

# REPUBLIC OF KENYA



## MINISTRY OF ENERGY

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NAIROBI

**TENDER NO. MOE/ONT/007/2019-2020 FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF SOLAR WATER PUMP AND WATER DESALINATION SYSTEMS FOR ONE (1) WATER BOREHOLE IN KALACHA HEALTH CENTRE IN ASAL COUNTY OF MARSABIT**

**ALL TENDERERS ARE ADVISED TO READ CAREFULLY THIS TENDER DOCUMENTS IN ITS ENTIRETY BEFORE MAKING ANY TENDER**

**NOVEMBER, 2019**

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## SECTION I: INVITATION TO TENDER

**TENDER No. MOE/ONT/007/2019-2020**

**TENDER NAME: FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF SOLAR WATER PUMP AND WATER DESALINATION SYSTEM FOR ONE (1) WATER BOREHOLE IN KALACHA HEALTH CENTRE IN ASAL COUNTY OF MARSABIT**

The Ministry of Energy (MoE) invites sealed tenders for **Supply, Installation, Testing and Commissioning of Solar Water Pump and Water Desalination System for One (1) Water Borehole in Kalacha Health Centre in ASAL County of Marsabit**, whose specifications are as detailed in the Tender Documents.

Interested eligible bidders may download a complete set of the Tender Documents free of charge from the Ministry's website: [www.energy.go.ke](http://www.energy.go.ke)/or from National Treasury's Supplier portal: [www.supplier.treasury.go.ke](http://www.supplier.treasury.go.ke)/and **MUST** register with Head, Supply Chain Management Services Ministry of Energy Room 24-16 on the 24th floor, Nyayo House. Bidders may also obtain the same from the Head, Supply Chain Management Services, Ministry of Energy Room 24-16 on the 24th floor, Nyayo House upon payment of a non-refundable fee of **KShs. 1,000/=** (Kenya shillings one thousand) at the Cash Office located on the 21<sup>st</sup> Floor of Nyayo house.

**Please note that:-**

1. This tender is open to all interested bidders
2. Prices quoted should be net inclusive of all taxes, must be in Kenya Shillings and shall remain valid for at least One hundred and twenty (120) days from the closing date of the tender.
3. Bidders **MUST** fill the **Tender Security form** in the format provided. Failure to fill will render the bid non-responsive.
4. Eligible bidders should provide a Tender security of Kenya Shillings Two Hundred and Forty Thousand (**Kshs 240,000.00**) in form of a bank guarantee from a reputable bank or insurance guarantee from a company approved by, the Central Bank of Kenya and Public Procurement Regulatory Authority respectively.

5. Bidders **MUST** fill all the forms in **SECTION VII** of the Tender Document except the Performance Bank Guarantee Form, the Bank Guarantee for Advance Payment Form and the Contract Form. **FAILURE TO DULY FILL AND CERTIFY THE FORMS COMPREHENSIVELY WILL RENDER THE BID NON-RESPONSIVE.**
6. The lowest evaluated most responsive bidder will be awarded the tender.
7. Complete tender documents should be submitted in plain sealed envelopes marked with Tender Name: **Supply, Installation, Testing and Commissioning of Solar Water Pump and Water Desalination Systems for One (1) Water Borehole in Health Centre in ASAL County of Marsabit, : Tender Number: MOE/ONT/007/2019-2020** and addressed to:

**Principal Secretary,  
Ministry of Energy  
Nyayo House  
P. O. Box 30582 – 00100,  
NAIROBI**

or be deposited in the Tender Box situated on 24th Floor, Nyayo House so as to reach on or before **Tuesday 3<sup>rd</sup> December, 2019.**

8. Tenders will be opened immediately thereafter in the presence of the Candidates or their representatives who choose to attend at the main boardroom, Nyayo House, 23<sup>rd</sup> Floor.

**HEAD, SUPPLY CHAIN MANAGEMENT SERVICES**  
**For: PRINCIPAL SECRETARY, MINISTRY OF ENERGY**



## **SECTION II: INSTRUCTIONS TO TENDERERS**

### **2.1 Eligible Tenderers**

- 2.1.1 This Invitation for Tenders is open to all tenderers eligible as described in the Appendix to Instructions to Tenderers. Successful tenderers shall complete the supply, install and commissioning of the equipment by the intended completion date specified in the tender documents.
- 2.1.2 The procuring entity's employees, committee members, board members and their relative (spouse and children) are not eligible to participate in the tender unless where specially allowed under section 131 of the Act.
- 2.1.3 Tenderers shall provide the qualification information statement that the tenderer (including all members of a joint venture and subcontractors) is not associated, or have been associated in the past, directly or indirectly, with a firm or any of its affiliates which have been engaged by the Procuring entity to provide consulting services for the preparation of the design, specifications, and other documents to be used for the procurement of the goods under this Invitation for tenders.
- 2.1.4 Tenderers involved in corrupt or fraudulent practices or debarred from participating in public procurement shall not be eligible.

### **2.2 Eligible Equipment**

- 2.2.1 All equipment to be supplied and installed under the contract shall have their origin in eligible source countries.
- 2.2.2 For purposes of this clause, "origin" means the place where the equipment(s) are produced. Goods are produced when, through manufacturing, processing, or substantial and major assembly of components, a commercially-recognized product results that is substantially different in basic characteristics or in purpose or utility from its components
- 2.2.3 The origin of equipment is distinct from the nationality of the tenderer and shall be treated thus in the evaluation of the tender.

## **2.3 Cost of Tendering**

2.3.1 The Tenderer shall bear all costs associated with the preparation and submission of its tender, and the procuring entity, will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the tendering process.

2.3.2 The price to be charged for the tender document shall not exceed Ksh 5000.00

2.3.3 The procuring entity shall allow the tenderer to review the tender document free of charge before purchase.

## **2.4. Contents of Tender Document**

2.4.1 The tender document comprises the documents listed below and addenda issued in accordance with clause 2.6 of these instructions to tenderers

- (i) Invitation to Tender
- (ii) Instructions to Tenderers
- (iii) General Conditions of Contract
- (iv) Special Conditions of Contract
- (v) Schedule of requirements
- (vi) Technical Specifications
- (vii) Tender Form and Price Schedules
- (viii) Tender Security Form
- (ix) Contract Form
- (x) Performance Security Form
- (xi) Bank Guarantee for Advance Payment Form
- (xii) Manufacturer's Authorization Form
- (xiii) Confidential Business Questionnaire Form
- (xiv) Declaration form
- (xv) Request for Review Form

2.4.2 The Tenderer is expected to examine all instructions, forms, terms, and specifications in the tender documents. Failure to furnish all information required by the tender documents or to submit a tender not substantially responsive to the tender documents in every respect

will be at the tenderers risk and may result in the rejection of its tender.

## **2.5 Clarification of Tender Documents**

2.5.1 A prospective tenderer making inquiries of the tender documents may notify the Procuring entity in writing or by post at the entity's address indicated in the invitation for tenders. The Procuring entity will respond in writing to any request for clarification of the tender documents, which it receives not later than seven (7) days prior to the deadline for the submission of tenders, prescribed by the procuring entity. Written copies of the Procuring entities response (including an explanation of the query but without identifying the source of inquiry) will be sent to all prospective tenderers that have received the tender document.

2.5.2 The procuring entity shall reply to any clarifications sought by the tenderer within 3 days of receiving the request to enable the tenderer to make timely submission of its tender.

## **2.6 Amendment of Tender Documents**

2.6.1 At any time prior to the deadline for submission of tender, the procuring entity, for any reason, whether at its own initiative or in response to a clarification requested by a prospective tenderer, may modify the tender documents by issuing an addendum.

2.6.2 All prospective tenderers that have obtained the tender documents will be notified of the amendment in writing or by post and will be binding on them.

2.6.3 In order to allow prospective tenderers reasonable time in which to take the amendment into account in preparing their tenders, the Procuring entity, at its discretion, may extend the deadline for the submission of tenders.

## **2.7 Language of Tender**

2.7.1 The tender prepared by the tenderer, as well as all correspondence and documents relating to the tender exchange by the tenderer and the

Procuring entity, shall be written in English language, provided that any printed literature furnished by the tenderer may be written in another language provided they are accompanied by an accurate English translation of the relevant passages in which case, for purposes of interpretation of the tender, the English translation shall govern.

## **2.8 Documents Comprising the Tender**

2.8.1 The tender prepared by the tenderers shall comprise the following components.

- (a) a Tender Form and a Price Schedule completed in accordance with paragraph 2.9, 2.10 and 2.11 below
- (b) documentary evidence established in accordance with paragraph 2.12 that the tenderer is eligible to tender and is qualified to perform the contract if its tender is accepted;
- (c) documentary evidence established in accordance with paragraph 2.13 that the goods and ancillary services to be supplied by the tenderer are eligible goods and services and conform to the tender documents; and
- (d) tender security furnished in accordance with paragraph 2.14
- (e) Confidential Business Questionnaire

## **2.9 Tender Form**

2.9.1 The tenderer shall complete the Form of Tender and the appropriate Price Schedule furnished in the tender documents, indicating the equipment to be supplied, installed and commissioned and a brief description of the equipment, their country of origin, quantity, and prices.

## **2.10 Tender Prices**

2.10.1 The tenderer shall indicate on the appropriate Price Schedule the unit prices where applicable and total tender price of the equipment and installation it proposes to supply under the contract.

2.10.2 Prices indicated on the Price Schedule shall be entered separately in the following manner:

- (i) the price of the equipment quoted EXW (ex works, ex factory, ex warehouse, ex showroom, or off-the-shelf, as applicable), including all customs duties and sales and other taxes already paid or payable;
- (ii) charges for inland transportation, insurance, and other local costs incidental to delivery of the goods to their final destination; and
- (iii) installation charges shall also be indicated separately for each equipment.

2.10.3 Prices quoted by the tender shall remain fixed during the Tender's performance of the contract. A tender submitted with an adjustable price quotation will be treated as non-responsive and will be rejected, pursuant to paragraph 2.22 unless otherwise agreed by the parties.

## **2.11 Tender Currencies**

2.11.1 Prices shall be quoted in the following currencies:

- (a) For equipment that the tenderer will supply from within Kenya, the prices shall be quoted in Kenya Shillings; and
- (b) For equipment that the tenderer will supply from outside Kenya, the prices may be quoted in US Dollars or in another freely convertible currency.
- (c) Cost of installation and commissioning will be in Kenya Shillings.

## **2.12 Tenderers Eligibility and Qualifications**

2.12.1 Pursuant to paragraph 2.1. the tenderers shall furnish, as part of its tender, documents establishing the tenderers eligibility to tender and its qualifications to perform the contract if its tender is accepted.

2.12.2 The documentary evidence of the tenderers eligibility to tender shall establish to the Procuring entity's satisfaction that the tenderer, at the time of submission of its tender, is from an eligible source country as defined under paragraph 2.1

2.12.3 The documentary evidence of the tenderes qualifications to perform the contract if its tender is accepted shall establish to the Procuring entity's satisfaction;

- (a) that, in the case of a tenderer offering to supply equipment under the contract which the tenderer did not manufacture or otherwise produce, the tenderer has been duly authorized by the equipment, Manufacturer or producer to supply the equipment
- (b) that the tenderer has the financial, technical, and production capability necessary to perform the contract;
- (c) that, in the case of a tenderer not doing business within Kenya, the tenderer is or will be (if awarded the contract) represented by an Agent in Kenya equipped, and able to carry out the Tenderer's maintenance, repair, and spare parts-stocking obligations prescribed in the Conditions of Contract and/or Technical Specifications.

### **2.13 Goods Eligibility and Conformity to Tender Document**

2.13.1 Pursuant paragraph 2.2 of this section, the tenderer shall furnish, as part of its tender documents establishing the eligibility and conformity to the tender documents of all equipment which the tenderer proposes to supply under the contract

2.13.2 The documentary evidence of the eligibility of the goods shall consist of statement in the Price Schedule of the country of origin of the goods and services offered which shall be confirmed by a certificate of origin issued at the time of shipment.

2.13.3 The documentary evidence of conformity of the equipment to the tender documents may be in the form of literature, drawings, and data, and shall consist of:

- a) a detailed description of the essential technical and performance characteristic of the equipment
- b) a list giving full particulars, including available source and current prices of spare parts, special tools, etc., necessary for the proper and continuing functioning of the equipment for a period of two (2) years, following commencement of the use of the equipment by the Procuring entity; and
- c) a clause-by-clause commentary on the Procuring entity's Technical Specifications demonstrating substantial responsiveness of the goods and service to those specifications, or a statement of deviations and exceptions to the provisions of the Technical Specifications.

2.13.4 For purposes of the commentary to be furnished pursuant to paragraph 2.13.3(c ) above, the tenderer shall note that standards for workmanship, material, and equipment, as well as references to brand names or catalogue numbers designated by the Procurement entity in its Technical Specifications, are intended to be descriptive only and not restrictive. The tenderer may substitute alternative standards, brand names, and/or catalogue numbers in its tender, provided that it demonstrates to the Procurement entity's satisfaction that the substitutions ensure substantial equivalence to those designated in the Technical Specifications.

## **2.14 Tender Security**

2.14.1 The tenderer shall furnish, as part of its tender, a tender security for the amount and form specified in the Appendix to Instructions to Tenderers.

2.14.2 The tender security shall be in the amount not exceeding 2 percent of the tender price.

2.14.3 The tender security is required to protect the Procuring entity against the risk of Tenderer's conduct which would warrant the security's forfeiture, pursuant to paragraph 2.14.7

2.14.4 The tender security shall be denominated in Kenya Shillings or in another freely convertible currency, and shall be in the form of

- a) Cash
- b) A bank guarantee
- c) Such insurance guarantee approved by the Authority
- d) Letter of credit.

2.14.5 Any tender not secured in accordance with paragraph 2.14.1 and 2.14.3 will be rejected by the Procuring entity as non-responsive, pursuant to paragraph 2.22.

2.14.6 Unsuccessful Tenderer's tender security will be discharged or returned as promptly as possible but not later than thirty (30) days after the expiration of the period of tender validity prescribed by the Procuring entity.

2.14.7 The successful Tenderer's tender security will be discharged upon the tenderer signing the contract, pursuant to paragraph 2.27 and furnishing the performance security, pursuant to paragraph 2.28

2.14.8 The tender security may be forfeited:

- a) if a tenderer withdraws its tender during the period of tender validity specified by the procuring entity on the Tender Form; or
- b) in the case of a successful tenderer, if the tenderer fails:
  - i) to sign the contract in accordance with paragraph 2.27
  - 1. or
  - ii) to furnish performance security in accordance with paragraph 2.28
- c) If the tenderer rejects correction of an arithmetic error in the tender.

## **2.15 Validity of Tenders**

2.15.1 Tenderers shall remain valid for 60 days or as specified in the tender documents after date of tender opening prescribed by the Procuring entity, pursuant to paragraph 2.20. A tender valid for a shorter period shall be rejected by the Procuring entity as non-responsive.

2.15.2 In exceptional circumstances, the Procuring entity may solicit the Tenderer's consent to an extension of the period of validity. The request and the responses thereto shall be made in writing. The tender security provided under paragraph 2.14 shall also be suitably extended. A tenderer may refuse the request without forfeiting its tender security. A tenderer granting the request will not be required nor permitted to modify its tender.

## **2.16 Format and Signing of Tender**

2.16.1 The Procuring entity shall prepare two copies of the tender, clearly marking each "ORIGINAL TENDER" and "COPY OF TENDER," as appropriate. In the event of any discrepancy between them, the original shall govern.

2.16.2 The original and all copies of the tender shall be typed or written in indelible ink and shall be signed by the tenderer or a person or persons



duly authorized to bind the tenderer to the contract. All pages of the tender, except for unamended printed literature, shall be initialed by the person or persons signing the tender.

2.16.3 The tender shall have no interlineations, erasures, or overwriting except as necessary to correct errors made by the tenderer, in which case such corrections shall be initialed by the person or persons signing the tender.

## **2.17 Sealing and Marking of Tenders**

2.17.1 The Tenderer shall seal the original and each copy of the tender in separate envelopes, duly marking the envelopes as “ORIGINAL” and “COPY.” The envelopes shall then be sealed in an outer envelope.

2.17.2 The inner and outer envelopes shall:

(a) be addressed to the Procuring entity at the address given on the Invitation to Tender.

(b) bear the tender number and name in the Invitation to Tender and the words “DO NOT OPEN BEFORE (day, date at time of closing)”

2.17.3 The inner envelopes shall also indicate the name and address of the tenderer to enable the tender to be returned unopened in case it is declared “late”.

2.17.4 If the outer envelope is not sealed and marked as required by paragraph 2.17.2, the Procuring entity will assume no responsibility for the tender’s misplacement or premature opening.

## **2.18 Deadline for Submission of Tenders**

2.18.1 Tenders must be received by the Procuring entity at the address specified under paragraph 2.17.2 not later than (the time and date as specified in the appendix).

2.18.2 The Procuring entity may, at its discretion, extend this deadline for the submission of tenders by amending the tender documents in accordance with paragraph 2.6, in which case all rights and obligations of the Procuring entity and candidates previously subject

to the deadline will therefore be subject to the deadline as extended

2.18.3 Bulky tenders which will not fit in the tender box shall be received by the procuring entity as provided for in the Appendix.

