the Contractor before commencing work to obtain from the Engineer in writing the values and locations of the benchmarks to be used in these works. All temporary benchmarks shall be referred thereto.

The Contractor shall construct such temporary benchmarks as the Engineer may direct and shall agree the levels thereof with the Engineer. The establishment of such temporary benchmarks shall be deemed part of the Contractor's responsibility in setting out the works.

The reduced levels are shown on the drawing are believed but not guaranteed to be correct. In the event of any discrepancies between the drawing and the specification, the specification shall have precedence over the drawing.

Setting out

The Contractor shall appoint and employ the necessary qualified and experienced staff to set out the works accurately.

The Contractor shall establish and locate all lines and levels and be responsible for the correct location of all works.

Where directed by the Engineer, the Contractor shall take such levels and dimensions as may be required for the purposes of measurement before disturbance of the ground. These shall be agreed between the Contractor and the Engineer in writing before any ground surface is disturbed or covered up. Any work commenced without taking the said levels and dimensions shall be measured on the Engineer's reckoning of their values before disturbance. The Engineer's decision on this matter shall be final.

Construction and checking of work

The Contractor shall be solely responsible for and shall provide all labour, tools, lifting tackle, and other equipment required for the construction and checking of the works.

No operative shall be allowed to execute any type of work which is normally carried out by a skilled trades man, unless the operative is thoroughly experienced and proficient in the trade concerned. Supervisors and operatives may be required to demonstrate their proficiency or produce certificates of competence to the satisfaction of the Engineer.

As each part of the work is carried out, it shall be subject to the approval of the Engineer.

Survey equipment

The Contractor shall provide for the sole use of the Engineers representative the survey equipment and appliance and these shall revert to the Contractor upon completion of the Contract.

The Contractor shall provide all labour and materials as may be required by the Engineer representative for survey work in connection with works.

Supervision and labour

The Contractor will be required to maintain a competent supervising engineer and staff on Site throughout the construction period until completion of the works, and thereafter as may be required during the Defects Liability Period. The Engineer shall give prior approval to the appointment of this supervising engineer and shall have the authority to withdraw this approval at any time in accordance with the Conditions of Contract.

All staff and labour employed on the works shall be employed in accordance with the labour and employment laws and regulations of the Republic of Kenya

Contractor's site offices, staff, workshops, storage and working areas, communication, etc

EARTHWORKS

Conditions of site

Before carrying out any work on the site the site shall be jointly inspected in conjunction with the Engineers representative to establish its general condition which shall be agreed and recorded in the writing.

Details to be recorded shall include location of all boundary and survey beacons, the condition of buildings surfaces, roads, tracks existing structures, services, fences and other information related to the site and elsewhere which may be affected by the Contractor operations.

In the case of way-leaves for mains and pipelines the boundary of the way-leaves shall be decided by the employer and the Contractor shall provide, erect and maintain in position from commencement to final completion of all works and all reinstatements in every section substantial timber stakes or similar approved timber markers not less than 1.5m high indicating position of every beacon at 100m or such other interval as the Engineer's representative may require.

In the event of any boundary or survey beacon being disturbed or displaced as a result of the Contractors operations the Contractor shall forthwith at his own expense replace the beacon and shall employ the services of an approved licensed Surveyor for this purpose.

Clearing site

The Contractor shall use methods approved by the Engineer to clear trees, bushes and vegetation from areas to be occupied by the permanent structures required for the Works.

The Contractor shall demolish, break up and remove buildings, walls, gates, fences, advertisements and other structures and obstructions, grub up and remove trees, hedges, bushes and shrubs and clear the site of the works at such time, and to the extent required by the Engineer. The materials so obtained shall so far as suitable be reserved and stacked for re use as directed; all rubbish and materials not for use shall be destroyed or removed from the site, as directed by the Engineer. Unless otherwise stated elsewhere, all other materials which are cleared shall become the property of the Contractor.

Where top soil has to be excavated this shall be removed and stacked on site. After completion of construction, it shall be spread over the disturbed ground, any surplus being disposed of as directed by the Engineer.

Underground structures and chambers where required to be demolished, shall be demolished to depths shown on the Drawings or as directed. They shall be properly cleaned out and back filled and compacted with suitable material to the direction and approval of the Engineer.

Vegetation

No allowance will be made for the cutting and removal of the crops, grass, weeds and similar vegetation. The cost of all such work will be held to be included in the rates entered in the bill of Quantities for excavation.

Bushes and small trees

All bushes and small trees, the main stem of which is less than 500 mm girth at 1 meter above ground level shall be uprooted (unless otherwise directed by the Engineer) and burnt or otherwise disposed of as directed by the Engineer.

Hedges

Where directed by the Engineer hedges shall be uprooted and disposed of by burning.

Felling trees

Where directed by the Engineer, trees shall be uprooted or cut down as near to the ground level as possible and the rates entered in the Bills of Quantities shall include for cutting down, removing branches and foliage, cutting useful timber into suitable lengths, loading, transporting not more than 1 km and stacking or disposing of all as directed by the Engineer. For the purpose of

measurement trees cut down shall be classified according to their girth at 1 metre above ground level, the cost of grubbing roots shall be deemed to be recovered by the rate for felling trees.

Grubbing-up roots

Stumps and trees roots shall, unless otherwise directed, be grubbed up, blasted, burnt or removed and disposed of in approved dumps to be provided by the Contractor. Where directed by the Engineer, the holes resulting from grubbing up shall be filled with approved materials, which shall be deposited and compacted in layers not exceeding 225 mm loose depth, to the same dry density as that of the adjoining soil. For the purpose of measurement, trees roots shall be classified according to the mean diameter of the stump measured across the cut.

Structures

Structures shall not be demolished unless specified or directed. Methods of demolition shall be approved.

Ground levels

Following the completion of site clearance and before the commencement of any earthworks, the site shall be surveyed in conjunction with the Engineers representative to establish existing ground levels and these agreed ground levels and these agreed ground levels shall form the basis for the calculation of quantities of any subsequent excavation and filling.

Excavation for pipe laying

The width of trench excavated for any size of pipe shall be a minimum required for efficient working after allowance has been made for timbering and for shuttering and shall be to the approval of the Engineer. Minimum sizes for different pipe diameters are as shown below;

Pipe diameter (mm)	100-250	300	400	450	500	600
Trench width (mm)	550	650	750	850	1000	1200

In the first instance the trench shall be excavated to within 1250mm of its formation and proper grade pegs shall then be set in the bottom of the trench by the Contractor for the accurate taking out of the rest of the excavation. Excavations shall then be completed by hand to provide a uniform and solid bearing for pipes throughout their entire length. The bottom of the trench shawl be smooth and shall be free from stones and other projections. Joint holes shall be as smalls a size as possible.

If instructed by the Engineer the Contractor shall be required to excavate the pipe trench to a depth of 100mm below the invert of the pipe and refill with compacted granular. Fill to provide a smooth and uniform bed for the pipes. Payment for such additional excavation and additional refilling will be made at the tendered rates.

The materials excavated from trenches shall be laid compactly at the sides of the trench except where in the opinion of the Engineers representative this would so obstruct any road or footpath as to prevent passage of traffic or pedestrians. In such cases the Contractor shall excavate material at such distances to the specifications of the Engineer.

Excavation for foundations, thrust and anchor blocks

Excavation for foundation and for anchor and thrust blocks shall be to such depths as the Engineer may direct and no concrete or other material shall be placed until formation has been examined and approved.

The engineer may direct that a layer of excavation of not less than 75mm thick shall be left undisturbed and subsequently taken out by hand immediately before concrete or other material is placed. Similarly, such concrete or other material o placed in contact with the side face of an excavation the Engineer may direct that the final 75mm thickness of excavation be left undisturbed and subsequently take out neatly to profile by hand.

Areas of excavation which are to receive a layer of concrete as screeding under the structural concrete shall be covered with the screeding immediately the excavation has been completed.

Dewatering of excavations

The Contractor shall maintain all excavations free from water, irrespective of its source, to the extent necessary for the execution of the Works or in the interests of safety, and to the satisfaction of the Engineer. He shall provide, install, operate and maintain all necessary appliances and Plant for this purpose.

The Contractor shall take all necessary precautions at points of discharge of water to avoid flooding or damage to the Works, adjoining works or property and to avoid pollution of watercourses.

Cuttings, embankments and borrow areas shall be drained so as to be free of standing water which would have adverse effects on the permanent works. All drains and ditches shall be properly maintained. The Contractor shall replace any material which, in the opinion of the Engineer, has been adversely affected by water.

The dewatering of excavations immediately prior to concreting shall not be commenced until at least one standby pump is on hand.

Remedial work

Any damage resulting from the Contractor's operations during excavation, including damage to foundations and excavated surfaces shall be repaired at the expense of the Contractor and to the satisfaction of the Engineer.

MATERIALS

Pipes and fittings

The approval in writing or otherwise by the Engineer of any materials shall not in any way whatsoever relieve the Contractor from any liability or obligation under the Contract and no claim by the Contractor on account of the failure, insufficient or unsuitability of any such materials will be entertained.

All items shall be suitable for water works purposes and for use with cold water installation and operation being in a tropical climate.

All items hereinafter specified shall be to such other Standard or Specification which in the opinion of the Engineer provides for a quality of material and workmanship not inferior to the Standard Reference Number (SRN) quoted. The Standard or Specification must be submitted to the Engineer for approval before commencement of work.

All ferrous pipes and fittings shall be coated with bituminous protective paint suitable for use in and transport through a tropical climate.

The Contractor shall supply to the Employer a certificate stating that each item supplied has been subjected to the tests hereinafter laid down and conforms in all respects to the said Specifications.

The Contractor shall provide adequate protection to all piping, flanged items and valves so as to guard effectively against damage in transit and storage and ingress for foreign matter inside the valves.

All pipe work and fittings shall be subjected to a work hydrated test pressure, which shall be not less than twice the maximum operating pressure.

The Contractor should exercise diligence to provide the best material

Where applicable the manufacture's Specification should accompany all offers. The name of the manufacturer must in every case be stated.

Where necessary the Contractor shall provide rubber gaskets all other bolts, nuts etc. to undertake jointing at fittings etc.

Any article required under this Contract. Which are found to be faulty due to a crack, flaw or any other reason or is not in accordance with the specification stipulated will not be accepted nor will the Employer be liable for any charges in respect of such an article. Where any such rejected article can, in

the opinion of the Engineer, be rendered usable, the Contractor may deal with it accordingly and include it in the Contract at a price to be mutually agreed. Straight pipes which have been cut will be accepted provided the length is not less than 4 meters or two thirds of the standard length whichever is the lesser and will be priced pro-rata.

Wherever possible, sample of pipes and fittings shall be submitted for approval of the Engineer prior to the Contractor obtaining the total requirements.

Unplasticized uPVC pipes

The maximum sustained working pressures to which the pipes and fittings will be subjected is based on water at temperature of 20 degrees centigrade.

