



REPUBLIC OF KENYA

**MINISTRY OF AGRICULTURE, LIVESTOCK, FISHERIES AND
CO-OPERATIVES
STATE DEPARTMENT FOR CO-OPERATIVES**

**PROPOSED MODERNISATION OF LUANDA FARMERS CO-OPERATIVE
UNION GINNERY AT FUNYULA, BUSIA COUNTY**

TENDER NO.: SDC/SCM/4/2020-2021

TENDER DOCUMENT

W.P ITEM NO. D117/WE/BSA/2002 JOB NO 10664B

PROJECT MANAGER

WORKS SECRETARY
M.O.T.I.PW.H&UD
P.O. BOX 30743 – 00100
NAIROBI.

QUANTITY SURVEYOR

CHIEF QUANTITY SURVEYOR
M.O.T.I.PW.H&UD
P.O. BOX 30743 – 00100
NAIROBI.

MECHANICAL ENGINEER

CHIEF MECHANICAL
ENGINEER (BS)
M.O.T.I.PW.H&UD
P.O. BOX 41191– 00100
NAIROBI.

ARCHITECT

CHIEF ARCHITECT
M.O.T.I.PW.H&UD
P.O. BOX 30743 – 00100
NAIROBI

ELECTRICAL ENGINEER

CHIEF ELECTRICAL
ENGINEER (BS)
M.O.T.I.PW.H&UD
P.O. BOX 41191 – 00100
NAIROBI.

STRUCTURAL ENGINEER

CHIEF ENGINEER
(STRUCTURAL)
M.O.T.I.PW.H&UD
P.O. BOX 30743 – 00100
NAIROBI

JANUARY, 2021

TABLE OF CONTENTS

	PAGE
CONTENTS PAGE	i
SIGNATURE PAGE & NOTES	ii
SECTION I: INVITATION TO TENDER	3
SECTION II: INSTRUCTIONS TO TENDERERS	5- 15
SECTION III: APPENDIX TO INSTRUCTIONS TO TENDERERS	16
SECTION IV: EVALUATION CRITERIA	17-24
SECTION V: CONDITIONS OF CONTRACT	25-44
SECTION VI: APPENDIX TO CONDITIONS OF CONTRACT	45-47
SECTION VII: DRAWINGS	48
SECTION VIII: STANDARD FORMS	49-70
SECTION IX – TRADE PREAMBLES	71-74
SECTION X – BILLS OF QUANTITIES	
PARTICULAR PRELIMINARIES	PP/1-PP/5
GENERAL PRELIMINARIES	GP/1 – GP/19
BUILDERS WORK	BW/1 – BW/7
PROVISIONAL SUMS	PS/1
GRAND SUMMARY	GS/1

**PROPOSED MODERNISATION OF LUANDA FARMERS CO-OPERATIVE
UNION GINNERY AT FUNYULA, BUSIA COUNTY**

W.P ITEM NO. D117/WE/BSA/2002 JOB NO 10664B

Prepared by: -
Quantities and Contracts Section
State Department of Public Works
P.O. Box 30743-00100 Nairobi.

The contract for the above-mentioned works entered into this day of 2021 by the undersigned refers to these Bills of Quantities and the Ministry of Works General Specification dated March, 1976 (together with any amendments issued thereto) shall be read and construed as part of the said contract.

.....
CONTRACTOR

.....
PRINCIPAL SECRETARY
STATE DEPARTMENT FOR CO-OPERATIVES

Date.....

Date.....

SPECIAL NOTES

The Contractor is required to check the numbers of the pages of these Bills of Quantities and should he find any missing or in duplicate or figures indistinct he must inform the Principal Secretary, State Department of Public Works, Ngong Road, Nairobi at once and have the same rectified.

Should the Contractor be in doubt about the precise meaning of any item or figure for any reason whatsoever, he must inform the Principal Secretary, Stated Department of Public Works, Ngong Road, Head Office in order that the correct meaning may be decided before the date for submission of tenders.

No liability will be admitted nor claim allowed in respect of errors in the Contractor's Tender due to mistakes in the Specifications which should have been rectified in the manner described above.

SIGNATURE PAGE AND NOTE

SECTION I: INVITATION TO TENDER

PROPOSED MODERNISATION OF LUANDA FARMERS CO-OPERATIVE UNION GINNERY AT FUNYULA, BUSIA COUNTY

TENDER NO. SDC/SCM/4/2020-2021

W.P ITEM NO. D117/WE/BSA/2002 JOB NO 10664B

The State Department For Co-operatives invites sealed tenders from eligible and competent contractors for **Proposed modernisation of Luanda Farmers Co-operative Union Ginnery at Funyula, Busia County**

Interested contractors must be registered in category **NCA 4, 5 or 6** and appear in the current Building Contractors register.

The document may also be downloaded from government tender portal www.tenders.go.ke and _____ also can be obtained at State Department for Co-operatives offices in NSSF building block 'A' 17th floor upon payment of non-refundable fee of Ksh 1000.

Prices quoted should be net inclusive of all taxes, must be in Kenya Shillings and should remain valid for 120 days.

Completed tender documents are to be enclosed in plain sealed envelopes, marked with the tender number and be deposited in the **tender box** provided at State Department for Co-operatives offices at NSSF building Block A, 17th floor in Nairobi, on or before _____ and be addressed to:

**PRINCIPAL SECRETARY
STATE DEPARTMENT FOR CO-OPERATIVES
P.O. BOX 30547 - 00100, NAIROBI**

Late submission will not be accepted on or before

Tenders will be opened immediately thereafter in the presence of the tenderers representatives who choose to attend the opening at NSSF Building, 17th floor boardroom.

SECTION II: INSTRUCTIONS TO TENDERERS

TABLE OF CONTENTS PAGE

	CLAUSE	PAGE
1.	General	7-9
2.	Tender Documents	9-10
3.	Preparation of Tenders	10 - 12
4.	Submission of Tenders	12 - 13
5.	Tender Opening and Evaluation	13 - 16
6.	Award of Contract	16– 17
	Corrupt and fraudulent practices.....	17

INSTRUCTIONS TO TENDERERS

1. General/Eligibility/Qualifications/Joint venture/Cost of tendering

- 1.1 The Employer as defined in the Appendix to Conditions of Contract invites tenders for Works Contract as described in the tender documents. The successful tenderer will be expected to complete the Works by the Intended Completion Date specified in the tender documents.
- 1.2 All tenderers shall provide the Qualification Information, a statement that the tenderer (including all members of a joint venture and subcontractors) is not associated, or has not been associated in the past, directly or indirectly, with the Consultant or any other entity that has prepared the design, specifications, and other documents for the project or being proposed as Project Manager for the Contract. A firm that has been engaged by the Employer to provide consulting services for the preparation or supervision of the Works, and any of its affiliates, shall not be eligible to tender.
- 1.3 All tenderers shall provide in the Form of Tender and Qualification Information, a preliminary description of the proposed work method and schedule, including drawings and charts, as necessary.
- 1.4 In the event that pre-qualification of potential tenderers has been undertaken, only tenders from pre-qualified tenderers will be considered for award of Contract. These qualified tenderers should submit with their tenders any information updating their original pre-qualification applications or, alternatively, confirm in their tenders that the originally submitted prequalification information remains essentially correct as of the date of tender submission.
- 1.5 Where no pre-qualification of potential tenderers has been done, all tenderers shall include the following information and documents with their tenders, unless otherwise stated:
- (a) copies of original documents defining the constitution or legal status, place of registration, and principal place of business; written power of attorney of the signatory of the tender to commit the tenderer;
 - (b) total monetary value of construction work performed for each of the last five years;
 - (c) experience in works of a similar nature and size for each of the last five years, and details of work under way or contractually committed; and names and addresses of clients who may be contacted for further information on these contracts;
 - (d) major items of construction equipment proposed to carry out the Contract and an undertaking that they will be available for the Contract.
 - (e) qualifications and experience of key site management and technical personnel proposed for the Contract and an undertaking that they shall be available for the Contract.
 - (f) reports on the financial standing of the tenderer, such as profit and loss statements and auditor's reports for the past five years;

- (g) evidence of adequacy of working capital for this Contract (access to line(s) of credit and availability of other financial resources);
- (h) authority to seek references from the tenderer's bankers;
- (i) information regarding any litigation, current or during the last five years, in which the tenderer is involved, the parties concerned and disputed amount; and
- (j) proposals for subcontracting components of the Works amounting to more than 10 percent of the Contract Price.

1.6 Tenders submitted by a joint venture of two or more firms as partners shall comply with the following requirements, unless otherwise stated:

- (a) the tender shall include all the information listed in clause 1.5 above for each joint venture partner;
- (b) the tender shall be signed so as to be legally binding on all partners;
- (c) all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms;
- (d) one of the partners will be nominated as being in charge, authorized to incur liabilities, and receive instructions for and on behalf of all partners of the joint venture; and
- (e) the execution of the entire Contract, including payment, shall be done exclusively with the partner in charge.

1.7 To qualify for award of the Contract, tenderers shall meet the following minimum qualifying criteria;

- (a) annual volume of construction work of at least 2.5 times the estimated annual cash flow for the Contract;
- (b) experience as main contractor in the construction of at least two works of a nature and complexity equivalent to the Works over the last 10 years (to comply with this requirement, works cited should be at least 70 percent complete);
- (c) proposals for the timely acquisition (own, lease, hire, etc.) of the essential equipment listed as required for the Works;
- (d) a Contract manager with at least five years' experience in works of an equivalent nature and volume, including no less than three years as Manager; and
- (e) liquid assets and/or credit facilities, net of other contractual commitments and exclusive of any advance payments which may be made under the Contract, of no less than 4 months of the estimated payment flow under this Contract.

- 1.8 The figures for each of the partners of a joint venture shall be added together to determine the tenderer's compliance with the minimum qualifying criteria of clause 1.7 (a) and (e); however, for a joint venture to qualify, each of its partners must meet at least 25 percent of minimum criteria 1.7 (a), (b) and (e) for an individual tenderer, and the partner in charge at least 40 percent of those minimum criteria. Failure to comply with this requirement will result in rejection of the joint venture's tender. Subcontractors' experience and resources will not be taken into account in determining the tenderer's compliance with the qualifying criteria, unless otherwise stated.
- 1.9 Each tenderer shall submit only one tender, either individually or as a partner in a joint venture. A tenderer who submits or participates in more than one tender (other than as a subcontractor or in cases of alternatives that have been permitted or requested) will cause all the proposals with the tenderer's participation to be disqualified.
- 1.10 The tenderer shall bear all costs associated with the preparation and submission of his tender, and the Employer will in no case be responsible or liable for those costs.
- 1.11 The tenderer, at the tenderer's own responsibility and risk, is encouraged to visit and examine the Site of the Works and its surroundings, and obtain all information that may be necessary for preparing the tender and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the tenderer's own expense.
- 1.12 The procuring entity's employees, committee members, board members and their relative (spouse and children) are not eligible to participate in the tender.
- 1.13 The price to be charged for the tender document shall not exceed Kshs. 5,000/=
- 1.14 The procuring entity shall allow the tenderer to review the tender document free of charge before purchase.

2.Tender Documents

- 2.1The complete set of tender documents comprises the documents listed below and any addenda issued in accordance with Clause 2.4.

- (a) These Instructions to Tenderers
- (b) Form of Tender and Qualification Information
- (c) Conditions of Contract
- (d) Appendix to Conditions of Contract
- (e) Specifications
- (f) Drawings
- (g) Bills of Quantities
- (h) Forms of Securities

- 2.2 The tenderer shall examine all Instructions, Forms to be filled and Specifications in the tender documents. Failure to furnish all information required by the tender documents, or submission of a tender not substantially responsive to the tendering documents in every respect will be at the tenderer's risk and may result in rejection of his tender.
- 2.3 A prospective tenderer making an inquiry relating to the tender documents may notify the Employer in writing or by cable, telex or facsimile at the address indicated in the letter of invitation to tender. The Employer will only respond to requests for clarification received earlier than seven days prior to the deadline for submission of tenders. Copies of the Employer's response will be forwarded to all persons issued with tendering documents, including a description of the inquiry, but without identifying its source.
- 2.4 Before the deadline for submission of tenders, the Employer may modify the tendering documents by issuing addenda. Any addendum thus issued shall be part of the tendering documents and shall be communicated in writing or by cable, telex or facsimile to all tenderers. Prospective tenderers shall acknowledge receipt of each addendum in writing to the Employer.
- 2.5 To give prospective tenderers reasonable time in which to take an addendum into account in preparing their tenders, the Employer shall extend, as necessary, the deadline for submission of tenders, in accordance with Clause 4.2 here below.

3.Preparation of Tenders

- 3.1 All documents relating to the tender and any correspondence shall be in English language.
- 3.2 The tender submitted by the tenderer shall comprise the following:
- (a) These Instructions to Tenderers, Form of Tender, Conditions of Contract, Appendix to Conditions of Contract and Specifications;
 - (b) Tender Security;
 - (c) Priced Bill of Quantities;
 - (d) Qualification Information Form and Documents;
 - (e) Alternative offers where invited; and
 - (f) Any other materials required to be completed and submitted by the tenderers.

- 3.3 The tenderer shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items for which no rate or price is entered by the tenderer will not be paid for when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities. All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause relevant to the Contract, as of 30 days prior to the deadline for submission of tenders, shall be included in the tender price submitted by the tenderer.
- 3.4 The rates and prices quoted by the tenderer shall only be subject to adjustment during the performance of the Contract if provided for in the Appendix to Conditions of Contract and provisions made in the Conditions of Contract.
- 3.5 The unit rates and prices shall be in Kenya Shillings.
- 3.6 Tenders shall remain valid for a period of sixty (60) days from the date of submission. However, in exceptional circumstances, the Employer may request that the tenderers extend the period of validity for a specified additional period. The request and the tenderers' responses shall be made in writing. A tenderer may refuse the request without forfeiting the Tender Security. A tenderer agreeing to the request will not be required or permitted to otherwise modify the tender, but will be required to extend the validity of Tender Security for the period of the extension, and in compliance with Clause 3.7 - 3.11 in all respects.
- 3.7 The tenderer shall furnish, as part of the tender, a Tender Security in the amount and form specified in the appendix to invitation to tenderers. This shall be in the amount not exceeding 2 percent of the tender price
- 3.8 The format of the Tender Security should be in accordance with the form of Tender Security included in Section G - Standard forms or any other form acceptable to the Employer. Tender Security shall be valid for 30 days beyond the validity of the tender.
- 3.9 Any tender not accompanied by an acceptable Tender Security shall be rejected. The Tender Security of a joint venture must define as "Tenderer" all joint venture partners and list them in the following manner: a joint venture consisting of"", "", and ".....".
- 3.10 The Tender Securities of unsuccessful tenderers will be returned within 28 days of the end of the tender validity period specified in Clause 3.6.
- 3.11 The Tender Security of the successful tenderer will be discharged when the tenderer has signed the Contract Agreement and furnished the required Performance Security.
- 3.12 The Tender Security may be forfeited
- (a) if the tenderer withdraws the tender after tender opening during the period of tender validity;
 - (b) if the tenderer does not accept the correction of the tender price, pursuant to Clause 5.7;
 - (c) in the case of a successful tenderer, if the tenderer fails within the specified time limit to

- (i) sign the Agreement, or
 - (ii) furnish the required Performance Security.
- 3.13 Tenderers shall submit offers that comply with the requirements of the tendering documents, including the basic technical design as indicated in the Drawings and Specifications. Alternatives will not be considered, unless specifically allowed in the invitation to tender. If so allowed, tenderers wishing to offer technical alternatives to the requirements of the tendering documents must also submit a tender that complies with the requirements of the tendering documents, including the basic technical design as indicated in the Drawings and Specifications. In addition to submitting the basic tender, the tenderer shall provide all information necessary for a complete evaluation of the alternative, including design calculations, technical specifications, breakdown of prices, proposed construction methods and other relevant details. Only the technical alternatives, if any, of the lowest evaluated tender conforming to the basic technical requirements shall be considered.
- 3.14 The tenderer shall prepare one original of the documents comprising the tender documents as described in Clause 3.2 of these Instructions to Tenderers, bound with the volume containing the Form of Tender, and clearly marked “ORIGINAL”. In addition, the tenderer shall submit copies of the tender, in the number specified in the invitation to tender, and clearly marked as “COPIES”. In the event of discrepancy between them, the original shall prevail.
- 3.15 The original and all copies of the tender shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the tenderer, pursuant to Clause 1.5 (a) or 1.6 (b), as the case may be. All pages of the tender where alterations or additions have been made shall be initialled by the person or persons signing the tender.
- 3.16 Clarification of tenders shall be requested by the tenderer to be received by the procuring entity not later than 7 days prior to the deadline for submission of tenders.
- 3.17 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.
- 3.18 The tender security shall be in the amount of 0.5 – 2 per cent of the tender price.

4. Submission of Tenders

- 4.1 The tenderer shall seal the original and all copies of the tender in two inner envelopes and one outer envelope, duly marking the inner envelopes as “ORIGINAL” and “COPIES” as appropriate. The inner and outer envelopes shall:
- (a) be addressed to the Employer at the address provided in the invitation to tender;
 - (b) bear the name and identification number of the Contract as defined in the invitation to tender; and
 - (c) provide a warning not to open before the specified time and date for tender opening.
- 4.2 Tenders shall be delivered to the Employer at the address specified above not later than the time and date specified in the invitation to tender. However, the Employer may extend the deadline for submission of tenders by issuing an amendment in accordance with Sub-Clause 2.5 in which case all rights and obligations of the Employer and the tenderers previously subject to the original deadline will then be subject to the new deadline.

- 4.3 Any tender received after the deadline prescribed in clause 4.2 will be returned to the tenderer un-opened.
- 4.4 Tenderers may modify or withdraw their tenders by giving notice in writing before the deadline prescribed in clause 4.2. Each tenderer's modification or withdrawal notice shall be prepared, sealed, marked, and delivered in accordance with clause 3.13 and 4.1, with the outer and inner envelopes additionally marked "**MODIFICATION**" and "**WITHDRAWAL**", as appropriate. No tender may be modified after the deadline for submission of tenders.
- 4.5 Withdrawal of a tender between the deadline for submission of tenders and the expiration of the period of tender validity specified in the invitation to tender or as extended pursuant to Clause 3.6 may result in the forfeiture of the Tender Security pursuant to Clause 3.11.
- 4.6 Tenderers may only offer discounts to, or otherwise modify the prices of their tenders by submitting tender modifications in accordance with Clause 4.4 or be included in the original tender submission.

5.Tender Opening and Evaluation

- 5.1 The tenders will be opened by the Employer, including modifications made pursuant to Clause 4.4, in the presence of the tenderers' representatives who choose to attend at the time and in the place specified in the invitation to tender. Envelopes marked "**WITHDRAWAL**" shall be opened and read out first. Tenderers' and Employer's representatives who are present during the opening shall sign a register evidencing their attendance.
- 5.2 The tenderers' names, the tender prices, the total amount of each tender and of any alternative tender (if alternatives have been requested or permitted), any discounts, tender modifications and withdrawals, the presence or absence of Tender Security, and such other details as may be considered appropriate, will be announced by the Employer at the opening. Minutes of the tender opening, including the information disclosed to those present will be prepared by the Employer.
- 5.3 Information relating to the examination, clarification, evaluation, and comparison of tenders and recommendations for the award of Contract shall not be disclosed to tenderers or any other persons not officially concerned with such process until the award to the successful tenderer has been announced. Any effort by a tenderer to influence the Employer's officials, processing of tenders or award decisions may result in the rejection of his tender.
- 5.4 To assist in the examination, evaluation, and comparison of tenders, the Employer at his discretion, may ask any tenderer for clarification of the tender, including breakdowns of unit rates. The request for clarification and the response shall be in writing or by cable, telex or facsimile but no change in the price or substance of the tender shall be sought, offered, or permitted except as required to confirm the correction of arithmetic errors discovered in the evaluation of the tenders in accordance with Clause 5.7.

- 5.5 Prior to the detailed evaluation of tenders, the Employer will determine whether each tender (a) meets the eligibility criteria defined in Clause 1.7;(b) has been properly signed; (c) is accompanied by the required securities; and (d) is substantially responsive to the requirements of the tendering documents. A substantially responsive tender is one which conforms to all the terms, conditions and specifications of the tendering documents, without material deviation or reservation. A material deviation or reservation is one (a) which affects in any substantial way the scope, quality, or performance of the works; (b) which limits in any substantial way, inconsistent with the tendering documents, the Employer's rights or the tenderer's obligations under the Contract; or (c) whose rectification would affect unfairly the competitive position of other tenderers presenting substantially responsive tenders.
- 5.6 If a tender is not substantially responsive, it will be rejected, and may not subsequently be made responsive by correction or withdrawal of the nonconforming deviation or reservation.
- 5.7 Tenders determined to be substantially responsive will be checked for any arithmetic errors. Errors will be corrected as follows:
- (a) where there is a discrepancy between the amount in figures and the amount in words, the amount in words will prevail; and
 - (b) where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will prevail, unless in the opinion of the Employer, there is an obvious typographical error, in which case the adjustment will be made to the entry containing that error.
 - (c) 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 Bill of Quantities, the amount as stated in the Form of Tender shall prevail.
 - (d) The Error Correction Factor shall be computed by expressing the difference between the tender amount and the corrected tender sum as a percentage of the corrected Builder's Work (i.e. Corrected tender sum less P.C. and Provisional Sums)
 - (e) The Error Correction Factor shall be applied to all Builder's Work (as a rebate or addition as the case may be) for the purposes of valuations for Interim Certificates and valuation of variations.
 - (f) the amount stated in the tender will be adjusted in accordance with the above procedure for the correction of errors and, with concurrence of the tenderer, shall be considered as binding upon the tenderer. If the tenderer does not accept the corrected amount, the tender may be rejected and the Tender Security may be forfeited in accordance with clause 3.11.
- 5.8 The Employer will evaluate and compare only the tenders determined to be substantially responsive in accordance with Clause 5.5.
- 5.9 In evaluating the tenders, the Employer will determine for each tender the evaluated tender price by adjusting the tender price as follows:

- (a) making any correction for errors pursuant to clause 5.7;
 - (b) excluding provisional sums and the provision, if any, for contingencies in the Bill of Quantities, but including Day works where priced competitively.
 - (c) making an appropriate adjustment for any other acceptable variations, deviations, or alternative offers submitted in accordance with clause 3.12; and
 - (d) making appropriate adjustments to reflect discounts or other price modifications offered in accordance with clause 4.6
- 5.10 The Employer reserves the right to accept or reject any variation, deviation, or alternative offer. Variations, deviations, and alternative offers and other factors which are in excess of the requirements of the tender documents or otherwise result in unsolicited benefits for the Employer will not be taken into account in tender evaluation.
- 5.11 The tenderer shall not influence the Employer on any matter relating to his tender from the time of the tender opening to the time the Contract is awarded. Any effort by the Tenderer to influence the Employer or his employees in his decision on tender evaluation, tender comparison or Contract award may result in the rejection of the tender.
- 5.12 Firms incorporated in Kenya where indigenous Kenyans own 51% or more of the share capital shall be allowed a 10% preferential bias provided that they do not sub-contract work valued at more than 50% of the Contract Price excluding Provisional Sums to a non-indigenous sub-contractor.

6.Award of Contract

- 6.1 Subject to Clause 6.2, the award of the Contract will be made to the tenderer whose tender has been determined to be substantially responsive to the tendering documents and who has offered the lowest evaluated tender price, provided that such tenderer has been determined to be (a) eligible in accordance with the provision of Clauses 1.2, and (b) qualified in accordance with the provisions of clause 1.7 and 1.8. This is in line with Section **86 (1) (a) Of the Public Procurement and Asset Disposal Act, 2015**. Which reads *“(The successful tender shall be the one who meets any one of the following as specified in the tender document—*
- (a) The tender with the lowest evaluated price; “*
- 6.2 Notwithstanding clause 6.1 above, the Employer reserves the right to accept or reject any tender, and to cancel the tendering process and reject all tenders, at any time prior to the award of Contract, without thereby incurring any liability to the affected tenderer or tenderers or any obligation to inform the affected tenderer or tenderers of the grounds for the action.
- 6.3 The tenderer whose tender has been accepted will be notified of the award prior to expiration of the tender validity period in writing or by cable, telex or facsimile. This notification (hereinafter and in all Contract documents called the “Letter of Acceptance”)

will state the sum (hereinafter and in all Contract documents called the “Contract Price”) that the Employer will pay the Contractor in consideration of the execution, completion, and maintenance of the Works by the Contractor as prescribed by the Contract. At the same time the other tenderers shall be informed that their tenders have not been successful. The contract shall be formed on the parties signing the contract.

- 6.4 The Agreement will incorporate all agreements between the Employer and the successful tenderer. Within 14 days of receipt the successful tenderer will sign the Agreement and return it to the Employer.
- 6.5 Within 21 days after receipt of the Letter of Acceptance, the successful tenderer shall deliver to the Employer a Performance Security in the amount stipulated in the Appendix to Conditions of Contract and in the form stipulated in the Tender documents. The Performance Security shall be in the amount and specified form
- 6.6 Failure of the successful tenderer to comply with the requirements of clause 6.5 shall constitute sufficient grounds for cancellation of the award and forfeiture of the Tender Security.
- 6.7 Upon the furnishing by the successful tenderer of the Performance Security, the Employer will promptly notify the other tenderers that their tenders have been unsuccessful.
- 6.8 Preference where allowed in the evaluation of tenders shall not be allowed for contracts not exceeding one year (12 months)
- 6.9 The tender evaluation committee shall evaluate the tender within 30 days of the validity period from the date of opening the tender.
- 6.10 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.
- 6.11 Contract price variations shall not be allowed for contracts not exceeding one year (12 months)
- 6.12 Where contract price variation is allowed, the valuation shall not exceed 15% of the original contract price.
- 6.13 Price variation request shall be processed by the procuring entity within 30 days of receiving the request.
- 6.14 The procuring entity may at any time terminate procurement proceedings before contract award and shall not be liable to any person for the termination.
- 6.15 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.

6.16A 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.

7. Corrupt and Fraudulent practices

7.1 The procuring entity requires that tenderers observe the highest standards of ethics during procurement process and execution of contracts. A tenderer shall sign a declaration that he has not and will not be involved in corrupt and fraudulent practices.

SECTION III: APPENDIX TO INSTRUCTIONS TO TENDERERS

The following clauses shall be amended as follows;

Clause 1.4: Delete the entire clause

Clause 1.5: To read “This invitation to tender is open to all eligible tenderers as per the tender invitation notice”

Clause 1.5 (a) For the requirement of this clause; add the following:

- i. Be registered with National Construction Authority, Category 4, 5 or 6 (Evidence of current annual contractors practicing license is required);
- ii. Submit a Current Valid Tax Compliance Certificate;

Clause 1.5 (c) For the requirement of this clause;

- i. Omit the words “each of” appearing before the ‘last five years’,
- ii. Attach copies of practical completion certificates for similar works undertaken in the last five years.

Clause 1.5 (d) Delete the word ‘Major’ and substitute with word ‘Relevant’ Key equipment required to carry out the works.

Clause 1.7: Add the following after the words ‘qualifying criteria’; (attach the relevant supporting documents as evidence).

Clause 1.7: d) Delete the words ‘contract manager’ and ‘manager’ at the beginning and end of the sub clause and substitute with the words ‘general foreman’ and ‘foreman’ respectively

e) Delete the figure ‘4’ and substitute with figure ‘2’

Introduce the following: -

Clause 1.7 (e) The following tenders shall also be considered non-responsive: -
Incomplete and/ or unsigned form of tender;

Clause 3.2: For the requirement of clause; add the following;

Clause 3.6: Amend the first sentence to read as follows: ‘Tenders shall remain valid for a period of **120 days** from the date of submission’

Clause 3.14: Delete the entire clause and substitute with the following;

The tenderer shall prepare one original of the volume of **tender documents** comprising the documents as described in clause 3.2 of these instructions and clearly marked ‘**ORIGINAL**’

Clause 3.15: Delete the words ‘original and all copies’ and insert the word ‘original’ after the word ‘the’

Clause 4.1: Delete the first paragraph and insert the words ‘The tenderer shall seal the original of the tender documents in one envelop duly marked original’

SECTION IV: TENDER EVALUATION CRITERIA

After tender opening, the tenders will be evaluated in 3 stages, namely:

- i. Preliminary evaluation,
- ii. Technical Evaluation; and
- iii. Financial Evaluation,

STAGE 1: PRELIMINARY EVALUATION

Stage i) MANDATORY REQUIREMENTS FOR MAIN CONTRACTOR

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

These conditions shall include provision of the following: -

S/No	MANDATORY REQUIREMENTS(MR)
MR1	Valid Copy of certificate of incorporation/ Registration
MR2	Valid Current Tax Compliance Certificate-Statement of tax compliance from Bidding Company, and if Consortium, from each member of the consortium.
MR3	Valid Copy of Current Single Business permit
MR4	Valid copy of NCA 4, 5 or 6 registration certificate in General Building Works
MR5	Current annual contractors practicing license from NCA for appropriate class and trade
MR6	Dully filled and signed Form of tender with validity of at least 120 days
MR7	Dully filled and signed Confidential business questionnaire
MR8	Anticorruption Pledge form duly signed and stamped
MR9	Submission of original of tender document properly TAPE BOUND and paginated in the correct sequence and all pages must be initialed. NB: Spiral Binding and use of Spring or Box Files will not be allowed and will result in automatic disqualification.
MR10	Bids must be filled using pen and standard forms must not be retyped. (Bidders with retyped standard forms will be rejected)
MR11	The Tender Security (Bid Bond) of 2% in form of Bank Guarantee from a reputable bank or insurance company approved by Public Procurement Regulatory Authority (PPRA).
MR12	Submission of valid CR12 form showing the list of directors /shareholding (issued within the last 12 months) or National Identity Card (s) for Sole Proprietorship / Partnership
MR13	Tenderers who have incomplete projects which have received default notices/warning shall be treated as not responsive (have a sworn affidavit)
MR14	Provide proof of Power of attorney (of Tender Signatory if not Director of the company/ partner, signed by commissioner of oaths)
MR 15	Details of any (last five years) litigation or arbitration proceedings in which the bidder is involved as one of the parties. Indicate if None and have a sworn affidavit
MR 16	Letter of authority to seek references from the Tenderer's bankers.
MR 17	Submit certified copies of Audited accounts (Signed by Auditors and directors) for the three (3) years (2017, 2018 and 2019)
MR18	Non debarment form duly signed and stamped
MR 19	Fill and sign sub-contractors form
MR20	Signed agreement(s) for bidder and proposed subcontractor(s) for every specialist work that the bidder is not registered to perform and has proposed a subcontractor.

NB: Bids submitted without satisfying the above-mentioned Mandatory conditions shall be rejected and will not be evaluated further.

Tender Bid Document submitted without satisfying the above-mentioned Mandatory conditions shall be rejected by *the Tourism Promotion Fund* and will therefore not proceed to the technical and financial Evaluation.

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

Stage ii) MANDATORY REQUIREMENTS FOR DOMESTIC SUB-CONTRACTORS

The Main Contractor **MUST** team up with domestic Sub-Contractors registered by National Construction Authority (NCA) and MUST meet/provide the requirements below for every services works where applicable:

ITEM	MANDATORY REQUIREMENTS(MR)
	<u>ELECTRICAL INSTALLATION WORKS.</u>
MR1	Certificate of registration/ incorporation;
MR2	Valid Tax Compliance Certificate ;
MR3	NCA Registration in Electrical Installation Works, Attach NCA 6 and Above Registration Certificates
MR4	Current/Valid NCA Annual Contractors Practicing Licenses;
MR5	Attach Valid and Current Energy & Petroleum Regulatory Authority (EPRA C1) Certificate/License
MR6	Compliance with technical Specifications
	<p>NB: Bids submitted without satisfying the above-mentioned Mandatory conditions shall be rejected and will not be evaluated further.</p> <p>Note on Electrical Installation Works:</p> <p><i>On compliance with Technical Specifications, bidders shall supply equipment/items which comply with the technical specifications set out in the bid document. In this regard, the bidder will be required to submit relevant technical brochure/catalogues with the tender document, highlighting (using a mark-pen or highlighter) the Catalogue Number/model of the proposed items. Such brochures/ catalogues should indicate comprehensive relevant data of the proposed equipment/items which should include but not limited to the following:</i></p> <ul style="list-style-type: none"> <i>(i) Standards of manufacture;</i> <i>(ii) Performance ratings/characteristics;</i> <i>(iii) Material of manufacture;</i> <i>(iv) Electrical power ratings; and</i> <i>(v) All other requirements as indicated in the technical specifications of the bid.</i> <p><i>The bids will then be analyzed, using the information in the technical brochures, to determine compliance with technical specifications for the works/items as indicated in the tender document. Bidders not complying with any of the technical specifications shall be adjudged technically non-responsive while those meeting all technical specifications shall be considered technically responsive.</i></p> <p><i>The tenderer shall also fill in the Technical Schedule as specified in the tender document for Equipment and Items indicating the Country of Origin, Model/Make/Manufacturer and catalogue numbers of the Items/Equipment they propose to supply.</i></p>

	<p><u>MECHANICAL INSTALLATION WORKS:-</u></p>
MR1	Certificate of registration/incorporation;
MR2	Valid Tax Compliance Certificate;
MR3	NCA Registration in Mechanical Engineering Services, Attach NCA 6 Registration Certificate
MR4	Current/Valid NCA Annual Contractor Practicing License;
MR5	Compliance with Technical Specifications;
	<p>NB: Bids submitted without satisfying the above-mentioned Mandatory conditions shall be rejected and will not be evaluated further.</p> <p>Note on Mechanical Installation Works:</p> <p><i>On compliance with Technical Specifications, bidders shall supply equipment/items which comply with the technical specifications set out in the bid document. In this regard, the bidder will be required to submit relevant technical brochure/catalogues with the tender document, highlighting (using a mark-pen or highlighter) the Catalogue Number/model of the proposed items. Such brochures/ catalogues should indicate comprehensive relevant data of the proposed equipment/items which should include but not limited to the following:</i></p> <p>(i) Standards of manufacture;</p> <p>(ii) Performance ratings/characteristics;</p> <p>(iii) Material of manufacture;</p> <p>(iv) Electrical power ratings; and</p> <p>(v) All other requirements as indicated in the technical specifications of the bid.</p> <p><i>The bids will then be analyzed, using the information in the technical brochures, to determine compliance with technical specifications for the works/items as indicated in the tender document. Bidders not complying with any of the technical specifications shall be adjudged technically non-responsive while those meeting all technical specifications shall be considered technically responsive.</i></p> <p><i>The tenderer shall also fill in the Technical Schedule as specified in the tender document for Equipment and Items indicating the Country of Origin, Model/Make/Manufacturer and catalogue numbers of the Items/Equipment they propose to supply.</i></p>
	<p><i>Any bidder whose sub-contractors are non - responsive at this stage shall not be evaluated further</i></p>

STAGE 2: TECHNICAL EVALUATION

Award of points for the **Technical Evaluation** will be as follows: -

Parameter	Maximum Points
A. Key personnel	15
B. Contracts completed in the last five (5) years	15
C. Schedules of on-going projects	10
D. Schedules of contractor's equipment	20
E. Sanctity of the tender document as in accordance with clause 5 of Instruction to tenderer	5
F. Average annual turnover as per audited Financial Report for the for the last 3 years	15
G. Evidence of Financial Resources	15
H. Litigation History	5
Total	100

Note:-

- **The Main Contractor MUST ensure that sub-contractors (where applicable) provide required information regarding the Key Personnel, Completed and Ongoing Projects for Technical Evaluation.**

The detailed scoring plan shall be as shown in Table 1 overleaf: -

Table 1: Scores for the Technical Evaluation

Item	Description	Points Scored	Max. Points
1	Key Personnel (Attach evidence)		

Item	Description	Points Scored	Max. Points
	Director of the firm <ul style="list-style-type: none"> Holder of degree or diploma in a relevant Engineering /Building construction field --- - 5 Holder of certificate in relevant Engineering /Building construction field -- 3 Holder of trade test certificate in relevant Engineering /Building construction field --- - 2 No relevant certificate ----- 0 <i>(Certificates must be Certified by an advocate)</i>		5
	Construction manager/ Project manager At least degree holder <ul style="list-style-type: none"> With over 20 years relevant experience ---- ---5 With 15-20 years relevant experience ----- -- 3 With 10-15 years relevant experience ----- -- 2 Under 10 years relevant experience ----- --- 1 		5
	Resident Construction Managers/Site Agent (2 No.)(Structural/Civil/Architect) At least degree holder <ul style="list-style-type: none"> With over 15 years relevant experience -----5 With 10-15 years relevant experience -- ----- 3 Under 10 years relevant experience ---- ----- 1 		5
			15
2	Contracts completed in the last five (5) years; a max of 5 No. projects (Attach evidence) <ul style="list-style-type: none"> Project of similar nature, complexity and magnitude -----15 Project of similar nature but of lower value than ---- -----10 No completed project of similar nature ----- 0 <i>(Certified copies of completion certificates must be provided)</i>		
			15

Item	Description	Points Scored	Max. Points	
3	On-going projects (A max of 5 No. projects) (Attach evidence) <ul style="list-style-type: none"> Project of similar nature, complexity and magnitude ----- 2 marks each Project of similar nature but of lower value than the one in consideration ----- --- 1 marks each No ongoing project of similar nature ----- 0 marks each <i>Certified copies of award letters must be provided)</i>			
			10	
4	Schedules of contractor's relevant equipments and vehicles (Attach evidence / proof of ownership or lease agreement) For each specific equipment required in the construction work being tendered for. (Maximum No. of equipment to be considered – 10 No.) ----- - ----- (2 marks each for owned & 1 marks each for leased) (eg. Double head cutting machine, hydraulic corner crimping machine, power drills etc. NB. The bidder needs variety of equipments)			
			20	
5.	Sanctity of the tender document ie Having the document intact and pages consecutive as issued (not tempered with in any way) -----5 <ul style="list-style-type: none"> Having mutilated or modified the tender document (as in retyping of documents or standard forms except bid security etc -----0 		5	

Item	Description	Points Scored	Max. Points	

Item	Description	Points Scored	Max. Points
6	Audited financial report (last three (3) years) <ul style="list-style-type: none"> • Turn over greater or equal to 2 times the cost of the project-15 • Turn over greater or equal to the cost of the project ---- 10 • Turn over below the cost of the project ----- ----- 5 <p>(Audited accounts should be duly signed and stamped)</p>		
			15
7	Evidence of Financial Resources (cash in hand, lines of credit, over draft facility etc.) <ul style="list-style-type: none"> • Has financial resources equal to or more than 50% of the cost of the project-- 15 • Has financial resources between 35% -49 % of the cost of the project ----8 • Has financial resources between 20% - 34 % of the cost of the project ----4 • Has financial resources between 0% - 19 % of the cost of the project ----2 • Has not indicated sources of financial resources -----0 		
			15

Item	Description	Points Scored	Max. Points
8	Litigation History <ul style="list-style-type: none"> Has <i>no</i> construction-related litigation or arbitration case in the last five years ----- 5 Has <i>not more than three</i> construction-related litigation or arbitration cases in the last five years ----- 2 Has <i>more than three</i> construction-related litigation or arbitration cases in the last five years --- 0 		
			5
	TOTAL		100

Any bidder who scores 75 points and above in this Technical Evaluation shall be considered for further evaluation

STAGE 3: FINANCIAL EVALUATION

Upon completion of the technical evaluation a detailed financial evaluation shall follow.