## **2.19 Modification and Withdrawal of Tenders**

2.19.1 The tenderer may modify or withdraw its tender after the tender's submission, provided that written notice of the modification, including substitution or withdrawal of the tenders, is received by the Procuring entity prior to the deadline prescribed for submission of tenders.

2.19.2 The Tenderer's modification or withdrawal notice shall be prepared, sealed, marked, and dispatched in accordance with the provisions of paragraph 2.17. A withdrawal notice may also be sent by cable, telex but followed by a signed confirmation copy, postmarked not later than the deadline for submission of tenders.

2.19.3 No tender may be modified after the deadline for submission of tenders.

2.19.4 No tender may be withdrawn 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 Tender Form. Withdrawal of a tender during this interval may result in the Tenderer's forfeiture of its tender security, pursuant to paragraph 2.14.7

## **2.20 Opening of Tenders**

2.20.1 The Procuring entity will open all tenders in the presence of tenderers' representatives who choose to attend, at (*the time, on the date*) and in the following location.

(address of the procuring entity)

The tenderers' representatives who are present shall sign a tender opening register evidencing their attendance.

2.20.2 The tenderers' names, tender modifications or withdrawals, tender prices, discounts and the presence or absence of requisite tender security and such other details as the Procuring entity, at its discretion,

may consider appropriate, will be announced at the opening.

2.20.3 The Procuring entity will prepare minutes of the tender opening.

## **2.21 Clarification of Tenders**

2.21.1 To assist in the examination, evaluation and comparison of tenders the Procuring entity may, at its discretion, ask the tenderer for a clarification of its tender. The request for clarification and the response shall be in writing, and no change in the prices or substance of the tender shall be sought, offered, or permitted.

2.21.2 Any effort by the tenderer to influence the Procuring entity in the Procuring entity's tender evaluation, tender comparison or contract award decisions may result in the rejection of the tenderers' tender.

## **2.22 Preliminary Examination and Responsiveness**

2.22.1 The Procuring entity will examine the tenders to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the tenders are generally in order.

2.22.2 Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail, and the total price shall be corrected. If the candidate does not accept the correction of the errors, its tender will be rejected, and its tender security may be forfeited. If there is a discrepancy between words and figures the amount in words will prevail.

2.22.3 The Procuring entity may waive any minor informality or non-conformity or irregularity in a tender which does not constitute a material deviation, provided such waiver does not prejudice or effect the relative ranking of any tenderer.

2.22.4 Prior to the detailed evaluation, pursuant to paragraph 2.23 the Procuring entity will determine the substantial responsiveness of each tender to the tender documents. For purposes of these paragraphs, a

substantially responsive tender is one, which conforms to all the terms and conditions of the tender documents without material deviations. The Procuring entity's determination of a tender's responsiveness is to be based on the contents of the tender itself without recourse to extrinsic evidence.

2.22.5 If a tender is not substantially responsive, it will be rejected by the Procuring entity and may not subsequently be made responsive by the tenderer by correction of the non-conformity.

### **2.23 Conversion to Single Currency**

2.23.1 Where other currencies are used, the Procuring Entity will convert those currencies to Kenya Shillings using the selling exchange rate on the date of tender closing provided by the Central Bank of Kenya.

### **2.24 Evaluation and Comparison of Tenders**

2.24.1 The Procuring entity will evaluate and compare the tenders which have been determined to be substantially responsive, pursuant to paragraph 2.22

2.24.2 The Procuring entity's evaluation of a tender will exclude and not take into account

- (a) in the case of equipment manufactured in Kenya or equipment of foreign origin already located in Kenya, sales and other similar taxes, which will be payable on the goods if a contract is awarded to the tenderer; and
- (b) any allowance for price adjustment during the period of execution of the contract, if provided in the tender.

2.24.3 The comparison shall be of the ex-factory/ex-warehouse/off-the-shelf price of the goods offered from within Kenya, such price to include all costs, as well as duties and taxes paid or payable on components and raw material incorporated or to be incorporated in the goods.

2.24.4 The Procuring entity's evaluation of a tender will take into account, in addition to the tender price and the price of incidental services, the following factors, in the manner and to the extent indicated in paragraph 2.23.5 and in the technical specifications:

- (a) delivery and installation schedule offered in the tender;
- (b) deviations in payment schedule from the specifications in the Special Conditions of Contract;
- (c) the cost of components, mandatory spare parts and service;
- (d) the availability in Kenya of spare parts and after-sales service for the equipment offered in the tender;

2.24.5 Pursuant to paragraph 2.24.4 the following evaluation methods will be applied

(a) *Delivery schedule*

- (i) The Procuring entity requires that the equipment under the Invitation for Tenders shall be delivered at the time specified in the Schedule of Requirements. Tenders offering deliveries longer than the procuring entity's required delivery time will be treated as non-responsive and rejected.

(b) *Deviation in payment schedule*

Tenderers shall state their tender price for the payment of schedule outlined in the special conditions of contract. Tenders will be evaluated on the basis of this base price. Tenderers are, however, permitted to state an alternative payment schedule and indicate the reduction in tender price they wish to offer for such alternative payment schedule. The Procuring entity may consider the alternative payment schedule offered by the selected tenderer.

(c) *Spare parts and after sales service facilities*

Tenderers must offer items with service and spare parts back-up. Documentary evidence and locations of such back-up must be given. Where a tenderer offers items without such back-up in the country, he must give a documentary evidence and assurance that he will establish adequate back-up for items supplied.

2.24.6 The tender evaluation committee shall evaluate the tender within 30 days of the validity period from the date of opening the tender.

2.24.7 Preference where allowed in the evaluation of tenders shall not exceed 15%

## **2.25 Contacting the Procuring Entity**

2.25.1 Subject to paragraph 2.21 no tenderer shall contact the Procuring entity on any matter related to its tender, from the time of the tender opening to the time the contract is awarded.

2.25.2 Any effort by a tenderer to influence the Procuring entity in its decisions on tender, evaluation, tender comparison, or contract award may result in the rejection of the Tenderer's tender.

## **2.26 Award of Contract**

### **(a) Post-Qualification**

2.26.1 In the absence of pre-qualification, the Procuring entity will determine to its satisfaction whether the tenderer that is selected as having submitted the lowest evaluated responsive tender is qualified to perform the contract satisfactorily.

2.26.2 The determination will take into account the tenderer financial, technical, and production capabilities. It will be based upon an examination of the documentary evidence of the tenderers qualifications submitted by the tenderer, pursuant to paragraph 2.12.3 as well as such other information as the Procuring entity deems necessary and appropriate.

2.26.3 An affirmative determination will be a prerequisite for award of the contract to the tenderer. A negative determination will result in rejection of the Tenderer's tender, in which event the Procuring entity will proceed to the next lowest evaluated tender to make a similar determination of that Tenderer's capabilities to perform satisfactorily.

### **(b) Award Criteria**

2.26.4 The Procuring entity will award the contract to the successful tenderer(s) whose tender has been determined to be substantially responsive and has been determined to be the lowest evaluated tender, provided further that the tenderer is determined to be qualified to perform the contract satisfactorily.

2.26.5 To qualify for contract awards, the tenderer shall have the following:

- a) Necessary qualifications, capability experience, services, equipment and facilities to provide what is being procured.
- b) Legal capacity to enter into a contract for procurement
- c) Shall not be insolvent, in receivership, bankrupt or in the process of being wound up and is not the subject of legal proceedings relating to the foregoing.
- d) Shall not be debarred from participating in public procurement.

**(c) Procuring Entity's Right to Accept or Reject Any or All Tenders**

2.26.6 The Procuring entity reserves the right to accept or reject any tender, and to annul the tendering process and reject all tenders at any time prior to contract award, without thereby incurring any liability to the affected tenderer or tenderer of the grounds for the procuring entity's action

2.26.7 The procuring entity may at any time terminate procurement proceedings before contract award and shall not be liable to any person for the termination

2.26.8 The procuring entity shall give prompt notice of the termination to the tenderers and on request give its reasons for termination within 14 days of receiving the request from any tenderer.

2.26.9 A tenderer who gives false information in the tender document about its qualification or who refuses to enter into a contract after notification of contract award shall be considered for debarment from participating in future public procurement.

**2.27 Notification of Award**

2.27.1 Prior to the expiration of the period of tender validity, the Procuring entity will notify the successful tenderer in writing that its tender has been accepted.

2.27.2 The notification of award will signify the formation of the Contract but will have to wait until the contract is finally signed by both parties. Simultaneous other tenderers shall be notified that their

tenders have not been successful.

2.27.3 Upon the successful Tenderer's furnishing of the performance security pursuant to paragraph 2.29, the Procuring entity will simultaneously inform the other tenderers that this tenderers have not been successful

## **2.28 Signing of Contract**

2.28.1 At the same time as the Procuring entity notifies the successful tenderer that its tender has been accepted, the procuring entity will simultaneously inform the other tenderers that their tenders have not been successful.

Within fourteen (14) days of receipt of the Contract Form, the successful tenderer shall sign and date the contract and return it to the Procuring entity.

2.28.2 The parties to the contract shall have it signed within 30 days from the date of notification of contract award unless there is an administrative review request.

## **2.29 Performance Security**

2.29.1 Within Thirty (30) days of the receipt of notification of award from the Procuring entity, the successful tenderer shall furnish the performance security in accordance with the Conditions of Contract, in the Performance Security Form provided in the tender documents, or in another form acceptable to the Procuring entity.

2.29.2 Failure of the successful tenderer to comply with the requirements of paragraph 2.28 or paragraph 2.29 shall constitute sufficient grounds for the annulment of the award and forfeiture of the tender security, in which event the Procuring entity may make the award to the next lowest evaluated Candidate or call for new tenders.

## **2.30 Corrupt or Fraudulent Practices**

2.30.1 The procuring entity requires that tenderers observe the highest standard of ethics during the procurement process and execution of



contracts. A tenderer shall sign a declaration that he has and will not be involved in corrupt or fraudulent practices.

2.30.2 The Procuring entity will reject a proposal for award if it determines that the tenderer recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question.

2.30.3 Further a tenderer who is found to have indulged in corrupt or fraudulent practices risks being debarred from participating in public Procurement in Kenya.

## APPENDIX TO INSTRUCTIONS TO TENDERERS

The following appendix to instructions to tenders shall complement or amend the provisions of the instructions to tenderers (Section A). Wherever there is a conflict between the provisions of the instructions to tenderers and the appendix, the provisions of the appendix herein shall prevail over those of the instructions to tenderers.

CLAUSE	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
2.1.1	<p>This Invitation for Tenders is open to all tenderers.</p> <p>The tenderer shall submit details of experience and past performance of the tenderer on the works of a similar nature within the past three years and details of current work on hand and other contractual commitments.</p> <p>Bidders must submit a proposed Works Programme, failure to which the bid will be <b>non-responsive</b>. The Works programme should detail timelines of all activities starting from material procurement and ending in testing and commissioning. Please note that the Contract period will be <b>18 Weeks</b>.</p>
2.1.3	<p>A copy of the agreement entered into by joint venture partners <b><u>MUST</u></b> be submitted with the tender. Firms participating in more than one joint venture will lead to the disqualification of the bids of those Joint Ventures</p>
2.3.2	<p>The price of obtaining the tender document from the Head, Supply Chain Management Services, Ministry of Energy Room 24-16 on the 24th floor, Nyayo House is a non-refundable fee of KShs. 1,000/=</p> <p>The documents can also be downloaded from Ministry's website: <a href="http://www.energy.go.ke/">www.energy.go.ke/</a> or from National Treasury's Supplier portal: <a href="http://www.supplier.treasury.go.ke/">www.supplier.treasury.go.ke/</a> <b>FREE OF CHARGE</b>.</p> <p>Bidders who download the documents <b>MUST</b> register at Supply Chain Management Services, Ministry of Energy Room 24-16 on the 24th floor, Nyayo House</p>
2.14	<p>Eligible bidders should provide a Tender security of Kenya Shillings Two Hundred and Forty Thousand (<b>Kshs 240,000.00</b>) in form of a bank guarantee from a reputable bank or insurance guarantee from a company approved by, the Central Bank of Kenya and Public</p>

	Procurement Regulatory Authority respectively.
2.15.1	The tender validity period shall be One hundred and twenty <b>(120) days</b> from the date of tender opening. A tender valid for a shorter period shall be rejected by the Procuring entity as non-responsive.
2.17.2	<p>a) The name and address of the Employer for the purposes of submission of tenders is</p> <p style="text-align: center;"><b>THE PRINCIPAL SECRETARY, MINISTRY OF ENERGY, Nyayo House, P.O. Box 30582 – 00100, <u>NAIROBI</u></b></p> <p>b) The Tender Number and name of the proposed Works is <b>Tender No. MOE/ONT/007/2019-2020 FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF SOLAR WATER PUMP AND WATER DESALINATION SYSTEMS FOR ONE (1) WATER BOREHOLE IN KALACHA HEALTH CENTRE IN ASAL COUNTY OF MARSABIT.</b></p>
2.20.1	The tender opening date and time are Tuesday, 3 <sup>rd</sup> December, 2019 at 10.00 A.m.
2.22.2	<p>a) In the event of a discrepancy between the tender amount as stated in the form of Tender and the corrected tender figure in the Main summary of the Bills of Quantities, the amount as stated in the Form of Tender shall prevail.</p> <p>b) The Error correction factor shall be computed by expressing the difference between the amount and the corrected tender sum as a percentage of the corrected contract works (i.e. corrected tender sum less P.C; and Provisional Sums).</p> <p>c) The Error correction factor shall be applied to all contract works (as a rebate or addition as the case may be) for the purposes of valuations for Interim Certificates and valuation of variations.</p>
2.24	<b>EVALUATION CRITERIA</b>

**This will be threefold comprising mandatory requirements/ preliminary; Technical and Financial.**

**MANDATORY/PRELIMINARY**

- a) Form of Tender **MUST** be duly filled, signed and stamped in the format provided in the tender document.
- b) Tender Security Form **MUST** be duly filled, signed and stamped in the format provided in the tender document.
- c) Bidders **MUST** provide copies of:
  - (i) Registration Certificate/ Certificate Of Incorporation
  - (ii) Valid Tax Compliance Certificate.
  - (iii) Solar PV License from Energy and Petroleum Regulatory Authority (EPRA), CLASS V1 and V2.
  - (iv) National Identity card of the owner (sole proprietorship) Partnership deed for partnerships or CR12 for Directors for Limited companies.
- d) All Standard Forms **MUST** be duly filled, signed and stamped., as well as Key Personnel, Schedule of Contracts completed in the last three (3) years, Schedule of on-going projects, Financial Reports for the last two years, Evidence of Financial Resources to meet expenditure and Qualification Requirements.
- e) Bidders **MUST** submit with their bid a proposed Works Programme to complete the works within a period of 18 Weeks, failure to which the bid will be non-responsive.
- f) Letter from reputable bank confirming the period the tenderer has operated an account with them. The letter should be from a bank recognized and approved by the Central Bank of Kenya.
- g) Physical location of company's official premises (attach copy of lease agreement or otherwise for office location) Manufacturer's Authorization for Solar Modules **MUST** be provided;
- h) Manufacturer's Authorization for Batteries **MUST** be provided

	<p>i) Manufacturer’s Authorization for Inverter/Chargers <b>MUST</b> be provided</p> <p>j) Manufacturer’s Authorization for Charge Controllers <b><u>MUST</u></b> be provided.</p> <p>The documents <b>MUST</b> be valid as of the Date of Tender Opening.</p> <p><b>Failure to meet the above preliminary requirements will lead to automatic disqualification and the tenderer will not proceed to the next stage of evaluation.</b></p>
2.24	<p><b>TECHNICAL EVALUATION</b></p> <p>a) The detailed specifications for pump control unit <b>MUST</b> meet the minimum specifications stated in Section VI of the tender document. Any tender not meeting these minimum specifications will be disqualified;</p> <p>b) The detailed specifications for solar pv modules <b>MUST</b> meet the minimum specifications stated in Section VI of the tender document. Any tender not meeting these minimum specifications will be disqualified;</p> <p>c) The detailed specifications for solar pump <b>MUST</b> meet the minimum specifications stated in Section VI of the tender document. Any tender not meeting these minimum specifications will be disqualified;</p> <p>d) The detailed specifications for solar batteries <b>MUST</b> meet the minimum specifications stated in Section VI of the tender document. Any tender not meeting these minimum specifications will be disqualified</p> <p>e) The detailed specifications for complete water desalination system <b>MUST</b> meet the minimum specifications stated in Section VI of the tender document. Any tender not meeting these minimum specifications will be disqualified;</p> <p>f) The detailed specifications for water desalination system control unit <b>MUST</b> meet the minimum specifications stated in Section VI of the tender document. Any tender not meeting these minimum specifications will be disqualified;</p> <p>g) The detailed specifications for inverter charger <b>MUST</b> meet the minimum specifications stated in Section VI of the tender document. Any tender not meeting these minimum specifications will be disqualified;</p>

**NOTE:**

**Manufacturer shall sign and stamp all the above mentioned detailed Technical specifications on the Manufacturer's Letter head.**