The Contractor shall submit full details of the pipes he intends to supply.

The pipes up to and including 40mm diameter can be of a solvent weld type. The pipe shall be supplied with interchangeable sockets preformed at the factory and of such internal diameter that it takes the plain end of the pipe with the same nominal diameter.

The joint shall sustain the end thrust to which the pipe shall be subjected. The Contractor shall supply sufficient quantity of the cleaner and adhesive, which shall be required to make the joints with the pipes.

The pipes of 50mm diameter and over shall consist of a grooved socket at one end of the pipe. The socket shall be designed to give a clearance fit on the outside diameter of the parent pipe. The sealing medium, which shall seat in the groove, shall be a rubber ring.

If the formation of the socket and groove results in the thinning of the original wall thickness of the pipe, it shall be compensated for by shrinking on the socket area a reinforcing sleeve of the same material as the pipe.

The socket and groove shall incorporate no sharp angles where the stress points are created.

The joints shall take 10% deformation of the spigot at the point where it enters the socket without leakage from the pipe when subjected to the test pressure specified for the pipe. Thermal expansion of the pipe shall be capable of linear deflection up to 3 degrees.

The sealing ring shall be of first grade natural rubber and the physical properties of the mix.

The Contractor shall supply sufficient, quantity of any lubricant or other material, which shall be needed to make the joint, which shall be assembled by hand.

The Contractor shall submit full details of the type of joint offered and a full description of the method of jointing.

The fitting shall have the same type of joint as for the pipes to be used. The Contractor shall submit full details of the materials dimensions and test pressures of the fittings offered.

Precautions shall be taken to avoid damage to the pipes and fittings.

In handling and storing the pipes and fittings, every care shall be taken to avoid distortion, flattening, scoring or other damage. The pipes and fitting shall not be allowed to drop or strike objects. Pipes lifting and lowering shall be carried out by approved equipment only.

pecial care shall be taken in transit, handling and storage to avoid any damage to the ends.

Pipes and fittings shall be marked at no greater than one meter intervals showing their class and diameter.

Pre- cast concrete units

Pre-cast concrete covers to be pre-cast units for use in the works, whether instructed under the Contract or proposed by the Contractor.

Formwork for pre-cast units

Moulds shall be so constructed that they do not suffer distortion or dimensional changes during use and are tight against loss of cement grout of fines from the concrete.

Moulds shall be set up on firm foundations so that no settlement occurs under the weight of the fresh concrete.

Moulds shall be constructed so that units may be removed from them without sustaining any damage.

Release agents used for demoulding shall not stain the concrete or affect its properties.

Reinforcement for pre-cast units

Reinforcement in pre-cast units shall comply with general requirements and those of Clause 6.1 When preformed cages are used the cages shall be made up on jigs to ensure dimensional accuracy and shall be carefully supported within the mould in such a way that they cannot move when concrete is placed. Reinforcement may be tack welded where bars cross to provide rigidity in the cage but reinforcement shall not be welded.

Cover to main reinforcement shall be as shown on the drawings, or if not shown shall be not less than 25mm or the diameter of the bar, whichever is the greater. Cover on distribution steel shall not be less than 15mm or the diameter of the bars.

Bars may be placed in pairs provided that there are no laps in the paired lengths.

Casting of Units

Concrete for pre-cast units shall comply with Clauses 5.9 using the class of concrete specified on the drawings.

The area in which units are cast shall be adequately protected from the weather so that the process is not affected by rain, sun or drying winds.

Curing Pre-cast Units

Requirements for curing shall be generally as set out in Clause 5.11

The Contractor shall ensure that units do not suffer any loss of moisture or sudden changes of temperature for at least four days after casting. If a water spray is used for curing, the water shall be at a temperature within 5 degrees centigrade of the temperature of the unit being cured.

If the Contractor proposes curing at elevated temperatures, the method shall be subject to the agreement of the Engineer and shall include means whereby units are heated and subsequently cooled evenly without sudden changes of temperature.

Materials for concrete

General

The Contractor shall submit to the Engineer full details for all material, which he proposes to use for making concrete. No concrete shall be placed in the works until the Engineer has approved the materials of which it is composed. Approved materials shall not thereafter be altered or substituted by other materials without the consent of the Engineer.

Cement

Cement shall be free flowing and free of lumps. It shall be supplied in the manufacturer‘s sealed unbroken bags or in bulk. Bagged cement shall be transported in vehicles with effective means of ensuring that it is protected for the weather.

Bulk cement shall be transported in vehicles or in containers built and equipped for the purpose.

Cement in bags shall be stored in a suitable weatherproof structure of which the interior shall be dry and well ventilated at all times. The floor shall be raised above the surrounding ground level and shall be so constructed that no moisture rises through it.

Each delivery of cement in bags shall be stacked together in one place. The bags shall be closely stacked so as to reduce air circulation but shall not be stacked against an outside wall. If pallets are used, they shall be constructed so that bags are not damaged during handling and stacking. No stack of cement bags shall exceed 3m in height. Different types of cement in bags shall be distinguished by visible markings and shall be stored in separate stacks.

Cement from broken bags shall not be used in the works.

Cement in bags shall be used in order in which it is delivered.

Bulk cement shall be stored in weatherproof silos, which shall bear a clear indication of the type of cement contained in them. Different types of cement shall not be mixed in the same silo.

The Contractor shall provide sufficient storage capacity on site to ensure that his anticipated programme of work is not interrupted due to lack of cement.

Cement which has become hardened or lumpy or fails to comply with the Specifications in any way shall be removed from the site.

All cement for any one structure shall be from the same source.

All cement used in the Works shall be tested by the manufacturer or the Contractor in a laboratory acceptable to the Engineer. The Contractor shall supply two copies of each certificate to the Engineer.

Each set of tests carried out by the manufacturer of Contractor shall relate to not more than one day’s output of each cement plant, and shall be made on samples taken from cement which is subsequently delivered to the site. Alternatively, subject to the agreement of the Engineer’s the frequency of testing shall be one set of tests for every 200 tonnes of cement delivered to site from each cement plant.

Cement which is stored on site for longer than one month shall be retested at an approved laboratory for every 200 tonnes, and at monthly intervals thereafter.

Cement which does not comply with the Specification shall not be used in Works and it shall be disposed of by the Contractor.

The Contractor shall keep full records of all data relevant to the manufacturer, delivery; testing and use of all cement used in the works and shall provide the Engineer with two copies thereof.

Fine aggregate

Fine aggregate shall be clean hard and durable and shall be natural sand, crushed gravel sand or crushed rock sand. All the material shall pass through a 5mm standard sieve. In order to achieve an acceptable grading, it may be necessary to blend materials from more than one source.

The fine aggregate shall not contain iron pyrites or iron oxide, It shall not contain mica, shale, coal or other laminar, soft or porous materials or organic matter unless the Contractor can show by comparative tests, on finished concrete, that the presence of such materials does not adversely affect the properties of the concrete.

Other properties shall be as out below:-

Content passing a 75 micron standard sieve shall not exceed 3 per cent for natural of crushed gravel sand of 15 per cent for crushed rock sand.

Chlorides soluble in a 10 per cent solution by weight of nitric acid shall not exceed 0.05 per cent by weight expressed as chloride ion when tested, subject also to the further restriction given in the note on total chloride content in sub-clause 4.5 (d)

Sulphates soluble in a 10 per cent solution by weight of hydrochloric acid shall not exceed 0.4 per cent by weight expressed as SO when tested, subject also to the further restriction given in the note on total sulphates content in sub-clause 4.5(d)

Soundness: after five cycles of the test in AASHO---------- or an approved equivalent the aggregate shall not show a weight loss of more than 10 per cent.

Organic impurities:

If the test for presence of organic impurities in aggregates described below shows that more than a trace of organic impurities is present, the fine aggregate shall not be used in the works unless the Contractor can show by tests on finished concrete that the presence of organic impurities does not adversely affect the properties of the concrete.

Test for presence of organic impurities aggregates:

This test is designed to indicate the presence of organic impurities in aggregates used for making concrete.

A 350 cc graduated bottle shall be filled to the 120 cc mark with a sample of the aggregate liquid after shaking gives a total volume of 200 cc. The bottle shall be stopped, shaken thoroughly and allowed to stand for 24 hours. If, after 24 hour, the colour of the solution is no darker than a pale brown, the aggregate under test may be deemed satisfactory.

Coarse aggregate

Coarse aggregate shall be clean and durable crushed rock, crushed gravel or natural gravel. The material shall not contain any iron pyrites, iron oxides, flaky or laminated material, hollow shells coal or other soft or porous material, or organic matter unless the Contractor can show the comparative tests on

finished that the presence of such materials does not adversely affect the properties of the concrete. The pieces shall be angular rounded or irregular.

Coarse aggregate shall be supplied in the nominal sizes called for in the Contract and shall be graded for each nominal size.

Other properties shall be as set out below:-

The proportions of clay silt and other impurities passing a 75 micron standard sieve shall be no more than one per cent by weight.

The content of hollow and flat shells shall not be such as will adversely affect the concrete quality when tested. The total content of aggregate shall not be more than the following.

40mm nominal size an above	2% of dry weight
20mm nominal size	5% of dry weight
10mm nominal size	15% of dry weight.

Chlorides soluble in a 10 per cent solution by weight of nitric acid shall not exceed 0.03 per cent by weight, expressed as chloride ion when tested but subject also to the further restriction under the percent solution by weight of hydrochloric acid shall not exceed 0.4 per cent by weight expressed as 50g when tested subject also to the further restriction given in the total sulphates content hereunder.

Soundness: After 5 cycles of the test in AASHO T104 or approved equivalent, the aggregate shall not show a weight loss of more than 12 per cent.

When tested in accordance with Test C289 of the American Society for Testing of Materials or approved equivalent, the aggregate shall be non-reactive.

Flakiness Index when tested shall be as set out hereunder:

For 40mm stone and above, not more than 40

For 20mm stone and below, not more than 35

If the Flakiness Index of the coarse aggregate varies by more than five units from the average value of the aggregate used in the approved trial mix, then a new set of trial mixes shall be carried out if the workability of the mixes has been adversely affected by such variations.

Impact value:	Not more than 45 per cent when tested.
Ten per cent fines value:	Not less than 50kN when tested.

Shrinkage: When mixed with other ingredients in the approved proportions for concrete and tested, the shrinkage factor shall not exceed 0.05 per cent.

Organic impurities: If the test for presence of organic impurities in aggregate shows that more than a trace of organic impurities is present, the aggregate shall not be used in the works unless the Contractor can show by tests on finished concrete that the presence of organic impurities does not adversely affect the properties of the concrete.

Water absorption: The aggregate shall not have water absorption of more than 2.5 per cent when tested.

Aggregate Crushing value (ACV): not more than 35 per cent

Los Angeles Abrasion (LAA) not more than 50 per cent.