The evaluation shall be in **three stages**

- Determination of Arithmetic errors
- Comparison of Rates; and
- Consistency of the Rates.

A. Determination of Arithmetic Errors

Arithmetic Errors will be corrected by the Procuring Entity as follows:

- In the event of a discrepancy between the tender amount as stated in the form of Tender and the corrected tender figure in the Main summary of the Bills of Quantities, the amount as stated in the Form of Tender shall prevail.
Pursuant to Section 82 of the Public Procurement and Asset Disposal Act 2015, the tender sum as submitted and read out during the tender opening shall be absolute and final and shall not be the subject of correction, adjustment or amendment in any way by any person or entity;
- Error correction factor shall be computed by expressing the difference between the amount and the corrected tender sum as a percentage of the corrected contract works (i.e. corrected tender sum less P.C; and Provisional Sums);

- iii) The Error correction factor shall be applied to all contract works (as a rebate or addition as the case may be) for the purposes of valuations for Interim Certificates and valuation of variations.
- iv) Tenders with big errors as to make the submitted tender sum unrealistic may be rejected based on the magnitude of the error and its effect on the submitted tender sum.

B. Comparison of rates

Comparison of tender rates with State Department for Public Works rates will be done to indicate balance of the tender. Too much deviation may result in payment of bulk of the tender sum based on a few items and this risks non-completion of project.

The evaluation committee shall evaluate the deviation(s) and make an appropriate recommendation to the procuring entity giving necessary evidence. Such recommendations may include but not limited to:

- a) Recommend no adverse action to the tenderer after a convincing response;
- b) Employer requiring that the amount of the performance bond be raised at the expense of the successful tenderer to a level sufficient to protect the employer against potential financial losses;
- c) Recommend non-award based on the response provided and the available demonstrable evidence that the scope, quality, completion timing, administration of works to be undertaken by the tenderer, would adversely be affected or the rights of the employer or the tenderers obligations would be limited in a substantial way.

C. Consistency of the Rates

The evaluation committee will compare the consistency of rates for similar items and note all inconsistencies of the rates for similar items. Tenders with inconsistent rates for similar items, particularly where the higher rate is used in the first elements of the works (front loading) risks non-completion of the project.

The evaluation committee shall evaluate the inconsistency(ies) and make an appropriate recommendation to the procuring entity giving necessary evidence. Such recommendations may include but not limited to:

- a) Recommend no adverse action to the tenderer after a convincing response;
- b) Employer requiring that the amount of the performance bond be raised at the expense of the successful tenderer to a level sufficient to protect the employer against potential financial losses;
- c) Recommend non-award based on the response provided and the available demonstrable evidence that the scope, quality, completion timing, administration of works to be undertaken by the tenderer, would adversely be affected or the rights of the employer or the tenderers obligations would be limited in a substantial way.

STAGE 4 – DUE DILIGENCE & RECOMMENDATION FOR AWARD

Particulars of post: **The Client, State Department for Co-operatives, may inspect the premises and under due diligence** to seek further clarification/confirmation if necessary, to confirm authenticity /compliance of any condition of the tender /qualifications of the tenderer in line with **Section 83 of the Public Procurement and Asset Disposal Act ,2015**

Award Criteria:

The firm achieving the lowest evaluated price will be awarded the contract in line with Section 86 and Section 155(4) of the Public Procurement and Disposal Act,2015

SECTION V: CONDITIONS OF CONTRACT

Table of Contents

1	Definitions	26
2	Interpretation.....	28
3	Language and Law	29
4	Project Manager’s Decisions.....	29
5	Delegation.....	29
6	Communications	29
7	Sub-Contracting	29
8	Other Contractors	29
9	Personnel	29
10	Works.....	29
11	Safety and temporary works	30
12	Discoveries	30
13	Work Programme	30

14	Possession of site	30
15	Access to site	31
16	Instructions	31
17	Extension or Acceleration of completion date	31
18	Management Meetings	31
19	Early Warning	31
20	Defects	32
21	Bills of Quantities	32
22	Variations	32
23	Payment certificates, currency of payments and Advance Payments	33- 35
24	Compensation events	35 - 37
25	Price Adjustment	37-38
26	Retention	38
27	Liquidated Damages.....	38
28	Securities	38
29	Day Works	39
30	Liability and Insurance	39
31	Completion and taking over	40
32	Final Account	40
33	Termination	40
34	Payment upon termination	41
35	Release from performance	42
36	Corrupt gifts and payments of commission	42
37	Settlement of Disputes	42
38	Alternative Dispute Resolution	44

CONDITIONS OF CONTRACT

1. Definitions

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

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

“Compensation Events” are those defined in Clause 24 hereunder.

“The 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 Contractor as recorded in the Agreement Form and signed by the parties including all attachments and appendices thereto and all documents incorporated by reference therein to execute, complete, and maintain the Works,

“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 Contractor to the Employer.

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

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

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

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

“The Defects Liability Period” is the period named in the 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.

“Day works” are Work inputs subject to payment on a time basis for labor 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 an acceleration order.

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

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

“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” is the area defined as such in the Appendix to Condition of Contract.

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

“Start Date” is the latest date when the Contractor shall commence execution of the Works. It does not necessarily coincide with the Site possession date(s).

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

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

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

“The Works” are what the Contract requires the Contractor to construct, install, and turnover to the Employer, as defined in the Appendix to Conditions of Contract.

2.Interpretation

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

2.2 If sectional completion is specified in the Appendix to 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).

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) Appendix to Conditions of Contract,
- (5) Conditions of Contract,
- (6) Specifications,
- (7) Drawings,

- (8) Bill of Quantities,
- (9) Any other documents listed in the Appendix to 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. Language and Law

3.1 Language of the Contract and the law governing the Contract shall be English language and the Laws of Kenya respectively unless otherwise stated.

4. Project Manager's Decisions

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

5. Delegation

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

6. Communications

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

7. Subcontracting

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

8. Other Contractors

8.1 The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities etc. as listed in the Appendix to 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.

9. Personnel

9.1 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.

10. Works

10.1 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.

11. Safety and Temporary Works

11.1 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.

11.2 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.

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

12. Discoveries

12.1 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.

13. Work Program

13.1 Within the time stated in the Appendix to 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 Appendix to 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 Appendix 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.

14. Possession of Site

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

15. Access to Site

15.1 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.

16. Instructions

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

17. Extension or Acceleration of Completion Date

17.1 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 within 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 delay or has failed to cooperate in dealing with a delay, the delay caused by such failure shall not be considered in assessing the new (extended) Completion Date.

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

18. Management Meetings

18.1 A Contract 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.

19. Early Warning

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

19.2 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 instructions of the Project Manager.

20. Defects

20.1 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.

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

20.3 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.

21. Bills of Quantities

21.1 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.

21.2 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 Contract price, the Project Manager shall adjust the rate to allow for the change.

21.3 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.

22. Variations

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

22.2 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.

22.3 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.

22.4 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 costs.

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

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

22.7 When the Program is updated, the Contractor shall provide the Project Manager with an updated cash flow forecast.

23. Payment Certificates, Currency of Payments and Advance Payments

23.1 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.

23.2 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.

23.3 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.

23.4 If an amount certified is increased in a later certificate or as 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.

23.5 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.

23.6 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 Appendix to 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.

23.7 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:

$$R = \frac{A(x^1 - x^{11})}{80 - 20}$$

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 figure 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.

24. Compensation Events

24.1 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 Appendix to 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 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 work required for safety or other reasons.
 - (h) Other contractors, public authorities, utilities, or the Employer does not work within the dates and other constraints stated in the Contract, and they cause delay or extra cost to the Contractor.
 - (i) The 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.
- 24.2 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.
- 24.3 As soon as information demonstrating the effect of each compensation event upon the Contractor's forecast cost has been provided by the Contractor, it shall be assessed by the Project Manager, and the Contract Price shall be adjusted accordingly. If the Contractor's forecast is deemed unreasonable, the Project Manager shall adjust the Contract Price based on the Project Manager's own forecast. The Project Manager will assume that the Contractor will react competently and promptly to the event.
- 24.4 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.
- 24.5 Prices shall be adjusted for fluctuations in the cost of inputs only if provided for in the Appendix to Conditions of Contract.
- 24.6 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.

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.

25. Price Adjustment

25.1 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.

25.2 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 provisions in the Contract Bills of Quantities or Specifications) for permanent incorporation in the Works. Unless otherwise stated in the Contract, if at 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.

25.3 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 prices 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 Appendix to 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 labor 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.

25.4 The prices 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 Appendix to Conditions of Contract.

- 25.5 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.
- 25.6 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.
- 25.7 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 rates.

26. Retention

- 26.1 The Employer shall retain from each payment due to the Contractor the proportion stated in the Appendix to 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.

27. Liquidated Damages

- 27.1 The Contractor shall pay liquidated damages to the Employer at the rate stated in the Appendix to 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.
- 27.2 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

28. Securities

- 28.1 The Performance Security shall be provided to the Employer no later than the date specified in the Letter of Acceptance and shall be issued in an amount and form and by a reputable bank acceptable to the Employer, and denominated in Kenya Shillings. The Performance Security shall be valid until a date 30 days beyond the date of issue of the Certificate of Completion

29. Day works

29.1 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.

29.2 All work to be paid for as Day works 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.

29.3 The Contractor shall be paid for Day works subject to obtaining signed Day works forms.

30. Liability and Insurance

30.1 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.

30.2 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.

30.3 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 Appendix to 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.
- 30.4 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.
- 30.5 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.
- 30.6 Alterations to the terms of an insurance shall not be made without the approval of the Project Manager. Both parties shall comply with any conditions of insurance policies.

31. Completion and taking over

31.1 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.

32. Final Account

32.1 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 the Contract before the end of the Defects Liability Period. The Project Manager shall issue a Defects Liability Certificate and certify any final payment that is due to the Contractor within 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.

33. Termination

33.1 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.
- 33.2 When either party to the Contract gives notice of a breach of Contract to the Project Manager for a cause other than those listed under Clause 33.1 above, the Project Manager shall decide whether the breach is fundamental or not.
- 33.3 Notwithstanding the above, the Employer may terminate the Contract for convenience.
- 33.4 If the Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site as soon as reasonably possible. 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.

34. Payment Upon Termination

34.1 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 date of 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.

34.2 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.

34.3 The Employer may employ and pay other persons to carry out and complete the Works and to rectify any defects and may enter upon the Works and use all materials on the Site, plant, equipment and temporary works.

34.4 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 buildings, 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, holding the proceeds less all costs incurred to the credit of the Contractor. 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 Contractor; 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.

35. Release from Performance

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

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

37. Settlement of Disputes

37.1 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) Institution 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.

37.2 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.

37.3 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.

37.4 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.

37.5 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 party:

37.5.1.1 The appointment of a replacement Project Manager upon the said person ceasing to act.

37.5.1.2 Whether or not the issue of an instruction by the Project Manager is empowered by these Conditions.

37.5.1.3 Whether or not a certificate has been improperly withheld or is not in accordance with these Conditions.

37.5.1.4 Any dispute or difference arising in respect of war risks or war damage.

- 37.6 All other matters shall only be referred to arbitration after the completion or alleged completion of the Works or termination or alleged termination of the Contract, unless the Employer and the Contractor agree otherwise in writing.
- 37.7 The Arbitrator shall, without prejudice to the generality of his powers, have powers to direct such measurements, computations, tests or valuations as may in his opinion be desirable in order to determine the rights of the parties and assess and award any sums which ought to have been the subject of or included in any certificate.
- 37.8 The Arbitrator shall, without prejudice to the generality of his powers, have powers to open up, review and revise any certificate, opinion, decision, requirement or notice and to determine all matters in dispute which shall be submitted to him in the same manner as if no such certificate, opinion, decision requirement or notice had been given.
- 37.9 The award of such Arbitrator shall be final and binding upon the parties

38.0 Alternative Dispute Resolution

- 38.1 In pursuant to clause 37 of these Conditions of Contract, it shall be a condition that no dispute shall be referred to arbitration unless and until the matter has been dealt with through Alternative Dispute Resolution (ADR) mechanism.
- 38.2 The person or persons to conduct the Alternative Resolution shall be agreed upon between the parties.
- 38.3 The Alternative Dispute Resolution shall involve Reconciliation, Mediation or Adjudication.

SECTION VI – APPENDIX TO CONDITIONS OF CONTRACT

THE EMPLOYER IS

Name: **STATE DEPARTMENT FOR CO-OPERATIVES**

Address: **P.O. BOX 30547-00100, NAIROBI**

Name of Authorized Representative: **PRINCIPAL SECRETARY**

THE PROJECT MANAGER IS

Name: **WORKS SECRETARY, STATE DEPARTMENT OF PUBLIC WORKS**

Address: **P.O. Box 30743, NAIROBI.**

Telephone: **2723101**

Facsimile: **2716738**

The name (and identification number) of the Contract **PROPOSED
MODERNISATION OF LUANDA FARMERS CO-OPERATIVE UNION
GINNERY FOR THE STATE DEPARTMENT FOR CO-OPERATIVE AT
LUANDA CO-OPERATIVE GINNERY – FUNYULA, BUSIA COUNTY
W.P ITEM NO. D117/WE/BSA/2002 JOB NO 10664B**

The Works consist of: **INSTALLATION OF COTTON HANDLING SYSTEM,
EXTERNAL WATER RETICULATION, WATER TANKS, BOOSTER PUMPS,
WATER TREATMENT, FIRE DETECTION & SUPPRESSION AND
ASSOCIATED ELECTRICAL & BUILDERS WORK ALL AS DOCUMENTED IN
THE BILLS OF QUANTITIES**

The Start Date shall be **AGREED WITH THE PROJECT MANAGER**

The Intended Completion Date for the whole of the Works shall be **TWELVE WEEKS (12) WEEKS AFTER START DATE**

The following documents also form part of the Contract:

AS LISTED IN CLAUSE 2.3 OF THE CONDITIONS OF CONTRACT

The Contractor shall submit a program for the Works within **14** days of delivery of the Letter of Acceptance.

The Site Possession Date shall be **AGREED WITH THE PROJECT MANAGER**

The Site is located at **FUNYULA, BUSIA COUNTY**

The Defects Liability period is 180 days.

Other Contractors, utilities etc., to be engaged by the Employer on the Site Include those for the execution of;

1. Electrical Works
2. Builders Works

The minimum insurance covers shall be;

1. The minimum cover for insurance of the Works and of Plant and Materials in respect of the Contractor's faulty design is **Contractors all risk policy**
 2. The minimum cover for loss or damage to Equipment is **NIL**
 3. The minimum for insurance of other property is **KShs 1,000,000.00**
 4. The minimum cover for personal injury or death insurance
- For the Contractor's employees is **AS PER LAWS APPLICABLE**
 - And for other people is **AS PER LAWS APPLICABLE**

The following events shall also be Compensation Events:

NONE (ONLY AS LISTED IN CLAUSE 24 OF THE CONDITIONS OF CONTRACT

1. _____
2. _____
3. _____

The period between Program updates is **14** days.

The amount to be withheld for late submission of an updated Program is **WHOLE CERTIFICATE**

The proportion of payments retained is **10 percent**.

The limit of payments retained is **10 percent**.

The Price Adjustment Clause **Shall Not** apply

The liquidated damages for the whole of the Works is **Kshs. 20,000.00** Per week or part thereof

The Performance Security shall be for the following minimum amounts equivalent as a percentage of the Contract Price **FIVE** percent (5%)

The Completion Period for the Works is **24 WEEKS**

The schedule of basic rates used in pricing by the Contractor is as attached
[CONTRACTOR TO ATTACH].

Advance Payment shall **NOT** be granted

SECTION VII - DRAWINGS

Note 1. See separate booklet for a list of drawings, actual plans including Site plans

SECTION VIII– STANDARD FORMS

- (i) Form of Invitation for Tenders
- (ii) Form of Tender
- (iii) Letter of Acceptance
- (iv) Form of Agreement
- (v) Form of Tender Security
- (vi) Performance Bank Guarantee
- (iv) Bank Guarantee for Advance Payment
- (v) Qualification Information
- (vi) Tender Questionnaire
- (xi) Confidential Business Questionnaire
- (vii) Statement of Foreign Currency Requirement (**WILL NOT APPLY**)
- (xi) Details of Sub-Contractors
- (viii) Request for Review Form

- (ix) Ant-corruption Declaration Commitment/ Pledge

- (x) None Debarment Statement Form

FORM OF INVITATION FOR TENDERS

_____ *[date]*

To: _____ *[name of Contractor]*
_____ *[address]*

Dear Sirs:

Reference: _____ *[Contract Name]*

You have been prequalified to tender for the above project.

We hereby invite you and other prequalified tenderers to submit a tender for the execution and completion of the above Contract.

A complete set of tender documents may be purchased by you from _____

_____ *[mailing address, cable/telex/facsimile numbers].*

Upon payment of a non-refundable fee of Kshs _____

All tenders must be accompanied by _____ number of copies of the same and a security in the form and amount specified in the tendering documents, and must be delivered to

_____ *[address and location]*

at or before _____ *(time and date)*. Tenders will be opened immediately thereafter, in the presence of tenderers' representatives who choose to attend.

Please confirm receipt of this letter immediately in writing by cable/facsimile or telex.

Yours faithfully,

_____ Authorized Signature

_____ Name and Title

FORM OF TENDER

TO: _____ [Name of Employer)

_____ [Date]

_____ [Name of Contract]

Dear Sir,

1. In accordance with the Conditions of Contract, Specifications, Drawings and Bills of Quantities for the execution of the above named Works, we, the undersigned offer to construct, install and complete such Works and remedy any defects therein for the sum of Kshs. _____ [Amount in figures] Kenya
Shillings _____ [Amount in words]
2. We undertake, if our tender is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Project Manager's notice to commence, and to complete the whole of the Works comprised in the Contract within the time stated in the Appendix to Conditions of Contract.
3. We agree to abide by this tender until _____ [Insert date], and it shall remain binding upon us and may be accepted at any time before that date.
4. Unless and until a formal Agreement is prepared and executed this tender together with your written acceptance thereof, shall constitute a binding Contract between us.
5. We understand that you are not bound to accept the lowest or any tender you may receive.

Dated this _____ day of _____ 20_____

Name _____ Signature _____ in the capacity of _____

duly authorized to sign tenders for and on behalf of
_____ [Name of Employer]

of _____ [Address of Employer]

Witness; Name_____

Address_____

Signature_____

Date_____

LETTER OF ACCEPTANCE [letterhead paper of the Employer]

_____ [date]

To: _____
[name of the Contractor]

[address of the Contractor]

Dear Sir,

This is to notify you that your Tender dated _____ for the
execution of _____
[name of the Contract and identification number, as given in the Tender documents] for
the
Contract Price of Kshs. _____ [amount in figures] [Kenya
Shillings _____ (amount in words)] in accordance with the
Instructions to Tenderers is hereby accepted.

You are hereby instructed to proceed with the execution of the said Works in accordance
with the Contract documents.

Authorized Signature

Name and Title of Signatory

Attachment: Agreement

FORM OF AGREEMENT

THIS AGREEMENT, made the _____ day of _____ 20 _____
between _____ of [or whose registered office is situated
at] _____ (hereinafter called “the Employer”) of the
one part AND

_____ of [or whose
registered office is situated at] _____
(hereinafter called “the Contractor”) of the other part.

WHEREAS THE Employer is desirous that the Contractor executes

_____ *(name and identification number of Contract)* (hereinafter called “the Works”) located
at _____ *[Place/location of the Works]* and the Employer
has accepted the tender submitted by the Contractor for the execution and completion of
such
Works and the remedying of any defects therein for the Contract Price of
Kshs _____ *[Amount in figures]*, Kenya Shillings _____
_____ *[Amount in words]*.

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.
2. The following documents shall be deemed to form and shall be read and construed as part of this Agreement i.e.
 - (i) Letter of Acceptance
 - (ii) Form of Tender
 - (iii) Conditions of Contract Part I
 - (iv) Conditions of Contract Part II and Appendix to Conditions of Contract
 - (v) Specifications

(vi) Drawings

(vii) Priced Bills of Quantities

3. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works 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 thereto have caused this Agreement to be executed the day and year first before written.

The common Seal of _____

Was hereunto affixed in the presence of _____

Signed Sealed, and Delivered by the said _____

Binding Signature of Employer _____

Binding Signature of Contractor _____

In the presence of (i) Name _____

Address _____

Signature _____

[ii] Name _____

Address _____

Signature _____

FORM OF TENDER SECURITY

WHEREAS (hereinafter called “the Tenderer”) has submitted his tender dated for the construction of
..... (name of Contract)

KNOW ALL PEOPLE by these presents that WE having our registered office at (hereinafter called “the Bank”), are bound unto (hereinafter called “the Employer”) in the sum of Kshs..... for which payment well and truly to be made to the said Employer, the Bank binds itself, its successors and assigns by these presents sealed with the Common Seal of the said Bank this Day of20.....

THE CONDITIONS of this obligation are:

1. If after tender opening the tenderer withdraws his tender during the period of tender validity specified in the instructions to tenderers
Or
2. If the tenderer, having been notified of the acceptance of his tender by the Employer during the period of tender validity:
 - (a) fails or refuses to execute the form of Agreement in accordance with the Instructions to Tenderers, 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 Employer up to the above amount upon receipt of his first written demand, without the Employer having to substantiate his demand, provided that in his demand the Employer will note that the amount claimed by him is due to him, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This 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 said date.

[date]

[signature of the Bank]

[seal]

To: _____ (Name of Employer)
 _____ (Date)
 _____ (Address of Employer)

WHEREAS _____(hereinafter called “the Contractor”) has undertaken, in pursuance of Contract No. _____ dated _____ to execute (hereinafter called “the Works”);

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee:

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

This guarantee shall be valid until the date of issue of the Certificate of Completion.

SIGNATURE AND SEAL OF THE GUARANTOR

Name of Bank

Address _____

Date _____

BANK GUARANTEE FOR ADVANCE PAYMENT

To: _____ *[name of Employer]*
_____ *(Date)*
_____ *[address of Employer]*

Gentlemen,

Ref: _____ *[name of Contract]*

In accordance with the provisions of the Conditions of Contract of the above-mentioned Contract, We, _____ *[name and Address of Contractor]* (hereinafter called "the Contractor") shall deposit with _____ *[name of Employer]* a bank guarantee to guarantee his proper and faithful performance under the said Contract in an amount of Kshs. _____ *[amount of Guarantee in figures]* Kenya Shillings _____ *[amount of Guarantee in words]*.

We, _____ *[bank or financial institution]*, as instructed by the Contractor, agree unconditionally and irrevocably to guarantee as primary obligator and not as Surety merely, the payment to _____ *[name of Employer]* on his first demand without whatsoever right of objection on our part and without his first claim to the Contractor, in the amount not exceeding Kshs _____ *[amount of Guarantee in figures]* Kenya Shillings _____ *[amount of Guarantee in words]*, such amount to be reduced periodically by the amounts recovered by you from the proceeds of the Contract.

We further agree that no change or addition to or other modification of the terms of the Contract or of the Works to be performed thereunder or of any of the Contract documents which may be made between _____ *[name of Employer]* and the Contractor, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

No drawing may be made by you under this guarantee until we have received notice in writing from you that an advance payment of the amount listed above has been paid to the Contractor pursuant to the Contract.

This guarantee shall remain valid and in full effect from the date of the advance payment under the Contract until

_____ (*name of Employer*) receives full
payment of the same amount from the Contract.

Yours faithfully,

Signature and Seal _____

Name of the Bank or financial institution _____

Address _____

Date _____

Witness: Name: _____

Address:

Signature:

Date:

QUALIFICATION INFORMATION

1. Individual Tenderers or Individual Members of Joint Ventures

1.1 Constitution or legal status of tenderer (attach copy or Incorporation Certificate);

Place of registration: _____

Principal place of business _____

Power of attorney of signatory of tender _____

1.2 Total annual volume of construction work performed in the last five years

Year	Volume	
	Currency	Value

1.3 Work performed as Main Contractor on works of a similar nature and volume over the last five years. Also list details of work under way or committed, including expected completion date.

Project name	Name of client and contact person	Type of work performed and year of completion	Value of contract

1.4 Major items of Contractor's Equipment proposed for carrying out the Works. List all information requested below.

Item of Equipment	Description, Make and age (years)	Condition(new, good, poor) and number available	Owned, leased (from whom?), or to be purchased (from whom?)
(etc.)			

- 1.5 Qualifications and experience of key personnel proposed for administration and execution of the Contract. Attach biographical data.

Position	Name	Years of experience (general)	Years of experience in proposed position
Project Manager			

(etc.)			

- 1.6 Financial reports for the last five years: balance sheets, profit and loss statements, auditor's reports, etc. List below and attach copies.

- 1.7 Evidence of access to financial resources to meet the qualification requirements: cash in hand, lines of credit, etc. List below and attach copies of supportive documents.

- 1.8 Name, address and telephone, telex and facsimile numbers of banks that may provide reference if contacted by the Employer.

- 1.9 Statement of compliance with the requirements of Clause 1.2 of the Instructions to Tenderers.

- 1.10 Proposed program (work method and schedule) for the whole of the Works.

Joint Ventures

2.4 The information listed in 1.1 – 1.10 above shall be provided for each partner of the joint venture.

2.5 The information required in 1.11 above shall be provided for the joint venture.

2.6 Attach the power of attorney of the signatory(ies) of the tender authorizing signature of the tender on behalf of the joint venture

2.7 Attach the Agreement among all partners of the joint venture (and which is legally binding on all partners), which shows that:

- a) all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms;
- b) one of the partners will be nominated as being in charge, authorized to incur liabilities and receive instructions for and on behalf of any and all partners of the joint venture; and
- c) the execution of the entire Contract, including payment, shall be done exclusively with the partner in charge.

TENDER QUESTIONNAIRE

Please fill in block letters.

1. Full names of tenderer
.....
2. Full address of tenderer to which tender correspondence is to be sent (unless an agent has been appointed below)
.....
3. Telephone number (s) of tenderer
.....
4. Telex address of tenderer
.....
5. Name of tenderer's representative to be contacted on matters of the tender during the tender period
.....
6. Details of tenderer's nominated agent (if any) to receive tender notices. This is essential if the tenderer does not have his registered address in Kenya (name, address, telephone, telex)
.....
.....

Signature of Tenderer

Make copy and deliver to: _____ (*Name of Employer*)

CONFIDENTIAL BUSINESS QUESTIONNAIRE

You are requested to give the particulars indicated in Part 1 and either Part 2 (a), 2 (b) or 2 (c) and 2 (d) whichever applies 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; Country/Town.....

Plot No..... Street/Road

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

Nature of Business.....

Current Trade Licence No..... Expiring date.....

Maximum value of business which you can handle at any time: K. pound.....

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

Give details of partners as follows:

	<i>Name in full</i>	<i>Nationality</i>	<i>Citizenship Details</i>
<i>Shares</i>			

- 1.....
- 2.....
- 3.....

Part 2(c) – Registered Company:

Private or public.....

State the nominal and issued capital of the Company-

Nominal Kshs.....

Issued Kshs.....

Give details of all directors as follows:

Name in full.	Nationality.	Citizenship Details*.	Shares.
---------------	--------------	-----------------------	---------

1.

2.....

3.....

4.....

Part 2(d) – Interest in the Firm:

Is there any person / persons in(Name of Employer) who has interest in this firm? Yes/No.....(Delete as necessary)

I certify that the information given above is correct.

.....
(Title)

.....
(Signature)

.....
(Date)

- Attach proof of citizenship

STATEMENT OF FOREIGN CURRENCY REQUIREMENTS (*NOT APPLICABLE*)

(See Clause 23] of the Conditions of Contract)

In the event of our Tender for the execution of _____
_____ (*name of Contract*) being accepted, we would require in
accordance with Clause 21 of the Conditions of Contract, which is attached hereto, the
following percentage:

(Figures)..... (Words).....

of the Contract Sum, (Less Fluctuations) to be paid in foreign currency.

Currency in which foreign exchange element is required:

.....

Date: The Day of 20.....

Enter 0% (zero percent) if no payment will be made in foreign currency.

Maximum foreign currency requirement shall be _____ (percent) of the Contract
Sum, less Fluctuations.

(Signature of Tenderer)

DETAILS OF SUB-CONTRACTORS

If the Tenderer wishes to sublet any portions of the Works under any heading, he must give below details of the sub-contractors he intends to employ for each portion.

Failure to comply with this requirement may invalidate the tender.

(1) Portion of Works to be sublet:

(i) Full name of Sub-contractor
and address of head office:

(ii) Sub-contractor's experience
of similar works carried out
in the last 3 years with
Contract value:

(2) Portion of Works to sublet:

(i) Full name of sub-contractor
and address of head office:

(ii) Sub-contractor's experience
of similar works carried out
in the last 3 years with
contract value:

3) Portion of Works to sublet:

(i) Full name of sub-contractor
and address of head office:

(ii) Sub-contractor's experience
of similar works carried out
in the last 3 years with
contract value:

4) Portion of Works to sublet:

- (i) Full name of sub-contractor
and address of head office:
- (ii) Sub-contractor's experience
of similar works carried out
in the last 3 years with
contract value:

[Signature of Tenderer)

Date

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

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 of20.....in the matter of
Tender

No.....of20...

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. etc.

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

- 1.
2. etc

SIGNED(Applicant)

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

FOR OFFICIAL USE ONLY

Lodged with the Secretary Public Procurement Administrative Review Board on
day of20.....

SIGNED

Board Secretary

ANTI-CORRUPTION DECLARATION COMMITMENT/ PLEDGE

(Sections 62, 65 and 66 of the PPAD Act, 2015)

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/Tender No
for or in the subsequent performance of the contract if I/We am/are successful.

Authorized Signature.....

Name and Title of Signatory.....

NON-DEBARMENT STATEMENT FORM

I/We/Messrs..... of
.....Street/avenue,Building, P. O. Box.....Code, of (Town),
..... (Nationality), Phone: E-mail declare that I/We
/Messrsare not debarred from participating in
public procurement by the Public Procurement Oversight Authority pursuant to section 115
of the Public Procurement and Disposal Act, 2005.

Dated thisday of 20.....

Authorized Signature.....

Official Stamp.....

Name and Title of Signatory

.....

TRADE PREAMBLES

TRADE PREAMBLES

PREAMBLES AND PRICING NOTES

A. GENERALLY

All work to be carried out in accordance with the Ministry of Public Works General Specifications for Building Works issued in 1976 or as qualified or amended below.

B. MANUFACTURERS' NAMES

Manufacturers' names and catalogue references are given for guidance to quality and standard only. Alternative manufacturer of equal quality will be accepted at the discretion of the Project Manager.

C. WALLING

All precast concrete blocks shall be manufactured by the methods and to the sizes specified in the Ministry of Public Works "Specification for Metric Sized Concrete Blocks for Building (1972)"

Walling of 100 mm thickness or under shall be reinforced with hoop iron every alternate course.

Prices for walling must allow for all costs in preparing, packing and sending sample blocks for testing as and when required by the Project Manager.

D. CARPENTRY

The grading rules for cypress shall be the same for podocarpus and all timber used for structural work shall be select (second grade).

All structural timber must conform to the minimum requirements for moisture content and preservative treatment and timber prices must allow for preparing, packing and sending samples for testing when required.

Prices must also include for all nails and fasteners.

A. JOINERY

Cypress for joinery shall be second grade in accordance with the latest grading rules of the Kenya Government

Where Mahogany is specified, this refers to prime grade only. The Contractor may with the approval of the Project Manager; use either Msharagi or Mvuli in lieu of Mahogany but such approval will be given only in the case of shortages of the hardwoods specified.

Plugging shall be carried out by drilling walling or concrete with masonry drill and filling with propriety plugs of the correct sizes. Cutting with hammer and chisel will not be allowed.

Prices for joinery must include for pencil rounded arises, protection against damage, nails, screws, framing and bedding in cement mortar as required.

Sizes given for joinery items are nominal sizes and exact dimensions of doors, etc, must be ascertained on site.

No Joinery shall be fitted/installed without sample approvals.

B. IRONMONGERY

Ironmongery shall be specified in the Bills of Quantities or equal and approved

Prices must include for removing and re-fixing during and after painting, labeling all keys, and for fixing to hardwood, softwood, concrete or blockwork.

Catalogue references given for ironmongery are for purposes of indicating quality and size of item(s). Should the Contractor wish to substitute the specified item(s) with others of equal manufacture, he must inform the Project Manager and obtain approval in writing. No Ironmongery shall be fitted/installed without sample approvals.

C. STRUCTURAL STEELWORK

All structural steelwork shall comply with the Ministry of Public Works “Structural Steelwork Specification (1973) and shall be executed by an approved Sub-contractor

A. PLASTERWORK AND OTHER FINISHES

All finishings shall be as described in these Bills of Quantities.

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

Rates for glazed wall tiling are to include for a 12 mm cement and sand (1:4) backing screed unless otherwise specified in these Bills of Quantities.

B. GLAZING

Where polished plate glass is specified, this refers to general glazing quality

Prices for glazing shall include for priming of rebates before placing putty.

The Contractor will be responsible for replacing any broken or scratched glass and handing over in perfect condition.

C. PAINTING

Painting shall be applied in accordance with the manufacturers' instructions. Prices for painting are to include for scaffolding, preparatory work, priming coats, protection of other works and for cleaning up on completion. Prices for painting on galvanized metal are to include for mordant solution as necessary.

D. TILES, CERAMICS, PORCELAIN, GRANITO ETC

No tiles shall be fitted/installed without sample approvals.

No claim shall be allowed on the grounds that the bidder priced an inferior quality

E: CURTAINS & COVERS, ETC

The bidder shall be deemed to have priced the best materials for this esteemed office. No curtains & covers shall be fitted/installed without sample approvals.

No claim shall be allowed on the grounds that the bidder priced an inferior quality.