**TECHNICAL CAPABILITY EVALUATION**

<b>Specifications</b>	<b>Requirements</b>	<b>Maximum Marks</b>
1 Key Personnel	Supervisor Experience in electromechanical works	2 years – 3 3 years – 4 Above 3 years - 5 Maximum marks - <b>5</b>
	Supervisor Experience in Solar PV Installations	1 year – 3 2 years - 4 Above 2 years - 5 Maximum marks – <b>5</b>
	Technicians	1 year – 5 2 years - 7 Above 2 years - <b>10</b>
2 Contracts completed and/or on-going in the last three years	Number of related ( i.e electrical works, water pumping/desalination installations and any other renewable energy project) projects	1 mark for each project. Maximum marks - <b>5</b>
	Value of related projects related ( i.e electrical works, water pumping/desalination installations and any other renewable energy project) done per year	50% – 59% of tender sum - 2 60% - 69% - 4 70% - 79% - 6 80% - 89% - 8 90% - 100% - 10 Maximum marks - <b>10</b>
	Solar PV Desalination Systems	3 Mark for

		installation projects	each project. Maximum marks - 15
3	Financial reports	Turn over 50% of tender sum	1% – 9% - 1 10% - 19% - 2 20% - 29% - 4 30% - 39% - 6 40% - 49% - 8 50% and above - 10 Maximum marks - <b>10</b>
		Cash flow - positive	Negative – 0 Positive – 5 Maximum marks – <b>5</b>
		Net Assets – positive	Negative – 0 Positive – 5 Maximum marks – <b>5</b>
4	Evidence of financial resources	Liquidity position (Cash and cash equivalents including lines of credit) – 30% of tender sum	1% – 9% - 5 10% - 19% - 10 20% - 29% - 20 30% and Above – 30 marks Maximum Marks - <b>30</b>
The maximum allowable score for technical capability is <b>100%</b>			
<p><b>Note.</b></p> <ul style="list-style-type: none"> <li>• Qualified Supervisors must possess a relevant Degree/Diploma with 3 years' experience in Electro-Mechanical installation works supervision with 2 years being in Solar PV installation. (<b>Signed CV's by the Supervisors and the owner and copies of Certificates <u>MUST</u> be submitted</b>).</li> <li>• Qualified Technicians must possess a relevant Diploma/Artisan</li> </ul>			

	<p>with 3 years' experience in Electro-Mechanical installation works  <b>(Signed CV's by the Technicians and copies of Certificates  {Trade Test for Artisans} <u>MUST</u> be submitted).</b>  <b>Only those bids having a score of 70% and above will be considered  for further evaluation</b></p>
2.24.6	<p>The tender evaluation committee shall evaluate the tender within 30 days of the validity period from the date of opening of the tender.</p> <p>NB: Due diligence will be carried out by the Evaluation Committee to ascertain that the information provided is correct. Any incorrect information provided will amount to immediate disqualification of the tenderer. Only tenderers who will be recommended for award <i>shall</i> be visited.</p>
2.26	<p>The award criteria is as per the Letter of Invitation to Tender.</p>



## SECTION III: GENERAL CONDITIONS OF CONTRACT

### 3.1 Definitions

**In this contract, except where context otherwise requires, the following terms shall be interpreted as indicated;**

**“Bills of quantities”** means the priced and completed bill of quantities forming part of the tender.

**“Compensation Events”** are those defined in clause 24 hereunder.

**“Completion date”** means the date of completion of the works as certified by the Project Manager, in accordance with Clause 31.

**“The Contract”** Means the agreement entered into between the Employer and the Contactor as recorded in the Agreement Form and signed by the parties including all attachments and appendices thereto and all documents incorporated by reference therein to execute, complete, and maintain the Works,

**“The Contractor”** refers to the person or corporate body whose tender to carry out the Works has been accepted by the Employer.

**“The Contractor’s Tender”** is the completed tendering document submitted by the Contactor to the Employer.

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

**“Days”** are calendar days; **“months”** are calendar months.

**“Defects”** is any piece of work not completed in accordance with the Contract.

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

**“The Defects Liability Period”** is the period named in the Contract Data and calculated from the Completion Date.

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

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

**“Employer”** or the **“procuring entity”** as defined in the Public Procurement Regulations (i.e. Central or Local Government administration, Universities, Public Institutions and Corporations, etc) is the party who employs the Contractor to carry out the Works.

**“Equipment”** is the Contractor’s machinery and vehicles brought temporarily to the Site for the execution of the Works.

**“The intended completion date”** is the date on which it is intended that the Contractor shall complete the works. The intended Completion Date may be revised only by the Project manager by issuing an extension of time or acceleration in the Works.

**“Materials”** are all supplies, including consumables, used by the Contractor for incorporation in order.

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

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

**“Site”** means the place or places where the permanent Works are to be carried out including workshops where the same is being prepared.

**“Site Investigation Reports”** are those reports that may be included in the tendering documents which are factual and interpretative about

the surface and subsurface conditions at the Site.

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

**“Start Date”** is the date when the Contractor shall commence execution of the Works.

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

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

**“Employer’s Representative”** is the person appointed by the Employer and notified to the Contractor for the purpose of supervision of the Works.

**“A Variation”** is an instruction given by the Employer’s Representative which varies the Works.

**“The Works”** are what the Contract requires the Contractor to construct, install, and turnover to the Employer.

## **3.2 Interpretation**

3.2.1 In interpreting the Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning in English Language unless specifically defined. The Project Manager will provide instructions clarifying queries about these Conditions of Contract.

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

3.2.3 The following documents shall constitute the Contract documents and shall be interpreted in the following order of priority;

- (1) Agreement,
- (2) Letter of acceptance,
- (3) Contractor's Tender,
- (4) Special Conditions of Contract,
- (5) Conditions of Contract,
- (6) Specifications,
- (7) Drawings,
- (8) Bills of Quantities,
- (9) Any other documents listed in the Special Conditions of Contract as forming part of the contract.

Immediately after the execution of the contract, the Project Manager shall furnish both the Employer and the Contractor with two copies each of all the Contract documents. Further, as and when necessary the Project manager shall furnish the Contractor {always with a copy to the Employer) with three (3) copies of such further drawings or details or descriptive schedules as are reasonably necessary either to explain or amplify the Contract drawings or to enable the Contractor to carry out and complete the Works in accordance with these Conditions.

### **3.3 Application**

These General Conditions shall apply in all Contracts made by the Procuring entity for the procurement installation and commissioning of equipment to the extent that they are not superceded by provisions of other part of contract.

### **3.4 Country of Origin**

3.4.1 For purposes of this clause, "Origin" means the place where the Goods were mined, grown or produced.

3.4.2 The origin of Goods and Services is distinct from the nationality of the tenderer and will be treated thus in the evaluation of the tenders

### **3.5 Use of Contract Documents and Information**

- 3.5.1 The Candidate shall not, without the Procuring entity's prior written consent, disclose the Contract, or any provision therefore, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of the Procuring entity in connection therewith, to any person other than a person employed by the tenderer in the performance of the Contract.
- 3.5.2 The tenderer shall not, without the Procuring entity's prior written consent, make use of any document or information enumerated in paragraph 3.5.1 above
- 3.5.3 Any document, other than the Contract itself, enumerated in paragraph 3.5.1 shall remain the property of the Procuring entity and shall be returned (all copies) to the Procuring entity on completion of the Tenderer's performance under the Contract if so required by the Procuring entity

### **3.6 Patent Rights**

- 3.6.1 The tenderer shall indemnify the Procuring entity against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the Goods or any part thereof in the Procuring entity's country

### **3.7 Performance Security**

- 3.7.1 Within twenty eight (28) days of receipt of the notification of Contract award, the successful tenderer shall furnish to the Procuring entity the performance security where applicable in the amount specified in Special Conditions of Contract.
- 3.7.2 The proceeds of the performance security shall be payable to the Procuring entity as compensation for any loss resulting from the Tenderer's failure to complete its obligations under the Contract.
- 3.7.3 The performance security shall be denominated in the currency of the contract, or in a freely convertible currency acceptable to the procuring entity and shall be in the form of:
- a) Cash
  - b) Bank guarantee
  - c) Such insurance guarantee approved by the Authority
  - d) Letter of credit

3.7.4 The performance security will be discharged by the Procuring entity and returned to the Candidate not later than thirty (30) days following the date of completion of the Tenderer's performance obligations under the Contract, including any warranty obligations, under the Contract.

### **3.8 Inspection and Tests**

3.8.1 The Procuring entity or its representative shall have the right to inspect and/or to test the equipment to confirm their conformity to the Contract specifications. The Procuring entity shall notify the tenderer in writing in a timely manner, of the identity of any representatives retained for these purposes.

3.8.2 The inspections and tests may be conducted in the premises of the tenderer. All reasonable facilities and assistance, including access to drawings and production data, shall be furnished to the inspectors at no charge to the Procuring entity.

3.8.3 Should any inspected or tested equipment fail to conform to the Specifications, the Procuring entity may reject the equipment, and the tenderer shall either replace the rejected equipment or make alterations necessary to make specification requirements free of costs to the Procuring entity.

3.8.4 The Procuring entity's right to inspect test and where necessary, reject the equipment after the equipment arrival and installation shall in no way be limited or waived by reason of the equipment having previously been inspected, tested and passed by the Procuring entity or its representative prior to the equipment delivery.

3.8.5 Nothing in paragraph 3.8.4 shall in any way release the tenderer from any warranty or other obligations under this Contract.

### **3.9 Packing**

3.9.1 The tenderer shall provide such packing and packaging of the equipment as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the Contract.

3.9.2 The packing, marking, and documentation within and outside the

packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract

### **3.10 Delivery and Documents**

3.10.1 Delivery of the equipment, documents and installation of the same shall be made by the tenderer in accordance with the terms specified by Procuring entity in its Schedule of Requirements and the Special Conditions of Contract

### **3.11 Assignment**

The tenderer shall not assign, in whole or in part, its obligations to perform under this Contract, except with the Procuring entity's prior written consent

### **3.12 Force Majeure**

The Tenderer shall not be liable for forfeiture of its performance security or termination for default if and to the extent that its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

### **3.13 Notices**

3.13.1 Any notice given by one party to the other pursuant to this contract shall be sent to other party by post or by fax or Email and confirmed in writing to the other party's address specified.

3.13.2 A notice shall be effective when delivered or on the notices effective date, whichever is later.

### **3.14 Project Manager's Decisions**

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

### **3.15 Delegation**

The Project manager may delegate any of his duties and responsibilities to others after notifying the Contractor.

### **3.16 Communications**

Communication between parties shall be effective only when in writing. A notice shall be effective only when it is delivered.

### **3.17 Subcontracting**

The Contractor may subcontract with the approval of the Project Manager, but may not assign the Contract without the approval of the Employer in writing. Subcontracting shall not alter the Contractor's obligations.

### **3.18 Other Contractors**

The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities etc. as listed in the Special Conditions of Contract and also with the Employer, as per the directions of the Project Manager. The Contractor shall also provide facilities and services for them. The employer may modify the said List of Other Contractors etc., and shall notify the Contractor of any such modification.

### **3.19 Personnel**

The Contractor shall employ the key personnel named in the Qualification Information, to carry out the functions stated in the said information or other personnel approved by the Project Manager. The Project Manager will approve any proposed replacement of key personnel only if their relevant qualifications and abilities are substantially equal to or better than those of the personnel listed in the Qualification Information. If the Project Manager asks the Contractor to remove a person who is a member of the Contractor's staff or work force, stating the reasons, the Contractor shall ensure that the person leaves the Site within Seven days and has no further connection with the Work in the Contract.

### **3.20 Works**

The Contractor shall construct and install the works in accordance with the Specifications and Drawings. The Works may commence on the Start Date and shall be carried out in accordance with the Program submitted by the Contractor, as updated with the approval of the Project Manager, and complete them by the Intended Completion Date.



### **3.21 Safety and Temporary Works**

3.21.1 The Contractor shall be responsible for the design of temporary works. However, before erecting the same, he shall submit his designs including specifications and drawings to the Project Manager and to any other relevant third parties for their approval. No erection of temporary works shall be done until such approvals are obtained.

3.21.2 The Project Manager's approval shall not alter the Contractor's responsibility for design of the Temporary works and all drawings prepared by the Contractor for the execution of the temporary or permanent works, shall be subject to prior approval by the Project Manager before they can be used.

3.21.3 The Contractor shall be responsible for the safety of all activities on the Site.

### **3.22 Discoveries**

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

### **3.23 Work Program**

Within the time stated in the Special Conditions of Contract, the Contractor shall submit to the Project Manager for approval a program showing the general methods, arrangements, order, and timing for all the activities in the Works. An update of the program shall be a program showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work, including any changes to the sequence of the activities.

The Contractor shall submit to the Project Manager for approval an updated program at intervals no longer than the period stated in the Special Conditions of Contract. If the Contractor does not submit an updated program within this period, the Project Manager may withhold the amount stated in the said Special Conditions from the

next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue program has been submitted. The Project Manager's approval of the program shall not alter the Contractor's obligations. The Contractor may revise the program and submit it to the Project Manager again at any time. A revised program shall show the effect of Variations and Compensation Events.

### **3.24 Possession of Site**

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

### **3.25 Access to Site**

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

### **3.26 Instructions**

The Contractor shall carry out all instructions of the Project Manager which are in accordance with the Contract.

### **3.27 Extension of Acceleration of Completion Date**

The Project manager shall extend the Intended Completion Date if a Compensation Event occurs or a variation is issued which makes it impossible for completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining work, which would cause the Contractor to incur additional cost. The Project Manager shall decide whether and by how much to extend the Intended Completion Date with 21 days of the Contractor asking the Project Manager in writing for a decision upon the effect of a Compensation Event or variation and submitting full supporting information. If the Contractor has failed to give early warning of a caused by such failure shall not be considered in assessing the new (extended) Completion Date.

No bonus for early completion of the Works shall be paid to the Contractor by the Employer

### **3.28 Management Meetings**

A Contractor management meeting shall be held monthly and attended by the Project Manager and the Contractor. Its business shall be to review the plans for the remaining Work and to deal with matters raised in accordance with the early warning procedure. The Project manager shall record the minutes of management meetings and provide copies of the same to those attending the meeting and the Employer.

The responsibility of the parties for actions to be taken shall be decided by the Project manager either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.

### **3.29 Early Warning**

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

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

### **3.30 Defects**

3.30.1 The Project Manager shall inspect the Contractor's work and notify the Contractor of any defects that are found. Such inspection shall not affect the Contractor's responsibilities.

The Project Manager may instruct the Contractor to search for a defect

and to uncover and test any work that the Project manager considers may have a defect. Should the defect be found, the cost of uncovering and making good shall be borne by the Contractor. However, if there is no defect found, the cost of uncovering and making good shall be treated as a variation and added to the Contract Price.

3.30.2 The Project Manager shall give notice to the Contractor of any defects before the end of the Defect Liability Period, which begins at completion, and is defined in the Special Conditions of contract. The Defects Liability Period shall be extended for as long as defects remain to be corrected.

3.30.3 Every time notice of a defect is given, the Contractor shall correct the notified defect within the length of time specified by the Project Manager's notice. If the Contractor has not corrected a defect within the time specified in the Project Manager's notice, the Project Manager will assess the cost of having the defect corrected by other parties and such cost shall be treated as a variation and be deducted from the Contract Price.

### **3.31 Bills of Quantities**

3.31.1 The Bills of Quantities shall contain items for the construction, installation, testing and commissioning of the work to be done by the Contractor. The Contractor will be paid for the quantity of the work done at the rate in the Bills of Quantities for each item.

3.31.2 If the final quantity of the work done differs from the quantity in the Bills of Quantities for the particular item by more than 25 percent and provided the change exceeds 1 percent of the Initial Contractor price, the Project Manager shall adjust the rate to allow for the change.

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

### **3.32 Variations**

3.32.1 All variations shall be included in updated programs produced by the Contractor.

- 3.32.2 The Contractor shall provide the Project Manager with a quotation for carrying out the variations when requested to do so. The Project Manager shall assess the quotation, which shall be given within seven days of the request or within any longer period as may be stated by the Project Manager and before the Variation is ordered.
- 3.32.3 If the work in the variation corresponds with an item description in the Bills of Quantities and if in the opinion of the Project Manager, the quantity of work is not above the limit stated in Clause 21.2 or the timing of its execution does not cause the cost per unit of quantity to change, the rate in the Bills of Quantities shall be used to calculate the value of the variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the variation does not correspond with items in the Bills of Quantities, the quotation by the contractor shall be in the form of new rates for the relevant items of work.
- 3.32.4 If the Contractor's quotation is unreasonable, the Project manager may order the variation and make a change to the Contract Price, which shall be based on the Project Manager's own forecast of the effects of the variation on the Contractor's cost
- 3.32.5 If the Project Manager decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the works, no quotation shall be given and the variation shall be treated as a Compensation Event.
- 3.32.6 The Contractor shall not be entitled to additional payment for cost that could have been avoided by giving early warning.
- 3.32.7 When the Program is updated, the Contractor shall provide the Project Manager with an updated cash flow forecast.

### **3.33 Payment Certificates, Currency of Payments and Advance Payments**

- 3.33.1 The Contractor shall submit to the Project Manager monthly applications for payment giving sufficient details of the Work done and materials on Site and the amounts which the Contractor considers himself to be entitled to. The Project Manager shall check the monthly application and certify the amount to be paid to the

Contractor within 14 days. The value of work executed and payable shall be determined by the Project Manager.