NOTE: Total chloride and sulphates content:

Total chloride content, expressed as chloride ion, arising from all ingredients in a mix including cement, water and admixtures shall not exceed the following limits, expressed as percentage of the weight of cement in the mix:-

For pre stressed, concrete, steam cured concrete or concrete containing sulphates cement: 0.05 per cent.

The total sulphates content expressed as 50g of all the ingredients in a mix including cement, water and admixtures shall not exceed 0.4 per cent by weight of the aggregate or 4.0 per cent by weight of the aggregate or 4.0 per cent of the weight of cement in the mix whichever is the lesser.

Testing aggregates

Acceptance testing

The Contractor shall deliver to the Engineer samples containing not less than 50kg of any aggregate which he proposes to use in the Works and shall supply such further samples as the Engineer may require. Each sample shall be clearly labelled to show its origin and shall be accompanied by all information.

Tests to determine compliances of the aggregates with the requirements of Sub-Clause 7.5 (c) and (d) shall be carried out by the Contractor in laboratory acceptable to the Engineer. If the tested materials fail to comply with the specification, further tests shall be made in the presence of the Contractor and the Engineer and acceptance of the material shall be based on such tests.

A material shall be accepted if not less than three consecutive sets of test results show compliance with the Specification.

Compliance testing

The Contractor shall carry out routine testing of aggregate for compliance with the Specification during the period that concrete is being produced for the Works.

The tests set out below shall be performed on aggregate from each separate source on the basis of one set of tests for each day on which aggregates are delivered to site provided that no set of tests shall represent more than 250 tonnes of fine aggregate not more than 500 tonnes of coarse aggregate, and provided also that the aggregate are of uniform quality, if the aggregate are of uniform quality, if the aggregate from any source is variable, the frequency of testing shall be increased as instructed by the Engineer.

In addition to the above routine tests, the Contractor shall carry out the water content of the concrete as required by the specification.

Moisture content: as frequently as may be required in order to control the water content of the content of the concrete as required by the Specification.

Chloride content: As frequently as may be required to ensure that the proportion of chlorides in the aggregate does not exceed the limit stated in the Specification.

The Contractor shall take account of the fact that when the chloride content is variable it may be necessary to test every load in order to prevent excessive amounts of chloride contaminating the concrete. For this purpose the Contractor shall use the rapid field test (the Quanta test). In the event of disagreement regarding the results of the field test, the chloride content of the aggregate shall be determined in the laboratory (the volhard test).

Delivery and storage of aggregates

Aggregate shall be delivered to site in clean and suitable vehicles. Different types of sizes of aggregate shall not be delivered in one vehicle.

Each type or size of aggregate shall be stored in a separate bin or compartment having a base such that contamination of the aggregate is prevented. Dividing walls between bins shall be substantial and continuous so that no mixing of types or sizes occurs.

The storage of aggregates shall be arranged so that, as far as possible rapid drying out in hot weather is prevented in order to avoid sudden fluctuation in water content. Storage of fine aggregates shall be arranged so that they can drain sufficiently before use in order to prevent fluctuations in water content of the concrete.

Water for concrete and mortar

Seawater or brackish water containing more than 1000 ppm chloride ion or 2000 ppm sulphate ion shall not be used for mixing or curing concrete.

Water shall be clean and free from harmful matter.

The Contractor shall carry out tests to establish compliances with the specification.

Building stone

All building stones shall be capable of withstanding when wet a crushing stress of 1.4kg /sq.mm. The source of stone shall be approved by the Engineer and stone supplied there from shall be free from Magadi, overburden, mudstone, cracks, sand holes, veins, laminations or other imperfections.

The stone shall be chisel dressed into true rectangular blocks, with each surface even and at right angles to all adjoining surface, to the size specified. For exposed stonework the maximum permissible variation of any of the specified dimensions shall be 6mm provided that cut stone, supplied as rock face stone may be hammer dressed on one face only or on one face and one end if in other respects it conforms to this specification. Stones shorter than 375mm will not be accepted.

Unless the Engineer allows otherwise, the Contractor shall at his own expense provide and dress four 100mm cubes of stone for testing.

The stone shall be sound when tested except that:-

The treatment shall be repeated for 10 cycles only and

The second criterion of failure shall be amended to allow for a loss of weight of not more than 20kg of its original weight.

Stone Dust

Stone dust for building shall be blacktrap screened to the following grading:-

Passing 10mm sieve	100%
Passing No. 4 sieve	85% - 100%
Passing No. 100 sieve	5% - 25%

Murram

Murram shall be from an approved source quarried so as to exclude vegetable matter, loam, topsoil or clay. The California Bearing Ratio of the murram, as determined for a sample compacted to maximum density and allowed to soak in water for four days, shall not be less than 30%. This C.B.R. is a guide to quality only and the compaction in the work will be judged by density.

Water for cement treated materials

If water for the works is not available from the Employer's supply, the Engineer's approval must be obtained regarding the source of supply and manner of its use. Water to be used with cement or lime shall be free from salt, oil, alkali, organic matter and other deleterious substances: Tests for water for making concrete, all to the cost of the Contractor.

Cement mortar

Cement mortar shall consist of proportions by volume as specified or Portland Cement, natural sand or crushed natural stone or a combination of both. Building Sands from Natural Sources. The constituent materials shall be accurately gauged and mixed in an approved manner.

Cement mortar shall be made in small quantities only as and when required, and any mortar which has begun to set or which has been mixed for a period of more than one hour shall be rejected.

Hydrated Lime

Building Limes and shall be of the semi – hydrated type.

Calcium chloride

Calcium chloride shall be good industrial grade, and shall be obtained from and approved source.

Lime mortar

Lime mortar shall consist of proportions by volume as specified by hydrated lime and natural sand or crushed natural stone or a combination of both. The constituent materials shall be accurately gauged and mixed in an approved manner in a proportion specified.

Cement – lime mortar

Cement – line mortar shall consist of Portland Cement, hydrated lime and natural sand or crushed natural stone or a combination of both. The constituent materials shall be accurately gauged and mixed by volume in an approved manner in proportion specified.

Cement – lime mortar shall be made to set or which has been mixed for a period of more than two hours shall be rejected.

Cement grout

Cement grout shall consist of Portland Cement and water mixed in the proportion of one part by volume of cement and one and a half parts by volume of water. The grout shall be used within one hour or mixing.

Cast stone

Cast stone shall be manufactured by an approved manufactures to the shapes and dimensions shown on the drawings. Cast Stone. It shall have dense and even surface of the texture and colour detailed on the drawings or required by the Engineer. Where indicated, exposed faces of the stone shall be formed of a specially graded mix. Metal bond ties of approved manufacturer shall be cast in with the stone as shown on the drawings. Samples of the completed stone shall be submitted for the Engineer's prior approval.

All stones shall be protected from damage during transport and erection by means of cement slurry coating or by other approved methods.

Reinforcement for concrete

Reinforcement which shall comply with the following Standard, covers plain and deformed bar reinforcement and steel fabric to be cast into concrete in any part o the works but does not include pre-stressing tendons or any other embedded steel.

All reinforced shall be from an approved manufacturer and, if required by the Engineer, the Contractor shall submit a test certificate from the manufacturer.

All reinforcement for use in the works shall be tested for compliance with the appropriate Standard in a laboratory acceptable to the Engineer and two copies of each test certificate shall be supplied to the Engineer. The frequency of testing shall be as set out in the relevant Standard.

In addition to the resting requirement described above, the Specification shall be removed from site.

All reinforcement shall be delivered to site either in straight lengths or cut and bent. No reinforcement shall be acceptable in long lengths which have been transported bent over double.

Any reinforcement which is likely to remain in storage for a long period shall be protected from the weather so as to avoid corrosion and pitting. All reinforcement which has become corroded or pitted to an extent which in the opinion of the Engineer will affect its properties shall either be removed from site or may be tested for compliance with the appropriate Standard at the Contractor's expense.

Structural steel for welded work

The use of Structural Steel in Building and for welded work, High Yield Stress and High Tensile Structural Steel, High Tensile (Fusion Welding Quantity) Structural Steel for Bridges, etc, and General Building Construction.

Waterproof underlay

Waterproof underlay shall consist of wither waterproof paper. Waterproof Building Paper, containing approved fibrous reinforcement, or 900 Gauge polythene sheeting as stated in the Bill of Quantities.

Preformed joint filler

Preformed joint filler shall be of the thickness shown on the drawing or as stated in the Bills of Quantities.

The material comprising joint filler shall be as stated on the drawings or approved by the Engineer.

uPVC pipes and fittings

Unplasticised polyvinyl chloride pressure pipe shall have outside diameters complying with ISO 161-1 1978.

Concrete pipes

Reinforced concrete pipes and special fittings for drainage purposes shall have "Cornelius" or similar approved spigot and socket flexible joints and shall comply with BS 5911 "Concrete cylindrical pipes and fittings including manhole inspection chambers and street gullies".

Unreinforced concrete pipes with ogee joints shall comply with BS 5911 Part 3.

Concrete porous pipes

Concrete porous pipes shall comply with the requirements of Porous pipes for under-drainage.

Concrete drain invert blocks

Pre- cast concrete invert blocks shall be manufactured from concrete Class 20/10 as specified on drawing using maximum 12mm size aggregate. If required, cube test certificates shall be supplied by the manufacturer.

Concrete slabs for open drains

Pre- cast concrete slab for lining open drains shall be manufactured from concrete Class 20/10 as specified in Table 4.2 using maximum 12mm size aggregate. If required cube test certificates shall be supplied by the manufacturer.

Manhole covers and frames

Cast Manhole Covers, Road Gully Gratings and Frames for Drainage Purposes except that the manhole covers shall be constructed of mild steel, concrete filled, in accordance with the standard detail drawings.

Foul water sewer manhole shall have triangular Grade "A" heavy duty covers and frames. Circular manhole covers and frames shall be used on surface water sewer manhole.

Gully grating and frames

Gully grating and frames shall be of nominal size 500mm x 350mm except that the gully grating shall be constructed of mild steel concrete filled in accordance with the standard detail drawings.

Where indicated as being kerb inlet type the gullies shall conform to the shape and dimensions given on the detail drawings supplied.

Pre- cast concrete manhole and inspection chambers

Concrete Cylindrical Pipes and Fitting including Manholes, Inspection Chambers and Street Gullies and they shall carry the relevant Standard Institution registered certification trade mark, or test certificates shall be furnished by the manufacturer.

Pre- cast concrete gullies

Pre- cast concrete gullies shall be un-reinforced Concrete Cylindrical Pipes and fittings including Manhole, Inspection Chambers and Street Gullies.

Valve Chamber and Manhole step iron

Steps irons of general –purpose type shall comply in all respects with malleable Step Irons.