PARTICULAR PRELIMINARIES

ITEM	DESCRIPTION	KSHS CTS
	<p style="text-align: center;">PARTICULAR PRELIMINARIES</p> <p>A EMPLOYER</p> <p>STATE DEPARTMENT FOR CO-OPERATIVES P.O.BOX 30574-00100 NAIROBI</p> <p>The term "Employer" and "Government" wherever used in the contract document shall be synonymous</p> <p>B LOCATION OF SITE Funyula, Busia County</p> <p>The Contractor is advised to visit the site, to familiarize with the nature and position of the site. No claims arising from the Contractor's failure to do so will be entertained.</p> <p>C DESCRIPTION OF THE WORKS The works to be carried out under this contract comprise</p> <p>INSTALLATION OF COTTON HANDLING SYSTEM, EXTERNAL WATER RETICULATION, WATER TANKS, BOOSTER PUMPS, WATER TREATMENT, FIRE DETECTION & SUPPRESSION AND ASSOCIATED ELECTRICAL & BUILDERS WORK ALL AS DOCUMENTED IN THE BILLS OF QUANTITIES</p> <p>D FORM OF CONTRACT</p> <p>The Form of Contract shall be as stipulated in the Republic of Kenya's Standard Tender Document for Procurement of Building Works(2006 Edition Revised December 2015) included herein The Conditions of Contract are also included herein Conditions of Contract These are numbered from 1 to 38 as set out in pages 24 to 44 of these tender documents.Particulars of insertions to be made in the Appendix to the Contract Agreement will be found in the Particular Preliminaries part of these Bills of Quantities</p>	
	Total carried to collections	

ITEM	DESCRIPTION	KSHS CTS
<p>A BID BOND</p> <p>A bid bond shall be required in the amount stated here or in the invitation to tender or advertisement</p> <p>Bid bond amount 2% of tender sum</p> <p>Bid bond shall be from EITHER an insurance or bank.</p> <p>B CLEARING AWAY</p> <p>The Contractor shall remove all temporary works, rubbish, debris and surplus materials from the site as they accumulate and upon completion of the works, remove and clear away all plant, equipment, rubbish, unused materials and stains and leave in a clean and tidy state to the reasonable satisfaction of the Project Manager.</p> <p>The whole of the works shall be delivered up clean, complete and in perfect condition in every respect to the satisfaction of the Project Manager.</p> <p>C WORKING CONDITIONS</p> <p>This is a virgin site</p> <p>The contractor must allow for compliance with all County & Civic Authority laws & regulations</p>		
	Total carried to collections	

ITEM	DESCRIPTION	KSHS CTS
<p>A CLAIMS</p> <p>It shall be a condition of this contract that upon it becoming reasonably apparent to the Contractor that he has incurred losses and/or expenses due to any of the contract conditions, or by any other reason whatsoever, he shall present such claim or intent to claim notice to the PROJECT MANAGER within the contract period. No claims shall be entertained upon the expiry of the said contract period.</p> <p>B LABOUR CAMPS</p> <p>The Contractor shall not be allowed to house labour on site. Allow for transporting workers to and from the site during the tenure of the contract.</p> <p>C PRICING RATES</p> <p>The tenderer shall fill in rates and prices for all items of the Works described in the Bill of Quantities.</p> <p>Items for which no rate or price is entered by the tenderer will not be paid for when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities.</p> <p>The tenderer shall include for all costs in executing the whole of the works, including transport, replacing damaged items, fixing, all to comply with the said Conditions of Contract.</p> <p>Prices quoted should be net inclusive of all taxes, must be in Kenya shillings</p> <p>Prices shall remain valid for One Hundred and twenty (120) days from the closing date of tender.</p> <p>The rates and prices quoted by the tenderer shall only be subject to adjustment during the performance of the Contract if provided for in the Appendix to Conditions of Contract and provisions made in the Conditions of Contract.</p>		
	Total carried to collections	

ITEM	DESCRIPTION	KSHS CTS
	<p>A MATERIALS FROM DEMOLITIONS Any materials arising from demolitions SHALL NOT BE re-used shall become the property of the client unless otherwise advised.</p> <p>B URGENCY OF THE WORKS The Contractor is notified that these “works are urgent” and should be completed within the period stated in these Particular Preliminaries. The Contractor shall allow in his rates for any costs he deems that he/she may incur by having to complete the works within the stipulated contract period.</p> <p>C PAYMENTS GENERALLY The contractor is advised to deliver & concur on his claim for payment with the PM before the following site visit to enable approval of the same by the Acceptance & Approval Committee. The claim shall be prepared in the same format as these bills clearly showing quantities & rates (both work & materials). Both the PM & contractor should be able to locate & identify the items claimed from the main bill. The last contractual claim/invoice for the relevant financial year should reach the PM by 30th May. Latter claims shall not be processed for payment in the current year.</p> <p>D PAYMENT FOR MATERIALS ON SITE All materials for incorporation in the works must be stored on site before payment is effected, unless specifically exempted by the Project Manager. This is to include materials of the Contractor, nominated sub-Contractors and nominated suppliers.</p>	
	Total carried to collections	

ITEM	DESCRIPTION	KSHS CTS
<p>A ADVANCE PAYMENTS</p> <p>The tenderer's attention is drawn to the fact that the Government does not make any advance payments.</p> <p>B EXISTING SERVICES</p> <p>Prior to the commencement of any work, the Contractor is to ascertain from the relevant authority the exact position, depth and level of all existing services in the area and he/she shall make whatever provisions may be required by the authorities concerned for the support, maintenance and protection of such services.</p> <p>C TENDER DOCUMENTS</p> <p>Tender documents are as listed in Clause 2.1 of the Instruction to Tenderer's Page 8</p> <p>D DELIVERY OF TENDER</p> <p>Tenders and all documents in connection therewith, as specified above must be delivered in the addressed envelope which should be properly sealed and deposited at the offices as specified in the letter accompanying these documents or as indicated in the advertisement.</p> <p>Tenders will be opened at the time specified in the letter accompanying these Tender Documents or as indicated in the advertisement. Tenders delivered/received later than the above time will not be opened.</p> <p>E MEASUREMENTS</p> <p>In the event of any discrepancies arising between the Bills of Quantities and the actual works, the site measurements shall generally take precedence. However, such discrepancies between any contract documents shall immediately be referred to the PROJECT MANAGER in accordance with Clause 22 of the Conditions of Contract. The discrepancies shall then be treated as a variation and be dealt with in accordance with Clause 22 of the said Conditions.</p>		
	Total carried to collections	

ITEM	DESCRIPTION	KSHS CTS
	<p>A VALUE ADDED TAX</p> <p>The Contractor's attention is drawn to the Legal Notice in the Finance Act part 3 Section 21(b) operative from 1st September, 1993 which requires payment of VAT on all contracts.</p> <p>In accordance with Government public notice No. 35 & 36 Dated 11th September 2003 operational from 1st October 2003, withholding VAT was to be levied against the contract sum by the Employer and remitted to the Commissioner of VAT through all interim certificates.</p> <p>THE CURRENT LAWS ON THIS SUBJECT SHALL APPLY</p> <p>The contractor should include this tax in the RATES and NOT in the Grand Summary.</p>	
	Carried to collection	

ITEM	DESCRIPTION	KSHS CTS
	<p align="center">PARTICULARS OF INSERTIONS TO BE MADE IN APPENDIX TO CONTRAT AGREEMENT</p> <p>The following are the insertions to be made in the appendix to the contract Agreement:-</p> <p>A Period of Final Measurement 3 Months from Practical Completion</p> <p>B Defects Liability Period 12 Months from Practical Completion</p> <p>C Date for Possession To be agreed with the Project Manager</p> <p>D Date for Completion Twenty Four (24) WEEKS from the Date of possession</p> <p>E Liquidated and Ascertained Damages At a rate of KSh 20,000 Per week or part thereof</p> <p>F Period of Interim Certificates Monthly</p> <p>G Period of Honouring Certificates 30 Days</p> <p>H Percentage of Certified Value Retained 10%</p> <p>I Limit of Retention Fund 10 %</p>	
	Total carried to collections	

ITEM	DESCRIPTION	KSHS CTS
	<p style="text-align: center;"><u>COLLECTION</u></p> <p>Brought forward from page PP/1</p> <p>Brought forward from page PP/2</p> <p>Brought forward from page PP/3</p> <p>Brought forward from page PP/4</p> <p>Brought forward from page PP/5</p> <p>Brought forward from page PP/6</p> <p>Brought forward from page PP/7</p> <p>Brought forward from page PP/8</p>	
	TOTAL CARRIED TO GRAND SUMMARY	

GENERAL PRELIMINARIES

ITEM	DESCRIPTION	
	<p style="text-align: center;">GENERAL PRELIMINARIES</p> <p>A. PRICING OF ITEMS OF PRELIMINARIES AND PREAMBLES</p> <p>Prices will be inserted against items of Preliminaries in the Contractor's priced Bills of Quantities and Specification.</p> <p>The Contractor shall be deemed to have included in his prices or rates for the various items in the Bills of Quantities or Specification for all costs involved in complying with all the requirements for the proper execution of the whole of the works in the Contract.</p> <p>Failure to price an item shall not exempt the contractor from carrying out works described therein.</p> <p>Should the contractor fail to carry out works which he/she did not price and after having received a written instruction from the PM, then the value of such works shall be deducted from the very immediate certificate issued to the contractor.</p> <p>MoPW current rates, IQSK, manufacturers or fair rates shall be used by the PM in valuation of unpriced items which the contractor shall fail to execute.</p> <p>The contractor is advised to read and understand all preliminary items. The Contractor is advised to visit the site, to familiarize with the nature and position of the site. No claims arising from the Contractor's failure to do so will be entertained.</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
	<p>A FIRM PRICE CONTRACT</p> <p>Unless otherwise specifically stated in the Contract Data and/or Particular Preliminaries this is a firm price contract and the contractor must allow in his tender rates for any increase in the cost of labour and/or materials during the currency of the contract.</p> <p>B VISIT SITE AND EXAMINE DRAWINGS.</p> <p>The Contractor is recommended to examine the drawings and visit the site the location of which is described in the Particular Preliminaries hereof. He shall be deemed to have acquainted himself therewith as to its nature, position, means of access or any other matter which, may affect his tender. No claim arising from his failure to comply with this recommendation will be considered.</p> <p>C BONDS.</p> <p>The Contractor shall find and submit on the Form of Tender a guarantor and who will be willing to be bound the Government in the amount of the bond.</p> <p>The amount of the bond is SPECIFIED IN THE PARTICULAR PRELIMINARIES</p> <p>The guarantor shall be an approved institution as specified in the particular preliminaries or invitation to tender and who will when and if called upon, sign a Bond to that effect on the relevant standard form included herein. (without the addition of any limitations) on the same day as the Contract Agreement is signed, by the Government, the Contractor shall furnish within seven days another Surety to the approval of the Government.</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
	<p>A PERFORMANCE BOND</p> <p>5% bond shall be required from the specified institution</p> <p>The period for supplying the bond shall be 14 days.</p> <p>No contract shall be signed, NOR shall any payment be made before the bidder has complied with the bond requirements</p> <p>Failure to deliver the bond within the specified period shall automatically disqualify the bidder and the tender shall be awarded to next most responsive bidder without reference to the defaulting bidder.</p> <p>Should the bidder commence works and subsequently fail to provide the bond, he shall be evicted from site without any reimbursement notwithstanding the site having been handed over by the PM and client. The handing over only kickstarts the process and is not a waiver to bond conditions.</p> <p>The bond for the due performances of the Contract shall be valid up to the date of completion as certified by the PROJECT MANAGER</p> <p>Any bond which provides otherwise or attempts to vary the duration of validity shall be invalid</p> <p>The bond shall comply in all respects with the PPOA copy enclosed in the instructions to tender. A bond that does not match the PPOA copy shall be treated as NO BOND!</p> <p>The contractor shall provide a bid security duly signed, sealed and stamped from an approved Bank of required amount in the particular preliminaries</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
A	<p>EXCEPTION TO THE STANDARD METHOD OF MEASUREMENT</p> <p>Attendance ; Clause B19(a) of the Standard Method of Measurement is deleted and the following clause is substituted:-</p> <p>Attendance on nominated Sub-Contractors shall be given as an item in each case shall be deemed to include: allowing use of standing scaffolding, mess rooms, sanitary accommodation and welfare facilities; provision of special scaffolding where necessary;providing space for office accommodation and for storage of plant and materials;providing light and water for their work: clearing away rubbish; unloading checking and hoisting: providing electric power and removing and replacing duct covers, pipe casings and the like necessary for the execution and testing of Sub- Contractors' work and being responsible for the accuracy of the same.</p> <p>Fix Only:-</p> <p>"Fix Only" shall mean take delivery at nearest railway station (Unless otherwise stated), pay all demurrage charges, load and transport to site where necessary, unload, store, unpack, assemble as necessary, distribute to position, hoist and fix only.</p>	
	Total carried to collections	

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

ITEM	DESCRIPTION	
	<p style="text-align: center;">PARTIES TO THE CONTRACT</p> <p>A EMPLOYER</p> <p>The “Employer” is AS DEFINED UNDER PARTICULAR PRELIMINARIES</p> <p>The term "Employer" and "Government" wherever used in the contract document shall be synonymous</p> <p>B PROJECT MANAGER shall be -:</p> <p>The term "P.M." wherever used in these Bills of Quantities shall be deemed to imply the Project Manager as defined in Condition 1 of the Conditions of Contract or such person or persons as may be duly authorised to represent him on behalf of the Government.</p> <p>In this Project, the PM shall be -: WORKS SECRETARY M.T.I. H.U.D (STATE DEPARTMENT OF PUBLIC WORKS) P.O. BOX 30743-00100 NAIROBI</p> <p>C ARCHITECT</p> <p>The term "Architect" shall be deemed to mean "The P.M." as defined above whose address unless otherwise notified is as above</p> <p>D QUANTITY SURVEYOR</p> <p>The term "Quantity Surveyor" shall be deemed to mean "The P.M." as defined above whose address unless otherwise notified is as above</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
<p>A ELECTRICAL ENGINEER</p> <p>The term "Electrical Engineer" shall be deemed to mean "The P.M." as defined above whose address unless otherwise notified is as above</p> <p>B MECHANICAL ENGINEER</p> <p>The term "Mechanical Engineer" shall be deemed to mean "The P.M." as defined above whose address unless otherwise notified is as above</p> <p>C STRUCTURAL ENGINEER</p> <p>The term "Structural Engineer" shall be deemed to mean "The P.M." as defined above whose address unless otherwise notified is as above</p>		
	<p align="right">Total carried to collections</p>	

ITEM	DESCRIPTION	
	<p>A PLANT, TOOLS AND VEHICLES</p> <p>Allow for providing all scaffolding, plant, tools and vehicles required for the work except in so far as may be stated otherwise herein and except for such items specifically and only required for the use of nominated Sub-Contractors as described herein. No timber used for scaffolding, formwork or temporary works of any kind shall be used afterwards in the permanent work.</p> <p>B MATERIALS AND WORKMANSHIP.</p> <p>All materials and workmanship used in the execution of the work shall be of the best quality and description unless otherwise stated. The Contractor shall order all materials to be obtained from overseas immediately after the Contract is signed and shall also order materials to be obtained from local sources as early as necessary to ensure that they are onsite when required for use in the works. The Bills of Quantities shall not be used for the purpose of ordering materials.</p> <p>C SIGN FOR MATERIALS SUPPLIED.</p> <p>The Contractor will be required to sign a receipt for all articles and materials supplied by the PROJECT MANAGER at the time of taking delivery thereof, as having received them in good order and condition, and will thereafter be responsible for any loss or damage and for replacements of any such loss or damage with articles and/or materials which will be supplied by the PROJECT MANAGER at the current market prices including Customs Duty and V.A.T., all at the Contractor's own cost and expense, to the satisfaction of the PROJECT MANAGER</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
	<p>A STORAGE OF MATERIALS</p> <p>The Contractor shall provide at his own risk and cost where directed on the site weather proof lock-up sheds and make good damaged or disturbed surfaces upon completion to the satisfaction of the PROJECT MANAGER</p> <p>Nominated Sub-Contractors are to be made liable for the cost of any storage accommodation provided especially for their use.</p> <p>B SAMPLES</p> <p>The Contractor shall furnish at his own cost any samples of materials or workmanship including concrete test cubes required for the works that may be called for by the PROJECT MANAGER for his approval until such samples are approved by the PROJECT MANAGER and the PROJECT MANAGER, may reject any materials or workmanship not in his opinion to be up to approved samples. The PROJECT MANAGER shall arrange for the testing of such materials as he may at his discretion deem desirable, but the testing shall be made at the expense of the Contractor and not at the expense of the PROJECT MANAGER PROVIDED THEY PASS THE TEST. The Contractor shall pay for the testing in accordance with the current scale of testing charges laid down by the Ministry of Public Works.</p> <p>The procedure for submitting samples of materials for testing and the method of marking for identification shall be as laid down by the PROJECT MANAGER</p> <p>The Contractor shall allow in his tender for such samples and tests except those in connection with nominated sub-contractors' work.</p> <p>Samples of paint, carpets, curtains & covers, tiles & timber shall be required for approval by the PM together with the employer.</p> <p>No alternte rate shall be offered on account that the employer has chosen a superior finish unless the bidder had attached the sample he priced.</p>	
	Total carried to collections	

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

ITEM	DESCRIPTION	
<p>A SECURITY OF WORKS ETC.</p> <p>The Contractor shall be entirely responsible for the security of all the works stores, materials, plant, personnel, etc., both his own and sub-contractors' and must provide all necessary watching, lighting and other precautions as necessary to ensure security against theft, loss or damage and the protection of the public.</p> <p>B PROGRESS CHART.</p> <p>The Contractor shall provide within two weeks of Possession of Site and in agreement with the PROJECT MANAGER a Progress Chart for the whole of the works including the works of Nominated Sub-Contractors ; one copy to be handed to the PROJECT MANAGER and a further copy to be retained on Site. Progress to be recorded and chart to be amended as necessary as the work proceeds.</p> <p>C INSURANCE</p> <p>The Contractor shall insure as required in Conditions No. 30 of the Conditions of Contract. No payment on account of the work executed will be made to the Contractor until he has satisfied the PROJECT MANAGER either by production of an Insurance Policy or and Insurance Certificate that the provision of the foregoing Insurance Clauses have been complied with in all respects. Thereafter the PROJECT MANAGER shall from time to time ascertain that premiums are duly paid up by the Contractor who shall if called upon to do so, produce the receipted premium renewals for the PROJECT MANAGER's inspection.</p> <p>D CONTRACTOR'S SUPERINTENDENCE/SITE AGENT</p> <p>The Contractor shall constantly keep on the works a literate English speaking Agent or Representative, competent and experienced in the kind of work involved who shall give his whole experience in the kind of work involved and shall give his whole time to the superintendence of the works. Such Agent or Representative shall receive on behalf of the Contractor all directions and instructions from the Project Manager and such directions shall be deemed to have been given to the Contractor in accordance with the Conditions of Contract.</p>		
	Total carried to collections	

ITEM	DESCRIPTION	
	<p>A PROVISIONAL WORK All work described as "Provisional" in these Bills of Quantities is subject to remeasurement in order to ascertain the actual quantity executed for which payment will be made. All "Provisional" and other work liable to adjustment under this Contract shall left uncovered for a reasonable time to allow all measurements needed for such adjustment to be taken by the PROJECT MANAGER Immediately the work is ready for measuring, the Contractor shall give notice to the PROJECT MANAGER. If the Contractor makes default in these respects he shall if the PROJECT MANAGER so directs uncover the work to enable all measurements to be taken and afterwards reinstate at his own expense.</p> <p>B PROVISIONAL SUMS. The term "Provisional Sum" wherever used in these Bills of Quantities shall have the meaning stated in Section A item A7(i) of the Standard Method of Measurement. Such sums are net and no addition shall be made to them for profit.</p> <p>C ADJUSTMENT OF PROVISIONAL SUMS. In the final account all Provisional Sums shall be deducted and the value of the work properly executed in respect of them upon the PROJECT MANAGER's order added to the Contract Sum. Such work shall be valued , but should any part of the work be executed by a Nominated Sub-Contractor, the value of such work or articles for the work to be supplied by a Nominated Supplier, the value of such work or articles shall be treated as a P.C. Sum and profit and attendance comparable to that contained in the priced Bills of Quantities for similar items added.</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
	<p>A PRIME COST (OR P.C.) SUMS. The term "Prime Cost Sum" or "P.C. Sum" wherever used in these Bills of Quantities shall have the meaning stated in Section A item A7 (ii) of the Standard Method of Measurement . Persons or firms nominated by the PROJECT MANAGER to execute work or to provide and fix materials or goods are described herein as Nominated Sub-Contractors. Persons or firms so nominated to supply goods or materials are described herein as Nominated Suppliers.</p> <p>B ADJUSTMENT OF P.C. SUMS. In the final account all P.C. Sums shall be deducted and the amount properly expended upon the PROJECT MANAGER'S order in respect of each of them added to the Contract sum. The Contractor shall produce to the PROJECT MANAGER such quotations, invoices or bills, properly receipted, as may be necessary to show the actual details of the sums paid by the Contractor. Items of profit upon P.C. Sums shall be adjusted in the final account pro-rata to the amount paid. Items of "attendance" (as previously described) following P.C. Sums shall be adjusted pro-rata to the physical extent of the work executed (not pro-rata to the amount paid) and this shall apply even though the Contractor's priced Bill shows a percentage in the rate column in respect of them. Should the Contractor be permitted to tender and his tender be accepted of any work for which a P.C. Sum is included in these Bill of Quantities profit and attendance will be allowed at the same rate as it would be if the work were executed by a Nominated Sub-Contractor.</p> <p>C NOMINATED SUB-CONTRACTORS When any work is ordered by the PROJECT MANAGER to be executed by nominated sub-contractors, the Contractor shall enter into sub-contracts and shall thereafter be responsible for such sub-contractors in every respect. Unless otherwise described the Contractor is to provide for such Sub-Contractors any or all of the facilities described in these Preliminaries. The Contractor should price for these with the nominated Sub-contract Contractor's work concerned in the P.C. Sums under the description "add for Attendance".</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
	<p>A DIRECT CONTRACTS</p> <p>Notwithstanding the foregoing conditions, the Government reserves the right to place a "Direct Contract" for any goods or services required in the works which are covered by a P.C. Sum in the Bills of Quantities and to pay for the same direct. In any such instances, profit relative to the P.C. Sum the priced Bills of Quantities will be adjusted as described for P.C. Sums and allowed.</p> <p>B ATTENDANCE UPON OTHER TRADESMEN, ETC.</p> <p>The Contractor shall allow for the attendance of trade upon trade and shall afford any tradesmen or other persons employed for the execution of any work not included in this Contract every facility for carrying out their work and also for use of his ordinary scaffolding. The Contractor, however, shall not be required to erect any special scaffolding for them. The Contractor shall perform such cutting away for and making good after the work of such tradesmen or persons as may be ordered by the PROJECT MANAGER and the work will be measured and paid for to the extent executed at rates provided in these Bills.</p> <p>C OFFICE ETC. FOR THE PROJECT MANAGER</p> <p>The Contractor shall provide, erect and maintain where directed on site and afterwards dismantle the site office of the type noted in the Particular Preliminaries, complete with Furniture. He shall also provide a strong metal trunk complete with strong hasp and staple fastening and two keys. He shall provide, erect and maintain a lock-up type water or bucket closet for the sole use of the PROJECT MANAGER including making temporary connections to the drain where applicable to the satisfaction of Government and Medical Officer of Health and shall provide services of cleaner and pay all conservancy charges and keep both office and closet in a clean and sanitary condition from commencement to the completion of the works and dismantle and make good disturbed surfaces. The office and closet shall be completed before the Contractor is permitted to commence the works. The Contractor shall make available on the Site as and when required by the "PROJECT MANAGER" a modern and accurate level together with levelling staff, ranging rods and 50 metre metallic or linen tape.</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
A	<p>WATER AND ELECTRICITY SUPPLY FOR THE WORKS</p> <p>The Contractor shall provide at his own risk and cost all necessary water, electric light and power required for use in the works. The Contractor must make his own arrangements for connection to the nearest suitable water main and for metering the water used. He must also provide temporary tanks and meters as required at his own cost and clear away when no longer required and make good on completion to the entire satisfaction of the PROJECT MANAGER . The Contractor shall pay all charges in connection herewith. No guarantee is given or implied that sufficient water will be available from mains and the Contractor must make his own arrangements for augmenting this supply at his own cost. Nominated Sub--contractors are to be made liable for the cost of any water or electric current used and for any installation provided especially for their own use.</p> <p>B SANITATION OF THE WORKS</p> <p>The Sanitation of the works shall be arranged and maintained by the Contractor to the satisfaction of the Government and/or Local Authorities, Labour Department and the PROJECT MANAGER</p> <p>C SUPERVISION AND WORKING HOURS</p> <p>The works shall be executed under the direction and to the entire satisfaction in all respects of the PROJECT MANAGER who shall at all times during normal working hours have access to the works and to the yards and workshops of the Contractor and sub-Contractors or other places where work is being prepared for the contract.</p> <p>D PROTECTION OF THE WORKS.</p> <p>Provide protection of the whole of the works contained in the Bills of Quantities,including casing , casing up, covering or such other means as may be necessary to avoid damage to the satisfaction of the PROJECT MANAGER and remove such protection when no longer required and make good any damage which may nevertheless have been done at completion free of cost to the Government.</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
A	<p>WORKS TO BE DELIVERED UP CLEAN</p> <p>Clean and flush all gutters, rainwater and waste pipes, manholes and drains, wash (except where such treatment might cause damage) and clean all floors, sanitary fittings, glass inside and outside and any other parts of the works and remove all marks, blemishes, stains and defects from joinery, fittings and decorated surfaces generally, polish door furniture and bright parts of metalwork and leave the whole of the buildings watertight, clean, perfect and fit for occupation to the approval of the PROJECT MANAGER</p> <p>GENERAL SPECIFICATION.</p> <p>For the full description of materials and workmanship, method of execution of the work and notes for pricing, the Contractor is referred to the Ministry of Roads and Public Works and Housing General Specification dated 1976 or any subsequent revision thereof which is issued as a separate document, and which shall be allowed in all respects unless it conflicts with the General Preliminaries, Trade Preambles or other items in these Bills of Quantities.</p> <p>TRAINING LEVY</p> <p>The Contractor's attention is drawn to legal notice No. 237 of October, 1971, which requires payment by the Contractor of a Training Levy at the rate of 1/4 % of the Contract sum on all contracts of more than Kshs. 50,000.00 in value.</p> <p>MATERIALS ON SITE</p> <p>All materials for incorporation in the works must be stored on or adjacent to the site before payment is effected unless specifically exempted by the PROJECT MANAGER. This includes the materials of the Main Contractor, Nominated Sub-Contractors and Nominated Suppliers.</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
	<p>A HOARDING</p> <p>The Contractor shall enclose the site or part of the works under construction with a hoarding 2400 mm high consisting of iron sheets on 100 x 50 mm timber posts firmly secured at 1800 mm centres with two 75 x 50 mm timber rails for a total length of approximately three hundred meters. The Contractor is in addition required to take all precautions necessary for the safe custody of the works, materials, plant, public and Employer's property on the site.</p> <p>B ALTERATIONS TO BILLS, PRICING, ETC.</p> <p>Any unauthorised alteration or qualification made to the text of the Bills of Quantities may cause the Tender to be disqualified and will in any case be ignored. The Contractor shall be deemed to have made allowance in his prices generally to cover any items against which no price has been inserted in the priced Bills of Quantities. All items of measured work shall be priced in detail and the Tenders containing Lump Sums to cover trades or groups of work must be broken down to show the price of each item before they will be accepted.</p> <p>C MATERIALS ARISING FROM EXCAVATIONS</p> <p>Materials of any kind obtained from the excavations shall be the property of the Government. Unless otherwise provided for in the particular preliminaries. Such materials shall only be used in the works, in substitution of materials which the Contractor would otherwise have had to supply with the written permission of the PROJECT MANAGER. Should such permission be given, the Contractor shall make due allowance for the value of the materials so used at a price to be agreed.</p> <p>D PREVENTION OF ACCIDENT, DAMAGE OR LOSS</p> <p>The Contractor is notified that these works are to be carried out on a restricted site where the client is going on with other normal activities. The Contractor is instructed to take reasonable care in the execution of the works as to prevent accidents, damage or loss and disruption of normal activities being carried out by the Client. The Contractor shall allow in his rates any expense he deems necessary by taking such care within the site.</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
<p>A GOVERNMENT ACTS REGARDING WORKPEOPLE ETC.</p>	<p>Allow for complying with all Government Acts, Orders and Regulations in connection with the employment of Labour and other matters related to the execution of the works. In particular the Contractor's attention is drawn to the provisions of the Factory Act 1950 and his tender must include for all costs arising or resulting from compliance with any Act, Order or Regulation relating to Insurances, pensions and holidays for workpeople or so the safety, health and welfare of the workpeople. The Contractor must make himself fully acquainted with current Acts and Regulations, including Police Regulations regarding the movement, housing, security and control of labour, labour camps, passes for transport, etc. It is most important that the Contractor, before tendering, shall obtain from the relevant Authority the fullest information regarding all such regulations and/or restrictions which may affect the information regarding all such regulations and/or restrictions which may affect the organisation of the works, supply and control of labour, etc., and allow accordingly in his tender.</p> <p>No claim in respect of want of knowledge in this connection will be entertained.</p> <p>B REMOVAL OF RUBBISH ETC.</p> <p>Removal of rubbish and debris from the Buildings and site as it accumulates and at the completion of the works and remove all plant, scaffolding and unused materials at completion.</p> <p>C BLASTING OPERATIONS</p> <p>Blasting will only be allowed with the express permission of the PROJECT MANAGER in writing. All blasting operations shall be carried out at the Contractor's sole risk and cost in accordance with any Government regulations in force for the time being, and any special regulations laid down by the PROJECT MANAGER governing the use and storage of explosives.</p> <p>D SIGNBOARD</p> <p>Allow for providing, erecting, maintaining throughout the course of the Contract and afterwards clearing away a signboard as designed, specified and approved by the Project Manager.</p>	
	Total carried to collections	

ITEM	DESCRIPTION	
	<p style="text-align: center;"><u>COLLECTION</u></p> <p>Brought Forward From Page GP/1</p> <p>Brought Forward From Page GP/2</p> <p>Brought Forward From Page GP/3</p> <p>Brought Forward From Page GP/4</p> <p>Brought Forward From Page GP/5</p> <p>Brought Forward From Page GP/6</p> <p>Brought Forward From Page GP/7</p> <p>Brought Forward From Page GP/8</p> <p>Brought Forward From Page GP/9</p> <p>Brought Forward From Page GP/10</p> <p>Brought Forward From Page GP/11</p> <p>Brought Forward From Page GP/12</p> <p>Brought Forward From Page GP/13</p> <p>Brought Forward From Page GP/14</p> <p>Brought Forward From Page GP/15</p> <p>Brought Forward From Page GP/16</p> <p>Brought Forward From Page GP/17</p> <p>Brought Forward From Page GP/18</p>	
	Total Carried to Main Summary	

MECHANICAL WORKS

TABLE OF CONTENTS

<u>ITEM</u>	<u>TITLE</u>	<u>PAGE</u>
1.	General Mechanical Specifications	GM/1 - GM/5
2.	Particular Mechanical Specifications	PM/1 – PM/34
3.	Bills of Quantities	M-1 -M-19
4.	Schedule of Unit Rates	M-20
5.	Technical Schedule of Items to be supplied	MT/1 – MT/2
6.	Drawing Schedule	MD/1

GENERAL MECHANICAL SPECIFICATIONS

GENERAL MECHANICAL SPECIFICATION

<u>CLAUSE</u>	<u>DESCRIPTION</u>	<u>PAGE</u>
(i)	GENERAL	GM/1
(ii)	QUALITY OF MATERIALS	GM/1
(iii)	REGULATIONS AND STANDARDS	GM/1
(iv)	ELECTRICAL REQUIREMENTS	GM/2
(v)	TRANSPORT AND STORAGE	GM/2
(vi)	SITE SUPERVISION	GM/2
(vii)	INSTALLATION	GM/3
(viii)	TESTING	GM/3- GM/4
(ix)	COLOR CODING	GM/4
(x)	WELDING	GM/4 -GM/5

GENERAL MECHANICAL SPECIFICATIONS

2.01 General

This section specifies the general requirement for plant, equipment and materials forming part of the Sub-contract Works and shall apply except where specifically stated elsewhere in the Specification or on the Contract Drawings.

2.02 Quality of Materials

All plant, equipment and materials supplied as part of the Sub-contract Works shall be new and of first-class commercial quality, shall be free from defects and imperfections and where indicated shall be of grades and classifications designated herein.

All products or materials not manufactured by the Sub-contractor shall be products of reputable manufacturers and so far as the provisions of the Specification is concerned shall be as if they had been manufactured by the Sub-contractor.

Materials and apparatus required for the complete installation as called for by the Specification and Contract Drawings shall be supplied by the Sub-contractor unless mention is made otherwise.

Materials and apparatus supplied by others for installation and connection by the Subcontractor shall be carefully examined on receipt. Should any defects be noted, the Sub-contractor shall immediately notify the Engineer.

Defective equipment or that damaged in the course of installation or tests shall be replaced as required to the approval of the Engineer.

2.03 Regulations and Standards

The Sub-contract Works shall comply with the current editions of the following:

- a) The Kenya Government Regulations.
- a) The United Kingdom Institution of Electrical Engineers (IEE) Regulations for the Electrical Equipment of Buildings.
- b) The United Kingdom Chartered Institute of Building Services Engineers (CIBSE) Guides.
- c) British Standard and Codes of Practice as published by the British Standards Institution (BSI)
- e) The Local Council By-laws.
- f) The Electricity Supply Authority By-laws.
- g) Local Authority By-laws.
- h) The Kenya Building Code Regulations.
- i) The Kenya Bureau of Standards

2.04 **Electrical Requirements**

Plant and equipment supplied under this Sub-contract shall be complete with all necessary motor starters, control boards, and other control apparatus. Where control panels incorporating several starters are supplied, they shall be complete with a main isolator.

The supply power up to and including local isolators shall be provided and installed by the Electrical Sub-contractor. All other wiring and connections to equipment shall form part of this Sub-contract and be the responsibility of the Sub-contractor.

The Sub-contractor shall supply three copies of all schematic, cabling and wiring diagrams for the Engineer's approval.

The starting current of all electric motors and equipment shall not exceed the maximum permissible starting currents described in the Kenya Power and Lighting Company (KPLC) By-laws.

All electrical plant and equipment supplied by the Sub-contractor shall be rated for the supply voltage and frequency obtained in Kenya, that is 415 Volts, 50Hz, 3-Phase or 240Volts, 50Hz, 1-phase.

Any equipment that is not rated for the above voltages and frequencies shall be rejected by the Engineer.

2.05 **Transport and Storage**

All plant and equipment shall, during transportation be suitably packed, crated and protected to minimise the possibility of damage and to prevent corrosion or other deterioration.

On arrival at site all plant and equipment shall be examined and any damage to parts and protective priming coats made good before storage or installation.

Adequate measures shall be taken by the Sub-contractor to ensure that plant and equipment do not suffer any deterioration during storage.

Prior to installation all piping and equipment shall be thoroughly cleaned.

If, in the opinion of the Engineer any equipment has deteriorated or been damaged to such an extent that it is not suitable for installation, the Sub-contractor shall replace this equipment at his own cost.

2.06 **Site Supervision**

The Sub-contractor shall ensure that there is an English-speaking supervisor on the site at all times during normal working hours.

2.07 **Installation**

Installation of all special plant and equipment shall be carried out by the Subcontractor under adequate supervision from skilled staff provided by the plant and equipment manufacturer or his appointed agent in accordance with the best standards of modern practice and to the relevant regulations and standards described under Clause 2.03 of this Section.

2.08 **Testing**

2.08.1 **General**

The Sub-contractor's attention is drawn to Part 'C' Clause 1.38 of the "Preliminaries and General Conditions".

2.08.2 **Material Tests**

All material for plant and equipment to be installed under this Sub-contract shall be tested, unless otherwise directed, in accordance with the relevant B.S Specification concerned.

For materials where no B.S. Specification exists, tests are to be made in accordance with the best modern commercial methods to the approval of the Engineer, having regard to the particular type of the materials concerned.

The Sub-contractor shall prepare specimens and performance tests and analyses to demonstrate conformance of the various materials with the applicable standards.

If stock material, which has not been specially manufactured for the plant and equipment specified is used, then the Sub-contractor shall submit satisfactory evidence to the Engineer that such materials conform to the requirements stated herein in which case tests of material may be partially or completely waived.

Certified mill test reports of plates, piping and other materials shall be deemed acceptable.

2.08.3 **Manufactured Plant and Equipment – Work Tests**

The rights of the Engineer relating to the inspection, examination and testing of plant and equipment during manufacture shall be applicable to the Insurance Companies or Inspection Authorities so nominated by the Engineer.

The Sub-contractor shall give two week's notice to the Engineer of the manufacturer's intention to carry out such tests and inspections.

The Engineer or his representative shall be entitled to witness such tests and inspections. The cost of such tests and inspections shall be borne by the Subcontractor.

Six copies of all test and inspection certificates and performance graphs shall be submitted to the Engineer for his approval as soon as possible after the completion of such tests and inspections.

Plant and equipment which is shipped before the relevant test certificate has been approved by the Engineer shall be shipped at the Sub-contractor's own risk and should the test and inspection certificates not be approved; new tests may be ordered by the Engineer at the Sub-contractor's expense.

2.08.4 Pressure Testing

All pipe work installations shall be pressure tested in accordance with the requirements of the various sections of this Specification. The installations may be tested in sections to suit the progress of the works but all tests must be carried out before the work is buried or concealed behind building finishes. All tests must be witnessed by the Engineer or his representative and the Sub-contractor shall give 48 hours' notice to the Engineer of his intention to carry out such tests.

Any pipe work that is buried or concealed before witnessed pressure tests have been carried out shall be exposed at the expense of the Sub-contractor and the specified tests shall then be applied.

The Sub-contractor shall prepare test certificates for signature by the Engineer and shall keep a progressive and up-to-date record of the section of the work that has been tested.

2.09 Colour Coding

Unless stated otherwise in the Particular Specification all pipe work shall be color coded in accordance with the latest edition of B.S 1710 and to the approval of the Engineer or Architect.

2.10 Welding

2.10.1 Preparation

Joints to be made by welding shall be accurately cut to size with edges sheared, flame cut or machined to suit the required type of joint. The prepared surface shall be free from all visible defects such as lamination, surface imperfection due to shearing or flame cutting operation, etc., and shall be free from rust scale, grease and other foreign matter.

2.10.2 Method

All welding shall be carried out by the electric arc processing using covered electrodes in accordance with B.S. 639.

Gas welding may be employed in certain circumstances provided that prior approval is obtained from the Engineer.

2.10.3 Welding Code and Construction

All welded joints shall be carried out in accordance with the following Specifications:

a) Pipe Welding

All pipe welds shall be carried out in accordance with the requirements of B.S.806.

b) General Welding

All welding of mild steel components other than pipework shall comply with the general requirements of B.S. 1856.

2.10.4 Welders Qualifications

Any welder employed on this Sub-contractor shall have passed the trade tests as laid down by the Government of Kenya.

The Engineer may require to see the appropriate to see the appropriate certificate obtained by any welder and should it be proved that the welder does not have the necessary qualifications the Engineer may instruct the Sub- contractor to replace him by a qualified welder.

PARTICULAR MECHANICAL SPECIFICATIONS

1.0: PARTICULAR SPECIFICATION FOR THE DESIGN SUPPLY AND ERECTION OF WATER STORAGE TANKS AND BOOSTER PUMPS

1.01.0: DESCRIPTION OF SITE

The contractor is deemed to have visited the site and if unable to locate it or its details apply to the Principal Secretary, State Department for Public Works, Ngong Road, Nairobi.

No claims will be allowed for the traveling or other expenses, which may be incurred by the sub-contractor's works. However, the sub-contractor may allow that he may have to, during contract time, do part of the works and therefore three visits may be catered for.

1.01.1: SCOPE OF CONTRACT

The work to be carried out under, this sub-contract comprises the designs, manufacture, supply, delivery, erection, together with testing and commissioning of water tanks as here-in specified and shown on the contract drawings.

All work shall be performed in straightforward manner by competent workmen under skilled supervision to the entire satisfaction of the project manager.

1.01.2: COMPLIANCE WITH REGULATIONS.

The sub-contractor shall comply in all respects to the provisional and regulations of the By-laws of the Local Authority, Kenya Building Code, as 449 Part B5 1964. BS 4211, CP2 chapters V part 1 and 2 MOPW Structural steel work specification (1973) code of practice for design and construction of buildings and structures in Relation to Earthquake (1972) wherever applicable to the contract works.

The State Department of Public Works are responsible for the design of the foundation subject to giving approval of the sub-contractor's design of the tower and due allowance should be given for this work to be carried out in sub-contractor programmed of works. The main contractor is responsible for the construction of the foundation in accordance to approved designs.

1.01.3: STRUCTURAL DRAWINGS AND CALCULATIONS

2 No. copies of general arrangement and fabrication drawings properly dimensioned and detailed showing the whole tower and its accessories together with **2 No. copies** of the structural calculations complying with all the relevant BS and CP are to be submitted for approval prior to the commencement of the work.

The calculation is to indicate the maximum downward and upward loads on the foundations for the Ministry of Roads and Public Works Structural Department to design the foundation.

1.02. STEEL WATER TANKS

- a) The tanks shall be pressed steel sectional tanks complying in all respects to BS 1564 Types 1 or 2. The jointing materials shall be non-toxic and non-insulable to water and the tank cover shall be joined throughout the tank top ensuring that the joint is both water proof and dust proof.
- b) Cover framing and members shall be designed to withstand super-imposed loading complying with the requirement complying with the requirements of CP2 Chapter V part 1 and BS 149 Part 2.
- c) All internal stays are to be provided as required by the tank manufacture and the Sub-contractor shall be responsible for ensuring the stays are adequate in number and position and properly tightened. These are to be manufactured from steel to BS 4360, Grade 43 A.
- d) All Bolts, nuts and washers used in the construction should comply with BS 4190. The contractor to allow in his pricing, for a complete set of spanners, spare bolts and Washers for maintenance purposes.
- e) Access manhole with hinged cover together with a filtered vent outlet shall be installed.
- f) The Sub-contractor is to notify the Project Manager of the type of panel he is proposing to use and the manufacturer who is to be approved.
- g) The inflow and outflow connection shall be as shown on the drawing.
- h) The outflow supply pipe shall be at least 50mm above the tank bottom while the inflow pipe shall be 200mm below the tank rim. The overflow pipe shall be about 1000mm long, away from the tank. The drain pipe shall be at the lowest part of the tank.

1.02.1: LOW LEVEL TANK

- Tank Capacity: **60,000 litres**
- Preferred dimensions: **5000mm * 4000mm * 3000mm (L*W*H)**
- Plate thickness;- **6mm**
- Tank to be supplied complete with: -
 - **50mm diameter inflow connection**
 - **50mm diameter outflow connections**
 - **55mm diameter washout pipe**
 - **50mm diameter overflow pipe**
 - **Electrode pair fully wired.**
 - **water level indicator**
 - **cover and manhole**
 - **internal ladder**
 - **external ladder**

The Structural Department will give details of foundations and R.C walls for the low-level tank. The base is to be cast by the Main Contractor unless otherwise instructed by the Project Manager.