3.33.2 The value of work executed shall comprise the value of the quantities of the items in the Bills of Quantities completed, materials delivered on site, variations and compensation events. Such materials shall become the property of the Employer once the Employer has paid the Contractor for their value. Thereafter, they shall not be removed from site without the Project Manager's instructions except for use upon the works.

3.33.3 Payments shall be adjusted for deductions for retention. The Employer shall pay the Contractor the amounts certified by the Project Manager within 30 days of the date of issue of each certificate. If the Employer makes a late payment, the Contractor shall be paid simple interest on the late payment in the next payment. Interest shall be calculated on the basis of number of days delayed at a rate three percentage points above the Central Bank of Kenya's average rate for base lending prevailing as of the first day the payment becomes overdue.

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

3.33.5 Items of the works for which no rate or price has been entered in will not be paid for by the Employer and shall be deemed covered by other rates and prices in the Contract.

3.33.6 The Contract Price shall be stated in Kenya Shillings. All payments to the contractor shall be made in Kenya Shillings and foreign currency in the proportion indicated in the tender, or agreed prior to the execution of the Contract Agreement and indicated therein. The rate of exchange for the calculation of the amount of foreign currency payment shall be the rate of exchange indicated in the Special Conditions of Contract. If the contractor indicated foreign currencies for payment other than the currencies of the countries of origin of

related goods and services. The Employer reserves the right to pay the equivalent at the time of payment in the currencies of the countries of such goods and services. The Employer and the Project manager shall be notified promptly by the Contractor of any changes in the expected foreign currency requirements of the Contractor during the execution of the works as indicated in the Schedule of Foreign Currency Requirements and the foreign and local currency portions of the balance of the Contract Price shall then be amended by agreement between Employer and the Contractor in order to reflect appropriately such changes.

3.33.7 In the event that an advance payment is granted, the following shall apply:-

- a) On signature of the Contract, the Contractor shall at his request, and without furnishing proof of expenditure, be entitled to an advance of 10% (ten percent) of the original amount of the contract. The advance shall not be subject to retention money.
- b) No advance payment may be made before the Contractor has submitted proof of the establishment of deposit or a directly liable guarantee satisfactory to the Employer in the amount of the advance payment. The guarantee shall be in the same currency as the advance.
- c) Reimbursement of the lump sum advance 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 amount of the contract. It shall have been completed by the time 80% of this amount is reached.

The amount to be repaid by way of successive deductions shall be calculated by means of the formula:

$$R = \frac{A(X^1 - X^{11})}{100}$$

Where:

- R = the amount to be reimbursed
- A = the amount of the advance which has been granted
- $X^1$  = the amount of proposed cumulative payments as a percentage of the original amount of the Contract. This will exceed 20% but not exceed 80%.
- $X^{11}$  = 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%.

d) With each reimbursement the counterpart of the directly liable guarantee may be reduced accordingly.

### **3.34 Compensation Events**

3.34.1 The following issues shall constitute Compensation Events.

- a) The Employer does not give access to a part of the site by the Site Possession Date stated in the Special Conditions of Contract.
- b) The Employer modifies the List of Other Contractors, etc., in a way that affects the Work of the Contractor under the Contract.
- c) The Project Manager orders a delay or does not issue drawings, specifications or instructions required for execution of the works on time.
- d) The Project Manager instructs the contractor to uncover or to carry out additional tests upon the work, which is then found to have no defects.



- e) The Project Manager unreasonably does not approve a subcontract to be let.
- f) Ground conditions are substantially more<sup>3</sup> adverse than could reasonably have been assumed before issuance of the Letter of Acceptance from the information issued to tenderers (including the site investigation reports), from information available publicly and from a visual inspection of the site.
- g) The Project Manager gives an instruction for dealing with an unforeseen condition, caused by the Employer or additional works required for safety or other reasons.
- h) Other contractors, public authorities, utilities, or the Employer does not work within the dates and other constraints stated in the Contract, and they cause delay or extra cost to the Contractor.
- i) The effects on the Contractor of any of the Employer's risks.
- j) The Project Manager unreasonably delays issuing a Certificate of Completion.
- k) Other compensation events described in the Contract or determined by the Project manager shall apply

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

3.34.3 As soon as information demonstrating the effect of each compensation event upon the Contractor's forecast cost has been provided by the Contract, it shall be assessed by the Project Manager, and the Contract Price shall be adjusted accordingly.

- 3.34.4 If the Contractor's forecast is deemed unreasonable, the Project Manager shall adjust the Contract Price based on the Project Manager's own forecast. The Project Manager will assume that the Contractor will react competently and promptly to the event.
- 3.34.5 The Contractor shall not be entitled to compensation to the extent that the Employer's interests are adversely affected by the Contractor not having given early warning or not having co-operated with the Project Manager.
- 3.34.6 Prices shall be adjusted for fluctuations in the cost of inputs only if provided for in the Special Conditions of Contract.
- 3.34.7 The Contractor shall give written notice to the Project Manager of his intention to make a claim within thirty days after the event giving rise to the claim has first arisen. The claim shall be submitted within thirty days thereafter.
- 3.34.8 Provided always that should the event giving rise to the claim of continuing effect, the Contractor shall submit an interim claim within the said thirty days and a final claim within thirty days of the end of the event giving rise to the claim.

### **3.35 Price Adjustment**

- 3.35.1 The Project Manager shall adjust the Contract Price if taxes, duties and other levies are changed between the date 30 days before the submission of tenders for the Contract and the date of Completion. The adjustment shall be the change in the amount of tax payable by the Contractor.
- 3.35.2 The Contract Price shall be deemed to be based on exchange rates current at the date of tender submission in calculating the cost to the Contractor of materials to be specifically imported (by express provision in the Contract Bills of Quantities or Specifications) for permanent incorporation in the Works. Unless otherwise stated in the Contract, if any time during the period of the Contract exchange rates shall be varied and this shall affect the cost to the Contractor of such materials, then the Project Manager shall assess the net difference in the cost of such materials. Any amount from time to time so assessed

shall be added to or deducted from the Contract Price, as the case may be.

3.35.3 Unless otherwise stated in the Contract, the Contract Price shall be deemed to have been calculated in the manner set out below and in sub-clauses 25.4 and 25.5 and shall be subject to adjustment in the events specified thereunder;

- i) The price contained in the Contract Bills of Quantities shall be deemed to be based upon the rates of wages and other emoluments and expenses as determined by the Joint Building Council of Kenya (J.B.C.) and set out in the schedule of basic rates issued 30 days before the date for submission of tenders. A copy of the schedule used by the Contractor in his pricing shall be attached in the Special Conditions of Contract.
- ii) Upon J.B.C. determining that any of the said rates of wages or other emoluments and expenses are increased or decreased, then the Contract Price shall be increased or decreased by the amount assessed by the Project Manager based upon the difference, expressed as a percentage, between the rate set out in the schedule of basic rates issued 30 days before the date for submission of tenders and the rate published by the J.B.C. and applied to the quantum of labour incorporated within the amount of work remaining to be executed at the date of publication of such increase or decrease.
- iii) No adjustment shall be made in respect of changes in the rates of wages and other emoluments and expenses which occur after the date of Completion except during such other period as may be granted as an extension of time under clause 17.0 of these Conditions.

3.35.4 The price contained in the Contract Bills of Quantities shall be deemed to be based upon the basic prices of materials to be permanently incorporated in the works as determined by the J.B.C. and set out in the schedule of basic rates issued 30 days before the date for submission of tenders. A copy of the schedule used by the

Contractor in his pricing shall be attached in the Special Conditions of Contract.

3.35.5 Upon the J.B.C. determining that any of the said basic prices are increased or decreased then the Contract Price shall be increased or decreased by the amount to be assessed by the Project Manager based upon the difference between the price set out in the schedule of basic rates issued 30 days before the date for submission of tenders and the rate published by the J.B.C. and applied to the quantum of the relevant materials which have not been taken into account in arriving at the amount of any interim certificate under clause 23 of these Conditions issued before the date of publication of such increase or decrease.

3.35.6 No adjustment shall be made in respect of changes in basic prices of materials which occur after the date for Completion except during such other period as may be granted as an extension of time under clause 17.0 of these Conditions.

3.35.7 The provisions of sub-clause 25.1 to 25.2 herein shall not apply in respect of any materials included in the schedule of basic rate.

### **3.36 Retention**

3.36.1 The Employer shall retain from the payment due to the Contractor the proportion stated in the Special Conditions of Contract until Completion of the whole of the works. On Completion of the whole of the works, half the total amount retained shall be repaid to the Contractor and the remaining half when the Defects Liability Period has passed and the Project manager has certified that all defects notified to the Contractor before the end of this period have been corrected.

### **3.37 Liquidated Damages**

3.37.1 The Contractor shall pay liquidated damages to the Employer at the rate stated in the Special Conditions of Contract for each day that the actual Completion Date is later than the Intended Completion Date. The Employer may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not alter the Contractor's liabilities.

3.37.2 If the Intended Completion Date is extended after liquidated damages have been paid, the Project Manager shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate. The Contractor shall be paid interest on the overpayment, calculated from the date of payment to the date of repayment, at the rate specified in Clause 23.30.

### **3.38 Dayworks**

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

3.38.2 All work to be paid for as Dayworks shall be recorded by the Contractor on Forms approved by the Project Manager. Each completed form shall be verified and signed by the Project manager within two days of the work being done.

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

### **3.39 Liability and Insurance**

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

- a) The risk of personal injury, death or loss of or damage to property (excluding the works, plant, materials and equipment), which are due to;
  - i) use or occupation of the site by the works or for the purpose of the works, which is the unavoidable result of the works, or
  - ii) negligence, breach of statutory duty or interference with any legal right by the Employer or by any person employed by or contracted to him except the Contractor.
  
- b) The risk of damage to the works, plant, materials, and equipment to the extent that it is due to a fault of the Employer

or in Employer's design, or due to war or radioactive contamination directly affecting the place where the works are being executed.

3.39.2 From the Completion Date until the Defects Correction Certificate has been issued, the risk of loss of or damage to the works, plant, and materials is the Employer's risk except loss or damage due to;

- a) a defect which existed on or before the Completion Date.
- b) An event occurring before the Completion Date, which was not itself the Employer's risk.
- c) The activities of the Contractor on the Site after the Completion Date.

3.39.3 From the Start Date until the Defects Correction Certificate has been issued, the risks of personal injury, death and loss of or damage to property (including, without limitation, the works, plant, materials, and equipment) which are not Employer's risk are contractor's risks.

The Contractor shall provide, in the joint names of the Employer and the Contractor, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts stated in the Special Conditions of Contract for the following events;

- a) loss of or damage to the works, plant and materials;
- b) loss of or damage to Equipment;
- c) loss of or damage to property (except the works, plant materials, and equipment) in connection with the Contract, and
- d) Personal injury or death.

3.39.4 Policies and certificates for insurance shall be delivered by the Contractor to the Project Manager for the Project Manager's approval before the Start Date. All such insurance shall provide for compensation required to rectify the loss or damage incurred.

3.39.5 If the Contractor does not provide any of the policies and certificates required, the Employer may effect the insurance which the Contractor should have provided and recover the premiums from payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be a debt due.

3.39.6 Alterations to the terms of insurance shall not be made without the approval of the Project Manager. Both parties shall comply with any conditions of insurance policies.

### **3.40 Completion and Taking over**

Upon deciding that the works are complete, the Contractor shall issue a written request to the Project Manager to issue a Certificate of Completion of the works. The Employer shall take over the site and the works within seven (7) days of the Project manager's issuing a Certificate of Completion.

### **3.41 Final Account**

The Contractor shall issue the Project Manager with a detailed account of the total amount that the Contractor considers payable to him by the Employer under Contract before the end of the Defects Liability Period. The Project Manager shall issue a Defects Liability Certificate and certify any final payment that is due to the Contractor within 30 days of receiving the Contractor's account if it is correct and complete. If it is not, the Project Manager shall issue within 30 days a schedule that states the scope of the corrections or additions that are necessary. If the final account is still unsatisfactory after it has been resubmitted, the Project Manager shall decide on the amount payable to the Contractor and issue a Payment Certificate. The Employer shall pay the Contractor the amount due in the Final Certificate within 60 days.

### **3.42 Termination**

3.42.1 The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract. These fundamental breaches of Contract shall include, but shall not be limited to, the following;

- a) The Contractor stops work for 30 days when no stoppage of work is shown on the current program and the stoppage has not been authorized by the Project Manager.
- b) The Project Manager instructs the Contractor to delay the progress of the works, and the instruction is not withdrawn within 30 days.
- c) The Contractor is declared bankrupt or goes into liquidation other than for a reconstruction or amalgamation.
- d) A payment certified by the Project Manager is not paid by the Employer to the Contractor within 30 days (for Interim Certificate) or 60 days (for Final Certificate) of issue.
- e) The Project Manager gives notice that failure to correct a particular defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Project Manager.
- f) The Contractor does not maintain a security, which is required.

3.42.2 When either party to the contract gives notice of Contract to the Project Manager for a cause other than those listed under Clause 33.1 above, the Project Manager shall decide whether the breach is fundamental or not.

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

3.42.4 If the Contractor is terminated, the contractor shall stop work immediately, make the site safe and secure, and leave the site as soon as reasonably possible. The Project Manager shall immediately thereafter arrange for a meeting for the purpose of taking record of the works executed and materials, goods, equipment and temporary buildings on site.

### **3.43 Payment Upon Termination**



- 3.43.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Project Manager shall issue a certificate for the value of the work done and materials ordered and delivered to site up to the issue of the certificate. Additional liquidated damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be a debt payable by the contractor.
- 3.43.2 If the contract is terminated for the Employer's convenience or because of a fundamental breach of contract by the Employer, the Project Manager shall issue a certificate for the value of the work done, materials ordered, the reasonable cost of removal of equipment, repatriation of the Contractor's personnel employed solely on the works, and the Contractor's costs of protecting and securing the works.
- 3.43.3 The Employer may employ and pay other persons to carry out and complete the works and to rectify and defects and may enter upon the works and use all materials on the site, plant, equipment and temporary works.
- 3.43.4 The contractor shall, during the execution or after the completion of the works under this clause remove from the site as and when required, within such reasonable time as the Project Manager may in writing specify, any temporary building, plant, machinery, appliances, goods or materials belonging to or hired by him, and in default the Employer may (without being responsible for any loss or damage) remove and sell any such property of the Contractor, hold the proceeds less all costs incurred to the credit of the Contractor.
- 3.43.5 Until after completion of the works under this clause the Employer shall not be bound by any other provision of this Contract to make any payment to the Contractor, but upon such completion as aforesaid and the verification within a reasonable time of the accounts therefore the Project Manager shall certify the amount of expenses properly incurred by the Employer and, if such amount added to the money paid to the Contractor before such determination exceeds the total amount which would have been payable on due completion in accordance with this Contract the difference shall be a debt payable to

the Employer by the Contract; and if the said amount added to the said money be less than the said total amount, the difference shall be a debt payable by the Employer to the Contractor.

#### **3.44 Release from Performance**

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

#### **3.45 Corrupt gifts and Payment of Commission**

The Contractor shall not;

- a) Offer or give or agree to give to any person in the service of the Employer any gift or consideration of 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 for the Employer or for showing or forbearing to show favour or disfavour to any person in relation to this or any other contract for the Employer.
  
- b) Enter into this or any other contract with the Employer in connection with which commission has been paid or agreed to be paid by him or on his behalf or to his knowledge, unless before the Contract is made particulars of any such commission and of the terms and conditions of any agreement for the payment thereof have been disclosed in writing to the Employer.

Any breach of this Condition by the Contractor or by anyone employed by his or acting on his behalf (whether with or without the knowledge of the Contractor) shall be an offence under the provisions of the Public Procurement Regulations issued under the Exchequer and Audit Act Cap 412 of the Laws of Kenya.

#### **3.46 Settlement of Disputes**

3.46.1 In case any dispute or difference shall arise between the Employer or

the Project Manager on his behalf and the Contractor, either during the progress or after the completion or termination of the works, such dispute shall be notified in writing by either party to the other with a request to submit it to arbitration and to concur in the appointment of an Arbitrator within thirty days of the notice. The dispute shall be referred to the arbitration and final decision of a person to be agreed between the parties. Failing agreement to concur in the appointment of an Arbitrator, the Arbitrator shall be appointed by the Chairman or Vice Chairman of any of the following professional institutions;

- (i) Architectural Association of Kenya
- (ii) Institute of Quantity Surveyors of Kenya
- (iii) Association of Consulting Engineers of Kenya
- (iv) Chartered Institute of Arbitrators (Kenya Branch)
- (v) Institute of Engineers of Kenya

On the request of the applying party, the institution written to first by the aggrieved party shall take precedence over all other institutions.

3.46.2 The arbitration may be on the construction of this Contract or on any matter or thing of whatsoever nature arising thereunder or in connection therewith, including any matter or thing left by this Contract to the discretion of the Project Manager, or the withholding by the Project Manager of any certificate to which the Contractor may claim to be entitled to or the measurement and valuation referred to in clause 23.0 of these conditions, or the rights and liabilities of the parties subsequent to the termination of Contract.