Timber

Timber shall be sound, well-seasoned and entirely free from worm, beetle, warps, shakes, splits and all forms of rot and deadwood. Where required, all timber shall be treated with creosote. Coal Tar Creosote for the preservation of Timber or an alternative approved timber preservative.

Water bars

Water bars shall be "Dumbbell" type and be of natural or synthetic rubber or extruded PVC. They shall be flexible, tough, elastic and durable and of dimensions detailed. They should be unaffected on contact with dilute acids or alkalis. Joints and junctions hall, when possible, be prefabricated by the manufacturer's instruction including recommended adhesive shall be followed and used. Samples shall be submitted for approval of the Engineer before use of any material.

Concrete blocks

All solid and hollow concrete blocks used in the walling must be capable of withstanding a crushing pressure of not less than 0.35 per square millimetre after 29 days. The blocks shall be cast in metric sizes.

Plumbing materials

Galvanised mild steel pipes

Galvanised mild steel pipes and fittings shall comply with BS 1387 Class B or"Medium Grade". Threading for screwed and socketed joints shall be in accordance with the requirements of BS 21. Joints shall be made with an approved pipe-jointing compound in accordance with the manufacturer's instructions. Red lead compounds shall not be used. Joints in underground piping shall be coated with bitumen or other approved composition.

Fittings for galvanised pipes

All fittings for galvanised steel water pipework shall be galvanised heavy weight fittings in accordance with BS 1740. Fittings for waste pipework shall be galvanised malleable iron complying with the requirements of BS 143. Brass or gunmetal fittings shall be subject to the approval of the Engineer.

CONCRETE WORKS

General

Code of practice

All workmanship, materials, tests and performances in connection with the reinforced concrete work are to be in conformity with the latest edition of the followings

British Standard Code of Practice (C.P. 114 for "Structural Use of Concrete") where not inconsistent with these specifications.

British Standard Code of Practice B.S 5337 "the design and construction of reinforced concrete structures for the storage of liquids

Appropriate Ministry of Works Standards in any or in their absence appropriate British Standards

Contractor's plant

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

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

Materials

Cement

Cement, unless otherwise specified, shall be Portland cement of the Blue Triangle brand, or Bamburi Portland Cement brand. Any other brand must be approved by the Engineer and shall comply with the requirements of B.S. 12 with the exceptions that it may contain reactive volcanic ash (of not more than 10% of total weight) and the quantity of insoluble residue permitted in B.S. 12 may be exceeded. A manufacturer's Certificate of Test in accordance with B.S. shall be supplied for each consignment delivered to site.

Should the Contractor require using cement of the rapid hardening variety, he shall obtain the approval of the Engineer and also obtain any instructions regarding the modifications to the preambles caused thereby. Any additional cost that may be caused by the use of the rapid hardening cement shall be at the Contractor's expense.

Cement may be delivered to site either in bags or in bulk. If delivered in bags, each bag shall be properly sealed and marked with the manufacturer's name and on the site is to be stored in a weather- proof shed of adequate dimensions with a raised floor. Each consignment shall be kept separate and marked so that it may be used in the sequence in which it was received. Any bag found to contain cement which has set or partly set shall be completely discarded and not used in the Works. Bags shall not be stored more than 1500 mm in height.

If delivered in bulk the cement shall be stored in a weather-proof silo either provided by the cement supplier or by the Contractor, but in either case the silo shall be to the approval of the Engineer.

Aggregates

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

The grading of aggregates shall be one within the limits set out in B.S. 882 and as later specified and the grading, once approved, shall be adhered to through out the Works and not varied without the approval of the Engineer. Fine aggregate shall be clean, coarse, siliceous sand of good, sharp, hard quality and shall be free from lumps of stone, earth, loam, dust, salt, organic matter and any other deleterious substances. It shall be graded within the limits set out in zone 1 or 2 of B.S. 882.

Coarse aggregate shall be good, hard, clean approved black trap or similar stone, free from dust, decomposed stone, clay, earthy matter, foreign substances or friable thin elongated or laminated pieces. It shall be graded within the limits of Table 1 of B.S. 882 for its respective nominal size.

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

Aggregates shall be delivered to the site in their prescribed sizes or grading and shall be stockpiled on paved areas or boarded platforms in separate units to avoid intermixing.

Fine aggregate

Fine aggregate shall be sand free from impurities and complying with British Standard No. 882. Grading zone 2 of Table 2.

Coarse aggregate

Coarse aggregate shall be hard crushed rock free from impurities and complying with British Standard No. 882 "graded aggregate" 20 mm to 5 mm nominal size as Table 1.

Water for mixing concrete

Water for concrete shall be free from impurities, complying with BS 3148. Water for washing and curing shall be such that it will not impair neither the strength of the finished concrete nor its appearance.

Hardcore

Hardcore for filling under floors shall be good, hard stone ballast or quarry waste, to the approval of the Engineer, broken to pass through not greater than a 150 mm ring or to be 75% of the finished thickness of the layers being compacted, whichever is the lesser. Hardcore shall be free from all weeds, roots, vegetable soil, clay, black cotton soil or other unstable materials.

It shall be graded with smaller stones and fine materials to give a dense compact mass after consolidation. Sufficient fine material shall be added to each layer to give gradation of material as necessary to obtain a solid compact mass after rolling. Hardcore filling is to be laid in layers each of a consolidated thickness not exceeding 250 mm. Each layer shall be compacted by at least 8 passes of a 10-tonne smooth-wheeled roller or a 2-tonne vibrating roller until all movement ceases. Sufficient water is to be added to obtain maximum compaction to the Engineer's approval. To each layer a 25 mm thick layer of sand complying with the specification of fine aggregate for concrete shall be spread over the surface and forced into the hardcore by the use of a vibrating roller weighing not less than 2 tones. This operation should be carried out when the materials are dry and repeated whilst the sand is well watered. Should all the sand be absorbed the Engineer may require a further layer to be applied and the process repeated.

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

Compacted hardcore

The sub-grade shall be compacted by a smooth-wheeled roller of 8 to 10 tonnes weight or the vibrating roller of minimum 1300 Kg., or other approved plant. The number of coverage shall be at least 10 and there shall be a 50% overlap of successive coverage. If so instructed by the Engineer, water shall be added during compaction to obtain optimum water content. Filling shall be compacted as above but in maximum 200 mm deep layers.

Sand

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

Finishes

General

The Contractor will be required from an early stage in the Contract to prepare samples, for the approval of the Engineer, of the various concrete finishes specified hereafter. Samples are to be prepared using the same materials and the same methods of construction, compaction, curing, etc. as the Contractor proposes to use for executing the full quantity of the work. A record of the mix, water content, method of compaction, any additives used, etc., is to be kept for each sample prepared. When the Engineer has approved a sample it will be kept on site in an approved location. The finishes in construction will be expected to be up to a standard equal to the approved sample. Consistency in cement colour, and the colour, grading and quality of aggregates must be maintained in all finished concrete work.

Mortars

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

The ingredients of mortar shall be measured in proper gauge boxes on a boarded platform, the ingredients being thoroughly mixed dry, and again whilst adding water. In the case of cement/lime mortar, sand and lime shall be mixed first and then the cement added.

All mortar is to be thoroughly mixed to a uniform consistency with only sufficient water to obtain a plastic condition suitable for toweling. No mortar that has commenced to set is to be used or re-mixed for use.

Tamped finish

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

Fair face

Fair face surfaces shall be clean, smooth, even, true to form, line and level, and free from all board marks, joint marks, and honeycombing, pitting, and other blemishes. Forms are to be provided with a smooth lining of plywood, steel, or other approved material which will achieve the required finish without any general rubbing down. Rubbing down will only be permitted to remove any projecting fins at corners or joints.

Fine face

Fine face surfaces shall be for Fair face above, but to a higher standard obtained from forms provided with an impervious sheet lining of metal or plastics faced plywood in large panels arranged in an approved pattern. Rubbing down shall only be permitted after an inspection by the Engineer. The finished surfaces shall be capable of receiving a painted finish.

Chisel-dressed finish

Chisel-dressed finish is to be carried out on any grade of concrete but not until it is at least 30 days old. The surfaces are to be fully chisel-dressed to remove a maximum of 12 mm (average 9 mm) of the surface by shearing and exposing the aggregate without excessive cracking of the surrounding matrix. Arises of columns, beams, etc., are pre-formed fair face with timber fillets set in the formwork and care must be taken in working up to these to preserve a clean line.

For vertical surfaces of walls and columns particular care must be taken to remove all sharp projections. For beam soffits this requirement is not necessary. All surfaces requiring this treatment are to have margins chisel-dressed by hand for a minimum width of 75 mm commencing from the fillet edge. Thereafter, mechanical chisel-dressing may be used, but the Contractor must ensure that a uniform texture and even plane surface is achieved. The use of sharply pointed steel tools for both hand and mechanical chisel-dressing is essential. Upon completion the surfaces are to be thoroughly wire brushed and washed down.

Protection of finishes

Wherever possible, in-situ exposed concrete finishes should be commenced at the highest level and worked progressively down the building. Precaution shall be taken to avoid staining or discoloration of previously finished concrete faces by leakage of grout from newly placed concrete. The Contractor shall, during all stages of construction, adequately protect all concrete finishes from Damage by leaking grout, knocking, paint stains, falling plaster, etc. In cases of balustrade walls to staircases and members where Damage is otherwise likely, concrete finishes shall be protected by cladding with timber, celotex, or other approved sheeting. All Sub-Contractors shall be informed accordingly on the precautions to be taken.

Blinding

All blinding concrete to be 1:3:6, or as otherwise instructed by the Engineer in writing.

Formwork

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

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

Construction of formwork

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

Soffits shall be erected with an upward camber of 5 mm for each 5 meters of horizontal span or as directed by the Engineer.

Great care shall be taken to make and maintain all joints in the formwork as tight as possible, to prevent the leakage of grout during vibration. All faulty joints shall be caulked to the Engineer's approval before concreting. The formwork shall be sufficiently rigid to ensure that no distortion or bulging occurs under the effects of vibration. If at any time the formwork is insufficiently rigid or in any way defective the Contractor shall strengthen or improve such formwork as the Engineer may direct.

The Contractor's attention is drawn to the various surface textures and applied finishes required and the faces of formwork next to the concrete must be of such material and construction and be sufficiently true to provide a concrete surface which will in each particular case permit the specified surface treatment or applied finish.

All surfaces which will be in contact with concrete shall be oiled or greased to prevent adhesion of mortar. Oil or grease shall be of a non-staining mineral type applied as a thin film before the reinforcement is placed. Surplus moisture shall be removed from the forms prior to placing of the concrete.

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

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

Stripping formwork

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

Beam sides, wall and columns	2 days
Slab Soffits (props left under)	3 days
Beam Soffits	7 days
Removal of props (partly subject to 7 days concrete cube strength being satisfactory) to:	
Slabs	10 days
Beams	14 days
Cantilevered Beams and Slabs	28 days

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

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

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

Supporting props to wall and beam soffits

When directed by the Engineer, supporting props to wall and beam soffits are to be left in position until the completion of the whole of the reinforced concrete structure. The props are to be to the approval of the Engineer and the Contractor must submit the suggested method of propping to the Engineer prior to removal of formwork to the relevant surfaces.