1.02.2.: HIGH LEVEL TANK

- Tank Capacity: **30,000Litres**
- Preferred dimensions: **5000mm * 3000mm * 2000mm (L*W*H)**
- Height from ground level to the underside of the tank will be 18 Metres
The tank to be supported by a steel tower.
- Tank to be supplied with:
 - ✓ inflow connection of 40 mm diameter pipe
 - ✓ outflow connection of 40 mm diameter pipe
 - ✓ washout pipe of 40 mm diameter pipe
 - ✓ overflow pipe 40 mm diameter pipe
 - ✓ cover and manhole
 - ✓ secure it not to fall when empty

1.03: PIPEWORK

The sub-contractor shall supply and fix all pipe work and fitting up to ground level as detailed on the drawing or in this specification. All pipe work shall be adequately supported and secured to the tank structure. The washout pipe will have a bend leading to a reasonable place where the drainage will not interfere with the structure.

The inflow outflow and washout pipes shall be fixed against the tower structure so as to facilitate fixing and good support.

The following pipework shall be used depending on the condition: -

- (a) Medium Grade Galvanized steel and must conform with BS 1987 1967 class 'B'
- (b) PP-R pipe work to be manufactured in accordance with the current European standards i.e DIN 8077 and DIN 8078 for PN 20 tubing, with metallic joints to DIN 8076, joints and fittings for tubing to DIN 16962.

The sub-contractor shall provide high pressure ball valve capable of coping with the maximum area's local water supply pressure.

1.04: ACCESS LADDER

Internal ladder shall be supplied for the tank and shall be fixed adjacent at the manhole but easily removable for cleaning the inside of the tank (i.e. hooked connection).

The tanks shall be provided with an external ladder leading to the manhole and complying to BS 4211.

The stringers shall be parallel, minimum width 15 inches apart and of flat bar of minimum dimensions 1½" by 2/8 inches. The rugs shall be of round bars not less than ¾ inches diameter and the distance between centers shall be 9 – 10 inches. The external ladder shall be fitted with safety hoofs made to conform with BS 4211.

1.05: PLATFORM

The tower is to have a periphery walkway at tank level having minimum width of 600mm clear between the edge of the tank and the inside of the protective safety handrail. The platform is to be provided with a steel chequered plate floor of similar approved and to be completely sealed so as not to allow anybody or items such as bolts and spanners to fall on persons on the ground.

All loading for the design of such platform are to be provided in the structural calculations.

1.06: PAINTING

The tank shall be painted inside with one coat of bituminous non-toxic paint (or any other equivalent and approved) and on the outside with coat of primer before erection. After erection, the tank inside shall be painted with two coats of aluminium paint. The other structures shall be cleaned and painted one coat lead oxide or red lead before erection and two coats of aluminium paints after erection.

All the painting shall be approved by the Engineer.

1.07: ERECTION

The sub-contractor shall erect the tank complete, on foundation prepared and designed by others and with all necessary pipes, ladders, tower etc. as listed herein and shown on the drawing.

The main contractor shall prepare the foundation to the sub-contractor's and State Department of Public Works Structural Department's details. The main contractor shall also concrete or grout in the HD bolts to the sub-contractor's requirements.

1.08: BOOSTER PUMPS

Two sets of pumps will be provided:

1. 2 No. electrically operated pumps capable of pumping 2.5 cubic metres per hour of water against 20 meters static head shall be installed.

Each of the set of pumps shall be directly driven by a three-phase motor, the pump motor being mounted on a common base.

Pump casing shall be manufactured from good quality cast iron and impellers, shafts and other material in contact with water shall be of corrosion resistant metal. The pumps shall be suitable for pumping filtered water treated for human consumption.

The motor shall be completely protected against possible damage due to entry of water, dust etc. they shall be fitted with glands for the entry of PVC armored cables with overall PVC sheath. The completed cable connection to the motor terminal box shall be proof against ingress of water or dust.

The pump shall be mounted on concrete plinth which shall be constructed by the main contractor in accordance with specifications from the sub-contractor.

Holes for holding down bolts shall be left in concrete and after the concrete has cured the pumps shall be placed in position and bolts grounded into position. A grout shall be floated under pump motor base to ensure an even surface for the pump to rest upon.

1.09: ELECTRICAL WORKS

It shall be the responsibility of the sub-contractor to provide all electrical wiring between all items of his sub-contract works to ensure the correct functioning of his equipment. The sub-contractor's electric works shall start from nearest electrical isolator.

1.10: CONTROL PANEL

The sub-contractor shall provide an electric control panel and shall be responsible for its fixing and satisfactory operation. The panel shall be fabricated from minimum thickness. 1.2mm steel sheet and finished grey stoved enamel.

The panel shall be wall mounted with a removable hinged front access panel. Motor control switch gear shall be of approved type. The panel shall have an integral isolator.

Pump changeover shall be automatic alternating after each duty cycle. A green 'running' red 'trip' lamp shall be provided for each pump. The control system (float switches etc) shall be energized when a pump is started.

The motor system shall be wired so that they operate only automatically as called for by the switches except that starter push button shall be connected so as to enable the pumps to be started and run and cease to run when the push button is allowed to its normal position.

An emergency stop button shall be located adjacent to each pump.

The level regulator shall be wired and set in such a manner that the duty pumps shall be called to start when the high-level tank is full.

The electrode in the low-level tank shall override instructions from high level regulator and stop when the water is approximately 600mm high.

Where a three-phase motor is used, a single phasing protector shall be provided if the motor does not have one.

A phase failure relay shall be installed in 3 phase – operated pumps.

1.11: TESTING

Testing shall be done by filling the tank with water after erection. The water will be from the local supply and the main contractor shall apply from the Authority for connection.

In cases where water is already on site and being used by the client, the contractor will make necessary arrangements and reimburse the client amount equivalent to volume of water used.

Testing shall be witnessed by the Project Manager or his representative.

1.12: GUARANTEE

The sub-contractor shall guarantee the tanks against leaks, and the tower for a period of (12) months from the testing date. Any damage incurred due to bad workmanship shall be made good by the contractor.

1.13: SCHEDULES

Introduction

The tenderer shall complete all schedules. The schedules shall be read in conjunction with the specifications. The GRAND TOTAL of prices in the main summary of prices schedule shall be deemed to have been included in the Bill of Quantities for Mechanical Works.

Note: -

The list of recommended initial spare parts prices is to be submitted separately on tenderer's own paper. The spares prices are not to be included in the GRAND TOTAL or prices as the spares are an extra item only to be purchased if and when convenient to the Government of Kenya.

All prices shall be in Kenya shillings and shall be inclusive of all taxes and duties current at the time of tendering.

2.0: PARTICULAR SPECIFICATIONS FOR PLUMBING AND DRAINAGE

CONTENTS

CLAUSE No.	DESCRIPTION	PAGE
2.1	General.....	PM/8
2.2	Materials and standards.....	PM/8
2.2.1	Pipework and Fittings.....	PM/8
2.2.2	Valves.....	PM/10
2.2.3	Waste Fitment Traps.....	PM/10
2.2.4	Pipe Supports.....	PM/11
2.2.5	Sanitary Appliances.....	PM/12
2.2.6	Pipe Sleeves.....	PM/12
2.3	Installation.....	PM/13
2.3.1	General.....	PM/13
2.3.2	Above Ground Installation.....	PM/13
2.4	Testing & Inspection.....	PM/14
2.4.1	Site Tests – Pipework Systems.....	PM/14
2.4.2	Site Test – Performance.....	PM/15
2.5	Sterilisation of Hot and Cold Water System.....	PM/16

2.0: PARTICULAR SPECIFICATIONS FOR PLUMBING AND DRAINAGE

2.1 GENERAL

This section specifies the general requirements for plant, equipment and materials forming part of the plumbing and drainage installations.

2.2 MATERIALS AND STANDARDS

2.2.1 Pipework and Fittings

Pipework materials are to be used as follows:

a) Galvanized Steel Pipework

Galvanized steel pipe work up to 65mm nominal bore shall be manufactured in accordance with B.S. 1387 Medium Grade, with tapered pipe threads in accordance with B.S. 21. All fittings shall be malleable iron and manufactured in accordance with B.S. 143.

Pipe joints shall be screwed and socketed and sufficient coupling unions shall be allowed so that fittings can be disconnected without cutting the pipe. Running nipples and long screws shall not be permitted unless exceptionally approved by the Engineer.

Galvanized steel pipe work, 80mm nominal bore up to 150mm nominal bore shall be manufactured to comply in all respects with the specification for 65mm pipe, except that screwed and bolted flanges shall replace unions and couplings for the jointing of pipes to valves and other items of plant. All flanges shall comply with the requirements of B.S. 10 to the relevant classifications contained hereinafter under Section 'C' of the Specification.

Galvanizing shall be carried out in accordance with the requirements of B.S. 1387 and B.S. 143 respectively.

b) Copper Tubing

All copper tubing shall be manufactured in accordance with B.S. 2871 from C.160 'Phosphorous De-oxidized Non-Arsenical Copper' in accordance with B.S. 1172.

Pipe joints shall be made with soldered capillary fittings and connections to equipment shall be with compression fittings manufactured in accordance with B.S. 864.

Short copper connection tubes between galvanized pipe work and sanitary fittings shall not be used because of the risk of galvanic action.

If, as may occur in certain circumstances, it is not possible to make the connection in any way than the use of copper tubing, then a brass straight connector shall be positioned between the galvanized pipe and the copper tube in order to prevent direct contact.

c) **P.V.C. (Hard) Pressure Pipes and Fittings**

All P.V.C. pipes and fittings shall be manufactured in accordance with B.S. 3505: 1968.
Jointing

The method of jointing to be employed shall be that of solvent welding, using the pipe and manufacturer's approved cement. Seal ring joint shall be introduced where it is necessary to accommodate thermal expansion.

Testing

Pipelines shall be tested in sections under an internal water pressure normally one and a half times the maximum allowable working pressure of the class of pipe used. Testing shall be carried out as soon as practical after laying and when the pipeline is adequately anchored. Precautions shall be taken to eliminate all air from the test section and to fill the pipe slowly to avoid risk of damage due to surge.

d) **A.B.S. Waste System**

Where indicated on the Drawings and Schedules, the Sub-contractor shall supply and fix A.B.S. waste pipes and fittings.

The pipes, traps and fittings shall be in accordance with the relevant British Standards, including B.S. 3943, and fixed generally in accordance with manufacturer's instructions and B.S. 5572: 1978.

Jointing of pipes shall be carried out by means of solvent welding, the manufacturer's instructions and B.S. 5572: 1978.

Jointing of pipes shall be carried out by means of solvent welding. The manufacturer's recommended method of joint preparation and fixing shall be followed.

Standard brackets, as supplied for use with this system, shall be used wherever possible. Where the building structure renders this impracticable the Sub-contractor shall provide purpose made supports, centers of which shall not exceed one meter.

Expansion joints shall be provided as indicated. Supporting brackets and pipe clips shall be fixed on each side of these joints.

e) **PVC Soil System**

The Sub-contractor shall supply and fix PVC soil pipes and fittings as indicated on the Drawings and Schedules.

Pipes and fittings shall be in accordance with relevant British Standards, including B.S. 4514 and fixed to the manufacturer's instructions and B.S. 5572.

The soil system shall incorporate synthetic rubber gaskets as provided by the manufacturer whose fixing instructions shall be strictly adhere to.

Connections to WC pans shall be effected by the use of a WC connector, gasket and cover, fixed to suit pan outlet.

Suitable supporting brackets and pipe clips shall be provided at maximum of one metre centres.

The Sub-contractor shall be responsible for the joint into the Gully Trap on Drain as indicated on the Drawings.

2.2.2 **Valves**

a) **Draw-off Taps and Stop Valves (Up to 50mm Nominal Bore)**

Draw-off taps and valves up to 50mm nominal bore, unless otherwise stated or specified for attachment or connection to sanitary fitment shall be manufactured in accordance with the requirements of B.S.1010.

b) **Gate Valves**

All gate valves 80mm nominal bore and above, other than those required for fitting to buried water mains shall be of cast iron construction, in accordance with the requirements of B.S. 3464. All gate valves required for fitting to buried water mains shall be of cast iron construction in accordance with the requirements of B.S.1218.

All gate valves up to and including 65mm nominal bore shall be of bronze construction in accordance with the requirements of B.S. 1952.

The pressure classification of all valves shall depend upon the pressure conditions pertaining to the site of works.

c) **Globe Valves**

All globe valves up to and including 65mm nominal bore shall be of bronze construction in accordance with the requirements of B.S.3061.

The pressure classification of all globe valves shall depend upon the pressure conditions pertaining to the site of works.

2.2.3 **Waste Fitment Traps**

a) **Standard and Deep Seal P & S Traps**

Where standard or deep seal traps are specified they shall be manufactured in suitable non-ferrous materials in accordance with the full requirements of B.S. 1184.

In certain circumstances, cast iron traps may be required for cast iron baths and in these instances bath traps shall be provided which are manufactured in accordance with the full requirements of B.S.1291.

b) **Anti-Syphon Traps**

Where anti-syphon traps are specified, these shall be similar or equal to the range of traps manufactured by Greenwood and Hughes Limited, Deacon Works Little's Hampton, Sussex, England.

The trade name for traps manufactured by this company is 'Grevak'.

2.2.4 **Pipe Supports**

a) **General**

This sub-clause deals with pipe supports securing pipes to the structure of buildings for above ground application.

The variety and type of support shall be kept to a minimum and their design shall be such as to facilitate quick and secure fixings to metal, concrete, masonry or wood.

Consideration shall be given, when designing supports, to the maintenance of desired pipe falls and the restraining of pipe movements to a longitudinal axial direction only. The Sub-contractor shall supply and install all steelwork forming part of the pipe support assemblies and shall be responsible for making good damage to builders work associated with the pipe support installation.

The Sub-contractor shall submit all his proposals for pipe supports to the Engineer for approval before any erection works commence.

b) **Steel and Copper Pipes and Tubes**

Pipe runs shall be secured by clips connected to pipe angers, wall brackets, or trapeze type supports. 'U' bolts shall not be used as a substitute for pipe clips without the prior approval of the Engineer.

An approximate guide to the maximum permissible supports spacing in metres for steel and copper pipe and tube is given in the following table for horizontal runs.

Size Nominal Bores	Copper Tube to B.S. 659	Steel Tube to B.S. 1387
15mm	1.25m	2.0m
20mm	2.0m	2.5m
25mm	2.0m	2.5m
32mm	2.5m	3.0m
40mm	2.5m	3.0m
50mm	2.5m	3.0m

65mm	3.0m	3.5m
80mm	3.0m	3.5m
100mm	3.0m	4.0m
125mm	3.0m	4.5m
150mm	3.5m	4.5m

The support spacing for vertical runs shall not exceed one and a half times the distances given for horizontal runs.

c) Expansion Joints and Anchors

Where practicable, cold pipework systems shall be arranged with sufficient bends and changes of direction to absorb pipe expansion providing that the pipe stresses are contained within the working limits prescribed in the relevant B.S. specification. Where piping anchors are supplied, they shall be fixed to the main structure only. Details of all anchor design proposals shall be submitted to the Engineer for approval before erection commences.

The Sub-contractor when arranging his piping shall ensure that no expansion movements are transmitted directly to connections and flanges on pumps or other items of plant.

The Sub-contractor shall supply flexible joints to prevent vibrations and other movements being transmitted from pumps to piping systems or vice versa.

2.2.5 Sanitary Appliances

All sanitary appliances supplied and installed as part of the Sub-contract works shall comply with the general requirements of B.S. Code of Practice 305 and the particular requirements of the latest B.S. Specifications.

2.2.6 Pipe Sleeves

Main runs of pipework are to be fitted with sleeves where they pass through walls and floors. Generally the sleeves shall be of P.V.C. except where they pass through the structure, where they shall be mild steel. The sleeves shall have 6mm – 12mm clearance all around the pipe or for insulated pipework all around the installation. The sleeve will then be packed with slag wool or similar.

2.3 **INSTALLATION**

2.3.1 **General**

Installation of all pipework, valves, fittings and equipment shall be carried out under adequate supervision from skilled staff to the relevant codes and standards as specified herein. The Sub-contractor shall be responsible to the Main Contractor for ensuring that all builders work associated with his piping installation is carried out in a satisfactory manner to the approval of the Engineer.

2.3.2 **Above Ground Installation**

a) **Water Services**

Before any joint is made, the pipes shall be hung in their supports and adjusted to ensure that the joining faces are parallel and any falls which shall be required are achieved without springing the pipe.

Where falls are not shown on the Contract Drawings or stated elsewhere in the Specification, pipework shall be installed parallel to the lines of the buildings and as close to the walls, ceilings, columns, etc., as is practicable.

All water systems shall be provided with sufficient drain points and automatic air vents to enable them to function correctly.

Valves and other user equipment shall be installed with adequate access for operation and maintenance. Where valves and other operational equipment are unavoidably installed beyond normal reach or in such position as to be difficult to reach from a small step ladder, extension spindles with floor or wall pedestals shall be provided. Screwed piping shall be installed with sufficient number of unions to facilitate easy removal of valves and fittings, and to enable alterations of pipework to be carried out without the need to cut the pipe.

Full allowances shall be made for the expansion and contraction of pipework, precautions being taken to ensure that any force produced by the pipe movements are not transmitted to valves, equipment or plant.

All screwed joints to piping and fittings shall be made with P.T.F.E. tape.

The test pressure shall be maintained by the pump for about one hour and if there is any leakage, it shall be measured by the quantity of water pumped into the main in that time.

A general leakage of 4.5 litres per 25mm of diameter, per 1.6 kilometres per 24 hours per 30 metres head, may be considered reasonable but any visible individual leak shall be repaired.

b) **Sanitary Services**

Soil, waste and vent pipe system shall be installed in accordance with the best standard of modern practice as described in B.S. 5572 to the approval of the Engineer.

The Sub-contractor shall be responsible for ensuring that all ground waste fittings are discharged to a gully trap before passing to the sewer via a manhole.

The Sub-contractor shall provide all necessary rodding and inspection facilities within the draining system in positions where easy accessibility is available.

Where a branch requires rodding facilities in a position to which normal access is unobtainable, then that branch shall be extended so as to provide a suitable purpose made rodding eye in the nearest adjacent wall or floor to which easy access is available.

The vent stacks shall terminate above roof level and where stack passes through roof, a weather skirt shall be provided. The Sub-contractor shall be responsible for sealing the roof after installation of the stacks.

The open end of each stack shall be fitted with a plastic coated or galvanised steel wire guard.

Access for rodding and testing shall be provided at the foot of each stack.

c) Sanitary Appliances

All sanitary appliances associated with the Sub-contract works shall be installed in accordance with the best standard of modern practice as described in C.P. 305 to the approval of the Engineer.

2.4 TESTING AND INSPECTION

2.4.1 Site Tests – Pipework Systems

a) Above Ground Internal Water Services Installation

All water service pipe system installed above ground shall be tested hydraulically for a period of one hour to not less than one and half times to design working pressure.

If preferred, the Sub-contractor may test the pipelines in sections. Any such section found to be satisfactory need not be the subject of a further test when system has been completed, unless specifically requested by the Engineer.

During the test, each branch and joint shall be examined carefully for leaks and any defects revealed shall be made good by the Sub-contractor and the section re-tested.

The Sub-contractor shall take all necessary precautions to prevent damage occurring to special valves and fittings during the tests. Any item damaged shall be repaired or replaced at the Sub-contractor's expenses.

b) Above Ground Soil Waste and Ventilation System

All soil, waste and ventilating pipe system forming part of the above ground installation, shall be given appropriate test procedures as described in B.S. 5572, 1972.

Smoke tests on above ground soil, waste and ventilating pipe system shall not be permitted.

Pressure tests shall be carried out before any work which is to be concealed is finally enclosed.

In all respects, tests shall comply with the requirements of B.S. 5572.

2.4.2 **Site Test – Performance**

Following satisfactory pressure test on the pipework system operational tests shall be carried out in accordance with the relevant B. S. Code of practice on the systems as a whole to establish that special valves, gauges, control, fittings, equipment and plant are functioning correctly to the satisfaction of the Engineer.

All hot water pipework shall be installed with pre-formed fibre glass lagging to a thickness of 25mm where the pipe runs above a false ceiling or in areas where the ambient temperature is higher than normal with the result that pipe “sweating”, due to condensation will cause nuisance.

All lagged pipes which run in a visible position after erection shall be given a canvas cover and prepared for painting as follows:

- i) Apply a coating of suitable filler until the canvas weave disappears and allow to dry.
- ii) Apply two coats of an approved paint and finish in suitable gloss enamel to colors approved by the Engineer.

All lagging for cold and hot water pipes erected in crawlways, ducts and above false ceiling which after erection are not visible from the corridors of rooms, shall be covered with a reinforced aluminium foil finish banded in colours to be approved by the Engineer.

In all respects, unless otherwise stated, the hot and cold water installation shall be carried out in accordance with the best standard of modern practice and described in C.P.342 and C.P.310 respectively to the approval of the Engineer.

The test pressure shall be applied by means of a manually operated test pump or, in the case of long main or mains of large diameter, by a power driven test pump which shall not be left unattended. In either case precaution shall be taken to ensure that the required pressure is not exceeded.

Pressure gauges should be recalibrated before the tests.

The Sub-contractor shall be deemed to have included in his price for all test pumps, and other equipment required under this specification.

The test pressure shall be one and a half times the maximum working pressure except where a pipe is manufactured from a material for which the relevant B.S. specification designates a maximum test pressure.

2.5: STERILISATION OF COLD WATER SYSTEM

All water distribution system shall be thoroughly sterilised and flushed out after the completion of all tests and before being fully commissioned for handover.

The sterilisation procedures shall be carried out by the Sub-contractor in accordance with the requirements of B.S. Code of Practice 301, Clause 409 and to the approval of the Engineer.

3.0: PARTICULAR SPECIFICATION FOR PORTABLE FIRE EXTINGUISHER BOOSTED HOSE REEL SYSTEM, HOSE REEL, AND FIRE HYDRANT INSTALLATIONS

CLAUSE No.	DESCRIPTION	PAGE
3.1	General.....	PM/18
3.2	Scope of Works.....	PM/18
3.3	Water/CO ₂ Extinguishers.....	PM/18
3.4	Portable Carbon Dioxide Fire Extinguishers.....	PM/18 to PM/19
3.5	Dry Chemical Powder Fire Extinguishers.....	PM/19 to PM/20
3.6	Air Foam Fire Extinguishers.....	PM/20
3.7	Fire Blanket.....	PM/20
3.8	Boosted Hose Reel System.....	PM/21 to PM/24
3.9	Cotton Handling System	PM/25 to PM

3.0: PARTICULAR SPECIFICATIONS FOR PORTABLE FIRE EXTINGUISHER AND HOSE REEL INSTALLATIONS

3.1 GENERAL

The particular specification details the requirements for the supply and installation and commissioning of the Portable Fire Extinguishers and Boosted Hose Reel System. The Subcontractor shall include for all appurtenances and appliances not necessarily called for in this specification or shown on the contract drawings but which are necessary for the completion and satisfactory functioning of the works.

If in the opinion of the Sub-contractor there is a difference between the requirements of the Specifications and the Contract Drawings, he shall clarify these differences with the Engineer before tendering.

3.2 SCOPE OF WORKS

The Sub-contractor shall supply, deliver, erect, test and commission all the portable fire extinguishers and Hose Reel which are called for in these Specifications and as shown on the Contract Drawings.

3.3 WATER/CO2 EXTINGUISHERS

These shall be 9-litre water filled CO2 cartridge operated portable fire extinguishers and shall comply with B.S. 1382: 1948 and to the requirements of B.S.4523: 1977. Unless manufactured with stainless steel, bodies shall have all internal surfaces completely coated with either a lead tin, lead alloy or zinc applied by hot dipping. There shall be no visibly uncoated areas.

The extinguishers shall be clearly marked with the following:

- a) Method of operation.
- b) The words 'WATER TYPE' (GAS PRESSURE) in prominent letters.
- c) Name and address of the manufacturer or responsible vendor.
- d) The nominal charge of the liquid in imperial gallons and litres.
- e) The liquid level to which the extinguisher is to be charged.
- f) The year of manufacture.
- g) A declaration to the effect that the extinguisher has been tested to a pressure of 24.1 bar (350 psi.).
- h) The number of British Standard 'B.S' 1382 or B.S. 5423: 1977.

3.4 PORTABLE CARBON DIOXIDE FIRE EXTINGUISHERS

These shall be portable carbon dioxide fire extinguishers and shall comply with B.S. 3326: 1960 and B.S. 5423: 1977.

The body of extinguisher shall be a seamless steel cylinder manufactured to one of the following British Standards; B.S. 401 or B.S. 1288.

The filling ratio shall comply with B.S. 5355 with valves fittings for compressed gas cylinders to B.S.341. Where a hose is fitted it shall be flexible and have a minimum working pressure of 206.85 bar (3000 p.s.i.). The hose is not to be under internal pressure until the extinguisher is operated.

The nozzle shall be manufactured of brass gunmetal, aluminium or stainless steel and may be fitted with a suitable valve for temporarily stopping the discharge if such means are not incorporated in the operating head.

The discharge horn shall be designed and constructed so as to direct the discharge and limit the entrainment of air. It shall be constructed of electrically non-conductive material.

The following markings shall be applied to the extinguishers: -

- a) The words “Carbon Dioxide Fire Extinguisher” and to include the appropriate nominal gas content.
- b) Method of operation.
- c) The words “Re-charge immediately after use”.
- d) Instructions for periodic checking.
- e) The number of the British Standard B.S. 3326: 1960 or B.S. 5423.
- f) The manufacturers name or identification markings

3.5 DRY CHEMICAL POWDER PORTABLE FIRE EXTINGUISHER

The portable dry powder fire extinguishers shall comply with BS3465: 1962 and BS 5423. The body shall be constructed to steel not less than the requirements of BS 1449 or aluminium to BS 1470: 1972 and shall be suitably protected against corrosion. The dry powder charge shall be not-toxic and retain its free flowing properties under normal storage conditions. Any pressurizing agent used as an expellant shall be in dry state; in particular compressed air.

The discharge tube and gas tube if either is fitted shall be made of steel, brass, copper or other not less suitable material. Where a hose is provided it shall not exceed 1,060mm and shall be acid and alkali resistant. Provision shall be made for securing the nozzle when not in use.

The extinguisher shall be clearly marked with the following information

- a) The word “Dry Powder Fire Extinguisher”
- b) Method of operation in prominent letters.

- c) The working pressure and the weight of the powder charge in Kilogramme.
- d) Manufacturers name or identification mark
- e) The words “RECHARGE AFTER USE” if rechargeable type.
- f) Instructions to regularly check the weight of the pressure container (gas Cartridge) or inspect the pressure indicator on stored pressure types when fitted, and remedy any loss indicated by either.
- g) The year of manufacture.
- h) The Pressure to which the extinguisher was tested.
- i) The number of this British Standard BS 3465 or BS 5423: 1977.
- j) When appropriate complete instructions for charging the extinguisher shall be clearly marked on the extinguisher or otherwise be supplied with the refill.

3.6: AIR FOAM FIRE EXTINGUISHER

These shall be of 9 litres capacity complete with refills cartridges and wall fixing brackets and complying with B.S. 5423 with the following specifications: -

Cylinder: to B.S. 1449

Necking: to be 76mm outside diameter steel EN 3A 2³/₄ X 8TPI female thread.

Head cap: to be plastic moulding acetyl resin.

CO₂ Cylinder: to be 75gm P.V.C coated.

Internal Finish: to be polythene lining on phosphate coating.

External finish: to be phosphated - One coat primer paint and one coat stove enamel B.S. 381 C.

3.7: FIRE BLANKET

The fire blanket shall be made from cloth woven with pre-asbestos yarn or any other fire proof material and to measure 1800 x 1210 mm and shall be fitted with special tapes folded so as to offer instantaneous single action to release blanket from storing jacket.

3.8: BOOSTED HOSE REEL SYSTEM

3.8.1: General

The Particular Specification details the requirements for the supply, installation and commissioning of the hose reel installation. The hose reel installation shall comply in all respects to the requirements set out in C.O.P 5306 Part 1: 1976, B.S 5041 and B.S 5274. The System shall comprise of a pumped system.

3.8.2: Hose Reel Pumps

The fire hose reel pumps shall consist of a duplicate set of multi-line centrifugal pumps from approved manufacturers. The pumps shall be capable of delivering 2.27 lit/sec at a running pressure of 2 bars.

The pump casing shall be of cast iron construction with the impeller shaft of stainless steel with mechanical seal.

3.8.3: Control Panel

The control panel shall be constructed of mild steel 1.0mm thick sheet, be moisture, insect and rodent proof and shall be provided complete with circuit breakers and a wiring diagram enclosed in plastic laminate.

The pump shall be controlled by a flow switch therefore; the control panel shall include the following facilities:

- (a) 'On' push button for setting the control panel to live. **G-3**
- (b) Green indicator light for indicating control panel live.
- (c) Duty / Stand-by pump auto change over.
- (d) Duty pump run green indicator light.
- (e) Stand-by pump run green indicator light.
- (f) Duty pump fail red indicator light.
- (g) Stand-by pump fail red indicator light.
- (h) Low water condition pump cut-out with red indicator light.

The pumps are to be protected by a low-level cut-out switch to prevent dry pump run when low level water conditions occur in the water storage tank.

3.8.4: Hose Reel

The hose reel to the installation shall consist of a recessed, swing-type hose reel as Angus Fire Armour Model III or from other approved manufacturers.

The hose reel shall comply with B.S. 5274: 1975 and B.S 3161: 1970 and is to be installed to the requirements of C.P. 5306 Part 1: 1976.

The hose reel shall be supplied and installed complete with a first-aid Non-kinking hose 30 meters long with a nylon spray / jet / shut-off nozzle fitted. A screw down chrome - plated globe valve to B.S 1010 to the inlet to the reel is to be supplied.

The orifice to the nozzle is to be not less than 4.8mm to maintain a minimum flow of 0.4 lit / sec to jet.

The hose reels shall be installed complete with electro-galvanised cabinet recessed on the wall.

The hose reels shall be installed at 1.5 metres centre above the finished floor level in locations shown in the contract drawings.

3.8.5 Pipe Work

The pipe work for the hose reel installation shall be galvanised wrought steel tubing heavy grade Class C to B.S 1387: 1967 with pipe threads to B.S 21. The pipe work and all associated fittings shall be in approved colour for fire fittings.

3.8.6 Pipe Fittings

The pipe fittings shall be wrought steel pipe fittings, welded or seamless fittings conforming to B.S. 1740 or malleable iron fittings to B.S 143.

All changes in direction will be with standard bends or long radius fittings. No elbows will be provided.

3.8.7 Non-return Valves

The non-return valves up to and including 80mm diameter shall be to B.S. 5153: 1974.

The valves shall be of cast iron construction with gunmetal seat and bronze hinge pin.

3.8.8 Gate Valves

The gate valves up to and including 80mm diameter shall be non-rising stem and wedge disc to B.S 5154: 1974 with screwed threads to B.S. 21 tapes thread

3.8.9 Sleeves

Where pipe work passes through walls, floors or ceilings, a sleeve shall be provided one diameter larger than the diameter of the pipe, the space between them to be packed with mineral wool, to the Engineer's approval.

3.8.10 Earthing

The hose reel installation shall be electrically earthed by a direct earth connection. The installation of the earthing shall be carried out by the Electrical Sub- contractor.

3.8.11 Finish Painting

Upon completion of testing and commissioning the hose reel installation, the pipework shall be primed and finish painted with 2 No. coats of paints to the Engineer's requirements.

3.8.12 Testing and Commissioning

The hose reel installation shall be flushed out before testing to ensure that no builder's debris has entered the system. The installation is to be then tested to one and half times the working pressure of the installation to the approval of the Engineer. Simulated fault conditions of the pumping equipment are to be carried out before acceptance of the System by the Engineer.

3.8.13: Instruction Period

The Sub-contractor shall allow in his contract sum for instructing of the use of the equipment to the Client's maintenance staff. The period of instruction may be within the contract period but may also be required after the contract period has expired.

The period of time required shall be stipulated by the Client but will not exceed two days in which time the Client's staff shall be instructed on the operation and maintenance of the equipment.

3.8.14: Signage-Fire Instruction /Fire Exit

3.8.14.1 Fire Instruction Notice

Print fire instruction on the Perspex plates with White Colour

Background measuring 510mm length x 380mm width x 4mm thick as follows;

FIRE INSTRUCTION NOTICE

In the event of fire;

1. Raise the alarm by actuating the nearest alarm system point, Sound Siren /gong or **Shout Fire**
2. Attack fire using the nearest available equipment
3. Call nearest fire Brigade or Police 999 and inform your switchboard (PABX) Operator
4. Ensure that all personnel not involved in fire fighting evacuation to safety outside the building.
5. Close but **DO NOT LOCK** doors behind as you leave.
6. Evacuate the building using stairs or fire escapes. Do not use Lifts/Escalators. Walk calmly. Avoid panic. Do not stop or return for personal belongings.
7. Assemble as per floor outside the building for roll call.

3.8.14.2 Fire Exit Sign

Print Fire Exit signs on the Perspex plate, 4mm thick, with white colour background as follows: -

1. Lettering IN RED COLOUR of not less than 50mm in height.
2. A pendant sign bearing words, FIRE EXIT and with a directional arrow.

The sign must be capable of being read from both approaches to exit and so is double sided.

3.8.14.3 Hose Reel Label

Print Fire Exit signs on the Perspex plate, 4mm thick, with white colour background as follows: -

1. Lettering IN RED COLOUR of not less than 50mm in height.
2. A pendant sign bearing words, HOSE REEL and with a directional arrow.

The sign must be capable of being read from both approaches to exit and so is double sided.

**SPECIFICATION FOR PIPES AND ASSOCIATED
ACCESSOIRES**

4.0: GENERAL SPECIFICATION FOR PIPES AND ASSOCIATED ACCESSOIRES

Polypropylene Pipes –Random copolymer (PP-R) Type 3

PP-R pipework shall be manufactured in accordance with ISO 15874-1 or manufactured in accordance with DIN 8077 and DIN 8078.

Jointing

The method of jointing to be employed shall be that of fusion welding using the pipe and manufacturer's approved equipment.

And fittings to be in accordance DIN 16962.

The threaded connections shall conform to BS EN 10226-1 or ISO 7-1.

Dimensions and quality of PP-R Pipes shall be as follows:

Nominal Diameter	Approx. Wall Thickness (Minimum and Maximum)				Inner Diameter (mm)	
	SDR 7.4		SDR 6		SDR 7.4	SDR 6
	PN 16		PN 20		PN 16	PN 20
DN (OD)	Min	Max	Min	Max		
20	2.80	3.30	3.40	4.00	13.90	12.60
25	3.50	4.10	4.20	4.90	17.40	15.90
32	4.40	5.10	5.40	6.20	22.50	20.40
40	5.50	6.30	6.70	7.60	28.20	25.70
50	6.90	7.80	8.30	9.40	35.30	32.30
63	8.60	9.70	10.50	11.80	44.70	40.70
75	10.30	11.60	12.50	14.00	53.10	48.50
90	12.30	13.80	15.00	16.70	63.90	58.30
110	15.10	16.90	18.30	20.40	78.00	71.30
125	17.10	19.10	20.80	23.10	88.80	81.10
140	19.20	21.40	23.30	25.90	99.40	90.80
160	21.90	24.30	26.60	29.50	113.80	103.90

Fusion guideline shall be as follows:

Pipe Diameter(mm)	Minimum wall thickness (mm)	Insert depth (mm)	Heating time (sec)	Jointing time (sec)	Cooling time (sec)
20	3, 4	14	6	4	2
25	4, 2	16	7	4	3
32	5, 4	18	8	6	4
40	6, 7	20	12	6	4
50	8, 4	23	18	6	5
63	10, 5	26	25	8	6
75	12, 5	28	30	8	8
90	15, 0	31	40	10	8
110	18, 4	33	50	10	8

Galvanised Mild Steel Pipe Work and Associated Accessories

Galvanized steel pipework up to 65mm nominal bore shall be manufactured in accordance with KS 06.366, EN 10255, Class B/Medium, with tapered pipe threads in accordance with BS EN 10226-1 or ISO 7-1.

All fittings shall be made of galvanised malleable iron and manufactured in accordance with KS 06-885:1995 or EN 10255.

Galvanized steel pipe work from 80mm nominal bore up to 150mm nominal bore shall be manufactured to comply in all respects with the specification for 65mm pipe, except that screwed and bolted flanges shall replace unions and couplings for the jointing of pipes to valves and other items of plant.

Specifications for galvanized mild steel pipe work to be as follows:

Nominal bore		Outside diameter	Thickness		Mass	
		Medium/ Heavy	Medium	Heavy	Medium	Heavy
in	mm	mm	mm	mm	kg/m	kg/m
1/4	8	13.90	2.30	2.90	0.641	0.765
3/8	10	17.40	2.30	2.90	0.839	1.020
1/2	15	21.70	2.60	3.20	1.210	1.440
3/4	20	27.20	2.60	3.20	1.560	1.870
1	25	34.20	3.20	4.00	2.410	2.940
1 1/4	32	42.90	3.20	4.00	3.100	3.800
1 1/2	40	48.80	3.20	4.00	3.570	4.380
2	50	60.80	3.60	4.50	5.030	6.190
2 1/2	65	76.60	3.60	4.50	6.430	7.930
3	80	89.50	4.00	5.00	8.370	10.300
4	100	114.90	4.50	5.40	12.200	14.500
5	125	140.60	5.00	5.40	16.600	17.900
6	150	166.10	5.00	5.40	19.700	21.300

Poly-vinyl Chloride (CPVC) Pipes and Fittings

All CPVC pressure pipes and fittings shall be as manufactured in accordance with ASTM F 441/F441M or DIN 8079/8080 or EN ISO 15877, KS06-478-2:1993 (B.S. 3505: 1968).

Jointing

The method of jointing to be employed shall be that of solvent welding, using the pipe and manufacturer's approved cement. Seal ring joint shall be introduced where it is necessary to accommodate thermal expansion. This shall be in accordance to ASTM F438 and ASTM F439. The threaded connections shall conform to ASTM F437 or BS EN 10226-1 or ISO 7-1.