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

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

- 3.46.5 Notwithstanding anything stated herein the following matters may be referred to arbitration before the practical completion of the works or abandonment of the works or termination of the Contract by either part:
- 3.46.6 The appointment of a replacement Project Manager upon the said person ceasing to act.
- 3.46.7 Whether or not the issue of an instruction by the Project Manager is empowered by these Conditions.
- 3.46.8 Whether or not a certificate has been improperly withheld or is not in accordance with these Conditions.
- 3.46.9 Any dispute or difference arising in respect of war risks or war damage.
- 3.46.10 All other matter shall only be referred to arbitration after the completion or alleged completion of the works or termination or alleged termination of the Contract, unless the Employer and the Contractor agree otherwise in writing.
- 3.46.11 The Arbitrator shall, without prejudice to the generality of his powers, have powers to direct such measurements, computations, tests or valuations as may in his opinion be decision, requirement or notice and to determine all matters in dispute which shall be submitted to him in the same manner as if no such certificate, opinion, decision requirement or notice had been given.

**3.47 Language and Law**

The language of the contract and the law governing the contract shall be English language and the Laws of Kenya respectively unless otherwise specified in the SCC.

## SECTION IV -SPECIAL CONDITIONS OF CONTRACT

- 4.1 Special Conditions of Contract shall supplement the General Conditions of Contract. Whenever there is a conflict, between the GCC and the SCC, the provisions of the SCC herein shall prevail over those in the GCC.
- 4.2 Special conditions of contract as relates to the GCC.

REFERENCE TO GCC	SPECIAL CONDITIONS OF CONTRACT
3.1	The <b>Start Date</b> shall be <b>Within Seven Days after the signing of the Contract by the Contractor and the Employer.</b> Duration of the contract will be <b>18 Weeks.</b> The Intended Completion Date for the whole of the Works shall be <b>18 Weeks from the Start Date.</b>
3.2.3	The following documents also form part of the Contract: <b>As listed in Clause 3.2.3 of the conditions of contract.</b> <b>Drawings</b> will be provided to the successful bidder <b>on award.</b>
3.7.3	Performance Security -5% of the Contract sum Format- <b>Bank Guarantee</b>
3.24	The Site is located at <b>Kalacha Health Center in Marsabit County</b> The Site Possession Date shall be <b>Immediately after the First Management Meeting.</b> The Project Manager shall convene 1 <sup>st</sup> Management meeting within seven days from the date of contract signing by the Contractor and the Employer.
3.30.2	The Defects Liability Period is <b>12 Months from practical completion date.</b>
3.32	There shall be <b>NO</b> variations from the contract sum.
3.33.1	Change to read: “The Contractor shall submit to the Project Manager application for payment for each institution once it is complete, tested, commissioned and certified by an authorized representative of the client. The Project Manager

	shall check the application and certify the amount to be paid to the contractor within 14 days. The value of work executed in the institution and payable shall be determined by the Project Manager. <b>Payment shall only be on completion of each installation of the Solar water pumping and Desalination system</b>
3.33.2	Change to read: “The value of work executed shall comprise the value of the quantities of the items in the Bills of Quantities completed, variations and compensation events.”
3.36	Percentage of certified value retained : <b>10%</b> Limit of certified value retained : <b>5%</b>
3.37	Liquidated and Ascertained damages: <b>at the rate Kshs. 40,000/= per week or part thereof.</b>
3.40	Period of honoring completion certificate : <b>30 days</b>
3.47	In all disputes, the Laws of Kenya shall apply.

## **SECTION V- SCHEDULE OF REQUIREMENTS AND PRICES**

### **PREAMBLE**

- 5.1 The Bills of Quantities shall be read in conjunction with the instructions to Tenderers, General Conditions of Contract, Particular Conditions of Contract and Technical specifications.
- 5.2 The quantities given in the Bills of Quantities are estimated and provisional and are given to provide a common basis for tendering. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the contractor and verified by the Engineer and valued at the rates and prices quoted in the priced Bills of Quantities where applicable, and otherwise at such rates and prices as the Engineer may fix within the terms of the Contract.
- 5.3 The rates and prices quoted in the prices Bills of Quantities shall, except insofar as it is otherwise under the Contract, maintenance, insurance, profit, together with all general risks, liabilities and obligations set out or implied in the Contract.
- 5.4 A rate or price shall be entered against each item in the priced Bills of Quantities, whether quantities are stated or not. The cost of Items against which the Contractor has failed to enter a rate or price shall be deemed to be covered by the Contract Price.
- 5.5 The whole cost of complying with the provisions of the Contract shall be included in the items provided in the Priced Bills of Quantities, and where no Items are provided the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Works.
- 5.6 General directions and descriptions of work and materials are not necessarily repeated nor summarized in the Bills of Quantities. References to the relevant sections of the contract documentation shall be made before entering prices against each item in the priced Bill of Quantities.

5.7 The units of measurement and abbreviations are tabulated below;

<b>Unit</b>	<b>Abbreviation</b>
Number	No
Packets	Pkts
Millimetre	mm
Square millimetre	mm <sup>2</sup> / sq mm
Metre	m
Square metre	m <sup>2</sup> / sq m
Cubic metre	m <sup>3</sup> / cu m
Kilogramme	kg
Degrees centigrade	°C
Hour	h / Hr
Weeks	wks
Month	nth
Horsepower	HP
Kilowatt	KW



**NOTE:**

All Prices quoted shall include VAT.

**Statement of Compliance**

- a) I confirm compliance of all clauses of the General Conditions, General Specifications and Particular Specifications in this tender.
- b) I confirm I have not made and will not make any payment to any person, who can be perceived as an inducement to win this tender.

Signed: .....*for and on behalf of the Tenderer*

Date: .....

Official Rubber Stamp:

.....

**BILLS OF QUANTITIES FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF SOLAR WATER PUMP AND WATER DESALINATION SYSTEMS FOR ONE (1) WATER BOREHOLE IN A HEALTH CENTRE IN ASAL COUNTY OF MARSABIT**

SN	DESCRIPTION	QTY	UNIT	UNIT COST (KSH)	TOTAL COST (KSH)	REMARKS
	<b>Solar system, Pump and accessories</b>					
1.	Solar Submersible Pump	1	No.			
2.	Pump control unit complete with weatherproof enclosure	1	No.			
3.	Non-return valve	1	No.			
4.	120W PV arrays of appropriate voltage	6	No			
5.	6 mm <sup>2</sup> PVC twin cable to link the panels together	25m	Meters			
6.	2 core 10mm <sup>2</sup> PVC armored cable	100m	Meters			
7.	6mm 3 core submersible cable	50m	Meters			
8.	Lightening arrestors and earth rods	1	Set			
9.	Panels mounting structure (6 panels 120 watt)	1	No			
10.	Surge Protector	1	No.			
11.	Solar PV Disconnect switch	1	No.			
12.	Solar system accessories (screws and cable looping boxes)	1	lot			
	<b>SUB TOTAL</b>					

SN	DESCRIPTION	QTY	UNIT	UNIT COST (KSH)	TOTAL COST (KSH)	REMARKS
	<b>Water desalination system and accessories</b>					
1.	Raw Water pump (Booster Pump) Minimum 600W	1	No			
2.	Filtration Unit	1	No			
3.	Water Softener	1	No			
4.	Chlorination Dosing Unit	1	No			
5.	pH adjustment Dosing Unit	1	No			
6.	Anti-Scalant Dosing Unit	1	No			
7.	Reverse Osmosis Unit (Minimum 250 liters per Hour)	1	No			
8.	Clean in Place unit complete with 100 liters Chemical tank and booster pump (Minimum 480W)	1	No			
9.	Solar Panels 250W	30	No			
10.	10KVA Inverter Charger 48VDC	1	No			
11.	80A Charge Controller	1	No			
12.	1500Ah 2VDC Sealed Maintenance Free Batteries	24	No			
13.	System Control Panel	1	No			
14.	Solar Support Structure Ground Mounted	1				
15.	Allow for excavation and concrete of	1	sites			

	appropriate mix for foundation construction for the Desalination Plant and the Tanks					
16.	Water tank level switch	1	No.			
17.	Clean Water Tank (6M3)	1	No			
18.	Installation Accessories (Cable clips, bends, adapters, Cables etc)	1	Lot			
	<b>SUB TOTAL</b>					

SN	DESCRIPTION	QTY	UNIT	UNIT COST (KSH)	TOTAL COST (KSH)	REMARKS
	<b>Water tank and the support structure</b>					
1.	6,000 Litres (6m <sup>3</sup> ) poly tank(s)	1	No.			
2.	Water tank support structure 6m high (galvanized painted to prevent corrosion)	1	No.			
3.	Steel climbing ladder (galvanized and painted to prevent corrosion)	1	No.			
4.	Overflow pipe	16M	Meters			
5.	Water tank level switch	1	No.			
6.	Well Probe Sensor	1	No.			

7.	Allow for excavation and concrete of appropriate mix for foundation construction	1	sites			
	<b>SUB TOTAL</b>					

SN	DESCRIPTION	QTY	UNIT	UNIT COST (KSH)	TOTAL COST (KSH)	REMARKS
	<b>Piping and Accessories</b>					
1.	Piping to supply points with couplings - 1 inch, inner diameter PVC- PPR type	600m	Meters			
2.	Riser pipe of 25mm diameter complete with couplings PVC-PPR Type	50m	Meters			
3.	Starter pipe of 25 mm diameter complete with couplings GI Type, free of corrosion.	40	Meters			
4.	Piping Accessories (Bends, adaptors, borehole sundries, water meter,	1	Lots			
5.	Laptop Computers complete with Mouse and Leather Laptop Bags	2	Set			
6.	Fencing	1	Lots			
7.	Sign post	1	No			

8.	Miscellaneous	1	Lots			
	<b>Sub Total</b>					
	<b>TOTAL MATERIALS COST</b>					
	Labour cost for transport, storage, installation, testing and commissioning of the whole water pump and desalination system.					
	<b>TOTAL MATERIAL AND LABOUR COST CARRIED FORWARD TO PRICE SUMMARY PAGE</b>					

<b>Item</b>	<b>Description</b>	<b>Amount (KSH)</b>
<b>1</b>	Total amount for SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF SOLAR WATER PUMP AND WATER DESALINATION SYSTEMS FOR 1 (ONE) WATER BOREHOLE IN KALACHA HEALTH CENTRE IN ASAL COUNTY OF MARSABIT	
	Allow for contingencies	<b>1,000,000</b>
	<b>Total Amount Carried to the form of Tender</b>	

**TOTAL AMOUNT IN WORDS: -**

**Kenya Shillings**

.....  
.....

.....

**Tenderer's Name and Stamp,**

.....  
.....  
.....

**Signature..... Date.....**

**PIN No..... VAT Certificate No.....**

**Witness..... Address.....**

**Signature of witness..... Date.....**

## SECTION VI -TECHNICAL SPECIFICATIONS

### 6.1. GENERAL

6.1.1. These specifications describe the basic requirements for equipment. Tenderers are requested to submit with their offers the detailed specifications from **manufacturers**, drawings, catalogues etc for the products they intend to supply. **Downloads from the internet will not be accepted.**

6.1.2 Tenderers **MUST** indicate on the specifications sheets whether the equipment offered comply with each specific requirement.

6.1.3 All the dimensions and capacities of the equipment to be supplied shall not be less than those required in these specifications. Deviations from the basic requirements, if any, shall be explained in detail in writing with the offer, with supporting data such as calculation sheets, etc. The procuring entity reserves the right to reject the products, if such deviations shall be found critical to the use and operation of the products.

6.1.4 The tenderers are requested to present information along with their offers as follows;-

- (i) Shortest possible delivery period of each product;
- (ii) Information on proper representative and/or workshop for back-up service/ repair and maintenance including their names and addresses

### 6.2. PARTICULARS

6.1.2. Tenderers **MUST** only offer one set of detailed specifications per equipment. Failure to comply will render the bid non-responsive.

6.1.3. All offered equipment must comply with the relevant Kenyan Standards for such equipment.



## **GENERAL SPECIFICATIONS OF MATERIALS AND WORKS**

### **6.3.SHOP DRAWINGS**

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

### **6.4.RECORD DRAWINGS**

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

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

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

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

### **6.5.REGULATIONS AND STANDARDS**

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

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

## **6.6.SETTING OUT WORK**

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

## **6.7.POSITIONS OF ELECTRICAL PLANT AND APPARATUS**

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

## **6.8.MCB DISTRIBUTION PANELS AND CONSUMER UNITS**

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

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

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

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

A locking plate shall be provided for each size of breaker; A complete list of circuit details on typed cartridge paper glued to stiff cardboards and covered with a sheet of perspex, and held in position with four suitable fixings, shall be fitted to the inner face of the lids of each distribution panel. The appropriate MCB ratings shall be stated

on the circuit chart against each circuit in use: Ivorine labels shall be secured to the insulation barriers in such a manner as to indicate the number of the circuits shown on the circuit chart.

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

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

## **6.9.FUSED SWITCHGEAR AND ISOLATORS**

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

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

Fuse links for fused switches are to be of high rupturing capacity cartridge type, conforming to KS 04 – 175: 1978.

Isolators shall be load breaking/fault making isolators.

Fused switches and isolators are to have separate metal enclosures. Mechanical interlocks are to be provided between the door and main switch operating mechanism so arranged that the door may not be opened with the switch in the 'ON' position. Similarly; it shall not be possible to close the switch with the door open except that provision to defeat the mechanical interlock and close the switch with the door in the open position for test purposes. The 'ON' and 'OFF' positions of all switches and isolators shall be clearly indicated by a mechanical flag indicator or similar device. In T.P& N fused switch units, bolted neutral links are to be fitted.

## **6.10. CONDUITS AND CONDUIT RUNS**

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

All conduits shall be black rigid super high impact heavy gauge class 'A', PVC in accordance with KS 04 – 179: 1988 and IEE Regulations.

No conduit less than 20mm in diameter shall be used anywhere in this installation.

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

The Contractors attention is drawn to the necessity of keeping all conduits entirely separate from other piping services such as water and no circuit connections will be permitted between conduits and such pipes.

All conduits systems shall be arranged wherever possible to be self-draining to switch boxes and conduit outlet points for fittings:

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

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

Conduit connections shall either be by a demountable (screwed up) assembly or adhesive fixed and water tight by solution. The tube and fittings must be clean and free of all grease before applying the adhesive. When connections are made between the conduit and switch boxes, circular or non-screwed boxes, care shall be taken that no rough edges of conduit stick out into the boxes.

Runs between draw in boxes are not to have more than two right angle bends or their equivalent. The Contractor may be required to demonstrate to the Engineers that wiring in any particular run is easily

withdrawable and the Contractor may, at no extra cost to the contract; be required to install additional draw-in boxes required. If conduit is installed in straight runs in excess of 6000mm, expansion couplings as manufactured by Egatube shall be used at intervals of 6000mm.

Where conduit runs are to be concealed in pillars and beams, the approval of the Structural Engineer, shall be obtained. The Contractor shall be responsible for marking the accurate position of all holes chases etc, on site, or if the Engineer so directs, shall provide the Main Contractor with dimensional drawings to enable him to mark out and form all holes and chases. Should the Contractor fail to inform the main contractor of any inaccuracies in this respect, they shall be rectified at the Contractors expense.

It will be the Contractors responsibility to ascertain from site, the details of reinforced concrete or structural steelwork and check from the builder's drawings the positions of walls, structural concrete and finishes. No reinforced concrete or steelwork may be drilled without first obtaining the written permission of the Engineer.

The drawings provided with these specifications indicate the appropriate positions only of points and switches, and it shall be the Contractors responsibility to mark out and centre on site the accurate positions where necessary in consultation with the Architect and the Engineer. The Contractor alone shall be responsible for the accuracy of the final position.

#### **6.11. CONDUIT BOXES AND ACCESSORIES**

All conduit outlets and junction boxes are to be either malleable iron and of standard circular pattern of the appropriate type to suit saddles being used or super high impact PVC manufactured to KS 04 – 179 : 1975.

Small circular pattern boxes are to be used with conduits up to and including 25mm outside diameter. Rectangular pattern adaptable boxes are to be used for conduits of 32mm outside diameter and larger. For drawing in of cables in exposed runs of conduit, standard pattern through boxes are to be used:

Boxes are to be not less than 50mm deep and of such dimensions as

will enable the largest appropriate number of cables for the conduit sizes to be drawn in without excessive bending.

Outlet boxes for lighting fittings are to be of the loop-in type where conduit installation is concealed and the Contractor shall allow one such box per fitting, except where fluorescent fittings are specified when two such boxes per fitting shall be fitted flush with ceiling and if necessary fitted with break joint rings. Pattresses shall be fitted where required to outlets on surface conduit runs.

Adaptable boxes are to be of PVC or mild steel (of not less than 12swg) and black enamelled or galvanised finish according to location. They shall be of square or oblong shape location. They shall be of square or oblong shape complete with lids secured by four 2 BA brass roundhead screws; No adaptable box shall be less than 75mm x 75mm x 50mm or larger than 300mm x 300mm x 75mm and shall be adequate in depth in relation to the size of conduit entering it. Conduits shall only enter boxes by means of conduit bushes.