Concrete mixes

Concrete to be used shall be of the classes specified in "Ministry of Works standard Specification" Section 17.

Class	**Nominal mix**	**Trial Strength in N/mm^2**		**Where used in this Contract**
		7 day	28 day	
15	1:3:6	13	19.5	Surround to pipes
25	1:2:4	25	32.5	Structural concrete, walls

Concrete mixing and placing

The concrete shall be mixed only in approved power-driven mixers of a type and capacity suitable for the work, and in any event not smaller than 0.04/0.28 cu.m. capacity. The mixer shall be equipped with an accurate water measuring device. All materials shall be thoroughly mixed dry before water is added and the mixing of each batch shall continue for a period of not less than two minutes after the water has been added and until there is a uniform distribution of the materials and the mass is uniform in colour.

The entire contents of the mixed drum shall be discharged before recharging. The volume of mixed material shall not exceed the rated capacity of the mixer. Whenever the mixer is started, 10% extra cement shall be added to the first batch and no extra payment will be made on this account.

As a check on concrete consistency slump tests may be carried out and shall be in accordance with B.S. 1881. The Contractor shall provide the necessary apparatus and carry out such tests as are required. The slump of the concrete made with the specified water content, using dry materials, shall be determined and the water to be added under wet conditions shall be so reduced as to give approximately the same slump.

The concrete shall be mixed as near to the place where it is required as is practicable, and only as much as is required for a specified section of the work shall be mixed at one time, such sections being commenced and finished in one operation without delay. All concrete must be efficiently handled and used in the Works within twenty (20) minutes of mixing. It shall be discarded from the mixer direct either into receptacles or barrows and shall be distributed by approved means which do not cause separation or otherwise impair the quality of the concrete. Approved mechanical means of handling will be encouraged, but the use of chutes for placing concrete is subject to prior approval of the Engineer.

Concrete shall be placed from a height not exceeding 1,500 mm directly into its permanent position and shall not be worked along the shutters to that position. Unless otherwise approved, concrete shall be placed in a single operation to the full thickness of slabs, beams, and similar members, and shall be placed in horizontal layers not exceeding 1,500 mm deep in the walls and similar members.

Concrete in columns may be placed to a height of 4 meters with careful placing and vibration and satisfactory results. Where the height of the column exceeds 4 meters suitable openings must be left in the shutters so that this maximum lift is not exceeded.

Concrete shall be placed continuously until completion of the part of the work between construction joints as specified hereinafter or of a part of the approved extent. At the completion of a specified or approved part a construction joint of the form and in the positions hereinafter specified shall be made. If stopping of concrete be unavoidable elsewhere, a construction joint shall be made where the work is stopped. A record of all such joints shall be made by the Contractor and a copy supplied to the Engineer.

Any accumulation of set concrete on the reinforcement shall be removed by wire brushing before further concrete is placed. The Contractor shall provide runways for concreting to the satisfaction of the Engineer. Under no circumstances will the runways be allowed to rest on the reinforcement. Care shall be taken that the concrete is not disturbed or subjected to vibrations and shocks during the setting period. Mixing machines, platforms and barrows shall be clean before commencing mixing and be cleaned on every cessation of work. Where concrete is laid on hardcore or other absorbent materials, the base shall be suitable and sufficiently wetted before the concrete is deposited.

Works cube tests

Work cubes are to be made at intervals as required by the Engineer in accordance with C.P. 114, and the Contractor shall provide a continuous record of the concrete work. The cubes shall be made in approved 150 mm moulds in strict accordance with the Code of Practice. Three cubes shall be made on

each occasion. Each cube shall be marked with a distinguishing number (numbers) to run consecutively and the date, and a record shall be kept o site giving the following particulars:-

a) Cube No.

b) Date made

c) Location in work

d) 7-Day Test, Date, Strength

e) 28-Day Test, Date, Strength

Cubes shall be forwarded, carriage paid, to an approved Testing Authority, in time to be tested two at 7 days and the remaining one at the discretion of the Engineer. No cube shall be dispatched within three days of casting. Copies of all Works Cube Tests shall be forwarded to the Engineer and one shall be retained on site. If the strengths required above are not attained and maintained during the carrying out of the Contract, the Contractor will be required to increase the proportion of cement and/or substitute better aggregates so as to give concrete which does comply with the requirements of the Contract. The Contractor may be required to remove and replace at his own cost any concrete which fails to attain the required strength as ascertained by Works Cube Tests.

Compaction

At all times during which the concrete is being placed, the Contractor shall provide adequate trained and experienced labour to ensure that the concrete is compacted in the forms to the satisfaction of the Engineer. Concrete shall not be placed at a rate greater than will permit satisfactory compaction or to a depth greater than 400 mm before it is compacted.

During and immediately after placing, the concrete shall be thoroughly compacted by means of continuous tamping, spading, slicing and vibration. Vibration is required for all concrete of classes 40, 35, 25, and 20. Care shall be taken to fill every part of the forms, to work the concrete under and around the reinforcement without displacing it to avoid disturbing recently placed concrete which has begun to set. Any water accumulating on the surface of newly placed concrete shall be removed and no further concrete shall be placed thereon until such water is removed.

Internal vibrators shall be of a frequency not less than 7000 cycles per minute and shall have a rotating eccentric weight of at least 0.05 Kg. with an eccentricity of not more than 12 mm. Such vibrators shall visibly affect the concrete within a radius of 250 mm from the vibrator. Internal vibrators shall not be inserted between layers of reinforcement less than one and one half times the diameter of the vibrators apart. Contact between the vibrators and reinforcement, and vibrators and formwork shall be avoided. Internal vibrators shall be inserted vertically into the concrete at not more than 500 mm centers and shall be moved constantly from place to place. No internal vibrator shall be permitted to remain in any one position for more than ten seconds and it shall be withdrawn very slowly from the concrete.

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

At least one internal vibrator shall be of the high frequency, low amplitude type applied with the principal direction of vibration in the horizontal plane. They shall be attached directly to the forms at no more than 1200 mm centers. In addition to internal and external vibration the upper surface of suspended floor slabs shall be leveled by tamping or vibrating to receive finishes. Vibrating elements shall be of the low frequency high amplitude type operating at a speed of not less than 3000 r.p.m.

Curing and protection

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

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

Faulty concrete

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

Pre-cast units

Pre-cast reinforced concrete slabs to be made to sizes as shown in the Drawings. Slabs to be cast with Grade 25 concrete in approved formwork, suitably vibrated and cured for 28 days before use.

REINFORCEMENT

Steel

Reinforcement shall be;

Plain round mild steel or high yield steel bars conforming to B.S 4449

Cold worked steel bars conforming to B.S 44461, or

Fabric reinforcement conforming to B.S 4483

The con tractor shall obtain from his supplier s certificate of the mechanical and physical properties and shall submit the to the Engineer for approval

General Reinforcement

The following clauses concerning joints give details of reinforcement required at such locations. This clause deals with other reinforcement in external road and drainage slabs.

The top reinforcement layer shall have 50 mm cover unless otherwise permitted and shall terminate 40-80 mm from edges and joints. Mesh fabric shall have main bars longitudinal.

At transverse laps between sheets of mesh fabric the first transverse bar of one sheet shall lie within the last complete mesh of the previous sheet. No overlap will be required longitudinally between sheets.

Unless detailed otherwise, all corners of box-outs for manholes etc. shall be provided with 12 mm bars 1200 mm long across and bisecting the corner angle in the slab where that angle exceeds 40°. These bars may lie on any top reinforcement, which may be depressed locally to maintain cover to these crack control bars. In unreinforced slabs such bars shall have 50 mm cover.

Similarly, at corners of slabs having no load transfer bars to other slabs, 10 mm bars shall be positioned to prevent cracking across the corner. At a 90^{o} corner one bar shall be L-shaped with equal 1500 mm legs with hooked ends. A similar V-shaped bar with an internal angle of 30° shall be placed to bisect the corner angle with its apex also in the corner.

Bending and placing reinforcement

Reinforcement shall be cleaned before placing and secured with space blocks in the correct position. It shall be bound with suitable wire and have such cover as shown on the drawings.

Strength of reinforcement

Characteristic strengths of reinforcement are as given in B.S. 4449, 4461, and 4483.

Rod reinforcement

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

Hot Rolled bars for the Reinforcement of concrete	to B.S. 4449 (metric units)
Cold worked steel for the reinforcement of concrete	to B.S. 4461 (metric units)

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

BRC

The BRC should be electrically cross-welded steel wire mesh reinforcement to B.S. 4483: 1969, or as directed by the Engineer, and of the size and weight specified in the Drawings.

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

Fixing reinforcement

Reinforcement shall be accurately bent to the shapes and dimensions shown on the Drawings and in accordance with B.S. 4466 (1969). Reinforcement must be cut and bent cold and no welded joints will be permitted, unless so detailed. Reinforcement shall be accurately placed as shown on the Drawings, and before and during concreting, shall be secured against displacement by using No. 18 S.W.G. annealed binding wire or suitable clips at intersections, and shall be supported by concrete or metal supports, spacers or metal hangers to ensure the correct position. No concreting shall be commenced until the Engineer has inspected the reinforcement in position and until his approval has been obtained and Contractor has given two clear days' notice of intention to concrete.

The Contractor is responsible for maintaining the reinforcement in its correct position, according to the drawings, before and during concreting. During concreting, a competent steel fixer must be in

attendance to adjust and correct the position of any reinforcement which may be displaced. The vibrators are not to come into contact with the reinforcement.

Position and correctness of reinforcement

Irrespective of whether any inspection and/or approval of the fixing of the reinforcement has been carried out as in C above, it shall be the Contractor's sole responsibility to ensure that the reinforcement complies with the details on the Drawings and is fixed exactly in the positions shown therein and in the positions to give the prescribed cover. The Contractor will be held entirely responsible for any failure or defect in any portion of the reinforced concrete structure and including any consequent delay, claims, third party claims. etc., where it is shown that the reinforcement has been incorrectly positioned or is incorrect in size or quantity with respect to the detailed Drawings.

Concrete cover to reinforcement

Unless otherwise directed, the concrete cover to rod reinforcement over main bars in any face shall be:-

Foundations against blinding	50 mm
Strip foundations	40 mm
Columns/Floor slab	40 mm
Beams	25 mm

Projecting reinforcement

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

Fixtures

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

Chases, holes, etc., in concrete

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

instructed by the Engineer, all electrical conduit to be positioned within the reinforced concrete shall be fixed inside the steel cages of beams and columns and between the top and bottom steel layers in the slabs and similar members.