The specification for chlorinated polyvinyl chloride (CPVC) pipe made for water distribution shall be as follows:

ASTM F441/F441M

Nominal Size	Mean Outside Diameter (mm)		WALL THICKNESS (MM) & PRESSURE RATING (PSI)							
			Schedule 40				Schedule 80			
inch	Min	Max	Min	Max	PSI		Min	Max	PSI	
					23°C	82°C			23°C	82°C
1/2	21.20	21.20	2.77	3.28	600	150	3.73	4.24	850	210
3/4	26.60	26.60	2.87	3.28	480	120	3.91	4.42	690	170
1	33.27	33.27	3.38	3.89	450	110	4.55	5.08	630	155
1 1/4	42.07	42.07	3.56	4.06	370	90	4.85	5.44	520	130
1 1/2	48.15	48.15	3.68	4.19	330	80	5.08	5.69	470	155
2	60.15	60.15	3.91	4.42	280	70	5.54	6.20	400	100
2 1/2	72.82	72.82	5.91	5.77	300	75	7.01	7.85	420	105
3	88.70	88.70	5.49	6.15	260	65	7.85	8.53	370	90
4	114.07	114.07	6.02	6.73	220	55	8.56	9.58	320	80
6	168.02	168.02	7.11	7.97	180	45	10.97	12.29	280	70
8	218.62	218.62	8.18	9.17	160	40	12.7	14.22	250	60

DIN 8079/8080

Nominal Size	Mean Outside Diameter (mm)		WALL THICKNESS (MM) & PRESSURE RATING (BAR)			
			SDR 13.6		SDR 11	
mm	Min	Max	(16 Bar)/PN 16		(20 Bar)/PN 20	
			Min	Max	Min	Max
20	20.0	20.2	1.5	1.9	1.9	2.3
25	25.0	54.2	1.9	2.3	2.3	2.8
32	32.0	32.2	2.4	2.9	2.9	3.4
40	40.0	40.2	3.0	3.5	3.7	4.3
50	50.0	50.2	3.7	4.3	4.6	5.3
63	63.0	63.2	4.7	5.4	5.8	6.6
75	75.0	75.3	5.6	6.4	6.8	7.7
90	90.0	90.3	6.7	7.6	8.2	9.3
110	110.0	110.3	8.1	9.2	10.0	11.2
125	125.0	125.3	9.2	10.4	11.4	12.8
140	140.0	140.4	10.3	11.6	12.7	14.2
160	160.0	160.4	11.8	13.2	14.6	16.3

The pipe to be made out high quality material with high impact resistance, chemical resistance, good thermal qualities, low flame spread and low smoke generation.

PM/30

5.0 PARTICULAR SPECIFICATIONS FOR COTTON PROCESSING PLANT WORKS

5.1 SUMMARY

These specifications describe requirements for a cotton processing system. The system desired is to have a capacity **of 2000 kg/hr.** output line that shall have the process steps from cotton cleaning and drying, feeding, ginning and baling.

It is expected that the end of the processing lines the production of soft and long threaded clean cotton lint suitable for supply to large-scale consumers like cotton material manufacturers.

The contractor shall supply equipment that is fully capable for the production of the soft and clean cotton lint based on these specifications and those that might not have been captured to ensure a fully functional processing line.

5.2 DESIGN REQUIREMENTS

The design requirements expected from the bidder is to provide a cotton processing plant that will automatically process raw cotton to a finished product of clean and soft cotton. The plant desired should incorporate all the items that will allow for the finished product including baling and weighing. The expected end production is 2000 kg/hr. At 100% and anything less than 80% is not acceptable.

It is required that the contractor shall order materials from the quantities taken from his own approved working drawings and not to fully rely on the quantities shown on the contract drawings or in the specification but use them as a guide.

5.3 SUBMITTALS

Submittals shall be provided with the tender documents and shall include: single-line diagrams; dimensional, electrical and capacity data; piping (steam and water) and electrical connection drawings.

5.4 CLIMATIC CONDITIONS

The following climatic conditions apply at the site and all the materials and equipment used shall be suitable for these conditions:

CLIMATIC CONDITIONS	LUANDA
Design Month	AUGUST
Design time	1200 GMT
Dry Bulb Temperature	21.5°C
Dew Point Temperature	9.1°C
Relative Humidity	39%
Altitude	1172 M ASL
Longitude	13.2302 ⁰ E
Latitude	8.8147 ⁰ S
Annual Rainfall	1410 mm

It is important for the contractor to note that the amount quoted in the form of tender shall include for all materials and items not particularly called for in this specification but which are necessary to complete the works and to ensure satisfactory functioning of the system.

5.5 PROCESSING LINE

In these specifications the equipment for the processing lines has been divided in to sections as envisaged to the activities being undertaken on the raw cotton.

It is expected that the contractor shall provide for the smooth flow of the operations of the machines for example power connections, water connections, lubricants, controls for the equipment, couplings, hooks, e.t.c, if they have not been specified but are a requirement for the processing of the raw cotton.

And as such the contractor is advised to have in their tender sum for all the equipment, lubricants and accessories called for in these specifications and not called for in these specifications as the client needs to have a functioning plant.

Claims raised due to oversight of the above mentioned will not be considered.

All material to use in the plant equipment, should meet the relevant British standards.

A. AIR SEPARATOR

Air Separator with the following specifications:

- Seed Cotton processing capacity of 3500kg/hour
- Operating speed of 60 RPM
- Input Power of 5HP

The air separator shall be as approved by the project mechanical engineer.

It shall be the responsibility of the tenderer to modify the existing platform to accommodate the equipment.

This machine should be compatible to the existing pre-cleaner machine.

B. SEED COTTON SUCTION MACHINE

Seed cotton suction machine with the following specifications/ contain the following items & features: -

- Centrifugal Suction Fan of Input Power 30kW, 415 Volts
- V-belt drive arrangement
- Pre-Lubricated Bearing Block & Shaft Assembly
- Drive pulleys, driven pulleys & drive guard
- Inspection window
- Drain plug
- Lifting hook
- Inlet pneumatic damper
- Pedestal base
- Inlet & outlet flanges

The air separator shall be as approved by the project mechanical engineer.

It shall be the responsibility of the tenderer to modify the existing platform to accommodate the equipment.

This machine should be compatible to the existing pre-cleaner machine.

C. G.M.S. DUCTS

Supply, deliver and install galvanized mild steel (GMS) light grade and fittings to BS 1387. Tenderers must allow in their prices for adequate supports, unions couplings, etc necessary for the proper functioning of the cotton handling system.

Tenderers to ensure ducts are fitted into the air separator & suction machine.

The thickness/ gauge and quality of the material shall be as approved by the project mechanical engineer.

D. FIRE DETECTOR/ DIVERTER

Supply, deliver and install fire detectors & diverters along the pneumatic suction systems to detect sparks and divert the material to an extinguishing area/point. Tenderers must allow in their prices for adequate supports, unions couplings, etc necessary for the proper functioning of the cotton handling system. These items must face the correct direction of flow of the cotton handling system.

Tenderers to ensure the sensors & diverters are fitted into the G.M.S. ducting.

The fire detectors/ diverters shall have the following features:

- Spark detector consisting of 2 no. infrared spark sensors
- Spark diverter complete with an abort gate that is held open by a DC magnet.

The Fire detector and diverter models shall be as approved by the project mechanical engineer.

It will be the responsibility of the tenderer to construct and provide any other necessary accessories for the equipment's proper operation.

E. STONE CATCHER/ ROCK TRAP

The stone catcher must be capable of gravity removal of stones without considerable pressure loss.

It should be fitted along the seed cotton suction system.

The Stone Catcher/Rock Trap must meet the following specifications & have the accessories listed below:

- 150mm diameter
- air tight trap door

The stone catcher model shall be as approved by the project mechanical engineer.

It will be the responsibility of the tenderer to provide all necessary accessories and items required for proper operation of the equipment.

It shall be deemed that quotes for the equipment includes costs for the items mentioned above.

F. COTTON SEED CONVEYOR

A cotton seed conveyor with the following specifications:

- 8.5-inch diameter
- Input Power of 3HP
- Mechanical feeding system
- Conveying capacity of 5000 Kgs/hour

The Cotton seed conveyor model shall be as approved by the project mechanical engineer.

It will be the responsibility of the tenderer to provide all necessary accessories and items required for proper operation of the equipment.

It shall be deemed that quotes for the equipment includes costs for the items mentioned above.

**BILLS OF QUANTITIES
AND
SCHEDULE OF UNIT RATES**

BILLS OF QUANTITIES AND SCHEDULE OF UNIT RATES

CONTENTS

<u>CLAUSE No.</u>	<u>PAGE</u>
1.01 GENERAL NOTES TO TENDERERS.....	M-1
1.02 STATEMENT OF COMPLIANCE.....	M-2
2.01 BILLS OF QUANTITIES	M-3 to M-18
2.02 SUMMARY PAGE.....	M-19
3.01 SCHEDULE OF UNIT RATES.....	M-20

1.01: SPECIAL NOTES

1. The Bills of Quantities form part of the contract documents and are to be read in conjunction with the contract drawings and general specifications of materials and works.
2. The prices quoted shall be deemed to include for all obligations under the sub-contract including but not limited to supply of materials, labour, delivery to site, storage on site, installation, testing, commissioning and all taxes (**including 16% VAT**).

In accordance with Government policy, **3% Withholding Tax shall be deducted** from all payments made to the Tenderer, and the same shall be forwarded to the **Kenya Revenue Authority (KRA)**.

3. All prices omitted from any item, section or part of the Bills of Quantities shall be deemed to have been included to another item, section or part thereof.
4. The brief descriptions of the items given in the Bills of Quantities are for the purpose of establishing a standard to which the sub-contractor shall adhere. Otherwise alternative brands of **equal** quality will be accepted.

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

5. The grand total of prices in the price summary page must be carried forward to the **Form of Tender for the tender to be deemed valid**.

Tenderers must enclose, together with their submitted tenders, detailed manufacturer's Brochures detailing Technical Literature and specifications on all the equipment they intend to offer.

1.02: STATEMENT OF COMPLIANCE

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

Signed:*for and on behalf of the*
Tenderer

Date:

Official Rubber Stamp:

2.01: BILLS OF QUANTITIES

A) PRICING OF PRELIMINARIES ITEMS.

Prices will be inserted against item of preliminaries in the sub-contractor's Bills of Quantities and specification. These Bills are designated as Bill 1 in this Section. Where the sub-contractor fails to insert his price in any item he shall be deemed to have made adequate provision for this on various items in the Bills of Quantities. The preliminaries form part of this contract and together with other Bills of Quantities covers for the costs involved in complying with all the requirements for the proper execution of the whole of the works in the contract.

The Bills of Quantities are divided generally into three sections:-

a. Preliminaries – Bill 1

Sub-contractor's preliminaries are as per those described in section C – subcontractor preliminaries and conditions of contractor. The sub-contractor shall study the conditions and make provision to cover their cost in this Bill. The number of preliminary items to be priced by the Tenderer has been limited to tangible items such as site office, temporary works and others. However, the Tenderer is free to include and price any other items he deems necessary taking into consideration conditions he is likely to encounter on site.

b. Installation Items – Other Bills

- i. The brief description of the items in these Bills of Quantities should in no way modify or supersede the detailed descriptions in the contract Drawings, conditions of contract and specifications.
- ii. The unit of measurements and observations are as per those described in clause 3.05 of the section

c. Summary

The summary contains tabulation of the separate parts of the Bills of Quantities carried forward with provisional sum, contingencies and any prime cost sums included. The sub-contractor shall insert his totals and enter his grand total tender sum in the space provided below the summary. This grand total tender sum shall be entered in the Form of Tender provided elsewhere in this document

SCHEDULE OF UNIT RATES

ITEM	DESCRIPTION	RATE
1	Gearbox of ratio 25.98/1	
2	17 x 1175 Li oil & heat resistant U-Belt (B1210/B46)	
3	Wash hand basin (pedestal)	
4	Stainless Steel Soap dispenser	
5	Toilet roll holder	
6	Gate Valves	
	i) 25 mm ii) 32mm iii) 40mm iv) 50 mm v) 65mm vi) 75mm vii) 100mm	
7	Twyford's E100 Premium Round close coupled washdown WC suite in white vitreous china with horizontal outlet, E100 Premium round cistern, pan & fittings 4/6 litre BSIO push button complete with quick release family seat and cover, plastic hinges & self closing mechanism, P trap outlet connector, fixing screws and all other accessories necessary for correct use of the suite	

TECHNICAL SCHEDULE OF ITEMS TO BE SUPPLIED

CONTENTS

<u>CLAUSE No.</u>	<u>PAGE</u>
1. GENERAL NOTES TO THE TENDERER.....	MT/1
2. TECHNICAL SCHEDULE.....	MT/2

TECHNICAL SCHEDULE

1. General Notes to the Tenderer

- 1.1 The tenderer shall submit technical schedules for all materials and equipment upon which he has based his tender sum.
- 1.2 The tenderer shall also submit separate comprehensive descriptive and performance details for all plant apparatus and fittings described in the technical schedules. Manufacturer's literature shall be accepted. Failure to comply with this may have his tender disqualified.
- 1.3 Completion of the technical schedule shall not relieve the Contractor from complying with the requirements of the specifications except as may be approved by the Engineer.

TECHNICAL SCHEDULE

The tenderer must complete in full the technical schedule. Apart from the information required in the technical schedule, the tenderer **MUST SUBMIT** comprehensive manufacturer's technical brochures and performance details for all items listed in this schedule (fill forms attached).

TECHNICAL SCHEDULE				
Item	Description	Manufacturer	Country of Origin	Remarks (Catalogue No.etc)
1	Water Closet			
2	Disabled Water Closet Suite			
3	Wash hand basin			
4	cPVC, uPVC & muPVC pipes & fittings			
5	GMS pipes & fittings			
6	Gate Valves			
7	Fire water booster pump			
8	Fire hosereel			
9	Portable Fire Extinguisher			
10	Toilet Extract Fans			
Tenders Must attach Brochures/Catalogues as it will form part of evaluation criteria				

DRAWING SCHEDULE

DRAWING SCHEDULE:

As shall be provided during project implementation.

PROPOSED MODERNISATION OF LUANDA FARMERS CO-OPERATIVE UNION GINNERY FOR THE STATE
DEPARTMENT FOR CO-OPERATIVES IN FUNYULA, BUSIA COUNTY (PHASE II)

ITEM	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
1.0	BILL NO. 1: PRELIMINARIES				
1	Discrepancies clause 1.02	1	Item		
2	Conditions of sub-contract Agreement clause 1.03	1	Item		
3	Payments clause 1.04	1	Item		
4	Site location clause 1.06	1	Item		
5	Scope of Contract Works clause 1.08	1	Item		
6	Extent of the Contractor's Duties clause 1.09	1	Item		
7	Firm price contract clause 1.12	1	Item		
8	Variation clause 1.13	1	Item		
9	Prime cost and provisional sum clause 1.14 (insert profit and attendance which is a percentage of expended PC or provisional sum.)	1	Item		
10	Bond clause 1.15	1	Item		
11	Government Legislation and Regulations clause 1.16	1	Item		
12	Import Duty and Value Added Tax clause 1.17 (Note this clause applies for materials supplied only. VAT will also be paid by the sub-contractor as allowed in the summary page)	1	Item		
13	Insurance company Fees clause 1.18	1	Item		
14	Provision of services by the Main contractor clause 1.19	1	Item		
15	Samples and Materials Generally clause 1.21	1	Item		
16	Supplies clause 1.20	1	Item		
17	Bills of Quantities clause 1.23	1	Item		
	Sub-Total for Preliminaries c/f to Next Page				

PROPOSED MODERNISATION OF LUANDA FARMERS CO-OPERATIVE UNION GINNEY FOR THE STATE
DEPARTMENT FOR CO-OPERATIVES IN FUNYULA, BUSIA COUNTY (PHASE II)

ITEM	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
Sub-Total for Preliminaries b/f from Previous Page					
18	Contractor's Office in Kenya clause 1.24	1	Item		
19	Builder's Work clause 1.25	1	Item		
20	Setting to work and Regulating system clause 1.29	1	Item		
21	Identification of plant components clause 1.30	1	Item		
22	Working Drawings clause 1.32	1	Item		
23	Record Drawings (As Installed) and Instructions clause 1.33	1	Item		
24	Maintenance Manual clause 1.34	1	Item		
25	Hand over clause 1.35	1	Item		
26	Painting clause 1.36	1	Item		
27	Testing and Inspection – manufactured plant clause 1.38	1	Item		
28	Testing and Inspection – Installation clause 1.39	1	Item		
29	Storage of Materials clause 1.41	1	Item		
30	Initial Maintenance clause 1.42	1	Item		
31	Attendance Upon Tradesmen, etc. (Insert percentage only) clause 1.58	1	Item		
32	Local and other Authorities notices and fees clause 1.60	1	Item		
33	Temporary Works clause 1.63	1	Item		
34	Patent Rights clause 1.64	1	Item		
35	Mobilization and Demobilization Clause 1.65	1	Item		
Sub-Total for Preliminaries c/f to Next Page					

PROPOSED MODERNISATION OF LUANDA FARMERS CO-OPERATIVE UNION GINNERY FOR THE STATE
DEPARTMENT FOR CO-OPERATIVES IN FUNYULA, BUSIA COUNTY (PHASE II)

ITEM	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
	Sub-Total for Preliminaries b/f from Previous Page				
36	Extended Preliminaries Clause 1.66(see appendix on page C- 24)	1	Item		
37	Supervision by Engineer and Site Meetings Clause 1.67	1	Item		
38	Allow for profit and Attendance for the above	1	Item		
40	Contractor Obligation and Employers	1	Item		
41	Obligation clause 1.69(see appendix page C- 24)	1	Item		
42	Any other preliminaries;				
	i) Continuous Professional Development (CPD) courses for 2 No. officers at Engineers Board of Kenya (EBK) and Institute of Engineers of Kenya (IEK) @ KSh. 60,000.00 per officer.	1	Item	120,000.00	120,000.00
	Allow for profit and Attendance for item (i) above	1	Item		
	ii) Allow for airtime for 2 No. officers at a rate of Ksh. 2,000 per month for each officer for the period of the project	1	Item	50,000.00	50,000.00
	Allow for profit and Attendance for item (ii) above	1	Item		
	Total for Preliminaries Carried to Summary Page				

PROPOSED MODERNISATION OF LUANDA FARMERS CO-OPERATIVE UNION GINNEY FOR THE STATE
DEPARTMENT FOR CO-OPERATIVES IN FUNYULA, BUSIA COUNTY (PHASE II)

ITEM	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
2.00	<u>BILL NO.2:COTTON HANDLING SYSTEM</u>				
	SUPPLY OF NEW MACHINERY				
i)	Tenderers to ensure that each machine should be equipped with a control panel and start via star delta electrical connection.				
	The machines should be placed on anti-vibration platforms.				
ii)	Tenderers' quotes should include costing for control panels, preparation of surfaces, anti-vibration platforms, installation, connection to electrical points, auxilliary items, lubricants and any other works necessary for proper operation of the system				
iii)	The following machines are to be delivered, installed and commissioned according to the Engineer's instructions:				
	Air Separator				
A	Air Separator of seed cotton capacity 3500kg/hr, operating speed 60 RPM, power of 5HP and all other accessories necessary for proper operation of the system. The system should be compatible to the existing pre-cleaner machine.	1	No.		
	Seed Cotton Suction Machine				
B	Seed Cotton Suction Machine complete with centrifugal suction fan of 30kW,415V AC & V-belt drive arrangement, pre-lubricated bearing block & shaft assembly,drive pulleys, driven pulleys,drive guard, slide rail for motor, common base frame, inspection window, drain plug, lifting hook, inlet pneumatic damper, air separator, pedestal base, inlet & outlet flanges and all other accessories necessary for proper operation of the system. The system should be compatible to the pre-cleaner machine and air separator as above mentioned.	1	Item		
	Sub-total c/f to the next page				

PROPOSED MODERNISATION OF LUANDA FARMERS CO-OPERATIVE UNION GINNERY FOR THE STATE
DEPARTMENT FOR CO-OPERATIVES IN FUNYULA, BUSIA COUNTY (PHASE II)

ITEM	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
	Sub-total b/f from the previous page				
A	G.M.S Ducts				
	Supply, deliver and install galvanized mild steel (GMS) light grade and fittings to BS 1387. Tenderers must allow in their prices for adequate supports, unions couplings, etc necessary for the proper functioning of the cotton handling system.				
	Tenderers to ensure ducts are fitted into the air separator & suction machine				
	i) Clean, service and repair the complete pneumatic seed cotton transportation system; ducting from store to ginning house, repair air leakages, install dust trapping valves, repair corroded/rusted areas	1	Item		
	ii) 150mm diameter light gauge G.M.S. ducts	5	LM		
	iii) 300mm diameter light gauge G.M.S. ducts	5	Lm		
B	Fire Detector/Diverter				
	Supply, deliver and install fire detectors & diverters along the pneumatic suction systems to detect sparks and divert the material to an extinguishing area/point. Tenderers must allow in their prices for adequate supports, unions couplings, etc necessary for the proper functioning of the cotton handling system. These items must face the correct direction of flow of the cotton handling system				
	Tenderers to ensure the sensors & diverters are fitted into the G.M.S. ducting				
	i) Spark detector consisting of 2 no. infrared spark sensors	1	No.		
	ii) Spark diverter complete with an abort gate that is held open by a DC magnet	1	No.		
	Sub-total c/f to the next page				

PROPOSED MODERNISATION OF LUANDA FARMERS CO-OPERTATIVE UNION GINNERY FOR THE STATE
DEPARTMENT FOR CO-OPERATIVES IN FUNYULA, BUSIA COUNTY (PHASE II)

ITEM	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
	Sub-total b/f from the previous page				
	Stone Catcher/Rock Trap				
A	150mm diameter stone catcher capable of gravity removal of stones without considerable pressure loss,complete with air tight trap door. It should be fitted along the seed cotton suction system. To be as approved by the project Mechanical Engineer.	1	No.		
	Cotton Seed Conveyor				
B	Cotton Seed Screw Conveyor of 8.5 inch diameter, power rating 3 HP, mechanical feeding system, capacity of 5000 tons /hr. Conveyor to be complete with all necessary equipment, spare parts and accompanying tools for operation. To be as approved by the project Mechanical Engineer.	4	No.		
	HYDRAULIC OIL,LUBRICANTS & GREASE				
C	Allow for the cost of supplying hydraulic oil, lubricants & grease for proper operation of the machinery. To be as directed by Project Mechanical Engineer (provisional sum)	1	Item	1,000,000.00	1,000,000.00
D	Testing & Commissioning Allow for testing and commissioning of the cotton handling system as instructed by Project Mechanical Engineer	1	Item		
	Sub-total c/f to Summary page				

PROPOSED MODERNISATION OF LUANDA FARMERS CO-OPERATIVE UNION GINNNERY FOR THE STATE
DEPARTMENT FOR CO-OPERATIVES IN FUNYULA, BUSIA COUNTY (PHASE II)

ITEM	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
3.00	<u>BILL NO.3: EXTERNAL WATER RETICULATION</u>				
A	Excavate trench in hard soil/murram 600mm wide and depth not exceeding 1000mm deep and average 750mm deep, prepare bed with red soil/murram of particle size not more than 20 mm to a depth of 750mm. Bed shall be approved by Engineer before laying of pipes. Fill with same material as above and compact in layers of 75 mm. Cart away surplus soil.	500	Lm		
	Supply, deliver and install HDPE pipe work and fittings to ISO 4427 laid in trench. Tenderers must allow in their prices for adequate supports, unions couplings, etc necessary for the proper functioning of the water reticulation system.				
B	HDPE Pipe Work: PN16				
	i) 110mm	350	Lm		
	ii) 80mm	50	Lm		
	iii) 65mm ditto.	50	Lm		
	vii) 25mm ditto.	50	Lm		
C	Bends				
	i) 110mm diameter bend	20	No.		
	ii) 80mm ditto.	10	No.		
	iii) 65mm ditto.	10	No.		
	vii) 25mm ditto.	40	No.		
D	Tees				
	i) 110 mm equal diameter tee	3	No.		
	ii) 80 mm equal diameter tee	3	No.		
	iii) 65 mm equal diameter tee	3	No.		
	vii) 25 mm equal diameter tee	10	No.		
E	Reducers				
	i) 110 x 80 mm diameter reducer	3	No.		
	ii) 80x65mm diameter reducer	3	No.		
	iv) 65x25mm diameter reducer	3	No.		
F	Valves				
	100mm diameter high pressure gate valve	3	No.		
	80mm ditto	2	No.		
	25mm ditto	2	No.		
	Sub-total c/f to the next page				

PROPOSED MODERNISATION OF LUANDA FARMERS CO-OPERATIVE UNION GINNERY FOR THE STATE
DEPARTMENT FOR CO-OPERATIVES IN FUNYULA, BUSIA COUNTY (PHASE II)

ITEM	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
	Sub-total b/f from the previous page				
A	Sockets				
	i) 110 mm diameter pipe socket	100	No.		
	ii) 80mm ditto	15	No.		
B	Plugs				
	25mm diameter plug	5	No.		
	Sleeves				
C	100mm diameter heavy duty PVC (class 41, 2.5mm thick) pipe sleeves for crossing over pathways and driveways. The sleeves will be encased in 150mm concrete surround.	200	Lm		
D	Allow for flushing and sterilization of the external water reticulation system as required to the satisfaction of the Engineer	1	Item		
	Testing and Commissioning				
E	Allow for setting to work, testing and commissioning of the whole external water reticulation system to the satisfaction of the Engineer	1	Item		
Total for External Water Reticulation c/f to Summary Page					

PROPOSED MODERNISATION OF LUANDA FARMERS CO-OPERATIVE UNION GINNEY FOR THE STATE
DEPARTMENT FOR CO-OPERATIVES IN FUNYULA, BUSIA COUNTY (PHASE II)

ITEM	DESCRIPTION	QTY	UNIT	RATE (KSHS)	AMOUNT (KSHS)
4.00	BILL NO.4: WATER TANKS, BOOSTER PUMP & WATER TREATMENT WORKS				
A	Booster Pumps				
	i) Supply, deliver and install electrically driven twin booster pumps, one duty and one standby, capable of delivering 20 m ³ /h against a total static head of 60 metres with a 3-phase power source. The pump to be as GRUNDFOS model CR 64-2 or equal and approved equivalent pumps to be installed on an anti-vibration mounted platform. Allow for pump accommodation.	1	Set		
	ii) Supply, deliver and install a control panel with removable front access cover, motor control gear, internal buttons with automatic change over "running" and "trip" neon lights control system, overload, protection, power surge protection, protection from dry-running, button for change from automatic to manual operation plus any other necessary controls	1	Item		
	iii) Allow for electrical works wiring and fitting to pumps, control panel and float switches from Isolator provided by others.	1	Item		
B	Plastic Tanks				
	Install CYLINDRICAL plastic water tank of capacity 10,000 litres(2174 gallons)	3	No.		
C	Allow for building tank bases for the 3 No. tanks mentioned above as per Structural Engineer's design & instructions	1	Item		
D	WATER FILTRATION/ TREATMENT PLANT				
	Allow for the cost of water filtration/treatment plant capable of delivering 3m ³ /hr permeate, minimum inlet pressure of 3 bar, design temperature 25°C and recovery range of 50-75% (provisional sum)	1	Item		
	Sub- Total c/f to Summary Page				

PROPOSED MODERNISATION OF LUANDA FARMERS CO-OPERATIVE UNION GINNEY FOR THE STATE
DEPARTMENT FOR CO-OPERATIVES IN FUNYULA, BUSIA COUNTY (PHASE II)

Item	Description	Qty.	Unit	Rate (KShs)	Amount (KShs)
5.00	BILL NO.5 FIRE DETECTION AND SUPPRESSION				
5.1	PORTABLE FIRE EXTINGUISHERS				
	Supply, deliver, install and test the following fire fighting equipment in positions indicated on the contract drawings or as shall be instructed by the Engineer.				
	Standard Printed Label				
A	Standard printed labels for the fire cupboards.	1	Item		
	Supply, deliver, install, test and commission the following portable fire extinguishers and conforming to BS EN 3 / BS 1449.				
	Water/Carbon Dioxide Gas Fire Extinguisher				
B	9 litres water/carbon dioxide gas portable fire extinguisher complete with pressure gauge, initial charge and mounting brackets.	12	No		
	Carbon Dioxide Gas Fire Extinguisher				
A	5kg carbon dioxide gas portable fire extinguisher complete with pressure gauge, initial charge and mounting brackets.	12	No		
	Dry Chemical Powder Fire Extinguisher				
B	9kg dry chemical powder portable fire extinguisher complete with pressure gauge, initial charge and mounting brackets.	12	No		
	Manual Alarm Bell				
C	9" (225mm) manual operated alarm bell (Gong)	12	No		
	Sub-total c/f to the next page				

PROPOSED MODERNISATION OF LUANDA FARMERS CO-OPERATIVE UNION GINNEY FOR THE STATE
DEPARTMENT FOR CO-OPERATIVES IN FUNYULA, BUSIA COUNTY (PHASE II)

Item	Description	Qty.	Unit	Rate (KShs)	Amount (KShs)
	Sub-total b/f from the previous page				
5.2	HOSE REEL SYSTEM				
D	Hose Reel 25mm diameter 30 m long swinging type fire hose reel complete with delivery valve, mild steel feed pipe, isolation valve guide, electro-galvanized surface mounted hose reel cabinet in approved colour and all other accessories as "GERMANIA" or equal and approved.	10	No		
A	Pumps for boosted hose reel system				
	Fully automatic packaged unit water pressure booster pump set, capable of delivering 1.2 litres/sec against a static head of 50 metres. The pump set shall comprise 2 No. pumps (one duty, the other on stand-by), mountings, control gear, pressure switch and pneumatic vessel, all on a common frame. Control shall be effected via a pressure switch through a pre-wired control panel, and which shall give full automatic changeover from duty to stand-by after every cycle of operation. The controls shall also include motor under-voltage / over-voltage protection devices and incorporate a float switch for protection against dry running. The pump set shall be pre-assembled complete with pipework, and fittings (unions, strainers, isolation valves, non-return valves etc) ready for connection to water tank outlet and to the hose reel supply to pipework. The pump set shall be as "Pullen Fire Pak" as manufactured by Pullen pumps Ltd or approved equivalent.	1	Set		
	Sub-total c/f to the next page				

PROPOSED MODERNISATION OF LUANDA FARMERS CO-OPERATIVE UNION GINNEY FOR THE STATE
DEPARTMENT FOR CO-OPERATIVES IN FUNYULA, BUSIA COUNTY (PHASE II)

Item	Description	Qty.	Unit	Rate (KShs)	Amount (KShs)
	Sub-total b/f from the previous page				
B	Control Panel The control panel shall have removable front access cover and shall be made of anodized mild steel. To be complete with motor controls gear, internal buttons with automatic change over, overload protection, power surge protection, cables, low level cut out switch at the intake, buttons for change from automatic to manual operation, contactors, timers and all other accessories necessary for the automatic operation of the pump.	1	No		
	Associated Pipework Install Galvanised mild steel (GMS) piping and fittings with screwed & socketed joint to medium grade class "B" to BS. 1387.				
A	GMS Pipework				
	i) 65 mm	250	Lm		
	ii) 32mm	50	Lm		
B	Elbows				
	i) 65mm	75	No.		
	ii) 32mm	60	No.		
C	Tees				
	i) 65 x 65 x 65 mm	30	No.		
	ii) 65 x 65 x 32 mm	20	No.		
D	Reducers				
	i) 65 x 32mm ditto	20	No.		
E	65 mm dia plug	20	No.		
	Sub-total c/f to the next page				

PROPOSED MODERNISATION OF LUANDA FARMERS CO-OPERATIVE UNION GINNEY FOR THE STATE
DEPARTMENT FOR CO-OPERATIVES IN FUNYULA, BUSIA COUNTY (PHASE II)

Item	Description	Qty.	Unit	Rate (KShs)	Amount (KShs)
	Sub-total b/f from the previous page				
F	Gate Valves				
	i) 65mm dia. approved medium pressure screw down full way non- rising stem wedge gate valve to BS 1952, with wheel and head joints to tubing. The gate valve to be as "Pegler" or approved equivalent.	12	No.		
	ii) 32 mm ditto	12	No.		
G	Non-Return Valves				
	65 mm flanged non-return valve	4	No.		
A	Fire Hose Cabinet Surface mounted fire hose cabinet manufactured from electro galvanised steel sheet with folded edges and curled hose plate edges and painted with electro static powder coating, 180°C baked. The cabinet size shall be capable of housing hose reel and 3No. portable extinguishers as described in the next page and should conform to BS EN 671-1. To be as Germania or equal and approved.	10	No.		
5.3	DRY RISER INSTALLATION				
	Supply, deliver and install the dry riser as specified.				
B	Landing Valve 65 mm diameter, gunmetal gate pattern landing valve with flanged inlet and female instantaneous outlet fitted with plug secured by short chains complete with 65 mm diameter, 20 metres long canvas hose, branch pipe and nozzle.	10	No.		
C	25mm Air Release Valve	10	No.		
	Sub-total c/f to the next page				

PROPOSED MODERNISATION OF LUANDA FARMERS CO-OPERATIVE UNION GINNEY FOR THE STATE
DEPARTMENT FOR CO-OPERATIVES IN FUNYULA, BUSIA COUNTY (PHASE II)

Item	Description	Qty.	Unit	Rate (KShs)	Amount (KShs)
	Sub-total b/f from the previous page				
D	Fire Brigade Inlet Breeching Valve Install a two way Fire Department Connection (Fire Brigade Inlet Breeching Valve) complete with drain valve, check valve, chain & caps for inlets and drain valve. All to be housed in a lockable standard cabinet with 6mm wired glass and identification sign.	4	No.		
E	Canvas Hose 65 mm diameter, canvas hose, 30 metres long designed for a bursting pressure of 34bar complete with instantenous coupling.	10	No.		
A	Associated Pipework Supply and installation of Galvanised mild steel piping and fittings with screwed & socketed joint to medium grade class "B" to BS. 1387.				
	GMS Pipework				
	i) 100mm diameter pipe	60	LM		
	ii) 65mm dia. ditto	72	LM		
	iii) 65 mm isolating valve	6	No.		
	Sub-total c/f to the next page				

PROPOSED MODERNISATION OF LUANDA FARMERS CO-OPERATIVE UNION GINNEY FOR THE STATE
DEPARTMENT FOR CO-OPERATIVES IN FUNYULA, BUSIA COUNTY (PHASE II)

Item	Description	Qty.	Unit	Rate (KShs)	Amount (KShs)
	Sub-total b/f from the previous page				
	Working and Record (As-installed) Drawings				
	Prepare and submit three sets of working and record (as-installed) plan and isometric layout drawings to easily readable scale, A1 or A0 paper size format as follows;				
	i) general arrangement drawings of all equipment, plant etc.				
	ii) routes - types and sizes and arrangement of all pipework				
B	iii) wiring (electrical & control) details	1	Item		
	iv) any other details as per specifications				
	Drawings are to be submitted in soft copy (AutoCAD 2004 format) & hard copy to the client, the Architect and the Engineer. The soft copies to be stored in CD and 4GB flash disk. Allow for preparation & submitting draft and three final copies of operation, instruction and maintenance manuals to Engineer's approval.				
C	Allow for setting to work, testing and commissioning and labelling of the entire fire sprinkler system to NFPA guidelines and to the satisfaction of the Engineer.	1	Item		
D	List any other items necessary for complete installation of the entire fire sprinkler system;				
	Total for Fire Detection & Suppression C/F to Summary Page				-

SUMMARY PAGE FOR MECHANICAL WORKS						
ITEM	DESCRIPTION					AMOUNT (KSHS)
1	Cotton Handling System					
2	External Water Reticulation					
3	High Level Water Tanks, Booster Pump & Water treatment					
4	Fire Detection & Suppression					
	TOTAL					
TOTAL FOR MECHANICAL WORKS CARRIED FORWARD TO GRAND SUMMARY OF MAIN WORKS						

Amount in words (Kenya Shillings).....
.....

Tenderer's name and Stamp:.....

P.O. Box:.....

Date:

Signature:.....

PIN NO.
(Provide copy)

VAT CERTIFICATE NO:
(Provide copy)

Witness:

Address:.....

Date: Signature:.....