## **6.12. LABELS**

Labels fitted to switches and fuseboards;-

- (i) Shall be Ivorine engraved black on white.
- (ii) Shall be secured by R.H brass screws of same manufacturing throughout.
- (iii) Shall be indicated on switches:-
  - a) Reference number of switch
  - b) Special current rating
  - c) Item of equipment controlled
- (iv) Shall indicate on MCB panels
  - a) Reference number
  - b) Type of board, i.e.; lighting, sockets, etc.,
  - c) Size of cable supplying panel
  - d) where to isolate feeder cable

(v) Shall be generally not less than 75mm x 50mm.

### **6.13. EARTHING**

The earthing of the installation shall comply with the following requirements:-

- (i) It shall be carried out in accordance with the appropriate sections of the current edition of the Regulations, for the Electrical Equipment of Buildings issued by Institute of Electrical Engineers of Great Britain.
- (ii) At all main distribution panels and main service positions a 25mm x 3mm minimum cross sectional area Copper tape shall be provided and all equipment including the lead sheath and armouring of cables, distribution boards and metal frames shall be bonded thereto.
- (iii) The earth tape in Sub-clause (ii) shall be connected by means of a copper tape or cable of suitable cross sectional area to an earth electrode which shall be a copper earth rod (see later sub-clause).
- (iv) All tapes to be soft high conductivity copper, untinned except where otherwise specified and where run underground on or through walls, floors, etc., it shall be served with corrosion resisting tape or coated with corrosion compound and braided
- (v) Where the earth electrode is located outside the building a removable test link shall be provided inside the building as near as possible to the point of entry to the tape, for isolating the earth electrode for testing purposes.
- (vi) Earthing of sub-main equipment shall be deemed to be satisfactory where the sub-main cables are M.I.C.S. or conduit with separate earth wire, and installation is carried out in accordance with the figures stated in the current edition of the I.E.E Regulations.

- (vii) Where an earth rod is specified (see Sub-clause (iii) it shall be proprietary manufacture, solid hand drawn copper of 15mm diameter driven into the ground to a minimum depth of 3.6m. It shall be made up to 1.2m sections with internal screw and socket joints and fitted with hardened steel tip and driving cap.
- (viii) Earth plates will not be permitted.
- (ix) Where an earth rod is used the earth resistance shall be tested in the manner described in the current edition of the IEE Regulations, by the Contractor in the presence of the Engineer and the Contractor shall be responsible for the supply of all test equipment.
- (x) Where copper tape is fixed to the building structure it shall be by means of purpose made non-ferrous saddles which space the conductor away from the structure a minimum distance of 20mm. Fixings shall be made using purpose made plugs; No fixings requiring holes to be drilled through the tape will be accepted.
- (xi) Joints in copper tape shall be tinned before assembly riveted with a minimum of two copper rivets and seated solid.
- (xii) Where holes are drilled in the earth tape for connection to items of equipment the effective cross sectional area must not be less than required to comply with the IEE regulations.
- (xiii) Bolts, nuts and washers for any fixing to the earth tape must be of non-ferrous material.
- (xiv) Attention is drawn to the need for the earthing metal parts of lighting fittings and for bonding ball joint suspension in lighting fittings.

#### **6.14. CABLES AND FLEXIBLE CORDS**

All cables used in this Contract shall be manufactured in accordance with the current appropriate Kenya standard Specifications which are as follows:-



P.V.C. Insulated Cables and Flexible Cords	Ks 04-192:1988
Pvc Insulated Armoured Cables	Ks 04-194:1990
Armouring of Electric cables	Ks 04-290:1987

The successful Contractor will, at the Engineers discretion be required to submit samples of cables for the Engineers approval; the Engineer reserves the right to call for the cables of an alternative manufacture without any extra cost being incurred.

PVC insulated cables shall be 500/1000 volt grade. No cables smaller than 1.5mm<sup>2</sup> shall be used unless otherwise specified. The installation and the finish of cables shall be as detailed in later clauses. The colour of cables shall conform to the details stated in the “Cable Braid and insulation Colours” Clause.

#### **6.15. ARMOURED P.V.C. INSULATED AND SHEATHED CABLES:**

Shall be 600/1000 volt grade manufactured to Ks 04-194:1988 and Ks 04-187/188 with copper stranded conductors.

The wire armour of the cable shall be used wholly as an earth continuity conductor and the resistance of the wire armour shall have a resistance not more than twice of the largest current carrying conductor of the cable.

P.V.C./S.W.A./P.V.C. cables shall be terminated using “Telecom” “B” type or approved equal or approved equal glands and a P.V.C. tapered sleeve shall be provided to shroud each gland.

Where cables rise from floor level to switchgear etc., they shall be protected by P.V.C. conduit, to a height of 600mm from finished floor level, whether the cable is run on the surface or recessed into the wall.

#### **6.16. CABLE SUPPORTS, MARKERS AND TILES**

All PVC/SWA/PVC cables run inside the building shall be fixed in rising ducts or on ceilings by means of die cast cables hooks or clamps, or appropriate size to suit cables, fixed by studs and back nuts

to their channel sections.

Alternatively, fixing shall be by BICC claw type cleating system with die-cast cleats and galvanised mild steel back straps or similar approved equal method. For one or two cables run together the cleats shall be fixed a special channel section supports or backstraps described above which shall in turn be secured to walls or ceilings of ducts by rawbolts.

In excessively damp or corrosive atmospheric conditions special finishes may be required and the Contractor shall apply to the Engineer for further instructions before ordering cleats and channels for such areas.

The above type of hooks and clamps and channels or cleats and blackstraps shall also be used for securing cables in vertical ducts.

Cables supports shall be fixed at 600mm maximum intervals, the supports being supplied and erected under this Contract. Saddles shall not be used for supporting cables nor any other type of fixing other than one of the two methods described above or other system which has received prior approval of the Engineer;

Cables are to be kept clear of all pipe work and the Contractor shall work in close liaison with other services Contractors.

The Contractor shall include for the provision of fixing of approved type coloured slip on cables end markers to indicate permanently the correct phase and neutral colours on all ends.

Provision shall be made for supplying and fixing approved non-corrosive metal cable markers to be attached to the outside of all PVC/SWA/PVC cables at 15mm intervals indicating cable size and distinction.

Where PVC/SWA/PVC cables are outside the building they shall be laid underground 750mm deep with protecting concrete interlocking cover tiles laid over which shall be provided and laid under this Contract.

All necessary excavations and reinstatement of ground including sanding or trenches will be carried out by the Contractor, unless otherwise stated.

#### **6.17. PVC INSULATED CABLES**

Shall be of non-braided type as CMA reference 6491 x 600/1000/1000 volt grade cables, or equal approved.

PVC cables shall conform to the details of the “Cables and Flexible cords” and “Cable Braid and Insulation Colours” clauses.

#### **6.18. HEAT RESISTING CABLES**

Final connections to cookers, water heaters, etc., shall be made using butyl rubber insulated cable as CMA reference 610 butyl (Single core 600/1000 Volt).

This type of cable shall be used in all instances where a temperature exceeding 100°F, but not exceeding 150°F is likely to be experienced. Final connections to all lighting fittings (and other equipment where a temperature in excess of 150°C likely to be experienced) shall be made using silicon rubber insulated cable or equal and approved.

#### **6.19. FLEXIBLE CORDS**

Shall be in accordance with the “Cable and Flexible Cords” clause. No cord shall be less than 24/0.2mm in size unless otherwise specified.

Circular white twin TRS flex shall be used for plain pendant fittings up to 100 watts. For all other types of lighting fittings the flexible cable shall be silicone rubber insulated.

No polythene insulated flexible cable shall be used in any lighting fitting or other appliance (see “Heat Resisting Cables” Clause 30).

#### **6.20. CABLE ENDS AND PHASE COLOURS**

All cable ends connected up in switchgear, MCB panels etc., shall have the insulation carefully cut back and the ends sealed with Hellerman rubber slip on cable end markers.

The markers shall be of appropriate phase colour for switch and all other live feeds to the details of the “Cable Insulation Colours” clause. Black cable with black end markers shall only be used for neutral cables.

## 6.21. CABLE INSULATION COLOURS

Unless otherwise stated in later clauses the insulation colours shall be in accordance with the following table.

Where other systems are installed the cable colours shall be in accordance with the details stated in the appropriate clause.

<b>SYSTEM</b>	<b>INSULATION COLOUR</b>	<b>CABLE END MARKER</b>
<b>Main and Sub-Main</b>		
a) Phase	Red	Red
b) Neutral	Black	Black
<b>1) Sub-Circuits Single Phase</b>		
a) Phase	Red	Red
b) Neutral	Black	Black

## 6.22. SUB-CIRCUIT WIRING

For all lighting and sockets wiring shall be carried out in the “looping in” system and there shall be no joints whatsoever. No lighting circuits shall comprise more than 20 points when protected by 10A MCB. Cables with different cross-section area of copper shall not be used in combination.

Lighting circuits P. V.C. cable 1.5mm<sup>2</sup> for all lighting circuits indicated on the drawing. Power circuits P.V.C cable (minimum sizes).

- (i) 2.5mm<sup>2</sup> for one, two or three 5Amp sockets wired in parallel.
- (ii) 2.5mm<sup>2</sup> for one 15Amp socket.

- (iii) 2.5mm<sup>2</sup> for maximum of ten switched 13 Amp sockets wired from 30 Amp MCB.

The wiring sizes for lighting circuits and sockets are shown on the drawings. In such cases, the sizes shown on the drawings shall prevail over the sizes specified.

Wiring sizes for other appliances shall be shown on the drawing or specified in later clauses of this specification.

#### **6.23. SPACE FACTOR**

The maximum number of cables that may be accommodated in a given size of conduit or trunking or duct is not to exceed the number in Tables B.5 and B.6 or as stated in Regulation B.91, B.117 and B.118 of the I.E.E Regulations whichever is appropriate.

#### **6.24. INSULATION**

The insulation resistance to earth and between poles of the whole wiring system, fittings and lumps, shall not be less than the requirements of the latest edition of the I.E.E Regulations. Complete tests shall be made on all circuits by the Contractor before the installations are handed over.

A report of all tests shall be furnished by the Contractor to the Engineer. The Engineer will then check test with his own instruments if necessary.

#### **6.25. LIGHTING SWITCHES**

These shall be mounted flush with the walls, shall be contained in steel or alloy boxes and shall be of the gangs' ratings and type shown in the drawings. They shall be as manufactured by M.K. Electrical Ltd., or other equal and approved to KS 04 – 247: 1988.

#### **6.26. SOCKETS AND SWITCHED SOCKETS**

These shall be flush pattern in steel/pvc box and shall be of the gangs and type specified in the drawings.

They shall be 13- Amp, 3-pin, shuttered, switched and as manufactured by "M.K. Electrical Co. Ltd.", or other approved equal to KS 04 – 246: 1987.

### **6.27. FUSED SPUR BOXES**

These shall be flush, D.P switched as in steel/pvc box and of type and make specified in the drawings complete with pilot light and as manufactured by “M. K. Electrical Company Ltd”, or other approved equal. KS 04 – 247: 1988

### **6.28. COOKER OUTLETS**

These shall be flush mounted with 13-A switched socket outlet and neon indicator Lamps.

The cooker control units shall be as manufactured by “M.K. Electrical Company Ltd”, or other approved equal KS 04 – 247: 1988

### **6.29. CONNECTORS**

Shall be specified in the drawings and appropriate rating. These shall be fitted at all conduit box lighting point outlets for jointing of looped P.V.C cables with flexible cables of specified quality.

### **6.30. LAMPHOLDERS**

Shall be of extra heavy H.O skirted and shall be provided for every specified lighting fitting and shall be B.C., E.S., or G.E.S as required. All E.S. and G.E.S. holders shall be heavy brass type (except for plain pendants where the reinforced bakelite type shall be used). The screwed cap of the E.S and G.E.S. holders shall be connected to the neutral.

Where lampholders are supported by flexible cable, the holders shall have “cord grip” arrangements and in the case of metal shades earthing screws shall be provided on each of the holders.

The Contractor must order the appropriate type of holder when ordering lighting fittings, to ensure that the correct types of holders are provided irrespective of the type normally supplied by the manufacturers.

### **6.31. LAMPS**

All lamps shall be suitable for normal stated supply voltage and the number and sizes of lamps detailed on the drawings shall be supplied and fixed. The Contractor must verify the actual supply voltage with the supply authority before ordering the lamps.

Tungsten filament lamps shall be manufactured in accordance with KS 04 – 112:1978 for general service lamps and KS 04 – 307:1985 for lamps other than general services. Tubular fluorescent lamps shall comply with KS 04 – 464:1982

Pearl lamps shall be used in all fittings unless otherwise specified.

### **6.32. LIGHTING FITTINGS AND STREET LIGHTING LANTERNS**

This Contract shall include for the provision, handling charges, taking the delivery, safe storage, wiring (including internal wiring) assembling and erecting of all lighting fittings shown on the drawings.

All fittings and pendants shall be fixed to the conduit boxes with brass R/H screws. These to be in line with metal finish of fittings. The lighting fittings are detailed for the purpose of establishing a high standard of finish and under no circumstances will substitute fittings be permitted.

In case of rectangular shaped ceiling fittings, the extreme ends of the fittings shall be secured to suitable support in addition to the central conduit box fittings. Supports shall be provided and fixed by the Contractor.

The whole of the metal work of each lighting fittings shall be effectively bonded to earth. In the case of ball and/or knuckle joints short lengths of flexible cable shall be provided, bonded to the metal work on either side of the joints. If the above provisions are not made by the manufacturers -, the Contractor shall include cost of additional work necessary in his tender. See “Flexible Cords” clause for details of internal wiring of lighting fittings. Minimum size of internal wiring shall be 20/0.20mm (23/0067). Each lighting fitting shall be provided with number type and size of lamps as detailed on the drawings. It is to be noted that some fittings are suspended as shown on the drawings.

Where two or more points are shown adjacent to each other on the drawings, e.g socket outlet and telephone outlet, they shall be lined up vertically or horizontally on the centre lines of the units concerned.

Normally, the units shall be lined up on vertical centre lines, but where it is necessary to mount units at low level they shall be lined up horizontally.

### **6.33. POSITIONS OF POINTS AND SWITCHES**

Although the approximate positions of all points are shown on the drawings, enquiry shall be made as to the exact positions of all M.C.B panels, lighting points, socket outlets etc, before work is actually commenced. The Contractor must approach the Architect with regard to the final layout of all lights on the ceiling and walls.

The Contractor must consult with the Engineer in liaison with the Clerk of Works, or the General Foreman on site regarding the positions of all points before fixing any conduit etc. The Contractor shall be responsible for all alterations made necessary by the non-compliance with the clause.

### **6.34. STREET/SECURITY OUTDOOR LIGHTING COLUMNS**

The column shall be at a minimum of 225mm in the ground on 75mm thick concrete foundations and the pole upto 150mm shall be surrounded with concrete. The top bracket and plain section of the columns shall be common to and interchangeable with all brackets with maximum mismatching tolerance of 3mm between any pole and bracket. After manufacture and before erection the columns shall be treated with an approved mordant solution which shall be washed off and the whole allowed to dry. Thereafter, the columns shall be painted with one undercoat and two coats of gloss paint to an approved colour. All columns shall be complete with fused cut-outs.

### **6.35. TIMING CONTROL SWITCH**

These shall be installed where shown on the drawings. Photocell timing control circuits which will operate 'on' with a specified level of darkness and 'off' with a given level of light. The initial adjustment will be done with approval of the Electrical Engineer.

### **6.36. WIRING SYSTEM FOR STREETLIGHTING**

Cables shall be as indicated on the drawings, and shall be laid in a cable trench 450mm deep along the road sides and 600mm deep across the roads and 900mm away from the road kerb or 1500mm



away from the edges of the road. 'Loop-in' and 'Loop-out' arrangement shall be used at every pole. Wiring to the lanterns on each pole shall be with 1.5mm<sup>2</sup> PVC twin insulated and sheathed cable with earth wire shall be laid at least 600mm below the finished road level on a compact bed of murram at least 50mm thick and covered with a concrete surrounded 150mm thick.

### **6.37. METAL CONTROL PILLAR**

These shall be metal clad and fabricated as per contract drawings and specification. The Contractor shall supply, install, test and commission control pillars including supplying, fixing connecting switchgears as detailed on the appropriate drawings.

### **6.38. CURRENT OPERATED EARTH LEAKAGE CIRCUIT BREAKER**

Current operated earth leakage circuit breaker shall conform to B.S.S. 4293:68 rated at 240 volts D.P. 50 cycles A.C. Mains.

The breaker shall be provided with test switch and fitted in weather proof enclosure for surface mounting. The rated load current and earth fault operating current shall be as specified in the drawings. These shall be as manufactured by Crabtree, Siemens or other equal and approved.

### **6.39. M.V. SWITCHBOARD AND SWITCHGEAR**

The switchboard shall be manufactured in accordance with KS04-226 which co-ordinates the requirements for electrical power switchgear and associated apparatus. It is not intended that this K.S. should cover the requirements for specified apparatus for which separate Kenyan Standard exist. All equipment and material used in the switchboard shall be in accordance with the appropriate Kenya Standard.