The proposed position of all electrical conduits 25 mm and over in diameter which are to be enclose in the concrete shall be shown accurately on a plan to be submitted to the Engineer, whose approval shall be obtained before any such conduit is placed.

PIPEWORK

u.P.V.C. pipes and fittings

U.P.V.C pipes and fittings shall comply with BS 3505.

U.P.V.C pipes upto 50-mm diameter shall be jointed with solvent cement joints in accordance with the manufacturer's instructions. Pipes having diameter larger 50 mm shall be jointed using approved flexible mechanical joints.

All tees, reducers, sockets flange etc. of any diameter are to be jointed to pipes with solvent cement joints.

All jointing and lying of U.P.V.C pipes and fittings shall be carried out strictly in accordance with the manufacturer's instructions.

Steel pipes

Steel pipes shall be to BS 3601

Sluice valves

Flanged sluice valves shall confirm to BS 1218 or B.S 5163 whichever is applicable

Sluice valves shall have heads for key operation unless otherwise stated.

Valves shall be securely fixed with the spindle in vertical position, unless otherwise stated. They shall be checked for ease of operation and water tightness. Valve glands shall be repacked if necessary.

Unless otherwise stated, sluice valves should be able to withstand the working pressure of the class of pipe adjoining the valve.

All sluice valves shall be double flanged, with flanges faced and drilled and to conform to the manufacturer's dimensions or those specified in B.S 4504.

All sluice valves shall be suitable for opening and closing by manual operation against the unbalanced heads stated in meters water column.

Air valves

Air valves shall be of cast iron conforming to BS 1452, grade 14. They shall be suitable for working pressures not less than the specified for the class of pipe specified. To which they are connected.

Air valve shall be of the single acting type for the automatic admission and discharge of either large quantities of air during emptying or filling or small quantities of air under pressure during normal working condition of the pipeline.

Each air valve shall be complete with an isolating valve and cork.

All double orifice air valves shall be flanged. Flanges shall be faced and drilled and shall conform to the dimensions specified in B.S 4504 table for NP 10 unless otherwise stated.

All double orifice air valves shall be supplied drilled with a 20. Dia. Hole tapped pipe. Thread suitable for fixing of pressure gauge hole shall be fitted with brass screwed plug and copper compression ring casket.

Manufacturer's instructions.

The Contractor shall be responsible for obtaining copies of any manufacturer's instructions for pipes jointing and shall familiarizes himself and his employees with these instructions.

All necessary tools and equipment required for the laying, jointing and testing of pipes and joints shall be provided by the Contractor at no extra costs.

Step Irons

Step irons shall be galvanized malleable iron and shall comply with B.S 1247.

Surface Boxes

Surface boxes shall confirm to B.S 1426.

Trench excavation.

Excavated material shall be placed tidily and compactly at the sides of the trench so as to occupy as little space as possible and to create as little nuisance as possible.

The bottom of the trench shall be absolutely smooth and completely free from stones and sharp objects so as to ensure that the pipes rests uniformly upon original ground throughout its length.

Backfilling with excavated material beneath the pipe at low spots will not be permitted. Excavation below the bottom of the trench at pipe joints must be kept to a minimum.

If the bottom of the trench materials that is unsuitable for pipelaying, the Engineer may instruct the Contractor to excavate below formation level and backfill to formation with suitable approved material properly compacted.

No pipe laying is to take place until the bottom of the trench is carefully examined by the engineer's representative.

Minimum trench depth

The minimum depth for pipe trenches shall be that which provides a cover of 600 mm above the top of the pipe.

Backfilling in pipe trenches

Backfilling around the pipe and to a height of 300 mm above it is to be carried out by using material that is free from stones and carefully compacted in layers not exceeding 150 mm thick.

Backfill to trenches shall be properly compacted and subsequent subsidence shall be the Contractor's responsibility and shall make it good at his own expense.

All topsoil shall be kept aside during excavation and be replaced after backfilling.

All surplus material from the excavations shall be disposed.

Removal of timbering

All timbering materials shall be removed from trenches before or during backfilling unless, in the opinion of the Engineer, its removal will cause any subsidence in which case he may instruct the Contractor to backfill leaving the timbering in place.

Reinstatement

Immediately backfilling of trenches as been completed, temporary reinstatement of the ground surface shall take place.

When in the opinion of the Engineer's representative a suitable period as elapsed after the temporary reinstatement and expects no further settlement, he shall allow the Contractor to carry out the permanent

reinstatement. This shall in any way relieve the Contractor of his responsibility for the reinstatement and, should any further unforeseen settlement take place, the Contractor will be required to make good the reinstatement at his own expense.

Permanent reinstatement means the ground surface shall be restored to its original form and condition.

Handling and storing pipes

Particular care shall be taken during loading, unloading, handling and transportation to avoid distortion, flattening, denting, scoring or any damage to external or internal coating, sheathing or lining of the pipes, fittings, etc.

Pipes shall be stacked clear of the ground on the timbers of adequate dimensions to prevent damage to the pipes and successive tiers shall be separated by timber of similar dimensions. Wooden wedges shall be fixed to these timbers to prevent the wedges from rolling.

Fittings etc. shall be stacked clear of the ground on timbers not more than 1 tier high.

All valves rubber joint rings, gaskets, nuts, bolts, washers and similar fittings shall be stored in approved locked premises and shall not be distributed to the trench until immediately prior to fixing. All rubber joint rings and gaskets must be stored in a cool place.

All UPVC pipes and fitting should be stored under cover and protected from the whether to the satisfaction of the Engineer.

Examination of pipes

Before laying each pipe must carefully be examined for damage. Any defects in the external coating or internal lining shall be made good. The pipes shall be carefully examined for cracks or chipped ends. Damaged ends shall be cut off beyond the damaged area and machined true.

All pipes shall be cleaned internally before laying.

Laying of pipes

All pipes shall be laid strictly to the lines, levels and gradients as shown on the drawings unless where otherwise directed by the Engineer.

Mains shall be boned to even gradients using site rails no dips or bumps permitted.

All pipes shall be solidly bedded on the trench bottom. Joint holes shall be as small as possible and filled in compactly before the refilling of the trench commences.

The Contractor shall make full allowance for all cuttings and jointing of pipes.

Surface water

No surface water or other extraneous matter shall be allowed to enter the pipes during or after laying. Should this happen, the Contractor shall arrange for the necessary cleaning of the pipe at his own expense.

Painting of exposed pipes, valves, fittings and metalwork

All pipes, valves, tubes, manhole covers and the like, that are left exposed to the air at river crossings, in manholes, chambers etc., except where galvanized, shall be thoroughly cleaned and painted with two coats of approved bituminous paint after erection.

Testing of pipes

All pipes and apparatus that are to contain water under pressure shall be tested to the working pressure plus 50 %. If the pipes are in the trench they shall be backfilled for the two thirds of the distance between joints, leaving joints exposed. The fill shall be a minimum of 450mm deep.

Testing shall take place in the presence of the Engineer's representative as the work proceeds, test lengths being approved by the Engineer. The maximum length of the pipe laid without pressure testing must not exceed 3 km.

Pipes shall be securely anchored and pipe ends shall be closed by means of caps or blank flanges. Sluice valves shall not b used at the end of a test length.

The Contractor shall give the Engineer's representative a minimum of 24 hours notice of his intention to carry out a test.

All water, materials and apparatus for carrying out the tests are to be provided by the Contractor at no extra cost.

The procedure for testing is as follows.

(a) The test length shall be filled with water and brought to the required test pressure by means of a pressure pump. When the required is obtained, indicated by an approved pressure gauge, the pump shall be disconnected, and the pressure of the water watched for a period of 60 minute, any drop in pressure being carefully monitored.

(b) If there is a drop in pressure at the end of the 60 minutes period, the pump should be reconnected and the test pressure re-established. The pump should then be disconnected and the pressure lowered immediately by bleeding off the water from the mains through a tap into a container. When the pressure reaches the same pressure that was indicated at the end of, the 60 minutes test period, the tap is closed and the amount of water collected in the container is measured. This amount of water is the leakage and for the test to be successful must not be greater than the "allowable leakage" as calculated below.

$$\text{Allowable leakage (litres)} = \frac{dxlxp}{1{,}227{,}000}$$

Where d -diameter of pipe (mm)

l -length of pipe under test (m)

p -average pressure in pipe (m).

If the test fails, it is the Contractor's responsibility to locate the leak and remedy it so that the pipeline passes the test.

Sterilisation

Treated water mains should be washed out and sterilised before being put into service. Sterilisation should consist of introducing water containing a quantity of chlorine such that there is a concentration of chorine throughout the mains at not less than 30 parts per million. This solution is to remain in the pipeline for a period of 24 hours after which the main shall be thoroughly flashed out with water to be used for the supply.

The inside of water retaining structures shall, after being thoroughly cleaned, be filled to overflow level with water containing 20 parts per million of chlorine and left for at least 24 hours before flushing out.

After flushing, bacteriological samples of water shall be taken in accordance with the Engineers instructions. If any of the samples proves to be inferior to that of the supply water, the sterilisation and flushing shall be repeated.

All costs of sterilisation shall be the Contractor's responsibility. The cost of sampling and testing shall be the responsibility of the employer if successful but if not shall be borne by the Contractor.

Concrete surround for pipes

Bed the draw off pipe and surround it with Class 15 concrete as specified. The sequence of work will involve:

(a) Lay the Concrete bed

(b) Lay, and joint the pipes on the Concrete bed.

(c) After the pipes have been tested complete the Concrete surround.

Penstock

All penstock shall be of the flat back type and shall be drop tight went tested to a minimum face pressure of 1.0 bar

Penstock frames and doors are to be of best quality cast iron complying with B.S 1452 with two annular gunmetal sealing faces on frame and door. The gunmetal shall comply with the requirement of B.S 1400

All screw penstocks shall be provided with mild steel spindle screwed fro ant- clockwise opening and running in a gunmetal nut housed in a suitable head gear which shall have hand wheel for operation. The extended spindle shall be of cadmium plated mild steel with protection tubes; wherever there lengths so required steadying brackets shall be provided

All penstock shall be supplied complete with all necessary nuts, bolts or studs and washers for fixing in position.

All headstocks shall have forged steel rod and be complete with gunmetal index pointer working over polished and graduated gunmetal indicator plate fixed to the side of the pillar. The distance from the base to the centre of the operating hand shall not be less than 0.8m.

BUILDING'S WORKS

Damp proofing

Damp proof courses shall protrude beyond the outer face of the wall for a minimum of 25 mm, the last 10 mm of which shall be turned down on an approved profile to form an anti-ant lip. The material shall be laid on a cement screed trowelled smooth. At all angles, intersections etc. the material must be lapped not less than 75 mm.

A damp proof membrane of 500 gauge polythene shall be laid under floor slabs where indicated on the Drawings or directed by the Engineer and shall have laps of not less than 200 mm at all joints.