TECHNICAL SCHEDULE				
Item	Description	Manufacturer	Country of Origin	Remarks (Catalogue No.etc)
1	Seed Cotton Suction Machine			
2	Fire Detector/Diverter			
3	Stone Catcher/Rock Trap			
4	Cotton Seed Conveyor			
5	Booster Pumps			
6	Plastic Tanks			
7	H.D.P.E. pipes & fittings			
8	GMS pipes & fittings			
9	Gate Valves			
10	Fire water jockey pump			
11	Fire hose reel			
12	Fire Brigade Inlet Breeching Valve			
13	Portable Fire Extinguisher			
Tenders Must attach Brochures/Catalogues as it will form part of evaluation criteria				

VOLUME 3

ELECTRICAL INSTALLATION WORKS

[MODERNISATION OF LUANDA CO~OPERATIVE
GINNERY – PHASE II]



REPUBLIC OF KENYA

MINISTRY OF AGRICULTURE, LIVESTOCK, FISHERIES AND
CO-OPERATIVES
STATE DEPARTMENT FOR CO-OPERATIVES

PROPOSED MODERNIZATION OF LUANDA FARMERS CO-OPERATIVE UNION
GINNERY BY STATE DEPARTMENT FOR CO-OPERATIVES AT LUANDA CO-
OPERATIVE GINNERY, FUNYULA, BUSIA COUNTY – PHASE II

W.P. ITEM NO. D116 WE/BSA/1902 JOB NO. 10664A

TENDER SPECIFICATIONS & BILLS OF QUANTITIES FOR
SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF ELECTRICAL
INSTALLATION WORKS

CLIENT

THE PRINCIPAL SECRETARY

STATE DEPARTMENT FOR CO-OPERATIVES - MINISTRY OF
AGRICULTURE, LIVESTOCK, FISHERIES AND CO-OPERATIVES
P.O BOX 30547 – 00100,
NAIROBI

PROJECT MANAGER

WORKS SECRETARY

STATE DEPARTMENT FOR PUBLIC WORKS - MINISTRY
OF TRANSPORT, INFRASTRUCTURE, HOUSING,
URBAN DEVELOPMENT & PUBLIC WORKS
P.O BOX 30743 – 00100,
NAIROBI

ARCHITECT

CHIEF ARCHITECT

STATE DEPARTMENT FOR PUBLIC WORKS - MINISTRY
OF TRANSPORT, INFRASTRUCTURE, HOUSING,
URBAN DEVELOPMENT & PUBLIC WORKS
P.O BOX 30743 – 00100,
NAIROBI

STRUCTURAL ENGINEER

CHIEF ENGINEER (STRUCTURAL)

STATE DEPARTMENT FOR PUBLIC WORKS - MINISTRY
OF TRANSPORT, INFRASTRUCTURE, HOUSING,
URBAN DEVELOPMENT & PUBLIC WORKS
P.O BOX 30743 – 00100
NAIROBI

ELECTRICAL ENGINEER

CHIEF ENGINEER (ELECTRICAL)

STATE DEPARTMENT FOR PUBLIC WORKS - MINISTRY
OF TRANSPORT, INFRASTRUCTURE, HOUSING,
URBAN DEVELOPMENT & PUBLIC WORKS
P.O BOX 41191 – 00100,
NAIROBI

QUANTITY SURVEYOR

CHIEF QUANTITY SURVEYOR

STATE DEPARTMENT FOR PUBLIC WORKS - MINISTRY
OF TRANSPORT, INFRASTRUCTURE, HOUSING,
URBAN DEVELOPMENT & PUBLIC WORKS
P.O BOX 30743 – 00100,
NAIROBI

MECHANICAL ENGINEER

CHIEF ENGINEER (MECHANICAL (BS))

STATE DEPARTMENT FOR PUBLIC WORKS - MINISTRY
OF TRANSPORT, INFRASTRUCTURE, HOUSING,
URBAN DEVELOPMENT & PUBLIC WORKS
P.O BOX 41191 - 00100,
NAIROBI

NOVEMBER, 2020

TABLE OF CONTENTS

<u>TITLE</u>	<u>PAGE</u>
Contents.....	EIW-i
SECTION A: Instructions to Tenderers.....	EIW-A/1-EIW-A/5
Stage 1: Preliminary Evaluation Criteria.....	EIW-A/2
Stage 2: Technical Evaluation Criteria.....	EIW-A/3-EIW-A/5
SECTION B: General Specifications of Materials and Works.....	EIW-B/1-EIW-B/19
SECTION C: Schedule of Contract Drawings.....	EIW-C/1
SECTION D: Particular Specifications of Materials and Works.....	EIW-D/1-EIW-D/3
SECTION E: Schedule of Unit Rates.....	EIW-E/1-EIW-E/3
SECTION F: Bills of Quantities.....	EIW-F/1-EIW-F/25
SECTION G: Technical Schedule of Items to be supplied.....	EIW-G/1-EIW-G/2
SECTION H: Standard Forms.....	EIW-H/1-EIW-H/5
Testing & Commissioning Guide for Electrical Installation Works.....	EIW-H/6-EIW-H/11

SECTION A

INSTRUCTIONS TO TENDERERS

PRELIMINARY & TECHNICAL EVALUATION CRITERIA

INSTRUCTIONS TO TENDERERS

CONTENTS

1.	Table of Contents	EIW-A/1
2.	Tender Evaluation Criteria	EIW-A/2-EIW-A/5
	Stage 1: Preliminary Evaluation Criteria.....	EIW-A/2
	Stage 2: Technical Evaluation Criteria.....	EIW-A/3-EIW-A/5

TENDER EVALUATION CRITERIA

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

1. Preliminary Evaluation;
2. Technical Evaluation;

STAGE 1: PRELIMINARY EVALUATION

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

These conditions shall include the following:

- i) Company Certificate of Incorporation/Registration;
- ii) Current category of Registration with National Construction Authority (NCA 6 and above in Electrical Installation Works);
- iii) Current National Construction Authority's Contractor's Annual Practicing License
- iv) Current Class of Licenses with Energy and Petroleum Regulatory Authority (EPRA Class C1)
- v) Valid Tax Compliance Certificate;
- vi) Compliance with Technical Specifications

Note:

On compliance with Technical Specifications, bidders shall supply equipment/items which comply with the technical specifications set out in the bid document. In this regard, the bidder will be required to submit relevant technical brochure/catalogues with the tender document, highlighting (using a mark-pen or highlighter) the Catalogue Number/model of the proposed items. Such brochures/ catalogues should indicate comprehensive relevant data of the proposed equipment/items which should include but not limited to the following:

- (i) Standards of manufacture;*
- (ii) Performance ratings/characteristics;*
- (iii) Material of manufacture;*
- (iv) Electrical power ratings; and*
- (v) All other requirements as indicated in the technical specifications of the bid.*

The bids will then be analyzed, using the information in the technical brochures, to determine compliance with technical specifications for the works/items as indicated in the tender document. Bidders not complying with **any** of the technical specifications shall be adjudged technically non-responsive while those meeting all technical specifications shall be considered technically responsive.

The tenderer shall also fill in the Technical Schedule as specified in the tender document for Equipment and Items indicating the Country of Origin, Model/Make/Manufacturer and catalogue numbers of the Items/Equipments they propose to supply.

The tenderers who do not satisfy any of the above mandatory requirements shall be considered Non-Responsive and their tenders will not be evaluated further.

STAGE 2: TECHNICAL EVALUATION

In order to be compliant, the Tenderers shall be required;

- a) *To fill the Standard Forms* provided in the bid document for the purposes of providing the required information. The tenderers may also attach the required information if they so desire;

The award of points considered in this section shall be as shown below:

<u>PARAMETER</u>	<u>MAXIMUM POINTS</u>
(i) Key personnel.....	12
(ii) Contract Completed in the last Five (5) years.....	9
(iii) Schedules of on-going projects.....	4
(iv) Schedules of Contractor’s equipment.....	12
(v) Litigation History.....	2
 TOTAL	 <u>39</u>

The pass-mark under the Technical Evaluation is **28 points**.

The detailed scoring plan shall be as shown in table 1.

TABLE 1: Assessment for Eligibility

Item	Description	Points Scored	Max. Point	
1.	Key Personnel (Attach evidence)			
	Director of the firm <ul style="list-style-type: none"> Holder of degree in relevant Engineering field----- 4 Holder of diploma in relevant Engineering field-----3 Holder of certificate in relevant Engineering field-----2 Holder of trade test certificate in relevant Engineering field-----1 No relevant certificate-----0 		4	12
	At least 1No. degree/diploma holder of key personnel in relevant field <ul style="list-style-type: none"> With over 10 years of relevant experience-----4 With over 5 years of relevant experience-----2 With under 5 years of relevant experience -----1 		4	
	At least 1No certificate holder of key personnel in relevant field <ul style="list-style-type: none"> With over 10 years of relevant experience----- 2 With over 5 years of relevant experience ----- 1 With under 5 years of relevant experience -----0.5 		2	
	At least 2No artisan (trade test certificate in relevant field) <ul style="list-style-type: none"> Artisan with over 10 years of relevant experience-----2 Artisan with under 10 years of relevant experience -----1 Non skilled worker with over 10 years of relevant experience--0 		2	
2.	Contracts completed in the last five (5) years (Max of 3No. Projects) - Provide Evidence <ul style="list-style-type: none"> Project of similar nature, complexity or magnitude-----3 Project of similar nature but of lower value than the one in consideration-----2 No completed project of similar nature-----0 		9	
3.	On-going projects – Provide Evidence <ul style="list-style-type: none"> No Project of similar nature, complexity and magnitude ----- 4 Three and below Projects of similar, nature complexity and magnitude -----3 Four and above Projects of similar nature, complexity and magnitude ----- 2 		4	
4.	Schedule of contractors equipment and transport (proof or evidence of ownership/Lease)			
	a) Relevant Transport (at least 3No. each 2mks) <ul style="list-style-type: none"> Means of transport (Vehicle)-----6 No means of transport-----0 		6	12
	b) Relevant Equipment (at least 6No. each 1mks) <ul style="list-style-type: none"> Has relevant equipment for work being tendered-----6 No relevant equipment for work being tendered-----0 		6	

Item	Description	Points Scored	Max. Point
5.	Litigation History <ul style="list-style-type: none"> Duly Filled -----2 Not filled -----0 		2
	TOTAL		39

Any bidder who scores 28 Points and above shall be considered for further evaluation.

SECTION B

GENERAL SPECIFICATIONS
OF
MATERIALS AND WORKS

GENERAL SPECIFICATIONS OF MATERIALS AND WORKS

1. General
2. Standard of Materials
3. Workmanship
4. Procurement of Materials
5. Shop Drawings
6. Record Drawings
7. Regulations and Standards
8. Setting out Works
9. Position of Electrical Plant and Apparatus
10. M.C.B Distribution Panels and Consumer Units
11. Fused Switchgear and Isolators
12. Conduits and Conduit Runs
13. Conduit Boxes and Accessories
14. Labels
15. Earthing
16. Cables and Flexible Cords
17. Armoured PVC Insulated and Sheathed Cables
18. Cable Supports; Markers and Tiles
19. PVC Insulated Cables
20. Heat Resisting Cables
21. Flexible Cords
22. Cable Ends and phase Colours
23. Cable Insulation Colours
24. Sub-circuit Wiring
25. Space Factor

- 26. Insulation
- 27. Lighting Switches
- 28. Sockets and Switched sockets
- 29. Fused Spur Boxes
- 30. Cooker Outlets
- 31. Connectors
- 32. Lamp holders
- 33. Lamps
- 34. Lighting Fittings Street Lighting Lanterns
- 35. Position of Points and Switches
- 36. Street/Security Lighting Columns
- 37. Timing Control Switch
- 38. Wiring System for Street Lighting
- 39. Metal control Pillar
- 40. Current Operated Earth leakage circuit breaker
- 41. MV Switchboard
- 42. Steel Conduits and Steel Trunking
- 43. Testing on Site

1. GENERAL

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

2. STANDARD OF MATERIALS

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

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

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

3. WORKMANSHIP

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

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

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

4. PROCUREMENT OF MATERIALS

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

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

5. SHOP DRAWINGS

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

6. RECORD DRAWINGS

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

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

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

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

7. REGULATIONS AND STANDARDS

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

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

8. SETTING OUT WORK

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

9. POSITIONS OF ELECTRICAL PLANT AND APPARATUS

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

10. MCB DISTRIBUTION PANELS AND CONSUMER UNITS

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

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

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

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

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

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

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

11. FUSED SWITCHGEAR AND ISOLATORS

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

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

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

Isolators shall be load breaking/fault making isolators.

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

12. CONDUITS AND CONDUIT RUNS

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

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

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

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

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

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

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

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

Runs between draw in boxes are not to have more than two right angle bends or their equivalent. The sub-contractor may be required to demonstrate to the Engineers that wiring in any particular run is easily withdrawable and the sub-contractor may, at no extra cost to the contract; be required to install additional draw-in boxes required. If conduit is installed in straight runs in excess of 6000mm, expansion couplings as manufactured by Egatube shall be used at intervals of 6000mm.

Where conduit runs are to be concealed in pillars and beams, the approval of the Structural Engineer, shall be obtained. The sub-contractor shall be responsible for marking the accurate position of all 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 sub-contractor fail to inform the main contractor of any inaccuracies in this respect they shall be rectified at the sub-contractor's expense.

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

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

13. CONDUIT BOXES AND ACCESSORIES

All conduit outlets and junction boxes are to be either malleable iron and of standard circular pattern of the appropriate type to suit saddles being used or super high impact PVC manufactured to KS 04 – 179 : 1983.

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

Boxes are to be not less than 50mm deep and of such dimensions as will enable the largest appropriate number of cables for the conduit sizes to be drawn in without excessive bending.

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

Adaptable boxes are two of PVC or mild steel (of not less than 12swg) and black 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.

14. LABELS

Labels fitted to switches and fuse boards; -

- (i) Shall be Ivory engraved black on white.
- (ii) Shall be secured by R.H brass screws of same manufacturing throughout.
- (iii) Shall be indicated on switches: -
 - a) Reference number of switch
 - b) Special current rating
 - c) Item of equipment controlled
- (iv) Shall indicate on MCB panels
 - a) Reference number
 - b) Type of board, i.e.; lighting, sockets, etc.
 - c) Size of cable supplying panel
 - d) where to isolate feeder cable
- (v) Shall be generally not less than 75mm x 50mm.

15. EARTHING

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

- (i) It shall be carried out in accordance with the appropriate sections of the current edition of the Regulations, for the Electrical Equipment of Buildings issued by Institute of Electrical Engineers of Great Britain.

- (ii) At all main distribution panels and main service positions a 25mm x 3mm minimum cross sectional area Copper tape shall be provided and all equipment including the lead sheath and armouring of cables, distribution boards and metal frames shall be bonded thereto.
- (iii) The earth tape in Sub-clause (ii) shall be connected by means of a copper tape or cable of suitable cross sectional area to an earth electrode which shall be a copper earth rod (see later sub-clause).
- (iv) All tapes to be soft high conductivity copper, untinned except where otherwise specified and where run underground on or through walls, floors, etc., it shall be served with corrosion resisting tape or coated with corrosion compound and braided
- (v) Where the earth electrode is located outside the building a removable test link shall be provided inside the building as near as possible to the point of entry to the tape, for isolating the earth electrode for testing purposes.
- (vi) Earthing of sub-main equipment shall be deemed to be satisfactory where the sub-main cables are M.I.C.S. or conduit with separate earth wire, and installation is carried out in accordance with the figures stated in the current edition of the I.E.E Regulations.
- (vii) Where an earth rod is specified (see Sub-clause (iii) it shall be proprietary manufacture, solid hand drawn copper of 15mm diameter driven into the ground to a minimum depth of 3.6M. It shall be made up to 1.2m sections with internal screw and socket joints and fitted with hardened steel tip and driving cap.
- (viii) Earth plates will not be permitted
- (ix) Where an earth rod is used the earth resistance shall be tested in the manner described in the current edition of the IEE Regulations, by the Sub-Contractor in the presence of the Engineer and the Sub-Contractor shall be responsible for the supply of all test equipment.
- (x) Where copper tape is fixed to the building structure it shall be by means of purpose made non-ferrous saddles which space the conductor away from the structure a minimum distance of 20mm. Fixings, shall be made using purpose made plugs; No fixings requiring holes to be drilled through the tape will be accepted.
- (xi) Joints in copper tape shall be tinned before assembly riveted with a minimum of two copper rivets and seated solid.
- (xii) Where holes are drilled in the earth tape for connection to items of equipment the effective cross sectional area must not be less than required to comply with the IEE regulations.
- (xiii) Bolts, nuts and washers for any fixing to the earth tape must be of non-ferrous material.
- (xiv) Attention is drawn to the need for the earthing metal parts of lighting fittings and for bonding ball joint suspension in lighting fittings.

16. CABLES AND FLEXIBLE CORDS

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

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

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

P.V.C. insulated cables shall be 500/1000 volt grade. No cables smaller than 1.5mm² shall be used unless otherwise specified. The installation and the finish of cables shall be as detailed in later clauses. The colour of cables shall conform to the details stated in the "Cable Braid and insulation Colours" Clause.

17. ARMoured P.V.C. INSULATED AND SHEATHED CABLES:

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

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

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

18. CABLE SUPPORTS, MARKERS AND TILES

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

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

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

The above type of hooks and clamps and channels or cleats and 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 Sub-contract. Saddles shall not be used for supporting cables nor any other type of fixing other than one of the two methods described above or other system which has received prior approval of the Engineer;

Cables are to be kept clear of all pipe work and the Sub-contractor shall work in close liaison with other services Sub-contractors.

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

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

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

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

19. PVC INSULATED CABLES

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

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

20. HEAT RESISTING CABLES

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

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

21. FLEXIBLE CORDS

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

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

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

22. CABLE ENDS AND PHASE COLOURS

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

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

23. CABLE INSULATION COLOURS

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

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

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

24. SUB-CIRCUIT WIRING

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

Lighting circuits P.V.C. cable.

- (i) 1.5mm² for all lighting circuits indicated on the drawing.

Power circuits P.V.C cable (minimum sizes).

- (ii) 2.5mm² for one, two or three 5Amp sockets wired in parallel.

- (iii) 2.5mm² for one 15Amp socket.

- (iv) 2.5mm² for maximum of ten switched 13 Amp sockets wired from 30 Amp MCB.

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

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

25. SPACE FACTOR

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

26. INSULATION

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

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

27. LIGHTING SWITCHES

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

28. SOCKETS AND SWITCHED SOCKETS

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

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

29. FUSED SPUR BOXES

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

30. COOKER OUTLETS

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

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

31. CONNECTORS

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

32. LAMPHOLDERS

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

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

33. LAMPS

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

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

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

34. LIGHTING FITTINGS AND STREET LIGHTING LANTERNS

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

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

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

The whole of the metal work of each lighting fittings shall be effectively bonded to earth. In the case of ball and/or knuckle joints short lengths of flexible cable shall be provided, bonded to the metal work on either side of the joints. If the above provisions are not made by the manufacturers -, the Sub-contractor shall include cost of additional work necessary in his tender. See “Flexible Cords” clause for details of internal wiring of lighting fittings.

Minimum size of internal wiring shall be 20/0.20mm (23/0067). Each lighting fitting shall be provided with number type and size of lamps as detailed on the drawings. It is to be noted that some fittings are suspended as shown on the drawings.

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

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

35. POSITIONS OF POINTS AND SWITCHES

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

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

36. STREET/SECURITY OUTDOOR LIGHTING COLUMNS:

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

37. TIMING CONTROL SWITCH

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

38. WIRING SYSTEM FOR STREET LIGHTING

Cables shall be as indicated on the drawings, and shall be laid in a cable trench 450mm deep along the road sides and 600mm deep across the roads and 900mm away from the road kerb or 1500mm away from the edges of the road. 'Loop-in' and 'Loop-out' arrangement shall be used at every pole. Wiring to the lanterns on each pole shall be with 1.5mm² PVC twin insulated and sheathed cable with earth wire shall be laid at least 600mm below the finished road level on a compact bed of murrum at least 50mm thick and covered with a concrete surrounded 150mm thick.

39. METAL CONTROL PILLAR

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

40. CURRENT OPERATED EARTH LEAKAGE CIRCUIT BREAKER

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

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

41. M.V. SWITCHBOARD AND SWITCHGEAR

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

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

The Switchboard shall be of the flush fronted, enclosed, metal clad type with full front or rear access as called for in the particular specifications, suitable for indoor use, sectionalized as necessary to facilitate transport and erection. The maximum height of the switchboard is to be approximately 2.0 metres. A suitable connection chamber containing all field terminals shall be provided at the top or bottom of the switchboard as appropriate.

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

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

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

Switches and fuse switches, shall be in strict accordance with KS04-183:1978 Class 2 switches. Means of locking the switch in the "OFF" position shall be provided.

All fuse switches shall comply with KS04-183:1978, PARTS 2 and 3 a fault rating at least equal to the fault rating of the switchboard in which they are installed. Cartridge fuse links to KS 04-183:1978 category A.C. 46, class Q1 and fusing factor not exceeding 1.5 shall be supplied with each fused switch.

Mounting arrangements shall be such that individual complete fuse switches may be disconnected and withdrawn when necessary without extensive dismantling work.

When switches are arranged in their formation all necessary horizontal and vertical barriers shall be provided to ensure segregation from adjacent units. Means of locking the switch in the "OFF" position shall be provided.

42. STEEL CONDUITS AND STEEL TRUNKING

Conduits shall be of heavy gauge class "B" welded to Standard specification KS 04-180:1985. In no case will conduit smaller than 20mm diameter be used on the works. Conduits installed within buildings shall be black enamelled 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 35mm² are employed.

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

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

Where trunking is used to connect switchgear or 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 galvanised conduit and trunking, the trunking shall be deemed to be galvanised unless specified otherwise.

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

Conduit and trunking shall be mechanically and electrically continuous. Conduit shall be tightly screwed between the various lengths so that they butt at the socketed joints. The internal edges of conduit and all fittings shall be smooth, free from burrs and other defects.

Oil and any other insulating substance shall be removed from the screw threads; where conduits terminate in fuse-gear, distribution boards, adaptable boxes, non-spouted switchboxes, etc., they shall, unless otherwise stated, be connected thereto by means of smooth bore male brass bushes, compression washers and sockets. All exposed threads and abrasions shall be painted using an oil paint for black enameled tubing and galvanizing paint for 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, galvanized boxes shall be used and painted after erection.

Draw-in boxes in the floors are generally to be avoided but where they are essential they must be grouped in positions approved by the services engineer and covered 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 Sub-contractor must take full responsibility for the filling in of all covers, but the filling in material will be supplied and the filling carried out by the main building contractor.

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

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

43. TESTING ON SITE

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

- (a) Tests shall be carried out to prove that all single pole switches are installed in the 'live' conductor.
- (c) Tests shall be carried out to prove that all socket outlets and switched socket outlets are connected to the 'live' conductor in the terminal marked as such, and that each earth pin is effectively bonded to the earth continuity system. Tests shall be carried out to verify the continuity of all conductors of each 'ring' circuit.
- (d) Phase tests shall be carried out on completion of the installation to ensure that correct phase sequence is maintained throughout the installation. Triplicate copies of the results of the above tests shall be provided within 14 days of the witnessed tests and the Sub-contractor will be required to issue to the service engineer the requisite certificate upon completion as required by the regulations referred to above.
- (e) Any faults, defects or omissions or faulty workmanship, incorrectly positioned or installed parts of the installation made apparently by such inspections or tests shall be rectified by the Sub-contractor at his own expense.
- (f) The Sub-contractor shall provide accurate instruments and apparatus and all labour required to carry out the above tests. The instruments and apparatus shall be made available to the services engineer to enable him to carry out such tests as he may require.
- (g) The Sub-contractor shall generally attend on other contractors employed on the project and carry out such electrical tests as may be necessary.
- (h) The Sub-contractor shall test to the services engineer's approval and as specified elsewhere in this specification or in standards and regulations already referred to, all equipment, plant and apparatus forming part of the works and before connecting to any power or other supply and setting to work.
- (i) Where such equipment, etc., forms part of or is connected to a system whether primarily or of an electrical nature or otherwise (e.g. air conditioning system) the Sub-contractor shall attend on and assist in balancing, regulating testing and commissioning, or if primarily an electrical or other system forming part of works, shall balance, regulate, test and commission the system to the service engineer's approval.

APPENDIX TO GENERAL SPECIFICATIONS OF MATERIALS AND WORKS

The electrical sub-contractor shall comply with the following: -

1. Government Electrical Specifications No. 1 and No. 2.
2. All requirements of Kenya Power and Lighting Company Limited, and Communications Authority of Kenya (CA).

SECTION C

SCHEDULE OF CONTRACT DRAWINGS

SCHEDULE OF CONTRACT DRAWINGS

DRAWING NO.	DRAWING TITLE
As shall be issued by the Engineer	

NOTE:

Tenderers are advised to inspect the electrical drawings at the office of the **Chief Engineer (Electrical) – Ministry of Transport, Infrastructure, Public Works, Housing & Urban Development, State Department of Public Works**, at Chief Engineer's (Electrical) office, Hill Plaza Building, Community area, Nairobi along Ngong road, during normal working hours.

The drawings shall however be availed, on award of the tender, to the sub-contractor.

SECTION D
PARTICULAR SPECIFICATIONS
OF
MATERIALS AND WORKS

PARTICULAR SPECIFICATIONS

1.00 SITE LOCATION

The site of the proposed works is at **Off Bumala, Port Victoria Road, Funyula, Busia County.**

2.00 SCOPE OF WORKS

The works to be carried out under this sub-contract comprise supply, installation, testing and commissioning of the following: -

a) Electrical Works

This shall include Internal Lighting Points, Internal Power Points, Conduit Works, Trunking, Lighting fittings, Power fittings, Internal Power Distribution, External Power Distribution Cabling & Reticulation, Kenya Power Upgrading and Transformer Installation and related accessories among other works.

3.00 MATERIALS FOR THE WORKS

Materials shall be as specified in Section B and in the Bills of Quantities of this document which shall be read in conjunction with contract drawings. Alternative materials shall be accepted only after approval by the Project Manager.

4.00 BROCHURES FOR FIRE ALARM PANEL & ANY ELECTRICAL EQUIPMENT AND FITTINGS

For consideration and qualification tenderers shall, at their own cost, provide coloured manufacturer's brochures detailing technical literature and specifications where applicable.

5.00: PARTICULAR TECHNICAL SPECIFICATIONS OF LED LIGHTING

T8 LED FLUORESCENT TUBES SPECIFICATIONS

T8 LED Fluorescent tubes of T8 LFL fittings should meet the following minimum requirements:

Minimum Requirements

General

- 1) These fittings shall mostly be surface mounted luminaries. These shall be LED type fittings as indicated in the Bills of Quantities.
- 2) The electronic supply must be capable of withstanding an input voltage of 240V.
- 3) They shall:
 - be flux insensitive to mains voltage variations,
 - have a protection in case of lamp defect,
 - have a power factor >0.95,
 - be such that lamps shall ignite without flickering and shall conform to relevant standards of electromagnetic compatibility.
- 4) The electronic power supply shall be electronic of the high frequency type complying to IEC 928/929.
- 5) The retro fitting shall be complete with a PCB screen diffuser.
- 6) The lamp holders shall be stable and firm.
- 7) They shall be rated for 230V-50HZ operation. The tubes must have the Environment Protection RoHS and CE marking.
- 8) During the replacement of all tubes, a Licensed A electrician issued/Valid by ERC should be on site during all time.
- 9) All existing electronic ballast should be removed during the installation of the T8 LED tubes, as necessary.
- 10) Tubes Commission will consist of checking the THD and the Power factor of MEPA before and after the installation.

T8 (2/4/5) feet LED Lighting Fitting

Item No.	Parameters	Values	Comments
1.	Dimensions	(2ft) 600mm, (4ft) 1200mm & (5ft) 1500mm for T8 LED type	
2.	Voltage Operation	180Vac-260Vac	
3.	LED Luminous Flux Efficiency (Lumens/watt)	>140 Lumens/Watt	Certificate from LED manufacturer needs to be provided with Datasheet of LED LED used must be of make CREE/Nichia/Osram/ Lumileds
4.	Colour Rendering	>85% accurate	

Item No.	Parameters	Values	Comments
5.	Power Factor	>0.95	
6.	Protection Function	Open Circuit and Short Circuit Protection	
7.	Life Expectancy	Above 60,000 Hours with 70 lumens	LED model should have LM80 certificate to prove the LED life is guaranteed for > 75,000. LED manufacturer should provide T21 –Life test report
8.	Maximum Light Decay	15% in 7years Linear decay	
9.	Color Temperature	4500-6500K Daylight White	
10.	THD	>10%	
11.	Working Humidity	10 to 90% RH6	
12.	Working Temperature	5 to 50 degree	
13.	Average Lighting Angle (Beam Angle)	>120 Degree	
14.	Make of LED	PHILIPS/ CREE/LUMILEDS/ OSRAM/NICHIA	
15.	Lamp Starting Time	Instantaneous, Less than 2 Seconds	
16.	System Efficacy (%)	Greater than 90%	
17.	Ingress Protection	IP20 & IP65	NABL accredited certificate must be provided for IP65
18.	Class of Protection	II	
19.	Light Output	Minimum 20 Lux when measured at the periphery of 4 meter diameter from a height of 4 meter. The illumination should be uniform without dark bands or abrupt variations, and soothing to the eye. Higher Light Output will be preferred	

SECTION E

SCHEDULE OF UNIT RATES

SCHEDULE OF UNIT RATES

1. The tenderer shall insert unit rates against the items in the following schedules and may add such other items as he considers appropriate.
2. The unit rates shall include for supply, transport, insurance, delivery to site, storage as necessary, assembling, cleaning, installing, connecting, profit and maintenance in defects liability and any other obligation under this contract.
3. The unit rates will be used to assess the value of additions or omissions arising from authorised variations to the contract works.
4. Where trade names or manufacturer's catalogue numbers are mentioned in the specification, the reference is intended as a guide to the type of article or quality of material required. Alternative brands of **equal** and **approved** quality will be accepted.
5. The prices quoted shall be deemed to include for all obligations under the sub-contract including but not limited to supply of materials, labour, delivery to site, storage on site, installation, testing, commissioning and all taxes (including **V.A.T, Withholding tax and all other taxes applicable at the time of tender**).
6. Any bid returned with unfilled Schedule of Unit Rates shall be considered technically non-responsive, and the bidder shall automatically be disqualified.

SCHEDULE OF UNIT RATES

(To be completed by the Tenderer)

NO	DESCRIPTION	QTY	UNIT	UNIT RATE	
				(KSHS)	(CTS)
1	PVC/SWA/PVC Armoured Copper cables per metre				
	a) 10.0mm sq. 2 core	1	M		
	b) 16.0 mm sq 4 core	1	M		
	c) 10.0 mm sq 4 core	1	M		
	d) 35.0 mm sq 4 core	1	M		
	e) 50.0 mm sq 4 core	1	M		
	f) 16.0 mm sq 2 core	1	M		
2	IP 65 rated Isolators as KATKO, 3 Phase				
	a) 20A	1	NO		
	b) 63A	1	NO		
3	IP 65 rated Isolators as KATKO, single phase				
	a) 32A	1	NO		
	b) 63A	1	NO		
4	Emergency shutdown switch	1	NO		
5	7 Meter, Street lighting pole with 1 meter outreach arm	1	NO		
6	125 Watts Beta79 street lighting fitting.	1	NO		
7	125 Watts, Gamma Six area lighting fitting.	1	NO		
8	LED Flood lights				
	a) 30 Watts	1	NO		
	b) 100 Watts	1	NO		
9	Industrial socket outlets, 5 pin				
	a) 20A	1	NO		
	b) 32A	1	NO		
10	Industrial socket outlets, 3 pin				
	a) 20A	1	NO		
	b) 32A	1	NO		

NO	DESCRIPTION	QTY	UNIT	UNIT RATE	
				KSHS	CTS
11	Cables:				
	a) Single Core PVC Cables				
	i) 6mm ²	1	M		
	ii) 10mm ²	1	M		
	iii) 16mm ²	1	M		
	iv) 25mm ²	1	M		
	v) 35mm ²	1	M		
	vi) 50mm ²	1	M		
	vii) 4mm ²	1	M		
12	Consumer Units and Distribution Boards:				
	Lockable TPN Distribution Board as Merlin Gerin or an approved equivalent				
	a) 10 Way with integral 160A Isolating Switch	1	NO		
	b) 10 Way with integral 125A Isolating Switch	1	NO		
	c) 12 Way with integral 160A Isolating Switch	1	NO		
	d) 12 Way with integral 125A Isolating Switch	1	NO		
13	IP65 rated Isolators as KATKO:				
	a) 100A TP Isolator	1	NO		
	b) 63A SP Isolator	1	NO		
14	Bus Bars:				
	a) 150A TPN+E Busbar Chamber	1	NO		
	b) 250A TPN+E Busbar Chamber	1	NO		
	c) 300A TPN+E Busbar Chamber	1	NO		
	d) 400A TPN+E Busbar Chamber	1	NO		
15	Cable Trunking				
	Two compartment powder coated steel trunking manufactured in 14 SWG galvanized mild steel sheet and finished in cream powder coating with the following dimensions;				
	a) 50x25mm	1	M		
	b) 75x50mm	1	M		
	c) 150x50mm	1	M		
	d) 250x50mm	1	M		
16	Cable Trunking				
	Two compartment powder coated HG PVC trunking manufactured in heavy gauge material and finished in cream powder coating with the following dimensions;				
	a) 200x50mm	1	M		
	b) 150x50mm	1	M		

SECTION F
BILLS OF QUANTITIES

SPECIAL NOTES TO THE BILLS OF QUANTITIES

1. The Bills of Quantities form part of the contract documents and are to be read in conjunction with the contract drawings and general specifications of materials and works.
2. The prices quoted shall be deemed to include for all obligations under the sub-contract including but not limited to supply of materials, labour, delivery to site, storage on site, installation, testing, commissioning and all taxes (including **Value Added Tax (V.A.T)**, **Withholding tax and all other taxes applicable at the time of tender**).

In accordance with Government policy, the Value Added Tax (V.A.T) and Withholding Tax **shall be deducted** from all payments made to the tenderer, and the same shall be forwarded to the **Kenya Revenue Authority (KRA)**.

3. All prices omitted from any item, section or part of the Bills of Quantities shall be deemed to have been included to another item, section or part thereof.
4. The brief descriptions of the items given in the Bills of Quantities are for the purpose of establishing a standard to which the sub-contractor shall adhere to. Otherwise alternative brands of **equal** and **approved** quality will be accepted.

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

5. The grand total of prices in the price summary page must be carried forward to the **Grand Price Summary Page of the Bills of Quantities for Main Works**.
6. Tenderers must enclose, together with their submitted tenders, detailed coloured manufacturer's Brochures detailing Technical Literature and specifications on all the equipment they intend to offer.

**PROPOSED MODERNISATION OF LUANDA FARMERS CO-OPERATIVE UNION GINNERY AT
FUNYULA, BUSIA COUNTY.**

W.P. ITEM NO. D116 WE/BSA/1902 JOB NO. 10664A

ELECTRICAL INSTALLATION WORKS - PHASE II

BILL NO. 1 : SUB-CONTRACT PRELIMINARIES

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
1.00	Discrepancies clause - Sub-contractor shall include all work either shown on the Contract Drawings or detailed in the specification. No claim or extra cost shall be considered for works which has been shown on the drawings or in the specification alone.	1	Item		
2.00	Payments clause - Payment will be made through certificates to the Main Contractor, unless he specifically agrees to forego this right, in which case direct payment can be made to the Domestic Sub- contractor. All payments will be less retention as specified in the Main Contract. No payment will become due until materials are delivered to site.	1	Item		
3.00	Scope of contract works clause - The sub-contractor shall supply, deliver, unload, hoist, fix, test, commission and hand-over in satisfactory working order the complete installations specified hereinafter and/or as shown on the Contract Drawings attached hereto, including the provision of labour, transport and plant for unloading material and storage, and handling into position and fixing	1	Item		
4.00	Extent of contractors duties clause - The Sub- contractor shall be responsible for verifying all dimensions relative to his work by actual measurements taken on site. Shall mark accurately on one set of drawings and indicate all alterations and/or modifications carried out to the designed system during the construction period. This information must be made available on site for inspection by the Engineer.	1	Item		
5.00	Firm price contract clause - No claims will be allowed for increased costs arising from the fluctuations in duties and/or day to day currency fluctuations. The Sub-contractor will be deemed to have allowed in his tender for any increase in the cost of materials which may arise as a result of currency fluctuation during the contract period.	1	Item		
6.00	Variation clause - Any variation from the contract price in respect of any extra work, alteration or omission requested or sanctioned by the Architect or Engineer shall be agreed and confirmed in writing at the same time such variations are decided and shall not affect the validity of the Contract. Schedule of Unit Rates shall be used to assess the value of such variations. No allowance shall be made for loss of profit on omitted works.	1	Item		
7.00	Prime cost and provisional sum clause The work covered by Prime Cost and Provisional Sums may or may not be carried out at the discretion of the Project Manager. The whole or any part of these sums utilized by the Sub-contractor shall be deducted from the value of the Sub-contract price when calculating the final account.	1	Item		
8.00	Government legislation and regulations clause - Sub- contractor shall allow for providing holidays and transport for work people, and for complying with Legislation, Regulations and Union Agreements. The Sub-contractor must also make himself acquainted with current legislation and any Government regulations regarding the movement, housing, security and control of labour, labour camps, passes for transport, etc.	1	Item		
9.00	Import duty and VAT clause - (Note this clause applies for materials supplied only whether imported or locally manufactured. The tenderer shall make full allowance in his tender for all such taxes.	1	Item		
	Sub-Total C/F to Next Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Sub-Total B/F from Previous Page				
10.00	Insurance company fees clause - Attention is drawn to the tenderers to allow for all necessary fees, where known, that may be payable in respect of any fees imposed by Insurance Companies or statutory authorities for testing or inspection.	1	Item		
11.00	Samples and materials generally clause - The Sub- contractor shall, when required, provide for approval at no extra cost, samples of all materials to be incorporated in the works. Such samples, when approved, shall be retained by the Engineer and shall form the standard for all such materials incorporated.	1	Item		
12.00	Bills of quantities clause - All the Quantities are based on the Contract Drawings and are provisional and they shall not be held to gauge or to limit the amount or description of the work to be executed by the Sub- contractor but the value thereof shall be deducted from the Sub-contract Sum and the value of the work ordered by the Engineer and executed there under shall be measured and valued by the Engineer in accordance with the contract. All work liable to adjustment under this Sub-contract shall be left uncovered for a reasonable time to allow measurements needed for such adjustment to be taken by the Quantity Surveyor or Engineer. Immediately the work is ready for measuring the Sub- contractor shall give notice to the Quantity Surveyor or Engineer to carry out measurements before covering up. If the Sub-contractor shall make default in these respects he shall, if the Architect so directs, uncover the work to enable the necessary measurements to be taken and afterwards reinstate at his own expense.	1	Item		
13.00	Contractors office in Kenya clause - It shall be the Sub- contractor's responsibility to procure work permits, entry permits, licences, registration, etc., in respect of all expatriate staff. The Sub-contractor shall prepare a substantial proportion of his Working Drawings at his office in Kenya. No reasons for delays in the preparation or submission for approval or otherwise of such drawings or proposals will be accepted on the grounds that the Sub-contractor's Head Office is remote from his office in Nairobi or the site of the Sub- contract Works or otherwise.	1	Item		
14.00	Builders work clause 1- All chasing, cutting away and making good will be done by the Main Contractor but the Sub-contractor shall mark out in advance and shall be responsible for accuracy of the size and position of all holes and chases required.	1	Item		
15.00	Setting to work and regulating system clause- No testing or commissioning shall be undertaken except in the presence of and to the satisfaction of the Engineer unless otherwise stated by him (Sub-contractor's own preliminary and proving tests excepted). It will be deemed that the Sub-contractor has included in the Sub-contract Sum for the costs of all fuel, power, water and the like, for testing and commissioning as required.	1	Item		
16.00	Identification of plant components clause - Sub-contractor shall supply and fix identification labels to all plant, starters, switches and items of control equipment etc with white traffolyte or equal labels engraved in red lettering denoting its name, function and section controlled.	1	Item		
17.00	Working drawings clause - Sub-contractor shall prepare such Working Drawings as may be necessary. The Working Drawings shall be complete in such detail not only that the Sub-contract Works can be executed on site but also that the Engineer can approve the Sub-contractor's proposals, detailed designs and intentions in the execution of the Sub- contract Works.	1	Item		
	Sub-Total C/F to Next Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Sub-Total B/F from Previous Page				
18.00	Records Drawings (As Installed) and instructions clause - Record Drawings, will be subject to the approval of the Engineer, include approved Working Drawings adjusted as necessary and certified by the Sub-contractor as a correct record of the installation of the Sub-contract Works.	1	Item		
19.00	Maintenance Manual clause - Upon Practical Completion of the Sub-contract Works, the Sub- contractor shall furnish the Engineer four copies of a Maintenance Manual relating to the installation forming part of all of the Sub-contract Works.	1	Item		
20.00	Hand over clause - The Sub-contract Works shall be considered complete and the Maintenance and Defects Liability Period shall commence only when the Sub-contract Works and supporting services have been tested, commissioned and operated to the satisfaction of the Engineer and officially approved and accepted by the Employer, provided always that the handing over of the Sub-contract Works shall be coincident with the handing over of the Main Contract Works.	1	Item		
21.00	Testing and inspection - manufactured plant clause - The Engineer reserves the right to inspect and test or witness of all manufactured plant equipment and materials. The right of the Engineer relating to the inspection, examination and testing of plant during manufacture. Sub-contractor shall give two weeks' notice to the Engineer of his intention to carry out any inspection or tests and the Engineer or his representative shall be entitled to witness such tests and inspections.	1	Item		
22.00	Testing and inspection - installation clause - Allow for testing each section of the Sub-contract Works installation.	1	Item		
23.00	Initial Maintenance Clause - The sub-contractor shall make routine maintenance once a month during the liability for the Defects Period and shall carry out all necessary adjustments and repairs, cleaning and oiling of moving parts. A monthly report of the inspection and any works done upon the installation shall be supplied to the Engineer. Shall allow in the sub-contract Sum of the initial maintenance, inspection and break-down service	1	Item		
24.00	Local and other authorities notice clause - The contractor shall comply with and give all notices required by any Regulations, Act or by Law of any Local Authority or of any Public Service, Company or Authority who have any jurisdiction with regard to the works or with those systems the same are or will be connected and he shall pay and indemnify the Government against any fees or charges legally demandable under any regulation or by-law in respect of the works; provided that the said fees and charges if not expressly included in the contract sum or stated by way of provisional sum shall be added to the contract sum.	1	Item		
25.00	Temporary Works clause - The contractor shall include for the cost of and make necessary arrangements with the Project Manager for such temporary works.	1	Item		
26.00	Patent Rights clause - The contractor shall fully indemnify the Government of Kenya; against any action, claim or proceeding relating to infringement of any patent or design rights, and pay any royalties which may be payable in respect of any article or any part thereof, which shall have been supplied by the contractor to the Project Manager.	1	Item		
	Sub-Total C/F to Next Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Sub-Total B/F from Previous Page				
27.00	Mobilization and Demobilization clause -No claim will be entertained where the contractor has not made any provision for mobilization and demobilization of labour, plant and equipment in the preliminary bills of quantities.	1	Item		
28.00	Supervision by Engineer and site meetings clause - A competent Project Engineer appointed by the Chief Engineer as his representative shall supervise the Contract works. The Project Engineer shall be responsible for issuing all the site instructions in any variations to the works and these shall be delivered through the Contractor with the authority of the Project Manager. Any instructions given verbal shall be confirmed in writing. The Sub Contractor shall in his tender allow for the provision of management meetings and site inspections, as instructed by the Engineer, and also profit and attendance on these funds. The funds shall be expended according to Project Manager's instructions to the Contractor.	1	Item	250,000.00	250,000.00
29.00	Allow for Taxes, Profit and Attendance for the above Item		%		
30.00	Contract obligation and employers obligation clause - No claims will be entertained for pre-financing of the project by the sub-contractor, or for loss of profit (expectation loss) in case of premature termination, reduction or increase of works as the sub-contractor shall be deemed to have taken adequate measures in programming his works and expenditure and taken necessary financial precaution while executing the works.	1	Item		
31.00	Any other preliminaries	1	Item		
	Total for Bill No. 1: Sub-Contract Preliminaries C/F to Price Summary Page				