The switchboard shall comprise the equipment shown on the drawings together with all current transformers, auxiliary fuses, labels, small wiring and interconnections necessary for the satisfactory operation of the switchboard

Switchboard shall be of the flush fronted, enclosed, metal clad type with full front or rear access as called for in the particular

specifications, suitable for indoor use, sectionalized as necessary to facilitate transport and erection. The maximum height of the switchboard is to be approximately 2.0 meters. A suitable connection chamber containing all field terminals shall be provided at the top or bottom of the switchboard as appropriate.

Before manufacture, the Contractor shall submit to the consulting Engineer for approval of detailed drawings showing the layout, construction and connection of the switchboard.

All bus-bars and bus-bar connections shall consist of high conductivity copper and be provided in accordance with KS 04-226:1985. The bus-bars shall be clearly marked with the appropriate phase and neutral colours which should be red, yellow, blue for the phases and black for neutral. The bus-bars shall be so arranged in the switchboard that the extensions to the left and right may be made in the future with ease should the need arise.

Small wiring, which will be neatly arranged and cleated, shall be executed in accordance with B.S. 158 and the insulation of the wiring shall be colored according to the phase or neutral connection.

Switches and fuse switches, shall be in strict accordance with KS04-175:1978 Class 2 switches. Means of locking the switch in the "OFF" position shall be provided.

All fuse switches shall comply with KS04-175:1978, PARTS 2 and 3 a fault rating at least equal to the fault rating of the switchboard in which they are installed. Cartridge fuse links to KS 04-175:1978 category A.C. 46, class Q1 and fusing factor not exceeding 1.5 shall be supplied with each fused switch.

Mounting arrangements shall be such that individual complete fuse switches may be disconnected and withdrawn when necessary without extensive dismantling work. When switches are arranged in their formation all necessary horizontal and vertical barriers shall be provided to ensure segregation from adjacent units. Means of locking the switch in the "OFF" position shall be provided.

## **6.40. STEEL CONDUITS AND STEEL TRUNKING**

Conduits shall be of heavy gauge class “B” welded to Standard specification KS 04-180:1985. In no case will conduit smaller than 20mm diameter be used on the works. Conduits installed within buildings shall be black enameled finish except where specified otherwise. Where installed externally or in damp conditions they shall be galvanised. Conduit fittings, accessories or equipment used in conjunction with galvanised conduits shall also be galvanised or otherwise as approved by the service engineer.

Metal trunking shall be fabricated from mild steel of not less than 18 swg. All sections of trunking shall be rigidly fixed together and attached to the framework or fabric or the building at intervals of not less than 1.2m. Joint trunking shall not overhang fixing points by more than 0.5m.

All trunking shall be made electrically continuous by means of 25 x 3mm copper links across each joint and where the trunking is galvanised, the links shall be made by galvanised flat iron strips.

All trunking fittings (i.e. Bends, tees, etc) shall leave the main through completely clear of obstructions and continuously open except through walls and floors at which points suitable fire resisting barriers shall be provided as may be necessary. The inner edge of bends and tees shall be chamfered where cables larger than 35mm<sup>2</sup> are employed.

Where trunking passes through ceilings and walls the cover shall be solidly fixed to 150mm either side of ceilings and floors and 50mm either side of walls.

Screws and bolts securing covers to trunking or sections of covers together shall be arranged so that damage to cables cannot occur either when fixing covers or when installing cables in the trough.

Where trunking is used to connect switchgear or fuseboards, such connections shall be made by trunking fittings manufactured for this purpose and not by multiple conduit couplings.

Where vertical sections of trunking are used which exceed 4.5m in length, staggered tie off points shall be provided at 4.5m intervals to support the weight of cables.

Unless otherwise stated, all trunking systems shall be painted as for conduit.

Where a wiring system incorporates galvanized conduit and trunking, the trunking shall be deemed to be galvanized unless specified otherwise.

The number of cables to be installed in trunking shall be such as to permit easy drawing in without damage to the cables, and shall in no circumstances be such that a space factor of 45% is exceeded.

Conduit and trunking shall be mechanically and electrically continuous. Conduit shall be tightly screwed between the various lengths so that they butt at the socketed joints. The internal edges of conduit and all fittings shall be smooth, free from burrs and other defects. Oil and any other insulating substance shall be removed from the screw threads; where conduits terminate in fuse-gear, distribution boards, adaptable boxes, non-spouted switchboxes, etc., they shall, unless otherwise stated, be connected thereto by means of smooth bore male brass bushes, compression washers and sockets. All exposed threads and abrasions shall be painted using an oil paint for black enamelled tubing and galvanising paint for galvanised tubing immediately after the conduits are erected. All bends and sets shall be made cold without altering the section of the conduit. The inner radius of the bend shall not be less than four (4) times the outside diameter of the conduit. Not more than two right angle bends will be permitted without the inter-position of a draw-in-box. Where straight runs of conduit are installed, draw-in-boxes shall be provided at distances not exceeding 15m. No tees, elbows, sleeves, either of inspection or solid type, will be permitted.

Conduit shall be swabbed out prior to drawing in cables, and they shall be laid so as to drain of all condensed moisture without injury to end connections.

Conduits and trunking shall be run at least 150mm clear of hot water and steam pipes, and at least 75mm clear of cold water and other services unless otherwise approved by the services engineer.

All boxes shall conform to KS 04 – 668: 1986, to be of malleable iron, and black enamelled or galvanised according to the type of conduit specified. All accessory boxes shall have threaded brass inserts.

Box lids where required shall be heavy gauge metal, secured by means of zinc plated or cadmium plated steel screws.

All adaptable boxes and lids of the same size shall be interchangeable. Boxes used on surface work are to be tapped or drilled to line up with the conduit fixed in distance type saddles allowing clearance between the conduit and wall without the need for setting the conduit.

Where used in conjunction with mineral insulated copper sheathed cable, galvanised boxes shall be used and painted after erection.

Draw-in boxes in the floors are generally to be avoided but where they are essential they must be grouped in positions approved by the services engineer and covered and by the suitable floor traps, with non-ferrous trays and covers.

The floor trap covers are to be recessed and filled in with a material to match the floor surface.

The Contractor must take full responsibility for the filling in of all covers, but the filling in material will be supplied and the filling carried out by the main building contractor.

Where buried in the ground outside the building the whole of the buried conduit is to be painted with two coats of approved bitumastic composition before covering up.

Where run on the surface, unpainted fittings and joints shall be painted with two coats of oil bound enamel applied to rust and grease free metalwork.

#### **6.41. TESTING ON SITE**

The Contractor shall conduct during and at the completion of the issued by the I.E.E of Great Britain, the Government Electrical installation and, if required, again at the expiration of the maintenance period, tests in accordance with the relevant section of the current edition of the Regulations for the electrical equipment of buildings Specification and the Electric Supply Company's By-Laws.

- a) Tests shall be carried out to prove that all single pole switches are installed in the 'live' conductor.
- b) Tests shall be carried out to prove that all socket outlets and switched socket outlets are connected to the 'live' conductor in the terminal marked as such, and that each earth pin is effectively bonded to the earth continuity system. Tests shall be carried out to verify the continuity of all conductors of each 'ring' circuit.
- c) Phase tests shall be carried out on completion of the installation to ensure that correct phase sequence is maintained throughout the installation. Triplicate copies of the results of the above tests shall be provided within 14 days of the witnessed tests and the Contractor will be required to issue to the service engineer the requisite certificate upon completion as required by the regulations referred to above.
- d) Any faults, defects or omissions or faulty workmanship, incorrectly positioned or installed parts of the installation made apparently by such inspections or tests shall be rectified by the Contractor at his own expense.
- e) The Contractor shall provide accurate instruments and apparatus and all labour required to carry out the above tests. The instruments and apparatus shall be made available to the services engineer to enable him to carry out such tests as he may require.

The Contractor shall generally attend on other contractors employed on the project and carry out such electrical tests as may be necessary.

The Contractor shall test to the services engineer's approval and as specified elsewhere in this specification or in standards and regulations already referred to, all equipment, plant and apparatus forming part of the works and before connecting to any power or other supply and setting to work.

Where such equipment, etc., forms part of or is connected to a system whether primarily or of an electrical nature or otherwise (e.g. air conditioning system) the Contractor shall attend on and assist in balancing, regulating testing and commissioning, or if primarily an electrical or other system forming part of works, shall balance, regulate, test and commission the system to the service engineer's approval.

## TECHNICAL SPECIFICATIONS FOR EQUIPMENT AND ACCESSORIES

### 1. WATER PUMP

Power supply to pump	30-300 VDC,
Start/stop	No limitation to the number of starts/stops per hour.
Motor protection	Built into the pump.
Protection against	dry running by means of a water level electrode
	over-voltage and under-voltage
	over-load
	over-temperature.
Borehole diameter:	<b>Minimum:</b> 4 inch.
Installation depth	<b>Minimum:</b> The pump must be completely submerged in the pumped liquid. <b>Maximum:</b> 150 m below the static water table (15 bar).
Suction strainer	Holes of the suction strainer: Diameter : 2.5 mm.
Pumped liquids	pH 5 to 9. Sand content up to 50 g/m <sup>3</sup> .
Pump Flow	<b>Minimum</b> 2m <sup>3</sup> /hr
Total Head	<b>Minimum</b> 50m

*(Attach detailed technical specifications in form of Manufacturer's Datasheets)*

#### Accessories

- Pump riser/starter pipe shall be flexible material for ease of access for submersible pump servicing.
- Joints and valves to be installed leak-free using accepted joining methods.
- Cable to the Submersible pump shall not be less than 6mm<sup>2</sup> in cross section.
- A compatible splicing kit to be provided for good linkage of the



cables from the pump and control unit. The splice kit to be installed at the dam head and attached in such a way that it can facilitate inspections.

- **Non-Return Valves** shall be installed to optimize performance of the Pump

### **Water sources**

- Boreholes of at least 40 meters depth exist on the site; solar powered submersible pump installation is therefore required for the site.
- A schematic diagram has been attached to illustrate the arrangement.

### **Piping**

A riser pipe, PVC type complete with couplings shall be used. Appropriate anchorages shall be included. Joints /bends shall be fixed properly to ensure no leaks occur.

### **Warranty 3 years**

## **2. PUMP CONTROL UNIT**

Voltage	30-300 VDC, 8.4 A.
Power consumption	5 W.
Current consumption	Maximum 130 mA.
Pump cable Maximum length between the Control Unit and the pump:	200 m.
Maximum length between the Control Unit and the level switch:	500 m.
Back-up fuse	Maximum 10 A.
Enclosure class	IP 55.
Ambient temperature during operation:	Maximum : +50°C.

*(Attach detailed technical specifications in form of Manufacturer's Datasheets)*

## **3. SOLAR PV MODULE**

Module Type:	High efficiency crystalline silicon modules
(Poly crystalline)	

Voltage at maximum power	16.5 V (Minimum)
Maximum Power Point Current	3 Amps (Minimum)
Warranted minimum Power rating:	-As per description in the Bills of quantities
Open circuit Voltage (Minimum)	20 VDC
Maximum system voltage:	-600V
Guarantee:	At least 15 Years

*(Attach brochures with detailed technical specifications)*

#### **4. INVERTER /CHARGER**

Rated Continuous Output power	-As per description in the Bills of Quantities
Surge Power Capability	200% of rated continuous Power
Peak Efficiency (Minimum)	90%
Frequency	50HZ
Nominal Input voltage	12VDC
Output Voltage Range	220 - 240V AC (RMS)
Output Voltage Regulation	+/- 5%
Output wave form	Pure Sinewave
Battery low shut down	(10.5+/-0.5) VDC
Protection (electrical)	Overload and short circuit, Low battery disconnect
Power factor capability	-1 to +1
Charging algorithm of charger	Constant voltage
Charger input voltage range	200V to 250V AC
Minimum rated Charging Current	20A
Guarantee	3 years

#### **Note:**

- 1. High Frequency Transformer-less Inverters not acceptable.**
- 2. Pure Sinewave output is required and modified sinewave output waveform is NOT acceptable.**

*(Attach detailed technical specifications)*

#### **5. SOLAR CHARGE CONTROLLERS**

Main features	Series or Shunt type, constant-voltage, pulse width
---------------	--

	modulation (PWM) charging, with battery type (sealed/gel and flooded lead acid) selection provision and temperature compensation.
Nominal Voltage	12V DC
	Rated solar charging currentAs per description in the Bills of Quantities
Earthing	Negative earth
Metering	Digital metering for currents and voltages
Operating temperature	-40 to + 60o C
Protection	Reversed polarity protection Overload and short circuit protection lightning and transients surge protection Night reverse current protection (blocking diode or equivalent.)
Self- Consumption	0.5% (Maximum) of rated current
	Status Indicators (minimum) Charging and low battery visual indicators
Guarantee	3 years

*(Attach detailed technical specifications in form of Manufacturer's Datasheets)*

## **6. SOLAR BATTERIES**

Rated capacity	As per Description in the Bills of Quantities
Discharge rate (to 1.80V/Cell)	for the Specified Capacities Maximum 20 Hours
Battery Type	Dry sealed batteries (Maintenance Free)
Plate type	Flat plate or Tubular acceptable
Working Temperature	20-55 <sup>0</sup> C at Discharge and Storage Up to 55 <sup>0</sup> C at Charge
Nominal Voltage	2 V

Self-discharge per month	3% maximum at 25 ° C Temperature
Cycle Life	2500 cycles at 20% daily depth of discharge (DOD)
Casing material	Should Avoid Leakage and Bulge and Withstand Impact
Warranty	5 years
<i>(Attach detailed technical specifications in form of Manufacturer's Datasheets)</i>	

## 7. THE REVERSE OSMOSIS PLANT

Schematic Diagram of the Plant is provided

It consists of:

- Booster Pump to pump water through the filtration system and after the buffer tank.
- Dosing Pump complete with a chemical tank and chemical for chlorination, anti-scalant, and PH adjustment –
  - The incoming water from the source will be first dosed with chlorine continuously into the pipeline from a chemical solution tank.
  - pH adjustment is required to bring the pH to the levels required in case it deviates.
  - To prevent scaling of the Reverse Osmosis Membranes, it will be important to dose an anti-scalant into the water
  - For preservation of the membranes, and also to prevent any further bifouling, between the activated carbon filter and the Reverse Osmosis membranes, addition of Metabisulphate will be done from a chemical tank.
- Pre-filtration Filter complete with sand and activated carbon media. This is to remove any suspended solids, taste and odour.
- Reverse Osmosis (RO) Unit complete with high pressure membranes for brackish water desalination, in special pressure vessels capable of delivering a minimum of 250litres/hour.
  - High Efficiency DOW Filmetic RO membranes housed in strong, corrosion proof FRP pressure vessels
  - High treatment performance with up to 98% salts

rejection

- High pressure in line stainless steel feed pump
- System monitoring accessories to include inlet and outlet flow meters, pressure gauges and conductivity meter
- Sediment removal and carbon cartridge pre-filters
- Corrosion resistant stainless steel high pressure and plastic low pressure pipes and pipe fittings
- Operating Pressure – ranges between 12bar and 20 bar
- Raw Water Quality – TDS up to 2000 ppm (The pre-treatment has been described above)
- Normal Rejection – 95%-98%
- Minimum Inlet Pressure – 3bar
- Recovery Range – 50%-75%
- Post Chlorination Unit
- Water softener for removal of hardness. This is to lower the hardness levels from where the water will flow into a clean water holding tank.(Buffer Tank)
- Control Panel
  - Electronic controller for fully automated plant operation to include
    - Start up
    - Periodic flush cycle
    - Shut down
    - Various system alarms

Clean water from the RO will be stored in a clean water tank from where it flows to the points of use. The tank should be 4000 liters capacity.

*(A schematic diagram has been attached to illustrate the arrangement).*

## **8. TANK MOUNTING STRUCTURE**

- Tank and Solar PV Array Mounting Structures arrangement is as shown in the schematic diagram.
- Solar array support structure shall be made of steel angle lines (1.5’\*1.5’\*2mm).
- The array mounting structure shall be tilted at 15 degrees angle facing the equator.

- The tank support structure shall be made strong enough to withstand loads in excess of 7 metric tonnes, windstorms and shall be galvanized and painted as necessary to avoid corrosion.
- The Height of the tank support structure shall be 6 metres.

## **9. FOUNDATION**

Concrete of appropriate mix to withstand at least 7 metric tonnes shall be used for the foundation.

## **10. CABLES**

Suitably rated cables of not less than:-

- 6mm<sup>2</sup> in cross-section to link the solar panels together,
- 10 mm<sup>2</sup> three core cable to link solar arrays to the charger control unit;
- 10 mm<sup>2</sup> three core cable to link the control unit to the 10 mm<sup>2</sup> twin core armored cable and finally;
- 10 mm<sup>2</sup> to link the armored cable and the submersible pump;
- Use of naked cables not allowed;
- 

## **11. INSTALLATION QUALITY AND GUIDELINES**

### **I. PV Modules/ Arrays**

- Modules or arrays have to be firmly fixed onto mounting structure to avoid rip off by strong winds.
- The module or array mounting structure should be corrosion resistance and the bolts and nuts used in mounting the module or array on to the structure should be stainless steel or galvanized.
- The siting of the module or array should be such that no object or objects will cast any shadows on it at any time of the day between 0900 and 1600 hours.
- The module or array siting should be such the cable run to the battery is kept to a minimum.
- Modules or arrays should be tilted at an angle of between 10 and 20 degrees from horizontal plane facing the Equator.