Bonding to concrete

All doorframes shall be fixed with holdfasts screwed to the frames one end and built into blockwork or concrete at the other end. Alternatively, holdfasts may be formed as an integral part of metal doorframes. Doorframes shall have three holdfasts at each side.

The holdfasts shall be of 6 mm x 25 mm galvanised wrought iron 200 mm long, one end turned up, twice drilled and countersunk for screwing to frames with stout screws and the other end formed swallowtail for building into brickwork etc.

Bonding ties shall be of 6 mm x 15 mm galvanised wrought iron 150 mm long with both ends formed swallowtail for building into blockwork, etc.

Blockwork walling

Blocks for walling shall be properly bonded together and in such manner that no vertical joint in any one course shall be within 100 mm of a similar vertical joint in the courses immediately above or below.

Alternate courses of walling at all angles and intersections shall be carried through the full thickness of the adjoining wall. All perpends, reveals and other angles of walling shall be built strictly true and square.

The blocks shall be bedded and jointed in 1:3 cement/sand mortar with beds and joints not more than 20 mm or less than 12mm thick, all flushed up and grouted solid as the work proceeds. All walling shall be properly protected as the mortar is setting.

Ends of lintels, sills, joints, roof trusses, etc. shall be built in and bedded solid in mortar. They shall bear 300 mm on supports and shall be cast with a recessed throating under the front edge. Block walls shall be pinned up to the underside of concrete beams and slabs with cement.

Timber frames shall be built in with holdfasts and bedded solid and pointed both sides in cement mortar. Lugs of window frames shall be built in or cut and pinned to blockwork. Frames shall be bedded solid in mortar and pointed in approved mastic applied with a caulking gun externally.

All holes for pipes, electrical conduits, etc. mortises for bolts, dowels, etc. shall be cut or formed grouted up in cement and made good.

Horizontal reinforcement consisting of approved fabric shall be provided in every third course to span between the vertical block reinforcement. A proprietary wall reinforcement system may be used with the Engineer's approval.

At corners and junctions of walls, all horizontal reinforcement shall be lapped 300mm. The cavities of the blocks shall be filled with 1:3 cement/sand mortar around a mild steel reinforcing bar.

External faces of blockwork shall be rendered with 12 mm thick 1:5 cement/sand mortar to BS 5262 with a woodfloat finish.

Internal faces of blockwork shall be plastered to BS 5492 with an undercoat to suit the blockwork surface. The total thickness shall be 20 mm.

Openings through walls shall be formed to the net size required and rendered smooth in cement mortar. Where openings occur in cavity walls the wall shall be built solid all round the opening.

Painting

Delivery and storage

All materials are to be delivered to the site in the manufacturers' original containers with seals unbroken and are to be clearly marked with the manufacturer's name or trade mark and a description of the contents, colour or pattern, and, if applicable, the conditions for storage and the date by which they shall be used.

All materials are to be stored at Site in accordance with the manufacturer's directions and to the satisfaction of the Engineer.

Materials samples and tests

During the course of the work, the Engineer may take samples of any of the paints, varnishes, stains or sealers, either from the sealed or open containers, before or during use.

When requested by the Engineer to do so, the Contractor shall submit samples for testing in accordance with BS 3900. The costs of such test, including transport and incidental costs, shall be borne by the Contractor if the results show non-compliance with the Specification.

Any work executed with materials tested and found not to comply with the requirements of the Specification shall be burnt off or otherwise removed and re-executed as directed by the Engineer.

Workmanship

Before painting, varnishing, staining or sealing is commenced; every possible precaution shall be taken to keep down dust.

During the execution of painting and decorating work, the Contractor shall take all necessary precautions to protect the health and safety of the workmen, including provision of washing facilities. The Contractor shall comply with all statutory rules and regulations affecting the trades engaged on the work.

Only skilled workmen shall be employed. A properly qualified foreman shall be constantly in attendance on the work while it is proceeding.

All brushes tools and containers used in carrying out the work shall be clean and free from foreign matter and shall be thoroughly cleaned before being used for a different type of material.

An ample supply of dustsheets shall be provided to protect the work as it proceeds.

Unless the manufacturers instruct otherwise, all liquid materials shall be thoroughly stirred before use. Where necessary the liquids shall be strained to remove any skin before application.

All containers shall be kept securely covered with tight fitting lids when not in use.

No dilution of liquid materials will be allowed, except as recommended by the manufacturer or as otherwise permitted by the Engineer.

The Contractor shall arrange his work so that any treated surfaces to be subsequently covered up shall be treated before they become inaccessible.

The painting work shall be carried out in accordance with BS 6150 and all painting varnishing, staining or sealing shall be executed in dry conditions when relative humidity is less than 80%. No such finishes shall be applied to surfaces structurally or superficially damp and all surfaces must be ascertained to be free from condensation, dust, oil or any other foreign matter before application of each coat.

The tints of undercoats are to approximate to those of the finishing colour but in order to indicate the number of coats applied, a difference is to be made in the shade of each succeeding coat.

Primed or undercoated work shall not be left in an exposed or otherwise unsuitable situation for too long a period before completing process.

Rubbing down before application of the final coats shall be by means of the wet process with waterproof glass paper. Preliminary coats of paint shall be lightly rubbed down with fine sandpaper before the next coat is applied.

Finishing coats shall be applied evenly over the whole surface to give a solid film free from brush marks, sags, runs, orange peeling or other defects.

The Contractor shall clean down all paintwork on completion, remove all marks due to spill and leave all painted surfaces to the complete satisfaction of the Engineer.

Samples of workmanship and colour

The Contractor shall prepare samples of the different finishes on the appropriate backing material, with the correct priming and undercoats where applicable, for acceptance by the Engineer, including alternatives as directed. These samples shall be prepared at least twenty-eight days before commencement of the actual work.

Preparation of surfaces

General

All surfaces shall be thoroughly prepared and shall be clean, free from loose dirt or other impurity. No paint shall be applied until all surfaces are thoroughly dry.

Preparation of the different materials to receive decorative and protective finishes shall be as specified below.

Concrete and concrete blockwork

Surfaces shall be brushed down thoroughly to remove all dust and loose material. Mortar droppings and nibs shall be removed and defects made good.

Efflorescence shall be brushed off as it appears and all decoration deferred until it ceases.

Plaster and rendering

Surfaces shall be brushed down to remove loose material and dust. The surface shall be washed, where directed, with a minimum of warm water and detergent, and allowed to dry.

Minor defects, cracks and holes, after cutting out as necessary, shall be made good and rubbed down flush with the surrounding surface.

Efflorescence shall be brushed off as it appears and all decoration deferred until it ceases.

Hardwood

All surfaces shall be rubbed down smooth with fine abrasive, and dusted off. No further preparation is required for wood to be stained or clear sealed.

Iron and steelwork

Bare iron and steelwork to be painted shall be thoroughly prepared by removing all grease, dirt, rust and loose millscale.

All tools shall be operated in such a manner that no sharp ridges or burrs are left and no cuts made in the steel.

Dust and other loose material shall be removed after cleaning. Oil and grease shall be removed with white spirit.

The priming coats shall be applied before any contamination or rusting occurs.

If the surfaces have been exposed to salt spray laden winds or to atmosphere polluted with chemicals, they shall be thoroughly washed with fresh water and allowed to dry before priming.

Steelwork delivered primed is to be thoroughly washed down to remove all dirt and grease. All defective paint, damaged, blistered, crazed or not firmly adhering, etc. shall be removed by scrapping back to a firm edge or, if necessary, the surface shall be completely stripped. All such areas shall be patch-primed immediately upon delivery. Areas damaged during erection shall be similarly dealt with.

Galvanised iron and steel

Galvanised iron and steel surfaces shall be thoroughly cleaned to remove all grease, dirt, dust etc.

Priming

General

Before priming, painting, varnishing, staining or sealing is started; all possible precautions shall be taken to keep down dust.

All metal fittings and fastenings shall be removed before the preparatory processes are started. They shall be cleaned and refixed in position on final completion of the work.

Special priming

Unless the paint manufacturer recommends otherwise the following materials shall receive special priming:

Cement based surfaces, such as concrete, fair face blockwork and brickwork, render and plaster, and asbestos free boards containing cement which are to receive oil based paints, shall be treated with an alkali-resistant primer.

Galvanised iron and steelwork shall be treated with calcium plumbate or a two-pack etching primer.

Copper shall be treated with a suitable etching primer.

Hardwood shall be treated with aluminium primer.

The smooth face of hardboard shall be treated with specially formulated hardboard primer.

All uncoated iron and steelwork cleaned of rust, millscale, etc., in preparation for painting shall be primed within twenty-four hours of preparation whether at the works or on Site.

Painting

Concrete surfaces are to receive one coat of undercoat and two coats of approved plastic emulsion.

Iron and steelwork are to receive one coat of red lead primer, two coats of undercoat and one coat of high gloss finish.

All wooden surfaces are to be primed with aluminium wood primer and are to receive two coats of exterior grade undercoat and one coat of exterior or interior, as appropriate, high gloss finish.

Plumbing

Galvanised malleable iron brackets shall be used for fixing galvanised steel pipes up to 50 mm diameter. Pipes larger than 50 mm diameter shall be fixed with galvanised iron or brass hinged holderbats. For fixing to timber, stout galvanised pipe clips screwed to the timber shall be used.

Drainage pipes shall be encased with 150 mm surround of Class C20 concrete beneath floor slabs.

Workmanship in timber

All joiner's work shall be wrought and finished with a clean even and smooth surface, arises straight and cleanly cut, and all to be properly framed together, single or double mortised, and tenoned, housed, dovetailed or fitted with all proper and suitable joints whether these are shown on the Drawings or not, and all joints shall be fitted without stopping, the whole being glued, feathered, tongued and fixed with screws, nails etc. all detailed on the Drawings or as approved by the Engineer and in accordance with the best class of workmanship.

Adhesives used for timberwork shall be synthetic resins of the phenol and amenoplastic type BR in accordance with BS 1204 Parts 1 and 2.

Nails for joinery shall be oval lost head nails.

Screws shall be countersunk wood screws. Steel screws shall be used only in concealed positions, or where the work is to be painted, elsewhere brass shall be used. Steel screws in contact with aluminium shall be dipped in zinc chromate solution before fixing. Ironmongery is

to be fixed with screws of the same metal, except for aluminium, which shall be fixed with chromium, plated brass screws.

All joinery shall be properly protected from injury or from weather by casing wherever required.

Wooden doors

General

The materials used in the construction of wooden doors shall be in accordance with BS 459. Doors shall be obtained from an approved manufacturer and the details and methods of construction shall be to the Engineer's approval.

Flush doors

Flush doors shall be 45 mm thick overall, faced both sides with 4mm plywood and lipped on all edges with 10 mm thick hardwood. External doors shall be faced both sides with exterior quality plywood and assembled with waterproof adhesive to type MR of BS 1203. Suitable blocking pieces for door furniture shall be built in. Glazed vision panels shall be inserted as shown on the Drawings and shall be to the approval of the Engineer.