SCHEDULE NO. 1: RAW MATERIALS RECEPACLE

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Supply, install, test and commission the following :				
1.00	Lighting Points [Internal] - Already installed in this seed cotton storage facility are 16No. 1500mm, 2x58W surface mounted fluorescent fitting complete with all accessories including fluorescent tubes. However, the switching should be improved for better power use as follows;				
1.01	Lighting points wired in 3x1.5mm ² PVC SC Copper Cables drawn in existing 20mm Diameter HG PVC conduits complete with all necessary accessories but excluding switches for:-				
	(a) Two Way Switching.	16	No.		
1.02	10A, moulded ivory switch plates as MK, Clipsal, BG, Crabtree or approved equivalent as follows:				
	(a) 2 gang 2 way	4	No.		
1.10	Lighting Points [External] - For area lighting around this storage facility;				
1.11	Lighting points wired in 3x1.5mm ² PVC SC Copper Cables drawn in concealed 20mm Diameter HG PVC conduits complete with all necessary accessories but excluding switches for:-				
	(a) Two Way Switching.	2	No.		
1.12	10A, weatherproof, moulded ivory switch plates as MK, Clipsal, BG, Crabtree or approved equivalent as follows:				
	(a) 2 gang 2 way	2	No.		
1.13	Lighting fittings complete with all accessories including LED lamps of appropriate wattage and colour rendering and fixing materials as follows:				
	(a) 90W, lighting lantern sealed to IP65 outdoor LED FloodLight complete with mounting brackets to the front & the rear sides of this storage facility (at lintel level) as Nikkon S419 Series or approved equivalent.	2	No.		
1.20	INTERNAL POWER DISTRIBUTION				
1.21	6 Ways SPN+E, flush mounted Consumer Unit complete with 63A integral isolator as SCHNEIDER ELECTRIC, HAUSMANN or an approved equivalent complete with all accessories but excluding MCBs (Located in this building) .	1	No.		
1.22	MCB's for item above				
	(i) 10A SP	3	No.		
	(ii) SP Spareway	3	No.		
1.23	Carry out concise permanent traffolyte labeling for the sub-circuits in item above.	1	Item		
1.24	Sub-main power distribution cable comprising of 3x6mm ² Single Core Copper cables drawn in concealed 32mm ² Dia. HG PVC conduits and including all necessary accessories (From Cable Loop-in Box to Consumer Unit above).	15	Lm.		
1.25	63A SP/N Switchfuse with neutral block as Henleys, Crabtree or approved equivalent	1	No		
	Total for Schedule No. 1: Raw Materials Receptacle C/F to Price Summary Page				

SCHEDULE NO. 2: ADMINISTRATION BLOCK

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Supply, install, test and commission the following :				
2.00	Lighting Points [Internal] - Only the conduit works are largely done;				
2.01	Lighting points wired in 3x1.5mm ² PVC SC Copper Cables drawn in existing 20mm Diameter HG PVC conduits complete with all necessary accessories but excluding switches for:-				
	(a) One Way Switching.	16	No.		
	(b) Two Way Switching.	2	No.		
2.02	10A, moulded ivory switch plates as MK, Clipsal, BG, Crabtree or approved equivalent as follows:				
	(a) 1 gang 1 way	13	No.		
	(b) 1 gang 2 way	2	No.		
2.03	Lighting fittings complete with all accessories including LED lamps of appropriate wattage and colour rendering and fixing materials as follows:				
	(a) 1200mm, 1x36W standard waterproof, IP65 surface mounted HPF fluorescent fitting with injection moulded polycarbonate body and polycarbonate diffuser for T8 lamp with electronic control gear as Thorn Aquaproof or an approved equivalent.	2	No.		
	(b) 1200mm, 1x36w, surface mounted HPF bare batten fluorescent luminaire for T8 lamp with electronic control gear as THORN, FITZGERALD or approved equivalent.	10	No.		
	(c) Standard circular surface luminaire with polycarbonate body and white trim, polycarbonate opal diffuser and integral control gear for 28 Watts 2D compact fluorescent lamp as THORN Superclub or approved equivalent.	2	No.		
	(d) Pendant set complete with ceiling rose, screwneck lampholder, flexible cord and 30W LED bulb as THORN or approved equivalent.	2	No.		
	(e) Standard, Shallow surface luminaire with circular opal diffuser and white stand-off ring, with integral HPF control gear for 28W 2D compact fluorescent lamp. As Thorn Glorie or approved equivalent.	2	No.		
2.10	Cable Trunking				
2.11	100mmx50mm, 2 compartment powder coated steel trunking manufactured in 14SWG galvanised mild steel sheet as Power Technics. Manufacture to approved colour and complete with factory made powder coated cover & corner bends, all fixing accessories, powder coated twin punched outlet plates for fixing twin outlet sockets & data/telephone outlets, continuity bonding throughout the entire length and connection of the trunking to earthing.	50	Lm.		
2.20	Power Points				
2.21	Ring mains socket outlets comprising wiring in 3x2.5mm sq. single core PVC insulated copper cables drawn in the trunking above complete with all the necessary accessories.	15	No.		
2.22	13A switched white moulded case socket outlet plates as MK, Clipsal, BG, Crabtree or an approved equivalent.				
	(a) Twin outlet.	15	No.		
2.23	Cooker (1-Φ) Power Point , comprising of 3x6mm ² PVC SC Copper cables drawn in concealed 25mm Dia. HG PVC conduits complete with all accessories.	1	No.		
2.24	45A DP Cooker Control Unit with 13A integral Socket Outlet and Pilot Lamp marked 'As Per Application' for item above as MK, MEM or approved equivalent.	1	No.		
	Sub-Total C/F to the Next Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Sub-Total B/F from Previous Page				
2.25	Cooker Connection Unit for flush mounting and wired from Cooker Control Unit.	1	No.		
	TELEVISION POINT				
2.26	TV outlet point wired in 75 Ohms Screened Coaxial TV cables drawn in concealed 20mm diameter HG/PVC conduits and linked to the outside through the roof space (to the amplifier).	1	Lm.		
	a) TV outlet of moulded white ivory plate finish as MK, Clipsal, Crabtree or approved equivalent.	1	No		
2.30	INTERNAL POWER DISTRIBUTION				
2.31	4 Ways TPN+E, flush mounted Distribution Board complete with 100A integral isolator as SCHNEIDER ELECTRIC, HAUSMANN or an approved equivalent complete with all accessories but excluding MCBs (Located in this building) .	1	No.		
2.32	MCB's for item above				
	(i) 10A SP	3	No.		
	(ii) 32A SP	2	No.		
	(iii) 45A SP	1	No.		
	(iv) SP Spareway	3	No.		
	(v) TP Spareway	1	No.		
2.33	Carry out concise permanent traffolyte labeling for the sub-circuits in item above.	1	Item		
2.34	Sub-main power distribution cable comprising of 5x10mm ² Single Core Copper cables drawn in concealed 50mm ² Dia. HG PVC conduits and including all necessary accessories (From Cable Loop-in Box to Distribution Board above).	20	Lm.		
2.35	80A SP/N Switchfuse with neutral block as Henleys, Crabtree or approved equivalent	1	No		
2.36	80A SP/N Switchfuse as Henleys, Crabtree or approved equivalent	2	No		
2.40	Lighting Points - For area lighting around this building;				
2.41	Lighting points wired in 3x1.5mm ² PVC SC Copper Cables drawn in concealed 20mm Diameter HG PVC conduits complete with all necessary accessories but excluding switches for:-				
	(a) Two Way Switching.	2	No.		
2.42	10A, weatherproof, moulded ivory switch plates as MK, Clipsal, BG, Crabtree or approved equivalent as follows:				
	(a) 2 gang 2 way	2	No.		
2.43	Lighting fittings complete with all accessories including lamps of appropriate wattage and colour rendering and fixing materials as follows:				
	(a) 90W, lighting lantern sealed to IP65 outdoor LED FloodLight complete with mounting brackets to the front & the rear sides of this building (at lintel level) as Nikkon S419 Series or approved equivalent.	2	No.		
	Total for Schedule No. 2: Administration Block C/F to Price Summary Page				

SCHEDULE NO. 3: SPARE PARTS STORAGE/GARAGE

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Supply, install, test and commission the following :				
3.00	Lighting Points [Internal] - Are inadequate. To do additional lighting				
3.01	Lighting points wired in 3x1.5mm ² PVC SC Copper Cables drawn in 20mm Diameter HG PVC conduits complete with all necessary accessories but excluding switches for:-				
	(a) Two Way Switching.	10	No.		
3.02	10A, moulded ivory switch plates as MK, Clipsal, BG, Crabtree or approved equivalent as follows:				
	(a) 3 gang 2 way	2	No.		
3.03	Lighting fittings complete with all accessories including LED lamps of appropriate wattage and colour rendering and fixing materials as follows:				
	(a) 1200mm, 2x36w, surface mounted HPF bare batten fluorescent luminaire for T8 lamp with electronic control gear as THORN, FITZGERALD or approved equivalent.	10	No.		
3.10	Lighting Points [External] - For area lighting around this building;				
3.11	Lighting points wired in 3x1.5mm ² PVC SC Copper Cables drawn in concealed 20mm Diameter HG PVC conduits complete with all necessary accessories but excluding switches for:-				
	(a) Two Way Switching.	2	No.		
3.12	10A, weatherproof, moulded ivory switch plates as MK, Clipsal, BG, Crabtree or approved equivalent as follows:				
	(a) 2 gang 2 way	2	No.		
3.13	Lighting fittings complete with all accessories including LED lamps of appropriate wattage and colour rendering and fixing materials as follows:				
	(a) 90W, lighting lantern sealed to IP65 outdoor LED FloodLight complete with mounting brackets to the front & the rear sides of this building (at lintel level) as Nikkon S419 Series or approved equivalent.	2	No.		
3.20	INTERNAL POWER DISTRIBUTION				
3.21	6 Ways SPN+E, flush mounted Consumer Unit complete with 63A integral isolator as SCHNEIDER ELECTRIC, HAUSMANN or an approved equivalent complete with all accessories but excluding MCBs (Located in this building) .	1	No.		
3.22	MCB's for item above				
	(i) 10A SP	2	No.		
	(ii) SP Spareway	4	No.		
3.23	Carry out concise permanent traffolyte labeling for the sub-circuits in item above.	1	Item		
3.24	Sub-main power distribution cable comprising of 3x6mm ² Single Core Copper cables drawn in concealed 32mm ² Dia. HG PVC conduits and including all necessary accessories (From Cable Loop-in Box to Consumer Unit above).	15	Lm.		
3.25	63A SP/N Switchfuse with neutral block as Henleys, Crabtree or approved equivalent	1	No		
	Total for Schedule No. 3: Spare Parts Storage/Garage C/F to Price Summary Page				

SCHEDULE NO. 4: BALE STORAGE [AFTER PACKAGING]

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Supply, install, test and commission the following :				
4.00	Lighting Points [Internal] - Are inadequate. To do additional lighting				
4.01	Lighting points wired in 3x1.5mm ² PVC SC Copper Cables drawn in 20mm Diameter HG PVC conduits complete with all necessary accessories but excluding switches for:-				
	(a) Two Way Switching.	10	No.		
4.02	10A, moulded ivory switch plates as MK, Clipsal, BG, Crabtree or approved equivalent as follows:				
	(a) 2 gang 2 way	4	No.		
4.03	Lighting fittings complete with all accessories including LED lamps of appropriate wattage and colour rendering and fixing materials as follows:				
	(a) 1200mm, 2x36w, surface mounted HPF bare batten fluorescent luminaire for T8 lamp with electronic control gear as THORN, FITZGERALD or approved equivalent.	10	No.		
4.10	Lighting Points [External] - For area lighting around this building;				
4.11	Lighting points wired in 3x1.5mm ² PVC SC Copper Cables drawn in concealed 20mm Diameter HG PVC conduits complete with all necessary accessories but excluding switches for:-				
	(a) Two Way Switching.	2	No.		
4.12	10A, weatherproof, moulded ivory switch plates as MK, Clipsal, BG, Crabtree or approved equivalent as follows:				
	(a) 2 gang 2 way	2	No.		
4.13	Lighting fittings complete with all accessories including LED lamps of appropriate wattage and colour rendering and fixing materials as follows:				
	(a) 90W, lighting lantern sealed to IP65 outdoor LED FloodLight complete with mounting brackets to the front & the rear sides of this building (at lintel level) as Nikkon S419 Series or approved equivalent.	2	No.		
4.20	INTERNAL POWER DISTRIBUTION				
4.21	6 Ways SPN+E, flush mounted Consumer Unit complete with 63A integral isolator as SCHNEIDER ELECTRIC, HAUSMANN or an approved equivalent complete with all accessories but excluding MCBs (Located in this building) .	1	No.		
4.22	MCB's for item above				
	(i) 10A SP	3	No.		
	(ii) SP Spareway	3	No.		
4.23	Carry out concise permanent traffolyte labeling for the sub-circuits in item above.	1	Item		
4.24	Sub-main power distribution cable comprising of 3x6mm ² Single Core Copper cables drawn in concealed 32mm ² Dia. HG PVC conduits and including all necessary accessories (From Cable Loop-in Box to Consumer Unit above).	15	Lm.		
4.25	63A SP/N Switchfuse with neutral block as Henleys, Crabtree or approved equivalent	1	No		
	Total for Schedule No. 4: Bale Storage [After Packaging] C/F to Price Summary Page				

SCHEDULE NO. 5: SEED STORAGE [AFTER PROCESSING]

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Supply, install, test and commission the following :				
5.00	Lighting Points [Internal] - Are inadequate. To add				
5.01	Lighting points wired in 3x1.5mm ² PVC SC Copper Cables drawn in 20mm Diameter HG PVC conduits complete with all necessary accessories but excluding switches for:-				
	(a) Two Way Switching.	10	No.		
5.02	10A, moulded ivory switch plates as MK, Clipsal, BG, Crabtree or approved equivalent as follows:				
	(a) 2 gang 2 way	4	No.		
5.03	Lighting fittings complete with all accessories including LED lamps of appropriate wattage and colour rendering and fixing materials as follows:				
	(a) 1200mm, 2x36w, surface mounted HPF bare batten fluorescent luminaire for T8 lamp with electronic control gear as THORN, FITZGERALD or approved equivalent.	10	No.		
5.10	Lighting Points [External] - For area lighting around this storage facility;				
5.11	Lighting points wired in 3x1.5mm ² PVC SC Copper Cables drawn in concealed 20mm Diameter HG PVC conduits complete with all necessary accessories but excluding switches for:-				
	(a) Two Way Switching.	2	No.		
5.12	10A, weatherproof, moulded ivory switch plates as MK, Clipsal, BG, Crabtree or approved equivalent as follows:				
	(a) 2 gang 2 way	2	No.		
5.13	Lighting fittings complete with all accessories including LED lamps of appropriate wattage and colour rendering and fixing materials as follows:				
	(a) 90W, lighting lantern sealed to IP65 outdoor LED FloodLight complete with mounting brackets to the front & the rear sides of this building (at lintel level) as Nikkon S419 Series or approved equivalent.	2	No.		
5.20	INTERNAL POWER DISTRIBUTION				
5.21	6 Ways SPN+E, flush mounted Consumer Unit complete with 63A integral isolator as SCHNEIDER ELECTRIC, HAUSMANN or an approved equivalent complete with all accessories but excluding MCBs (Located in this building) .	1	No.		
5.22	MCB's for item above				
	(i) 10A SP	3	No.		
	(ii) SP Spareway	3	No.		
5.23	Carry out concise permanent traffolyte labeling for the sub-circuits in item above.	1	Item		
5.24	Sub-main power distribution cable comprising of 3x6mm ² Single Core Copper cables drawn in concealed 32mm ² Dia. HG PVC conduits and including all necessary accessories (From Cable Loop-in Box to Consumer Unit above).	15	Lm.		
5.25	63A SP/N Switchfuse with neutral block as Henleys, Crabtree or approved equivalent	1	No		
	Total for Schedule No. 5: Seed Storage [After Processing] C/F to Price Summary Page				

SCHEDULE NO. 6: MANAGER'S HOUSE

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Supply, Install, test and commission the following :				
6.00	Lighting Points [Internal] - The conduit works are largely done;				
6.01	Lighting points wired in 3x1.5mm ² PVC SC Copper Cables drawn in existing 20mm Diameter HG PVC conduits complete with all necessary accessories but excluding switches for:-				
	(a) One Way Switching.	16	No.		
	(b) Two Way Switching.	2	No.		
6.02	10A, moulded ivory switch plates as MK, Clipsal, BG, Crabtree or approved equivalent as follows:				
	(a) 1 gang 1 way	4	No.		
	(b) 3 gang 1 way	1	No.		
	(c) 1 gang 2 way	2	No.		
	(d) 2 gang 2 way	2	No.		
6.03	Lighting fittings complete with all accessories including LED lamps of appropriate wattage and colour rendering and fixing materials as follows:				
	(a) 600mm, 1x18W standard waterproof, IP65 surface mounted HPF fluorescent fitting with injection moulded polycarbonate body and polycarbonate diffuser for T8 lamp with electronic control gear as Thorn Aquaproof or an approved equivalent.	1	No.		
	(b) 600mm, 1x18w, surface mounted HPF bare batten fluorescent luminaire for T8 lamp with electronic control gear as THORN, FITZGERALD or approved equivalent.	2	No.		
	(c) Standard circular surface luminaire with polycarbonate body and white trim, polycarbonate opal diffuser and integral control gear for 28 Watts 2D compact fluorescent lamp as THORN Superclub or approved equivalent.	3	No.		
	(d) Pendant set complete with ceiling rose, screwneck lampholder, flexible cord and 30W LED bulb as THORN or approved equivalent.	3	No.		
	(e) Standard, Shallow surface luminaire with circular opal diffuser and white stand-off ring, with integral HPF control gear for 28W 2D compact fluorescent lamp. As Thorn Glorie or approved equivalent.	1	No.		
6.10	Power Points				
6.11	Ring mains socket outlets comprising wiring in 3x2.5mm sq. single core PVC insulated copper cables drawn in concealed 25 mm diameter Heavy Gauge PVC conduits complete with all the necessary accessories.	6	No.		
6.12	13A switched white moulded case socket outlet plates as MK, Clipsal, BG, Crabtree or an approved equivalent.				
	(a) Twin outlet.	6	No.		
6.13	Cooker (1-Φ) Power Point , comprising of 3x6mm ² PVC SC Copper cables drawn in concealed 25mm Dia. HG PVC conduits complete with all accessories.	1	No.		
6.14	45A DP Cooker Control Unit with 13A integral Socket Outlet and Pilot Lamp marked 'As Per Application' for item above as MK, MEM or approved equivalent.	1	No.		
	Sub-Total C/F to the Next Page				

SCHEDULE NO. 7: BOARDROOM

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Supply, install, test and commission the following :				
7.00	Lighting Points [Internal] - <i>Lighting not working</i>				
7.01	Lighting points wired in 3x1.5mm ² PVC SC Copper Cables drawn in existing 20mm Diameter HG PVC conduits complete with all necessary accessories but excluding switches for:-				
	(a) One Way Switching.	4	No.		
7.02	10A, moulded ivory switch plates as MK, Clipsal, BG, Crabtree or approved equivalent as follows:				
	(a) 1 gang 1 way	4	No.		
7.03	Lighting fittings complete with all accessories including LED lamps of appropriate wattage and colour rendering and fixing materials as follows:				
	(a) 1200mm, 2x36w, surface mounted HPF bare batten fluorescent luminaire for T8 lamp with electronic control gear as THORN, FITZGERALD or approved equivalent.	1	No.		
	(b) 600mm, 1x18w, surface mounted HPF bare batten fluorescent luminaire for T8 lamp with electronic control gear as THORN, FITZGERALD or approved equivalent.	1	No.		
	(c) Standard circular surface luminaire with polycarbonate body and white trim, polycarbonate opal diffuser and integral control gear for 28 Watts 2D compact fluorescent lamp as THORN Superclub or approved equivalent.	1	No.		
	(d) Standard, Shallow surface luminaire with circular opal diffuser and white stand-off ring, with integral HPF control gear for 28W 2D compact fluorescent lamp. As Thorn Glorie or approved equivalent.	1	No.		
7.10	Power Points				
7.11	Ring mains socket outlets comprising wiring in 3x2.5mm sq. single core PVC insulated copper cables drawn in concealed 25 mm diameter Heavy Gauge PVC conduits complete with all the necessary accessories.	4	No.		
7.12	13A switched white moulded case socket outlet plates as MK, Clipsal, BG, Crabtree or an approved equivalent.				
	(a) Twin outlet.	4	No.		
7.20	Lighting Points [External] - <i>For area lighting around this building;</i>				
7.21	Lighting points wired in 3x1.5mm ² PVC SC Copper Cables drawn in concealed 20mm Diameter HG PVC conduits complete with all necessary accessories but excluding switches for:-				
	(a) Two Way Switching.	2	No.		
7.22	10A, weatherproof, moulded ivory switch plates as MK, Clipsal, BG, Crabtree or approved equivalent as follows:				
	(a) 2 gang 1 way	1	No.		
	Sub-Total C/F to the Next Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Sub-Total B/F from Previous Page				
7.23	Lighting fittings complete with all accessories including LED lamps of appropriate wattage and colour rendering and fixing materials as follows:				
	(a) Aluminium Bulkhead with moulded glass cover for tungsten lamps, IP65 protection as Thorn DB Bulkhead or an approved equivalent.	2	No.		
7.30	INTERNAL POWER DISTRIBUTION				
7.31	6 Ways SPN+E, flush mounted Consumer Unit complete with 63A integral isolator as SCHNEIDER ELECTRIC, HAUSMANN or an approved equivalent complete with all accessories but excluding MCBs (Located in this building) .	1	No.		
7.32	MCB's for item above				
	(i) 10A SP	1	No.		
	(ii) 32A SP	1	No.		
	(iii) SP Spareway	4	No.		
7.33	Carry out concise permanent traffolyte labeling for the sub-circuits in item above.	1	Item		
7.34	Sub-main power distribution cable comprising of 3x6mm ² Single Core Copper cables drawn in concealed 32mm ² Dia. HG PVC conduits and including all necessary accessories (From Cable Loop-in Box to Consumer Unit above).	15	Lm.		
7.35	63A SP/N Switchfuse with neutral block as Henleys, Crabtree or approved equivalent	1	No		
	Total for Schedule No. 7: Boardroom C/F to Price Summary Page				

SCHEDULE NO. 8: ABLUTION BLOCK [NEAR GENERATOR HOUSE]

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Supply, install, test and commission the following :				
8.00	Lighting Points [Internal] - <i>Lighting not working</i>				
8.01	Lighting points wired in 3x1.5mm ² PVC SC Copper Cables drawn in existing 20mm Diameter HG PVC conduits complete with all necessary accessories but excluding switches for:-				
	(a) One Way Switching.	6	No.		
8.02	10A, moulded ivory switch plates as MK, Clipsal, BG, Crabtree or approved equivalent as follows:				
	(a) 1 gang 1 way	2	No.		
	(b) 2gang 1 way	2	No.		
8.03	Lighting fittings complete with all accessories including LED lamps of appropriate wattage and colour rendering and fixing materials as follows:				
	(a) Standard circular surface luminaire with polycarbonate body and white trim, polycarbonate opal diffuser and integral control gear for 28 Watts 2D compact flourescent lamp as THORN Superclub or approved equivalent.	6	No.		
8.10	Power Points				
8.11	Hand Drier's Power Point , wired in 3x 2.5sq mm PVC SC copper cables drawn in concealed 25mm Dia. HG PVC conduits complete with all accessories but excluding the D.P switch.	2	No.		
8.12	13A DP Control Switch marked 'As Per Application' with neon light and cord outlet for item above as MK, Crabtree or approved equivalent.	2	No.		
8.20	Lighting Points [External] - <i>For area lighting around this building;</i>				
8.21	Lighting points wired in 3x1.5mm ² PVC SC Copper Cables drawn in concealed 20mm Diameter HG PVC conduits complete with all necessary accessories but excluding switches for:-				
	(a) One Way Switching.	2	No.		
8.22	10A, weatherproof, moulded ivory switch plates as MK, Clipsal, BG, Crabtree or approved equivalent as follows:				
	(a) 2 gang 1 way	1	No.		
8.23	Lighting fittings complete with all accessories including LED lamps of appropriate wattage and colour rendering and fixing materials as follows:				
	(a) Aluminium Bulkhead with moulded glass cover for tungsten lamps, IP65 protection as Thorn DB Bulkhead or an approved equivalent.	2	No.		
8.30	INTERNAL POWER DISTRIBUTION				
8.31	6 Ways SPN+E, flush mounted Consumer Unit complete with 63A integral isolator as SCHNEIDER ELECTRIC, HAUSMANN or an approved equivalent complete with all accessories but excluding MCBs (Located at this building).	1	No.		
	Sub-Total C/F to the Next Page				

SCHEDULE NO. 9: ABLUTION BLOCK [BEHIND ADMIN BLOCK]

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Supply, install, test and commission the following :				
9.00	Lighting Points [Internal] - <i>Lighting not working</i>				
9.01	Lighting points wired in 3x1.5mm ² PVC SC Copper Cables drawn in existing 20mm Diameter HG PVC conduits complete with all necessary accessories but excluding switches for:-				
	(a) One Way Switching.	4	No.		
9.02	10A, moulded ivory switch plates as MK, Clipsal, BG, Crabtree or approved equivalent as follows:				
	(a) 2gang 1 way	2	No.		
9.03	Lighting fittings complete with all accessories including LED lamps of appropriate wattage and colour rendering and fixing materials as follows:				
	(a) Standard circular surface luminaire with polycarbonate body and white trim, polycarbonate opal diffuser and integral control gear for 28 Watts 2D compact flourescent lamp as THORN Superclub or approved equivalent.	4	No.		
9.10	Power Points				
9.11	Hand Drier's Power Point , wired in 3x 2.5sq mm PVC SC copper cables drawn in concealed 25mm Dia. HG PVC conduits complete with all accessories but excluding the D.P switch.	2	No.		
9.12	13A DP Control Switch marked 'As Per Application' with neon light and cord outlet for item above as MK, Crabtree or approved equivalent.	2	No.		
9.20	Lighting Points [External] - <i>For area lighting around this building;</i>				
9.21	Lighting points wired in 3x1.5mm ² PVC SC Copper Cables drawn in concealed 20mm Diameter HG PVC conduits complete with all necessary accessories but excluding switches for:-				
	(a) Two Way Switching.	2	No.		
9.22	10A, weatherproof, moulded ivory switch plates as MK, Clipsal, BG, Crabtree or approved equivalent as follows:				
	(a) 2 gang 2 way	2	No.		
9.23	Lighting fittings complete with all accessories including LED lamps of appropriate wattage and colour rendering and fixing materials as follows:				
	(a) Aluminium Bulkhead with moulded glass cover for tungsten lamps, IP65 protection as Thorn DB Bulkhead or an approved equivalent.	2	No.		
9.30	INTERNAL POWER DISTRIBUTION				
9.31	6 Ways SPN+E, flush mounted Consumer Unit complete with 63A integral isolator as SCHNEIDER ELECTRIC, HAUSMANN or an approved equivalent complete with all accessories but excluding MCBs (Located at this building) .	1	No.		
	Sub-Total C/F to the Next Page				

[illegible]

SCHEDULE NO. 10: CONTROL ROOM - MAIN GINNERY

[illegible]

SCHEDULE NO. 11: RECEIVING BAY

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Supply, install, test and commission the following :				
11.00	Lighting Points				
11.01	Lighting points wired in 3x1.5mm ² PVC SC Copper Cables drawn in concealed 20mm Diameter HG PVC conduits complete with all necessary accessories but excluding switches for:-				
	(a) Two Way Switching.	16	No.		
11.02	10A, moulded ivory switch plates as MK, Clipsal, BG, Crabtree or approved equivalent as follows:				
	(a) 2 gang 2 way	2	No.		
11.03	Lighting fittings complete with all accessories including LED lamps of appropriate wattage and colour rendering and fixing materials as follows:				
	(a) 1200mm, 1x36W standard waterproof, IP65 surface mounted HPF fluorescent fitting with injection moulded polycarbonate body and polycarbonate diffuser for T8 lamp with electronic control gear as Thorn Aquaproof or an approved equivalent.	10	No.		
	(a) Aluminium Bulkhead with moulded glass cover for tungsten lamps, IP65 protection as Thorn DB Bulkhead or an approved equivalent.	6	No.		
11.10	Power Points				
11.11	Ring mains socket outlets comprising wiring in 3x2.5mm sq. single core PVC insulated copper cables drawn in concealed 25 mm diameter Heavy Gauge PVC conduits complete with all the necessary accessories.	6	No.		
11.12	13A switched white moulded case socket outlet plates as MK, Clipsal, BG, Crabtree or an approved equivalent.				
	(a) Twin outlet.	6	No.		
11.20	INTERNAL POWER DISTRIBUTION				
11.21	6 Ways SPN+E, flush mounted Consumer Unit complete with 100A integral isolator as SCHNEIDER ELECTRIC, HAUSMANN or an approved equivalent complete with all accessories but excluding MCBs (Located in this building) .	1	No.		
11.22	MCB's for item above				
	(i) 10A SP	1	No.		
	(ii) 32A SP	1	No.		
	(iii) SP Spareway	4	No.		
11.23	Carry out concise permanent traffolyte labeling for the sub-circuits in item above.	1	Item		
	Sub-Total C/F to the Next Page				

SCHEDULE NO. 12: PUMP HOUSE & EXTERNAL POWER DISTRIBUTION AND RETICULATION

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Supply, Install, test and commission the following :				
	PUMP HOUSE				
12.01	Lighting points comprising wiring in 3x1.5mm ² Single Core PVC insulated Copper Cables drawn in concealed 20mm Diameter HG PVC conduits complete with all necessary accessories but excluding switches for:-				
	(a) One Way Switching.	4	No.		
12.02	10A moulded ivory switch plates as MK, Clipsal, BG, Crabtree or approved equivalent as follows:				
	(a) 1 gang 1 way	1	No.		
	(b) 1 gang 1 way Weatherproof Switch	1	No.		
	LIGHTING FITTINGS				
12.03	Lighting fittings complete with all accessories including lamps of appropriate wattage and colour rendering and fixing materials as follows:				
	(a) 1200mm, 1x36W Standard IP65 rated fluorescent fitting with corrosion resistant enclosure for T8 lamp with Electronic Switchstart Gear as Thorn Corrosionproof or an approved equivalent.	2	No.		
	(b) 40W Outdoor Bulkhead with Opal Diffuser, grill & visor, IP65 protection as Massive Cleveland Outdoor or an approved equivalent.	2	No.		
	POWER POINTS				
12.04	Ring mains socket outlets comprising wiring in 3x2.5mm sq. single core PVC insulated copper cables drawn in concealed 25 mm diameter Heavy Gauge PVC conduits complete with all the necessary accessories.	2	No.		
12.05	13A switched white moulded case socket outlet plates as MK Clipsal, BG, Crabtree or an approved equivalent.				
	(a) Twin outlet.	2	No.		
12.06	WATER BOOSTER PUMPS				
	Pump Motor Power Point , wired in 5 x 4.0sq mm PVC SC copper cables drawn in concealed 42mm Dia. HG PVC conduits complete with all accessories but excluding the Isolator. (Approximately 10M for each Pump)	2	No.		
12.07	Supply and instal metal clad isolator as Crabtree or approved equivalent as follows;				
	a) 32A, TP Isolator	2	No.		
	Sub-Total C/F to the Next Page				

Item	Description	Qty	Unit	Rate (Kshs)	Amount (Kshs)
	Sub-Total B/F from Previous Page				
	INTERNAL POWER DISTRIBUTION				
12.08	6Ways TPN+E, flush mounted Distribution Board complete with 125A integral isolator as L&T, C&S, SCHNEIDER ELECTRIC, HAUSMANN or an approved equivalent complete with all accessories but excluding MCBs.	1	No.		
12.09	MCBs for item above				
	(i) 10A SP	1	No.		
	(ii) 32A SP	1	No.		
	(iii) 32A TP	2	No.		
	(iv) SP Spareway	4	No.		
	(v) TP Spareway	2	No.		
12.10	Carry out concise permanent traffolyte labeling for all the sub-circuits in item above.	1	Item		
	SUB-MAIN POWER DISTRIBUTION CABLE				
12.11	Sub-main cables comprising of 5x16mm ² Single Core Copper cables drawn in concealed 50mm ² Dia. HG PVC conduits and including all necessary accessories (From CLB at Pump House to DB in the Pump House).	20	Lm.		
12.12	Standard Cable Loop-in Box complete with Three Phase Cut-outs 80A HRC fuse and fuse carrier +80A HRC fuse, Fuse Carrier with Neutral Block as Henlys or approved equivalent.	1	No.		
12.13	63A TP MCCB to be installed at the Main Switchboard as ABB, Crabtree or approved equivalent.	1	No.		
12.14	Earthing to Kenya Power (KP) standard at the CLB complete with manhole and cover.	1	Item		
12.15	25.0 mm sq. 4-core PVC/SWA/PVC armoured Copper Cable from the Main Switchboard to the Cable Loop in Box at the Pump House complete with appropriate cable lugs, cable glands and any other necessary accesory.	200	Lm.		
12.16	100mm dia. HG PVC duct encased in concrete surround buried at least 600mm underground for power supply cable way to the Pump House.	200	Lm.		
12.17	Excavate trenches for ducts and armoured cables above, average depth 700mm, remove soft earth, lay ducts, cover with "DANGER-HATARI" tiles, back fill soft earth and compact to natural ground level.	200	Lm.		
12.18	Establish 600 x 600 x 700mm deep standard power manholes, complete with internal plastering, and heavy duty EAFW steel cover.	2	No.		
	Total for Schedule No. 12: Pump House & External Power Distribution and Reticulation C/F to Price Summary Page				

PRICE SUMMARY PAGE

ITEM	DESCRIPTION	AMOUNT (KSHS)
1.00	TOTAL FOR BILL NO. 1: SUB-CONTRACT PRELIMINARIES	
2.00	TOTAL FOR SCHEDULE NO. 1: RAW MATERIALS RECEPTACLE	
3.00	TOTAL FOR SCHEDULE NO. 2: ADMINISTRATION BLOCK	
4.00	TOTAL FOR SCHEDULE NO. 3: SPARE PARTS STORAGE/GARAGE	
5.00	TOTAL FOR SCHEDULE NO. 4: BALE STORAGE [AFTER PACKAGING]	
6.00	TOTAL FOR SCHEDULE NO. 5: SEED STORAGE [AFTER PROCESSING]	
7.00	TOTAL FOR SCHEDULE NO. 6: MANAGER'S HOUSE	
8.00	TOTAL FOR SCHEDULE NO. 7: BOARDROOM	
9.00	TOTAL FOR SCHEDULE NO. 8: ABLUTION BLOCK [NEAR GENERATOR'S HOUSE]	
10.00	TOTAL FOR SCHEDULE NO. 9: ABLUTION BLOCK [BEHIND ADMINISTRATION BLOCK]	
11.00	TOTAL FOR SCHEDULE NO. 10: CONTROL ROOM - MAIN GINNERY	
12.00	TOTAL FOR SCHEDULE NO. 11: RECEIVING BAY	
13.00	TOTAL FOR SCHEDULE NO. 12: EXTERNAL POWER DISTRIBUTION & RETICULATION	
14.00	ALLOW FOR PREPARATION & PRODUCTION OF 3NO. SETS OF "AS INSTALLED" DRAWINGS (BOTH HARD COPY AND SOFT COPY IN AUTOCAD 2020)	
15.00	KENYA POWER SERVICE LINE UPGRADE AND TRANSFORMER	2,000,000.00
16.00	ATTENDANCE AND LIAISON WITH KENYA POWER	
17.00	ALLOW FOR A CONTINGENCY SUM TO BE EXPENDED AT THE DISCRETION OF THE PROJECT MANAGER	500,000.00
	TOTAL FOR ELECTRICAL INSTAL. WORKS [RENOVATIONS] C/F TO FORM OF TENDER	

Total Amount in Words (Kenya Shillings)

.....

Bidder's Name & Official Stamp

P.O. Box.....

Signature.....Date.....

PIN NO.....V.A.T Certificate NO.....

Witness.....Address.....

Signature of Witness.....Date.....

SECTION G
TECHNICAL SCHEDULE
OF
ITEMS TO BE SUPPLIED

TECHNICAL SCHEDULE

1. The technical schedule shall be submitted by tenderers to facilitate and enable the Project Manager to evaluate the tenders, especially where the tenderer intends to supply or has based his tender sum on equipment which differs in manufacture, type or performance from the specifications indicated by the Project Manager.
2. The filling of this schedule forms part of Technical Evaluation of the tenders, and bidders shall therefore be required to indicate the type/make and country of origin of all the materials and equipment they intend to offer to the employer in this schedule.
3. This schedule shall form part of the technical evaluation criterion, and tenderers are therefore advised to complete the schedule as they shall be considered responsive.