### **II. Solar PV Charge Controller**

- The siting of the charge controller should be such that cabling between module/array and the Controller and the Controller and Battery be as short as possible
- Controllers should be installed at reasonable height above ground to enable user to easily checks system status from the indicator lights/LED.

### **III. Inverters**

- The siting of the Inverter should be such that cabling between battery and inverter be as short as possible
- The Inverter should be located in a well-ventilated place
- The Inverter should be properly mounted on a suitable and appropriate surface - usually preferably on the wall

### **IV. Solar PV Batteries**

- Parallel connections of more than three batteries, where possible should be avoided. Batteries to be paralleled should be identical, i.e. same manufacturer, same voltage, and same capacity.
- There should be a balanced parallel connection of batteries
- The battery should be located in a well-ventilated place, away from naked lights and other system electronics.
- Batteries should be placed well ventilated battery racks or boxes
- Batteries should be fully charged before they are taken to site

#### **IV.1. Electrical Installation (AC Wiring, Loads and installation accessories – Lamps, TVs, Radios, Switches, Sockets, Fuses etc)**

- The electrical installation should be carried out to comply with Kenya Wiring Regulations (KS 662) for Electrical Installation in Buildings.

## **12.USER TRAINING**

A person shall be identified from the institution, who shall regulate the system usage and carry out routine maintenance of the systems. This person shall be provided with user training covering the

following:

- System performance expectations and limitations
- Purpose of each component of the system
- How to operate and use the systems including safety
- Indicator Lights and their purpose
- How to deal with breakdowns
- Performance monitoring and data recording
- User manuals shall be availed at every institution

### 13.LAPTOP COMPUTER

ITEM	SPECIFICATION
<b>Display</b>	<ul style="list-style-type: none"> <li>• 14" anti-glare display, up to FHD (1920 x 1080) IPS with touch option</li> </ul>
<b>Processor</b>	<ul style="list-style-type: none"> <li>• 7th Generation Intel® Core™ i7</li> </ul>
<b>Memory</b>	<ul style="list-style-type: none"> <li>• 32GB DDR4</li> </ul>
<b>Storage</b>	<ul style="list-style-type: none"> <li>• 1 TB PCIe NVMe SSD or 2 TB HDD storage</li> </ul>
<b>Graphics and Video Support</b>	<ul style="list-style-type: none"> <li>• Intel® HD Graphics 620 or NVIDIA GeForce® 940MX (2GB 2.5GHz GDDR5 memory)</li> </ul>
<b>Connections and Expansion</b>	<ul style="list-style-type: none"> <li>• 3 x USB 3.0</li> <li>• 1 x Thunderbolt™ 3 port</li> <li>• 3.5 mm Combo Audio Jack</li> <li>• 1 x HDMI™</li> <li>• 1 x RJ45 Gigabit LAN</li> <li>• 1x CS13 Docking</li> <li>• 1 x Media Card Reader (SD 3.0, UHS-I)</li> <li>• 1 x Smart Card Reader (Optional)</li> <li>• 1x Micro SIM</li> </ul>
<b>Keypad and Trackpad</b>	Precision Keyboard with Number Pad
<b>Electrical</b>	<ul style="list-style-type: none"> <li>• Line voltage: 240V AC</li> </ul>



<b>Requirements</b>	<ul style="list-style-type: none"><li>• Frequency: 50Hz</li></ul>
<b>Software</b>	64-bit Microsoft® Windows® 10

## **SECTION VII - STANDARD FORMS**

### **7. Notes on the Standard Forms**

#### **7.1 Form of Tender**

This form must be completed by the tenderer and submitted with the tender documents. It must also be duly signed by duly authorized representative of the tenderer.

#### **7.2 Confidential Business Questionnaire Form**

This form must be completed by the tenderer and submitted with tender documents

#### **7.3 Tender Security Form**

When required by the tender document the tenderer shall provide the tender security either in the form included therein after or in another format acceptable to the procuring entity.

#### **7.4 Contract Form**

The Contract form shall not be completed by the tenderer at the time of submitting the tenderer at the time of submitting the tender. The contract form shall be completed after contract award.

#### **7.5 Performance Security form**

The performance security form should not be completed by the tenderer at the time of tender preparation. Only the successful tenderer will be required to provide performance security in the sum provided herein or in another form acceptable to the procuring entity.

#### **7.6 Bank Guarantee for Advance Payment.**

When there is an agreement to have Advance payment, this form must be duly completed.

#### **7.7 Manufacturer's Authorization Form**

When required by the tender document, this form must be completed and submitted with the tender document. This form will be completed by the manufacturer of the goods where the tender is an agent.

**7.1. FORM OF TENDER**

Date \_\_\_\_\_

Tender No \_\_\_\_\_

To: PRINCIPAL SECRETARY,  
MINISTRY OF ENERGY,  
P.O BOX 30582,  
NAIROBI

Gentlemen and/or Ladies:

1. Having examined the tender documents including Addenda Nos. **MOE/ONT/007/2019-2020** the receipt of which is hereby duly acknowledged, we, the undersigned, offer to **FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF SOLAR WATER PUMP AND WATER DESALINATION SYSTEM FOR ONE (1) WATER BOREHOLE IN A HEALTH CENTRE IN ASAL COUNTY OF MARSABIT** in conformity with the tender document for the sum of

Kshs..... *[Amount in figures]*  
 Kenya Shillings.....  
 .....  
 ..... *[Amount in words]*

or such other sums as may be ascertained in accordance with the Schedule of Prices attached herewith and made part of this Tender.

2. We undertake, if our Tender is accepted, to deliver install and commission the equipment in accordance with the delivery schedule specified in the Schedule of Requirements.
3. If our Tender is accepted, we will obtain the guarantee of a bank in a sum of equivalent to .....per cent of the Contract Price for the due performance of the Contract, in the form prescribed by ..... *(Procuring entity)*.
4. We agree to abide by this Tender for a period of 120 days from the date fixed for tender opening of the Instructions to tenderers, and it shall remain binding

upon us and may be accepted at any time before the expiration of that period.

5. This Tender, together with your written acceptance thereof and your notification of award, shall constitute a Contract, between us. Subject to signing of the Contract by the parties.
6. We understand that you are not bound to accept the lowest or any tender that you may receive.

Dated this        day of        20

\_\_\_\_\_

[signature]

\_\_\_\_\_

[in the capacity of]

Duly authorized to sign tender for an on behalf of

**7.2. CONFIDENTIAL BUSINESS QUESTIONNAIRE FORM**

You are requested to give the particulars indicated in Part 1 and either Part 2(a), 2(b) or 2 (c ) whichever applied to your type of business. You are advised that it is a serious offence to give false information on this form

*Part 1 – General:*

Business Name .....

Location of business premises. ....

Plot No.....

Street/Road .....

Postal Address ..... Tel No. ....

Fax ..... E mail .....

Nature of Business.....

Registration Certificate No. ....

Maximum value of business which you can handle at any one time – Kshs. ....

Name of your bankers ..... Branch .....

*Part 2 (a) – Sole Proprietor*

Your name in full .....

Age ..... Nationality .....

Country of origin .....  
• Citizenship details.....

*Part 2 (b) Partnership*

Given details of partners as follows:

Name	Nationality	Citizenship Details	Shares
1.....			
2.....			
3.....			
4.....			
5.....			
6.....			

*Part 2 (c ) – Registered Company*

Private or Public .....

State the nominal and issued capital of company-

Nominal Kshs. ....  
Issued Kshs. ....

Given details of all directors as follows

	Name	Nationality	Citizenship Details	Shares
1.	.....	.....	.....	.....
2.	.....	.....	.....	.....
3.	.....	.....	.....	.....
4.	.....	.....	.....	.....
5.	.....	.....	.....	.....

### 7.3. TENDER SECURITY FORM

Whereas ..... *[name of the tenderer]* (hereinafter called “the tenderer”) has submitted its tender dated ..... *[date of submission of tender]* for the supply, installation and commissioning of .....*[name and/or description of the equipment]* (hereinafter called “the Tender”) ..... KNOW ALL PEOPLE by these presents that WE ..... of ..... having our registered office at ..... (hereinafter called “the Bank”), are bound unto ..... *[name of Procuring entity]* (hereinafter called “the Procuring entity”) in the sum of ..... for which payment well and truly to be made to the said Procuring entity, the Bank binds itself, its successors, and assigns by these presents. Sealed with the Common Seal of the said Bank this.....day of 20 .

THE CONDITIONS of this obligation are:-

1. If the tenderer withdraws its Tender during the period of tender validity specified by the tenderer on the Tender Form; or
2. If the tenderer, having been notified of the acceptance of its Tender by the Procuring entity during the period of tender validity:
  - a. fails or refuses to execute the Contract Form, if required; or
  - b. fails or refuses to furnish the performance security in accordance with the Instructions to tenderers;

We undertake to pay to the Procuring entity up to the above amount upon receipt of its first written demand, without the Procuring entity having to substantiate its demand, provided that in its demand the Procuring entity will note that the amount claimed by it is due to it, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This tender guarantee will remain in force up to and including thirty (30) days after the period of tender validity, and any demand in respect thereof should reach the Bank not later than the above date.

*[Signature of the bank](Amend accordingly if provided by Insurance*

*Company)*



#### 7.4. CONTRACT FORM

THIS AGREEMENT made the .....day of ..... 20.....between ..... [name of Procurement entity) of ..... [Country of Procurement entity] (hereinafter called “the Procuring entity) of the one part and..... [name of tenderer] of ..... [City and country of tenderer] (hereinafter called “the tenderer”) of the other part;

WHEREAS the Procuring entity invited tenders for [certain goods] and has accepted a tender by the tenderer for the supply of those goods in the sum of ..... [contract price in words and figures] (hereinafter called “the Contract Price).

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to:
2. The following documents shall be deemed to form and be read and construed as part of this Agreement viz:
  - a. the Tender Form and the Price Schedule submitted by the tenderer
  - b. the Schedule of Requirements
  - c. the Technical Specifications
  - d. the General Conditions of Contract
  - e. the Special Conditions of contract; and
  - f. the Procuring entity’s Notification of Award
3. In consideration of the payments to be made by the Procuring entity to the tenderer as hereinafter mentioned, the tenderer hereby covenants with the Procuring entity to provide the goods and to remedy the defects therein in conformity in all respects with the provisions of this Contract
4. The Procuring entity hereby covenants to pay the tenderer in consideration of the provisions of the goods and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times

and in the manner prescribed by the contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with their respective laws the day and year first above written.

Signed, sealed, delivered by.....the .....(for the Procuring entity)

Signed, sealed, delivered by .....the .....(for the tenderer in the presence of .....

**7.5. PERFORMANCE SECURITY FORM**

To ..... *[name of Procuring entity]*

WHEREAS ..... *[name of tenderer]*  
(hereinafter called “the tenderer”) has undertaken , in pursuance of  
Contract No. *[reference number of the contract]* dated 20 to  
supply ..... *[description of goods]*  
(hereinafter called “the Contract”).

AND WHEREAS it has been stipulated by you in the said Contract that  
the tenderer shall furnish you with a bank guarantee by a reputable bank  
for the sum specified therein as security for compliance with the  
Tenderer’s performance obligations in accordance with the Contract.

AND WHEREAS we have agreed to give the tenderer a guarantee:

THEREFORE WE hereby affirm that we are Guarantors and responsible to  
you, on behalf of the tenderer, up to a total of ..... *[amount  
of the guarantee in words and figure]* and we undertake to pay you, upon  
your first written demand declaring the tenderer to be in default under the  
Contract and without cavil or argument, any sum or sums within the limits  
of ..... *[amount of guarantee]* as aforesaid, without you  
needing to prove or to show grounds or reasons for your demand or the sum  
specified therein.

This guarantee is valid until the .....day of .....20 .....

Signed and seal of the Guarantors

\_\_\_\_\_  
*[name of bank or financial institution]*

\_\_\_\_\_  
*[address]*

\_\_\_\_\_  
*[date]*

(Amend accordingly if provided by Insurance Company)

**7.6. BANK GUARANTEE FOR ADVANCE PAYMENT**

To ..... *[name of Procuring entity]*

*[name of tender]* .....

Gentlemen and/or Ladies:

In accordance with the payment provision included in the Special Conditions of Contract, which amends the General Conditions of Contract to provide for advance payment,

..... *[name and address of tenderer]*(hereinafter called “the tenderer”) shall deposit with the Procuring entity a bank guarantee to guarantee its proper and faithful performance under the said Clause of the Contract an amount of ..... *[amount of guarantee in figures and words]*.

We, the ..... *[bank or financial institutions]*, as instructed by the tenderer, agree unconditionally and irrevocably to guarantee as primary obligator and not as surety merely, the payment to the Procuring entity on its first demand without whatsoever right of objection on our part and without its first claim to the tenderer, in the amount not exceeding ..... *[amount of guarantee in figures and words]*

We further agree that no change or addition to or other modification of the terms of the Contract to be performed there-under or of any of the Contract documents which may be made between the Procuring entity and the tenderer, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition, or modification.

This guarantee shall remain valid in full effect from the date of the advance payment received by the tenderer under the Contract until ..... *[date]*.

Yours truly,

Signature and seal of the Guarantors

..... *[name of bank or financial institution]*

..... *[address]*

..... *[date]*

**7.7. MANUFACTURER’S AUTHORIZATION FORM**

To *[name of the Procuring entity]* .....

WHEREAS .....*[ name of the manufacturer]* who are established and reputable manufacturers of ..... *[name and/or description of the goods]* having factories at ..... *[address of factory]* do hereby authorize ..... *[name and address of Agent]* to submit a tender, and subsequently negotiate and sign the Contract with you against tender No. .... *[reference of the Tender]* for the above goods manufactured by us.

We hereby extend our full guarantee and warranty as per the General Conditions of Contract for the goods offered for supply by the above firm against this Invitation for Tenders.

\_\_\_\_\_  
*[signature for and on behalf of manufacturer]*

*Note:*  
*This letter of authority should be on the letterhead of the Manufacturer and should be signed by an authorized person.*

**7.8. LETTER OF NOTIFICATION OF AWARD**

Address of Procuring Entity

\_\_\_\_\_  
\_\_\_\_\_

To: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

RE: Tender No. \_\_\_\_\_

Tender Name \_\_\_\_\_

This is to notify that the contract/s stated below under the above mentioned tender have been awarded to you.

\_\_\_\_\_  
\_\_\_\_\_

1. Please acknowledge receipt of this letter of notification signifying your acceptance.
2. The contract/contracts shall be signed by the parties within 30 days of the date of this letter but not earlier than 14 days from the date of the letter.
3. You may contact the officer(s) whose particulars appear below on the subject matter of this letter of notification of award.

*(FULL PARTICULARS)* \_\_\_\_\_  
\_\_\_\_\_

SIGNED FOR ACCOUNTING OFFICER

**7.9. FORM RB 1**

**REPUBLIC OF KENYA  
PUBLIC PROCUREMENT ADMINISTRATIVE  
REVIEW BOARD**

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

BETWEEN

.....

APPLICANT AND

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

Request for review of the decision of the..... (*Name of the Procuring Entity*) of .....dated the.....day of .....20.....in the matter of Tender No.....of.....20...

**REQUEST FOR REVIEW**

I/We.....,the above named Applicant(s), of address: Physical address.....Fax No.....Tel. No.....Email ....., hereby request the Public Procurement Administrative Review Board to review the whole/part of the above mentioned decision on the following grounds , namely:-

1. .
2. .
3. etc.

By this memorandum, the Applicant requests the Board for an order/orders

that: -

- 1.
- 2.
3. Etc

SIGNED .....(*Applicant*)

Dated on.....day of ...../...20...

---

**FOR OFFICIAL USE ONLY**

Lodged with the Secretary Public Procurement Administrative Review Board on ..... day of .....20.....

SIGNED

Board Secretary



**7.10. DECLARATION NOT TO BE INVOLVED IN CORRUPT OR FRAUDULENT PRACTICES**

A tenderer shall sign a declaration that he has not and will not be involved in corrupt or fraudulent practices.

**ANTI-CORRUPTION DECLARATION COMMITMENT/ PLEDGE FORM (Mandatory)**

I/We/Messrs.....

.....of Street, Building, P O Box.....

Contact/Phone/E mail.....

declare that Public Procurement is based on a free and fair competitive Tendering process which should not be open to abuse.

I/We

.....

declare that I/We will not offer or facilitate, directly or indirectly, any inducement or reward to any public officer, their relations or business associates, in connection with

Tender name.....

Tender No .....

for or in the subsequent performance of the contract if I/We am/are successful.

**Authorized Signature.....**

**Name and Title of Signatory.....**

**Official Seal/ Stamp .....**

**7.11. DECLARATION FORM (Mandatory)**

Date

To

The tenderer i.e. (name and address)

.....

Declare the following:

- a) Has not been debarred from participating in public procurement.
- b) Has not been involved in and will not be involved in corrupt and fraudulent practices regarding public procurement.

Title

Signature

Date

(To be signed by authorized representative and officially stamped)