Cupboard doors shall be as above but 40mm thick overall.

Door and window furniture

Each door shall be provided complete with all hinges, handles, locks, three keys per lock, bolts, doorstops etc. and all necessary screws, bolts and other fixings. Double leaf doors shall be provided with barrel bolts top and bottom of the first closing leaf, complete with flush mounted floor socket, and handle for the top bolt extended to 2.0 m above floor level.

Windows shall be provided with all necessary hinges, fasteners, locks, catches, stays, etc.

Glazing

Glazing shall be clear or obscured glass, set in metallic putty and shall be subject to the approval of the Engineer. Clear glass shall be used for all windows except in toilets or as otherwise directed by the Engineer. Glazing shall be carried out in accordance with BSCP 152 "Glazing and fixing of glass in buildings", and the window manufacturer's instructions.

Proprietary sheet metal roofing

The fixing of all proprietary roof sheeting, etc. shall be in accordance with the manufacturer's details and as shown on the Drawings.

Bituminous felt roofing

Bituminous roofing felt shall be laid in accordance with BSCP 144 Part 3. Before laying roofing felt the underlying concrete surface shall have any cracks and expansion joints sealed with a bituminous patching compound. A slip membrane comprising one layer of one ply roofing felt shall be laid and adhered to the concrete at all edges.

Two underlayers of two ply roofing felt shall be applied with 100 mm overlaps between strips, bonded with bitumastic compound at all edges. The overlap joints between successive layers shall be staggered to half the strip width.

A surface layer of grey mineralised surface felt of an approved colour, shall be laid with 100 mm overlaps, fully bonded with hot applied bitumen compound.

Guttering

Gutters shall be laid to falls as directed. The general arrangement of the drainage system shall be to the Engineer's approval.

Fencing and gates

Wire and metal posts used in compound boundary fences and gates shall be of galvanised steel to the details shown on the Drawings.

Posts, stays and gates shall be primed with one coat of zinc chromate paint and finished with two coats of oil based aluminium paint.

The whole of the fencing shall be to a pattern approved by the Engineer.

Ladders

Unless otherwise indicated permanent ladders shall be of mild steel and shall be in accordance with BS 4211. Rungs shall be 20mm diameter solid round bar and shall be at 300 mm centres. Stringers shall be 65 mm x 10 mm strip set 300 mm apart shall extend 1.0 m above the top rung and shall be turned out at the bottom and drilled for 12 mm holding down bolts. Intermediate and top support stays shall be l00 mm x 100 mm strip, bolted to the stringers with 12 mm bolts and

shall be of a length that will give a minimum clearance of 200 mm behind the rungs. Support stays shall have a maximum spacing of 2.5 m.

Ladders exceeding 4.0 m height shall be equipped with a safety cage consisting of hoops of 50 mm x 8 mm strip bent to a diameter of 0.76 m, fixed to the stringers at 0.55 m centres and joined by one additional stringer of 50 mm x 8 mm strip at the maximum distance from the rungs.

All components of ladders shall be galvanised after cutting, drilling and welding and all fixing bolts, nuts washers, etc, necessary to complete the installation shall be provided.

Ladders to insides of water retaining structures shall be galvanised mild steel.

Open mesh steel flooring

Open mesh flooring shall be to BS 4592 and shall be painted black in accordance with the Specification.

Kicker plates 100 mm high shall be provided round all openings.

Chequer plate flooring

Chequer plate flooring shall be of mild steel and manufactured with diamond chequering or other non-slip pattern. The plates shall be of sufficient thickness not to bend or spring in ordinary usage and shall be fitted evenly and truly into steel angle frames or curbing with suitable attachments for building into concrete flooring.

The plates and frames shall be painted an approved colour in accordance with the Specification.

Handrailing

Handrailing shall consist of 38 mm diameter galvanised steel sections of tubing BS 1387, screwed at each end. The sections shall be joined by 38 mm diameter galvanised steel equal crosses, equal tees or short radius 90^{o} bends where appropriate, such that the top rail shall be 1 m and the lower rail 0.5 m above the concrete slab, and the spacing between standards shall be 2 m maximum. A 38 mm diameter galvanised steel flange shall be screwed to the base of each standard and drilled for four 20 mm diameter, 100 mm long mild steel rag bolts which shall be cast into the reinforced concrete slab.

All handrailing components shall be galvanised after cutting, screwing and drilling and shall be supplied complete with all bolts, nuts, washers and other fixings necessary to complete the installation.

Removal of anthills

Anthills that come within the area covered by the building and three metres clear all round shall be entirely removed and the queen eradicated. The cavity formed by the removal of the nest must be treated and filled in with approved materials in layers not exceeding 300 mm thick well rammed and consolidated.

Ant proofing

No ant treatment is to be carried out near potable water structures. Otherwise ant treatment is to mean the treatment of the whole of the surface under floors with a solution composed of 5 parts by weight of Pentachlorophenol to 95 parts by weight of furnace oil well mixed together.

The solution is to be applied by means of a watering can with a fishtail spout. It is to be accurately applied at the rate of five litres per square metre of surface.

Before and after the application the surface is to be cleaned free from foreign matter, particularly scrap timber and cellulose material.

Fencing

Details of the types of fencing and gates to be installed under the Contract are included with the Drawings. The Contractor shall, when required provided details of any alternative type of fencing. The Contractor should note that the Engineer is not obliged to accept the Contractor's alternative proposals, but will not unreasonably withhold consent, provided the Contractor's alternative design is fit for the purpose intended, is demonstrably durable and meets all other requirements of the relevant British Standard.

Fencing shall be strained wire mesh fencing also to BS 1722 except as indicated.

All bolts to fencing shall be burred over.

All posts to be founded in Class E concrete.

All steelwork to fencing shall be galvanised and painted in accordance with the relevant painting specification.

Handrailing

General details of the type of handrailing to be installed under the Contract are included in the Tender Drawings. The Contractor shall, when required, submitted for consideration alternative

type of handrailing proposed. The Contractor should note that the Engineer is not obliged to accept the Contractor's alternative proposals, but will not unreasonable withhold consent, provided the Contractor's alternative design is fit for the purpose intended and is demonstrably durable.

Landscaping and miscellaneous works

Stone Pitching

Stone pitching shall be either set in mortar or set dry. Stones shall be sound, tough and durable. No stone shall be less than 200 mm minimum dimension, except that smaller pieces may be used for filling spaces between the larger stones.

Mortar shall be composed of 1 part cement to 4 parts of sand of approved quality.

All pitching shall be set on a backing of free-draining material. No pitching shall be placed until the underlying material has been compacted sufficiently to avoid future settlement. Unless otherwise specified, pitching on embankments shall be supported on a toe wall of stone masonry, approximately 1,000 mm deep x 350 thick unless otherwise instructed.

Commencing at the toe wall, if any, the stone pitching shall be firmly bedded into the underlying material and against the adjoining stones. The stones shall be set by hand with the longest dimension at right angles to the slope, with their surfaces in close contact, and in courses so as to break joint. The spaces between the larger stones shall be filled with spalls securely rammed into place. The finished surface of the pitching shall present an even, tight surface.

Where pitching set in mortar is specified, suitable weepholes shall be formed. Remaining spaces between the stones shall be filled with mortar in such a way as to completely fill the voids. The joints shall be neatly pointed. Pitching set in mortar shall be cured for a minimum period of 4 days by continuous spraying, or by covering with water-retaining material and keeping wet.

Precast paving

Precast paving slabs shall be in Grade 25/10 concrete with a wood float finish and shall be 50 mm thick unless otherwise shown on the Drawings.

Where slabs are to be laid on original ground, topsoil shall be removed and the subsoil shall be scarified to a depth of 150 mm and compacted to 93% of modified AASHTO density. The Contractor shall remove to a level agreed with the Engineer any locally soft areas where the above compaction cannot be achieved. The excavated material shall be replaced with approved backfill compacted to the above density.

Where slabs are to be laid on sand, the area to be paved shall be trimmed to falls, compacted and overlain with 50 mm of sand which shall be watered and raked to a true surface. The paving slabs shall then be laid and bedded down using a light vibrating-plate compacter. Concrete edge strips shall be provided on the perimeters of such paved areas to prevent loss of sand.

Where slabs are to be laid on a concrete bedding, the area to be paved shall be trimmed to falls, compacted and overlain with 75 mm of Class E dry mix concrete. The dry mix concrete shall be spread out dry and raked to a true surface. The paving slabs shall then be laid and bedded down using a light vibrating-plate compacter. Joints between slabs shall be filled and pointed with 1:4 cement: sand mortar.

Topsoil and grassing

The Contractor will be required to complete all surface drainage works and other remedial works indicated by the Engineer ahead of topsoiling and grassing.

Topsoil stockpiled from the Works shall be spread to a minimum depth of 100 mm over the areas to be grassed.

All surfaces to be grassed shall immediately before planting of grass be reduced to a fine tilth free from stones larger than 50 mm.

An approved indigenous star type grass (e.g. Cynodondactylon, Cynodonniemfuensis (Star grass) and Chloris gayana (Rhodes grass) shall be used for all planting except where the Engineer indicates otherwise. All grass shall be won from areas designated for such use by the Contractor. The Contractor shall ensure that such areas are not made barren by the excessive transplanting of grass runners from such areas. In general the cover of areas used for winning grass runners shall not be reduced by more than 50%. Where, in the opinion of the Engineer, the removal of grass is considered excessive, he will instruct the Contractor accordingly.

Splits (clumps) of the transplanted star grass shall be planted at a grid not exceeding 300 mm in all areas where such grass is required. Where instructed by the Engineer, the Contractor will be required to apply an approved fertiliser to the grassed areas.

Planting shall preferably be carried out at the beginning of a rainy season and the Contractor will be required to adjust his works programme accordingly. In exceptional circumstances, grassing

works will be allowed during the Defects Liability Period for the Works, but the Contractor should expect consequent extended Defects Liability Periods for these areas of the Works.

The Contractor shall care for and water the grass at his own expense until it is firmly established both during the construction and Defects Liability Periods for the Works. Allowance for the following operations considered necessary for the establishment of grassed areas should be made in tender pricing: -

Planting

The Contractor shall obtain and plant suitable shrubs and trees as directed and shall provide the same maintenance input during the construction and Defects Liability Period as that provided for grassed areas.

In the case of ground cover plants, the lateral shoots shall be spread out well around the plant as far as shape permits to encourage outward growth.

Climbing plants shall be positioned with the root ball touching the wall/fence, and shoots angled towards the structure to be climbed. Where appropriate, climbing stems shall be lightly trained to climbing frames. All containers, labels, canes and ties shall be removed unless otherwise instructed.

Failure of shrubs and trees due to drought will be the sole responsibility of the Contractor