TECHNICAL SCHEDULE OF ITEMS TO BE SUPPLIED
(To be completed by the Tenderer)

ITEM	DESCRIPTION	TYPE/MAKE	MODEL	COUNTRY OF ORIGIN
1	Cable Trunking			
2	Cable Accessories			
3	HG PVC Conduits			
4	Consumer units			
5	Distribution boards			
6	MCBs			
7	MCCBs			
8	Cables <ul style="list-style-type: none"> ❖ single core PVC/I Copper ❖ Armoured Copper (PVC/SWA/PVC) 			
9	PVC conduits			
10	Internal Lighting Fittings			
11	Lighting Switches			
12	Socket Outlets			
13	DP Switches			
14	Cooker Control Units			
15	Isolators			
16	100mm HG uPVC Pipes			

SECTION H

STANDARD FORMS

CONTENTS OF SECTION H

	<u>TITLE</u>	<u>PAGE</u>
1.	Key Personnel	EIW-H/1
2.	Schedule of Contracts completed in the last five (5) years	EIW-H/2
3.	Schedule of on-going projects	EIW-H/3
4.	Contractor's Equipment	EIW-H/4
5.	Details of Litigation or Arbitration Proceedings	EIW-H/5
6.	Commissioning Guide for Electrical Installation works	EIW-H/6–EIW-H/11

NOTE:

- 1.0 Tenderers must duly fill these Standard Forms as a mandatory requirement as they will form part the evaluation criteria.

KEY PERSONNEL

Qualifications and experience of key personnel proposed for administration and execution of the Contract.

POSITION	NAME	HIGHEST QUALIFICATION <i>(Attach proof)</i>	YEARS OF EXPERIENCE (GENERAL)	YEARS OF EXPERIENCE IN PROPOSED POSITION
1.				
2.				
3.				
4.				
5.				
6.				
7.				

I certify that the above information is correct.

.....
Title

.....
Signature

.....
Date

CONTRACTS COMPLETED IN THE LAST FIVE (5) YEARS

Work performed on works of a similar nature, complexity and volume over the last 5 years.

<i>PROJECT NAME</i>	<i>NAME OF CLIENT</i>	TYPE OF WORK AND YEAR OF COMPLETION	VALUE OF CONTRACT (KSHS.)

I certify that the above works were successfully carried out and completed by ourselves.

.....

Title

.....

Signature

.....

Date

SCHEDULE OF ON-GOING PROJECTS

Details of on-going or committed projects, including expected completion date.

<i>PROJECT NAME</i>	<i>NAME OF CLIENT</i>	CONTRACT SUM	% COMPLETE	COMPLETION DATE

I certify that the above works are currently being carried out by ourselves.

.....

Title

.....

Signature

.....

Date

**SCHEDULE OF MAJOR ITEMS OF CONTRACTOR'S EQUIPMENT PROPOSED FOR
CARRYING OUT THE WORKS**

ITEM OF EQUIPMENT	DESCRIPTION, MAKE AND AGE (Years)	CONDITION (New, good, poor) and number available	OWNED, LEASED (From whom?), or to be purchased (From whom?)

DETAILS OF LITIGATION OR ARBITRATION PROCEEDINGS IN WHICH THE TENDERER HAS BEEN INVOLVED AS ONE OF THE PARTIES IN THE LAST 5 YEARS
DETAILS OF LITIGATION OR ARBITRATION PROCEEDINGS IN WHICH THE TENDERER HAS BEEN INVOLVED AS ONE OF THE PARTIES IN THE LAST 5 YEARS

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.



REPUBLIC OF KENYA

**MINISTRY OF TRANSPORT, INFRASTRUCTURE, HOUSING,
URBAN DEVELOPMENT & PUBLIC WORKS**

**STATE DEPARTMENT FOR PUBLIC WORKS
(ELECTRICAL DEPARTMENT)**

PROPOSED MODERNIZATION OF LUANDA FARMERS CO-OPERATIVE UNION
GINNERY BY STATE DEPARTMENT FOR CO-OPERATIVES AT LUANDA CO-
OPERATIVE GINNERY, FUNYULA, BUSIA COUNTY – PHASE II

W.P. ITEM NO. D116 WE/BSA/1902 JOB NO. 10664A

TESTING & COMMISSIONING GUIDE
FOR
ELECTRICAL INSTALLATION WORKS ON SITE

Issued by:

The Chief Engineer (Electrical),
Ministry of Transport, Infrastructure, Housing, Urban Development & Public Works,
State Department for Public Works,
P. O. BOX 41191 – 00100 GPO,
NAIROBI.

**MINISTRY OF TRANSPORT, INFRASTRUCTURE, HOUSING, URBAN DEVELOPMENT &
PUBLIC WORKS,
STATE DEPARTMENT FOR PUBLIC WORKS
(ELECTRICAL DEPARTMENT)**

TESTING AND COMMISSIONING OF ELECTRICAL INSTALLATION WORKS ON SITE.

PROJECT NAME.....

W.P ITEM No.....**JOB No**.....

PROJECT SITE.....

CLIENT.....

The sub-contractor shall test in accordance with the relevant section of IEE regulations, Rule 3 of the Electrical Power Act for additional tests not covered by the regulations, Government Electrical specifications I & II and the Kenya Power & Lighting Co. Ltd by-laws.

A PRELIMINARY CHECKS

The Engineer shall check to establish the following data:-

ITEM	DESCRIPTION		REMARKS
(i)	Type of installation (New/Renovation/Addition/ to existing installation)		
(ii)	a) Power supply 240V/415V/11KV		.....
	b) Frequency of the mains supply		.....
	c) Installation power factor		.....
(iii)	Method of Metering (New /Monitoring/Existing meter)		
(iv)	Are Testing/Measuring instruments available		
(v)	Are there maintenance/operational manuals for specialized systems (if any)		
(vi)	List of 'as installed drawings'	Drg No.	Description

B TESTS

ITEM	TEST DESCRIPTION	OBSERVATIONS/ RESULTS	REMARKS
1	Tests shall be carried out to ensure:		
	a) All fuses and single pole switches are installed in live conductor		
	b) All outlets and switched socket outlets are connected to 'LIVE' conductor in the Terminal marked so and each earth pin effectively bonded to earth continuity system		
	c) Verify continuity of all final conductors of each 'Ring' circuit. (0.05 to 0.8 )	.....Ohms	
	d) All radial circuits emanate from respective distribution boards/consumer units and that they do not supply any other Equipment		
	e) The correct phase sequence is maintained throughout the installation		
	f) Effective 'Discrimination' in the arrangement of protective devices. i.e. a fault in the furthest power point/Lighting point should not blow or trip Fuses/MCBs respective in the Meter board.		
2	Inspect to ensure:		
	a) No terminal in the Ceiling Rose is 'LIVE' when the corresponding switch is in the off position.		
	b) All conduit termination conduit boxes, Consumer unit, DB's and Adaptable boxes have smooth edges and are properly bushed.		
	c) All fixed metal works close to Electrical installation are bonded to earth continuity conductor.		
	d) All Fuse ways and Circuit breakers for final sub circuits are properly labeled		

B TESTS CONT'D

ITEM	TEST DESCRIPTION	OBSERVATIONS/ RESULTS	REMARKS
3	Carry out the following tests:		
	a) Insulation Resistance tests		
	i) Between phases		
	a) R -Y		
	b) R -B		
	c) B-Y		
	ii) Phase to Neutral	.....M	
	a) R - N	.....M	
	b) R - N	.....M	
	c) B - N		
	iii) Phase to Earth	.....M	
	a) R - E	.....M	
	b) R -E	.....M	
c) B -E			
	.....M		
	Minimum thresholds for above and for:	.....M	
	i) ELV circuits (SELV & PELV) = 0.25 M	.....M	
	ii) LV Circuits up to 500V = 0.5 M		
	iii) LV Circuits above 500V = 1 M		
	b) Earth continuity conductor impedance (0.005 to 2 )	.....Ohms	
	c) Earth fault Loop impedance (0 - 2000 )	.....Ohms	
	d) Earth Electrode resistance (Less than 4 )	.....Ohms	
	e) Earth Lead resistance (Less than 4 )	.....Ohms	
	f) The operation of protection MCCBS & MCBs (Tripping under faulty conditions)		
	g) Check the mechanical toggling (make & break) of all the switches to installed accessories.		
4	Underground cabling, Check for:		
	i) Continuity of the phases		
	ii) Factory tests done (avail certification)		
	iii) Proper termination		
	iv) Route markers		

B TESTS CONT'D

ITEM	TEST DESCRIPTION			OBSERVATIONS/ RESULTS	REMARKS
5	Installed load				
	i)	Lighting points (No.)			
	ii)	Socket outlets (No.)			
	iii)	Motors (Give rating)			
	iv)	Other machines (Attach list if more)			
	Item	Description	Rating		
6	Type of Earthing: TN-C/TN-S/ TN-C-S/TT/IT.				
7	LV switchboard: The board shall be checked to ascertain the following				
	i)	Rating of the switchboard			
	ii)	Rating of main incomer MCCB			
	iii)	Form of construction (1/2B/3B/4)			
	iv)	Degree of protection (IP rating)			
	v)	Nameplates for identification of all circuits entering/leaving switchgear			
	vi)	Proper Electrical & Mechanical operation of functional parts i.e MCCBs, Indicating meters, CTs & VTs .			
	vii)	Check cable terminations, type & terminals			
	viii)	General comments on the appearance of the finished mechanical assembly including welding, full nuts & tightness of bolted parts.			
8	Fireman's switch.				
	i)	Make and manufacturer			
	ii)	The rating of the switch			
	iii)	Test for the Electrical and Mechanical operation of the switch			
	iv)	State the types of loads supported by the maintained board on the switch.			
	** see foot note				

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.

M.O.T.I.P.W.H&UD REPRESENTATIVE/ PROJECT ELECTRICAL ENGINEER:-

Sign..... Date.....

NameDesignation.....

****If there are other defects/outstanding works noted, list them overleaf or on a separate sheet and attach.**

BUILDERS WORKS

CONTROL ROOM

ITEM No.	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (Kshs.)
	<u>CONTROL ROOM</u>				
	<u>ELEMENT A</u>				
	<u>FRAME</u>				
	<u>Machine cut natural stone walling in 200mm course heights, bedded and jointed in cement sand mortar (1:3), reinforced with 20 gauge x 25mm wide hoop iron reinforcement and column wall ties in every alternate course</u>				
A	200mm Load bearing (7 N/mm2) External walling.	20	m2		
	<u>Pluvex No. 1 or other equal and approved horizontal bitumen damp proof course to B.S. 743 (measured net - no allowance made for laps).</u>				
B	200mm Wide under walling.	10	m		
	<u>Vibrated reinforced concrete (class 25)</u>				
C	Beam	1	m3		
	<u>Ribbed bar steel reinforcement as before described</u>				
D	Assorted sizes 8-25mm diameter	80	kg		
	<u>Marine Ply formwork to:</u>				
	<u>All concrete work shall be fair face finished : Plaster to concrete surfaces is not measured and any making good of concrete surfaces to receive finishes shall be at the cost of the contractor</u>				
E	Sides of beam	9	m2		
	<u>TOTAL AMOUNT OF ELEMENT C CARRIED TO SUMMARY COLLECTION OF BILL NO. 2</u>				
	<u>FRAME</u>				
	<u>CONTROL ROOM</u>				

ITEM No.	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (Kshs.)
ELEM ENT	SUMMARY				
	TITLE				
	A Frame				
	B Doors				
	C Windows				
	D Finishes				
<u>TOTAL BUILDERS WORK FOR CONTROL ROOM CARRIED TO SUMMARY</u>					

PUMP HOUSE

ITEM No.	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (Kshs.)
	<p align="center"><u>PUMP HOUSE</u></p> <p align="center"><u>ELEMENT A</u></p> <p align="center"><u>SUB-STRUCTURES</u></p> <p><u>Tenderer's to note Working space is not allowed for when pricing excavations</u></p>				
A	Clear site off all vegetation including small trees, scrubs and bushes and store in lumps away from site as directed by the Project Manager.	8	m2		
B	Excavate over site to reduce levels commencing from existing ground level not exceeding 1.50m deep; average depth 300mm	2	m3		
C	Excavate foundation trench for strip foundation commencing at existing reduced level , not exceeding 1.50mm deep.	10	m3		
E	Extra excavation for excavating in rock. (Irrespective of class and assumed at 30%)	2	m3		
F	Remove surplus excavated material from site.	#REF!	m3		
G	Return fill in and ram selected excavated material around foundations.	#REF!	m3		
H	Allow for keeping the excavation free from general water by bailing, pumping or otherwise	1	ITEM		
I	Allow for planking, strutting and shoring to sides of all excavations; keep excavations free from all fallen materials	1	ITEM		
	<u>Selected imported material</u>				
J	Filling in making up levels under floors, spread levelled, well rammed and consolidated in 150mm layers.	2	m3		
K	300mm Bed well compacted and blinded with 50mm thick murram, quarry dust or sand finished to receive damp proof membrane (measured separately); well watered and compacted in 300 mm thick (max) layers	2	m2		
	Carried to collection				

ITEM No.	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (Kshs.)
	<u>SUB-STRUCTURES</u> COLD ROOM FACILITY				
A	<p><u>Tender rate shall allow within the unit rate build up for treating vertical sides of foundation trenches, column base pits and around building plinth as per manufacturers printed instructions, quantity indicated herein is measured flat overall on net ground floor surface beds, provide ten year guarantee</u></p> <p>Premise 200 SC Chemical anti termite treatment manufactured by Bayer Environmental Science or other equal and approved, applied by an approved specialist under a ten year guarantee to surfaces of hardcore, etc.</p>	8	m2		
B	<p><u>DPM</u></p> <p>1000 Gauge approved polythene sheeting as damp proof membrane laid on blinded hardcore (measured separately) with weltd laps (measured net - no allowance made for laps).</p>	8	m2		
C	<p><u>Plain concrete 1:3:6 (class Q)</u></p> <p>50mm Plain concrete (1:3:6) blinding under strip foundation.</p>	7	m2		
D	<p><u>Vibrated reinforced concrete (class 25) waterproofed with and including 'Sika 1' or other equal and approved waterproofing compound in strict accordance with the manufacturer's</u></p> <p>Strip Foundation</p>	1	m3		
E	<p>150mm Bed laid on damp proof membrane (measured separately) in bays not exceeding 35 square metres including formwork to edge of bays .</p>	8	m2		
F	<p><u>Supply, cut, bend and fix the following reinforcement bars including tying wire, stirrups and spacer blocks</u></p> <p><u>Ribbed bar steel reinforcement to B.S. 4461 and K.S. ISO 6935-2:2007 Part 2</u></p> <p>Assorted sizes 8-25mm diameter</p>	80	Kg.		
	Carried to collection				

ITEM No.	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (Kshs.)
A	Steel wire fabric mesh reinforcement to B.S. 4483 Ref: A 142 and K.S. 02-18:1976 in concrete bed (measured net, no allowance made for minimum 225mm laps) including tying and supporting as necessary.	8	m2		
	<u>Marineply formwork</u>				
B	Sides of strip foundation.	4	m2		
C	Edge of slab 150 - 225mm high.	11	m		
	<u>Approved natural quarry stone; roughly squared; bedding, jointing and pointing in cement sand mortar (1:3) laid in regular courses; reinforced with 20 gauge x 25mm wide hoop iron reinforcement and column wall ties in every alternate course</u>				
D	200mm Load bearing (7 N/mm2) walling.	17	m2		
	<u>Plinth Finishes:-</u>				
E	12mm. Thick cement and sand (1:4) render to plinths rendered	6	m2		
F	Prepare and apply three coats of bitumastic paint on rendered walls externally.	6	m2		
	Carried to collection				

ITEM No.	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (Kshs.)
	<p style="text-align: center;"><u>ELEMENT B</u> <u>FRAME</u></p> <p><u>Note: Rates to include expansion joint filler including all necessary formwork to the concrete works.</u></p> <p><u>Vibrated reinforced concrete (class 25)</u></p>				
A	Beams	1	m3		
B	<p><u>Ribbed bar steel reinforcement as before described</u></p> <p>Assorted sizes 8-25mm diameter</p>	80	Kg.		
C	<p><u>Marine Ply formwork to:</u></p> <p><u>All concrete work shall be fair face finished : Plaster to concrete surfaces is not measured and any making good of concrete surfaces to receive finishes shall be at the cost of the contractor</u></p> <p>Sides of beams</p>	7	m2		
	<p><u>TOTAL AMOUNT OF ELEMENT B CARRIED TO SUMMARY COLLECTION OF BILL NO. 2</u></p>				

ITEM No.	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (Kshs.)
	<u>ELEMENT C</u>				
	<u>EXTERNAL AND INTERNAL WALLS</u>				
	<u>Machine cut natural stone walling in 200mm course heights, bedded and jointed in cement sand mortar (1:3), reinforced with 20 gauge x 25mm wide hoop iron reinforcement and column wall ties in every alternate course</u>				
A	200mm Load bearing (7 N/mm2) External walling.	29	m2		
B	200mm vent blocks	7	m2		
	<u>Pluvex No. 1 or other equal and approved horizontal bitumen damp proof course to B.S. 743 (measured net - no allowance made for laps).</u>				
B	200mm Wide under walling.	9	m		
	<u>TOTAL AMOUNT OF ELEMENT C CARRIED TO SUMMARY COLLECTION OF BILL NO. 2</u>				
	<u>EXTERNAL AND INTERNAL WALLS</u>				

ITEM No.	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (Kshs.)
	ELEMENT D				
	<u>ROOF CONSTRUCTION, COVERING AND RAINWATER DISPOSAL</u>				
	<u>(ALL PROVISIONAL)</u>				
	Sawn celcured second grade cypress				
A	100 x 50mm wall plate rag bolted to wall at 600mm centres.	6	m		
B	100 x 50mm ceiling joist	10	m		
C	100 x 50mm rafters	14	m		
D	75 x 50mm struts and ties	20	m		
E	75 x 50mm purlins	24	m		
	<u>Roof covering</u>				
	<u>Industrial Trough (IT 5) Box profiled sheet roofing fixed to purlins; 28 gauge; prepainted</u>				
F	Roof covering; 150mm laps both sides ; and fixing to Z purlins (m.s.) on steel trusses (m.s.) with zinc nails at 1000mmc/c all laid to fall	14	m2		
B	Av. 300mm dia ridge sheet 28 G with stiffeners	4	m		
	<u>Rainwater Disposal</u>				
C	150mm x 150mm gauge 26 mild steel box gutter	8	m		
D	Extra for stopped ends	4	No.		
E	150mm square GCI pipe grade A wall mounted with brackets	6	m		
F	Extra over ditto for 700 mm long swan neck	2	No.		
G	Extra over ditto for 300 mm long shoe	2	No.		
	<u>Painting and Decoration</u>				
	<u>Prepare surfaces and apply one undercoat and two finishing coats of gloss oil paint on:</u>				
H	General metal surfaces; over 200mm girth external	14	m		
	<u>TOTAL AMOUNT OF ELEMENT D CARRIED TO SUMMARY COLLECTION OF BILL NO. 2</u>				

ITEM No.	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (Kshs.)
	<u>ELEMENT F</u>				
	<u>DOORS</u>				
	<u>Steel Doors</u>				
	<u>Supply, assemble and fix the following purpose made mild steel</u>				
A	Steel door overall size 1500 x 2400mm; comprising two openable leaves in 16 gauge pressed steel plate welded to 100 x 50 x 3mm thick pressed mild steel RHS frame, including all necessary iron mongery and door furniture;	1	No		
	<u>Prepare and apply two undercoats and one coat of gloss finishing</u>				
B	General surfaces of metal doors	7	m2		
C	Surfaces 200 - 300mm girth	6	m		
	<u>TOTAL AMOUNT OF ELEMENT F CARRIED TO SUMMARY COLLECTION OF BILL NO. 2</u>				

ITEM No.	DESCRIPTION	QTY	UNIT	RATE	AMOUNT (Kshs.)
	<u>ELEMENT G</u>				
	<u>FINISHES</u>				
	<u>External Wall Finishes</u>				
A	Pointing and keying to masonry in neat recessed joints	36	m2		
	<u>Internal Wall Finishes</u>				
	<u>12mm Gauged lime plaster (1:2:9) : steel trowelled finish : on concrete or blockwork : to</u>				
B	Sides of walls and beams	29	m2		
	<u>Painting</u>				
	<u>Prepare and apply three coats interior quality eggshell paint as "Crown Paints" or other equal and approved paint to:-</u>				
C	Plastered surfaces	29	m2		
	<u>Floor Finishes</u>				
	<u>Cement and sand (1:4) screeded beds: on concrete: to</u>				
D	40 mm thick ; powerfloated screed with approved hardener finished smooth	8	m2		
	<u>FINISHES</u>				

GINNING HOUSE

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	<u>GINNING HOUSE</u>				
	<u>Demolition and alteration</u>				
A	Carefully remove worn out corrugated iron sheets and cart away from site (Approximately 1240 square meters)		ITEM		
B	Carefully remove sawn timber roof member and cart away the arising (Approximately 110 meters)		ITEM		
C	Carefully remove existing timber fascia and barge board and cart away the arising (70 meters)		ITEM		
D	Carefully remove worn out chequered plate, make good the area and cart away the arising (Approximately 6 square meters)		ITEM		
	<u>Roof covering</u>				
	<u>28 gauge corrugated iron sheet laid on 38 x 38mm sawn celcured cypress battens at 370mm centres complete with and including fixing clips and brackets and fixing to timber rafters at 600mm centres(m/s)</u>				
C	Covering to pitched roof	1240	SM		
	<u>Wrot prime grade cypress</u>				
D	200 x 25mm fascia/badge board	139	LM		
	<u>22 gauge galvanised mild steel:</u>				
E	150 x 100mm gutter fixed to fascia board	120	LM		
F	Extra over rainwater gutter for 100mmx100mm downpipe outlet	12	NO		
G	Ditto stopped end	8	NO		
H	Ditto bend	8	NO		
I	100mm diameter down pipe fixed to wall with and including approved holderbats at 1500mm centres	72	LM		
J	Extra over down pipe for swan neck	12	NO		
K	Ditto horse shoe	12	NO		
	Carried to collection				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
A	<u>Prepare and apply three coats of clear polyurethane lacquer on wood:-</u>	139	LM		
	Ditto exceeding 200mm but not exceeding 300mm girth internally				
B	<u>Prepare and apply two undercoat and one finishing coat of gloss paint on:</u>	192	LM		
	Surfaces of metal exceeding 200mm but not exceeding 300mm girth externally				
	<u>Finishes</u>				
	<u>Floor finishes</u>				
C	<u>Screed; cement and sand (1:3)</u>	406	SM		
	40mm Thick cement and sand (1:3) screed paving including backing, steel trowelled to approval				
D	Power brush and clean existing concrete floor screed to Project Manager's satisfaction	790	SM		
	<u>Wall finishes</u>				
	<u>Painting and decorations</u>				
E	<u>Prepare and apply three coats of first quality plastic emulsion paint to: -</u>	477	SM		
	Previously painted wall internally				
	Ditto externally				
G	<u>Doors finishes</u>	110	SM		
	<u>Prepare and apply three coats of first quality gloss paint to: -</u>				
	Mild steel door surfaces				
	<u>Window finishes</u>				
	<u>Glazing</u>				
H	<u>4mm thick clear glass and glazing fixed with and including putty to steel windows</u>	70	SM		
	Panes 0.1-0.5 square meters				
	Carried to collection				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
A	Prepare and apply three coats of first quality gloss paint to: -	280	SM		
	Window surfaces				
	Carried to collection				
	<p style="text-align: center;"><u>COLLECTION</u></p> <p>Brought forward from page GN/1</p> <p>Brought forward from page GN/1</p> <p>Brought forward from Above</p>				
TOTAL WORKS FOR GINNING HOUSE CARRIED TO SUMMARY					

PIT LATRINE WORKS

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	<u>ELEMENT NO. 1</u>				
	<u>SUBSTRUCTURES</u>				
	<u>(All provisional)</u>				
	<u>Site Preparation</u>				
A	Clear site of all bushes, shrubs and grub up roots and remove from site	11	SM		
B	Excavate pit not exceeding 1.5 m deep commencing from existing ground level	16	CM		
C	Ditto, exceeding 1.5 m deep but not exceeding 3.0 m deep	16	CM		
D	Ditto, exceeding 3.0 m deep but not exceeding 4.5 m deep	7	CM		
E	Ditto, exceeding 4.5 m deep but not exceeding 6.0	7	CM		
F	Ditto, exceeding 6.0 m deep but not exceeding 7.5	7	CM		
G	Excavation for strip fondation commencing at reduced levels depth not exceeding 1.5M	6	CM		
H	Extra over all descriptions of excavations and removal from site for excavating in rock: hard rock class III: moderately weathered trachyte and fresh continuous trachyte	4	CM		
	<u>Disposal of excavated material</u>				
K	Fillings around fdn: backfill and compact in 150 mm layers: selected excavated materials	15	CM		
L	Remove surplus spoil from site to an authorized dumping site	23	CM		
	CARRIED TO COLLECTION				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	<u>Planking and strutting</u>				
A	Planking and strutting to sides of all excavations: keep excavations free from all falling materials		ITEM		
	<u>Disposal of Water</u>				
B	Keep excavations free from all water including spring, underground and running water.		ITEM		
	<u>Hardcore Filling</u>				
C	450mm thick fillings in making up levels: levelled and compacted in 150 mm layers	6	SM		
	<u>Murram</u>				
D	50mm Thick murram blinding to surfaces of hardcore	6	SM		
	<u>Insecticide treatment</u>				
	<u>'Premise 200CC" insecticide treatment on top of hardcore filling and over foundation walls applied as per manufacturer's instruction with a 10 year guarantee</u>				
E	To murram surface	6	SM		
	<u>Concrete Work</u>				
	<u>Insitu concrete mix (1:4:8): in</u>				
F	50 mm thick blinding under walls foundations <u>Insitu reinforced concrete: CLASS 25 vibrated in:-</u>	4	SM		
G	Strip footing	2	CM		
H	Floor bed 150 mm thick	6	SM		
I	Ground beam	1	CM		
	CARRIED TO COLLECTION				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	<u>Reinforcement (Provisional)</u>				
	<u>Supply and fix steel bar reinforcement including bending, hooking, tying wire, cutting, spacers and supporting all in position</u>				
	<u>High tension square twisted mild steel bars reinforcement to BS 4449 in structural concrete work</u>				
A	8mm diameter bars	108	KG		
B	10mm diameter bars	126	KG		
C	12mm diameter bars	72	KG		
D	16 mm diameter bars	54	KG		
E	BRC Fabric mesh reinforcement Ref. A142 with 200 mm laps (measured net ; no allowances made for laps) to basement floor bed <u>Sawn formwork: to</u>	10	SM		
F	Edges: slab not exceeding 150 mm girth	14	LM		
G	Sides of foundation	6	SM		
H	Sides and soffits of ground beams	6	SM		
	<u>Damp proof membrane</u>				
I	1000 gauge polythene laid under surface beds	6	SM		
	<u>Walling</u>				
	<u>Natural stone walling in cement and sand (1:3) mortar and including reinforcing with 20 x 3mm thick hoop iron in every alternate course.</u>				
A	200mm Thick walling	30	SM		
	<u>Insitu Finishings</u>				
B	14mm thick 2 No. coatwork cement sand (1:3) render; wood floated to concrete or blockwork	5	SM		
	<u>Painting and Decorations</u>				
	<u>Prepare and apply three coats bituminous paint to:</u>				
C	Wood floated rendered plinths over 300mm girth	5	SM		
	CARRIED TO COLLECTION				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
ITEM	DESCRIPTION	QTY	UNIT		
	<u>COLLECTION</u> <u>SUBSTRUCTURES</u> Brought Forward From Page 3D/1 Brought Forward From Page 3D/2 Brought Forward From Page 3D /3				
TOTAL SUBSTRUCTURE CARRIED TO SUMMARY					

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	<u>ELEMENT NO.2</u>				
	<u>REINFORCED CONCRETE SUPERSTRUCTURES</u>				
	<u>Insitu reinforced concrete: grade 25 : vibrated in:-</u>				
A	Beams	1	CM		
	Reinforcement (Provisional)				
	<u>Supply and fix steel bar reinforcement including bending, hooking, tying wire, cutting, spacers and supporting all in position</u>				
	<u>High tension square twisted mild steel bars reinforcement to BS 4449 in structural concrete work (Provisional)</u>				
B	8mm diameter bars	24	KG		
C	10mm diameter bars	28	KG		
D	12mm diameter bars	16	KG		
E	16-32mm diameter bars	12	KG		
	<u>Sawn timber formwork: to</u>				
F	Sides: Beams .	14	SM		
TOTAL REINFORCED CONCRETE SUPERSTRUCTURES CARRIED TO SUMMARY					

[illegible]

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
A	<u>ELEMENT NO. 4</u>	6	SM		
	<u>INTERNAL WALLING</u> <u>Approved local stone; squared ; machine dressed one side;</u> <u>bedding, jointing in cement and sand</u> <u>mortar (1:4);including reinforcing with hoop iron</u> <u>in every alternative course</u> Walls 100mm thick				
	TOTAL INTERNAL WALLING CARRIED TO SUMMARY				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	<u>ELEMENT NO. 5</u>				
	<u>ROOFING CONSTRUCTION, COVERING AND RAIN WATER DISPOSAL</u>				
	<u>Galvanized steel IT5 box profile sheets; 28 gauge; prepainted</u>				
A	Roof covering; 150mm laps on one end and one and a half corrugation side lap; and nailing to 75 x 50mm celcured sawn cypress purlins (m/s) to receive interlocking tiles (m/s)	10	SM		
	<u>Truss Type 1</u> The following 3 No. timber trusses spanning at 2.3m and placed 900mmc/c and 3m from ground level				
B	100x50 mm rafters	14	LM		
C	150x50 mm kingpost	12	LM		
D	100x50 mm collar piece	6	LM		
E	100x50 mm struts & ties	18	LM		
F	150x50mm tie beam	7	LM		
	<u>End of trusses</u>				
G	75X50mm purlins	17	LM		
H	100x50mm wall plate	5	LM		
	<u>Wrot cypress as described</u>				
I	250X25mm fascia board	9	LM		
	<u>Painting and Decorations On Woodwork</u>				
	<u>Prepare and apply one zinc plumbate primer and three coats of 'CROWN SOLO' or other equal and approved super gloss oil paint to:-</u>				
A	Fascias; 200 to 300mm girth; external	9	LM		
TOTAL FOR ROOF CONSTRUCTIONCARRIED FORWARD TO SUMMARY					

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	<u>ELEMENT NO. 6</u>				
	<u>DOORS</u>				
	<u>Wrot Cypress framed frames and framings</u>				
A	100 x 50 mm; 2 No. labours; plugged door frame	11	LM		
B	40x 35 mm moulded architrave	11	LM		
C	25 x 25mm moulded quadrants	11	LM		
	<u>45mm Thick semi-solid core flush doors to B.S 459: part 2 veneered both sides with internal quality plywood and lipped on all edges in approved hardwood</u>				
D	Door size 800 x 2100 mm high	2	No.		
	<u>Iron mongery</u>				
	<u>Supply and fix the following to UNION catalogue or other equal and approved</u>				
	<i>To softwood, hardwood or the like fixing with</i>				
F	Three lever mortice lock complete with set lever aluminium handle furniture	2	No.		
G	100mm steel butt hinges <i>To concrete or blockwork; fixing with bolts;</i>	3	PRS		
I	Rubber door stop complete with 38 mm rawl bolt	2	No.		
	Painting and Decorations On wood				
	<u>Aluminium primer or other equal and approved wood primer before fixing: -</u>				
J	Backs of frame, board, etc over 100mm but not exceeding 200mm girth	11	LM		
	<i>Carried to Collection</i>				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	<u>Knot, prime and stop; prepare and apply one undercoat and two coats of gloss oil paint</u>				
A	General surfaces of timber doors over 300mm	8	SM		
B	Frames; over 100mm but not exceeding 200mm	11	LM		
C	Frames not exceeding 100mm girth; internal	11	LM		
	<i>Carried to Collection</i>				
	<p><u>COLLECTION</u></p> <p>Brought forward from page CR/ 9</p> <p>Brought forward from above</p>				
	TOTAL FOR DOORS CARRIED TO SUMMARY				

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	<p><u>ELEMENT NO. 7</u></p> <p><u>WINDOWS</u></p> <p><u>METAL WORK</u></p> <p><u>PURPOSE - MADE UNITS</u></p> <p><u>Supply, assemble and fix the following purpose-made mild steel casement windows; standard metal section from approved manufacturer complete with frames, transomes, mullions and with and including permanent ventilators comprising "T" bar, gauze and 16 gauge sheet metal hood 50mm high x 50mm projection to full width of window, coupling mullions, approved ironmongery and one coat manufacturer's primer; all welding ground to smooth finish.</u></p> <p><i>Steel; for glazing with putty, lugs to two jambs, cutting and pinning to concrete or blockwork, fixing to head and sill with screws; plugging</i></p>				
A	<p>Window, overall size 800 x 800mm high</p> <p><u>Glazing</u></p>	2	No		
B	<p>4mm Thick clear sheet glass panes over 0.5 but not exceeding 1.0 square meters; fixing with putty</p> <p><u>Painting and Decorations</u></p> <p><u>On Metal work</u></p> <p><u>Prepare and apply three coats oil paint full gloss to Crown Solo or other equal and approved to: -</u></p>	2	SM		
C	General window surfaces; over 300mm girth internal	2	SM		
D	General window surfaces; over 300mm girth external	2	SM		
TOTAL FOR WINDOWS CARRIED TO SUMMARY					

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	<u>ELEMENT NO. 8</u>				
	<u>FINISHES</u>				
	<u>Wall finishes</u>				
	<u>Insitu finishes</u>				
	<u>Render; 18mm thick, 1 No. coatwork of cement and sand (1:3); wood floated to concrete or blockwork base generally to: -</u>				
A	Walls, beams and columns; external	66	SM		
	<u>Plaster; 18mm thick, 2 No. coatwork, 15mm first coat of cement sand (1:3); 3mm second coat of cement and lime putty (1:9); steel trowelled to concrete or blockwork base generally to: -</u>				
B	Walls, beams and columns; internal	12	SM		
	<u>Painting & Decoration</u>				
	<u>Prepare and apply three coats of premium quality weather guard paint as approved to:-</u>				
C	To walls; external	66	SM		
D	To walls; internal	12	SM		
	<u>Floor finishes</u>				
	<u>Render; cement and sand (1:3)</u>				
E	40mm thick backings; red oxide steel trowelled smooth ; to floor	10	SM		
TOTAL FOR FINISHES CARRIED TO COLLECTION PAGE					

ITEM	DESCRIPTION	QTY	UNIT	RATE	AMOUNT
	<u>COLLECTION PAGE</u>				
1	SUBSTRUCTURE (ALL PROVISIONAL)				
2	REINFORCED CONCRETE SUPERSTRUCTURE				
3	EXTERNAL WALLING				
4	INTERNAL WALLING				
5	ROOF CONSTRUCTION.				
6	DOORS		3		
7	WINDOWS		3		
8	FINISHES		3		
TOTAL FOR PIT LATRINE WORKS CARRIED TO SUMMARY					

STORM WATER DRAINAGE

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KSHS.
	<u>OPEN STORM WATER DEEP INVERT BLOCK DRAIN</u>				
A	Excavate over site to remove vegetation soil average 150mm deep, collect in heaps and burn arisings as instructed by the Project Civil Engineer	SM	363		
B	Excavate trench for 450x600x225mm external dimensions precast concrete IBD trim sides to slope and cart away excavated material depth not exceeding 1.2m (average depth 1.0m.)	CM	363		
C	Provide, lay and compact 100mm thick approved murram at the base and side slopes of the trench as per drawing detail (50)5329 'B'	SM	545		
D	Provide all materials, mix and place 50mm thick concrete grade C10 (Mix Ratio 1:4:8) as blinding for Invert Block Drain. Cement to BS 12, 14mm aggregate to BS 882.	CM	5		
E	Provide, lay and joint 450x225mmx600mm external dimensions precast concrete IBD as per drawing detail (50)5329 'B'	LM	260		
F	Provide 200mm thick building stone, lay and joint in cement sand (1:3) mortar as stone pitching as per drawing detail (50)5329	SM	20		
G	Provide, lay and joint two 600x225x75mm side slabs as per drawing detail (50)5329 B	SM	135		
H	Allow a Provisional Sum of Kenya Shillings Fifty Thousand for unclogging existing culvert drains, loading, carting away on areas on site as instructed by the Project Civil Engineer	SUM	1		
	TOTAL CARRIED TO SUMMARY PAGE 3D/15				

ITEM	DESCRIPTION	AMOUNT
	BUILDERS WORK SUMMARY	
1	CONTROL ROOM	
2	PUMP HOUSE	
3	GINNING HOUSE	
4	PIT LATRINE	
5	STORM WATER DRAINAGE	
	TOTAL BUILDERS WORKS CARRIED TO SUMMARY	

PROVISIONAL SUMS

ITEM	DESCRIPTION	QTY	UNIT	RATE	K.SHS
A	<p>PROVISIONAL SUMS</p> <p><u>The following provisional sums are to be measured on completion and priced in accordance with the rates contained in these bills of quantities or prorata thereto or deducted in whole if not required</u></p>		ITEM		3,000,000.00
	Allow sum of Kenya Shillings Three Million (Kshs 3,000,000.00) only for Contingency				
	<p>TOTAL FOR PROVISIONAL SUMS CARRIED TO GRAND SUMMARY</p>				3,000,000.00

GRAND SUMMARY

PROPOSED MODERNIZATION OF LUANDA FARMERS CO-OPERATIVES UNION GINNERY
AT FUNYULA - BUSIA COUNTY (PHASE II)
WP ITEM NO. D117 WE/BSA/2002 JOB NO. 10644B
GRAND SUMMARY PAGE

<u>ITEM No.</u>	<u>TITLE</u>	<u>PAGE No.</u>	FOR TENDERER USE (Kshs.)	FOR OFFICIAL USE ONLY (Kshs.)
1	PARTICULARPRELIMINARIES	PP/6		
2	GENERALPRELIMINARIES	GP/16		
3	MECHANICAL WORKS	2/SUMMARY		
4	ELECTRICAL WORKS	3/SUMMARY		
5	BUILDERSWORKS	BW/1		
6	PROVISIONAL SUMS	S/1		
<u>TOTAL AMOUNT CARRIED TO FORM OF TENDER (VAT INCLUSIVE)</u>				

**Amount in
Words (Kshs):**

**Name of
Contractor :**

Address:
.....

Signature:

**Date and
Stamp:**