



**STATE DEPARTMENT FOR INFRASTRUCTURE**

## **KENYA RURAL ROADS AUTHORITY**

### **TENDER DOCUMENT FOR REHABILITATION OF A2, CHAKA -SAGANA STATE LODGE ROAD PHASE 1**

- 1. FORM OF BID**
- 2. APPENDIX TO FORM OF BID**
- 3. FORM OF BID SECURITY**
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**Tender Number: KeRRA/011/39/11/2019-20**

**NOVEMBER 2019**

**RESERVED FOR CITIZEN CONTRACTORS**

**Director (Road Asset Management)  
Kenya Rural Roads Authority,  
P.O. Box 48151 - 00100  
NAIROBI**

**Director General  
Kenya Rural Roads Authority,  
P.O. Box 48151 - 00100  
NAIROBI**

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**SECTION 1: FORM OF BID**

## FORM OF BID

(NOTE: The Appendix forms part of the Bid. Bidders are required to fill all the blank spaces in this form of Bid and Appendix)

NAME OF CONTRACT: **REHABILITATION OF A2, CHAKA -SAGANA STATE LODGE ROAD PHASE ONE**

TO: The Director General,  
Kenya Rural Roads Authority  
P. O. Box 48151 - 00100,  
**NAIROBI, KENYA.**

Sir,

1. Having examined the Conditions of Contract, Specifications, Bills of Quantities, and Drawings for the execution of the above-named works we, the undersigned, offer to construct and install such works and remedy any defects therein in conformity with the said Bills of Quantities, Conditions of Contract, Specifications and Drawings for the sum of

(Insert amount in words)

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

(Insert amount in figures).....

as specified in the Appendix to Bid or such other sums as may be ascertained in accordance with the said Conditions.

2. We undertake, if our bid is accepted, to commence the works within twenty-eight (28) days of receipt of the Engineer's order to commence, and to complete and deliver the whole of the works comprised in the contract within the time stated in the Appendix to Bid.
3. If our bid is accepted we will, when required, obtain the guarantee of a Bank or other sureties (to be approved by you) to be jointly and severally bound with us in a sum not exceeding **5%** of the above named sum for the due performance of the contract under the terms of a Bond to be approved by you.
4. We agree to abide by this bid for the period of Two hundred and Fifty Five (255) days from the date fixed for receiving the same and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
5. We understand that you are not bound to accept the lowest or any bid you may receive.
6. On the basis of our previous experience we are fully experienced and competent in the type of work included in this BID and we have adequate financial resources to carry out the works described within the period for completion. We are in a position to fulfil the contract for which we have Bided.

Dated this ..... Day of ..... 20 .....

*Rehabilitation Of A2, Chaka – Sagana State Lodge Road Phase 1*

Signature..... in the capacity of .....

Duly authorized to sign bids on behalf of (Name of Bidder) .....

.....

(Address of Bidder).....

(Name of Witness).....

(Signature of Witness).....

(Address of Witness).....

(Occupation of Witness).....

**SECTION 2: APPENDIX TO FORM OF BID**

**APPENDIX TO FORM OF BID**  
**(This appendix forms part of the bid)**

<b>CONDITIONS OF CONTRACT</b>	<b>CLAUSE</b>	<b>AMOUNT</b>
Bid Security (Bid Security Only)		KShs. 500,000.00
Amount of Performance Security (Unconditional Bank Guarantee)	10.1	5 per cent of BID Sum in the form of Unconditional Bank Guarantee
Program to be submitted	14.1	Not later than 21 (twenty one) days after issuance of Order to Commence
Cash flow estimate to be submitted	14.3	Not later than 21 (twenty one) days after issuance of Order to Commence
Minimum amount of Third Party Insurance	23.2	KShs. 3,000,000.00
Period for commencement, from Engineer's order to commence	41.1	28 days
Time for completion	43.1	24 (Twenty Four) months
Amount of liquidated damages	47.1	KShs. 50,000.00 per day
Limit of liquidated damages	47.1	10% of Contract Value
Defects Liability period	49.1	24 (Twenty Four) months
Percentage of Retention	60.3	10% of Interim Payment Certificate
Limit of Retention Money	60. 3	5% of Contract Price
Minimum amount of interim certificates	60.2	KShs. 30,000,000.00
Time within which payment to be made after Interim Payment Certificate signed by Engineer	60.10	90 days
Time within which payment to be made after Final Payment Certificate signed by Engineer	60.10	90 days
Amount of Advance	60.12	10% of BID sum
Advance Payment Security	60.12	10% of BID sum in the form of Unconditional Bank Guarantee
Appointer of Arbitrator/Adjudicator	67.3	The Chartered Institute of Arbitrators (Kenya)
Notice to Employer and Engineer	68.2	<p>The Employers address is: Director General, Kenya Rural Roads Authority, P.O. Box 48151, 00100 <b><u>NAIROBI</u></b></p> <p>The Engineer's address is: Director (Road Asset Management), Kenya Rural Roads Authority, P.O. Box 48151- 0100 <b><u>NAIROBI</u></b></p>

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

**Table A : Approximate Weightings for Price Adjustment**

<i>Description of Index</i>	<i>% Range of Weighting<sup>a</sup></i>
Fixed (“A”)	8
Labour	8 – 12
Fuel	10 – 20
Oil & Lubricants	1 - 5
Equipment and Spares	35 – 40
Cement	8 – 12
Reinforcement and Steel products	1 – 3
Explosives	1 – 5
Bitumen and Bituminous products	15 - 25
Total	100

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

**Table B : Local Currency**

<i>Index Code</i>	<i>Index Description</i>	<i>Source of Index</i>	<i>Base value and date</i>	<i>Bidder's related currency amount</i>	<i>Bidder's proposed weighting</i>
	Non adjustable	_____	_____	_____	a: _____ b: _____ c: _____ d: _____ e: _____ f: _____ g: _____ h: _____ i: _____ j: _____
			Total		1.00

**Source of indices**

- Civil engineering cost indices shall be from Kenya National Bureau of Statistics. For equipment & spares the index shall be the National Average Consumer Index or the Official Indices from source country shall apply

Signature of Bidder.....Date .....



### **SECTION 3: FORM OF BID SECURITY**

**FORM OF BID SECURITY**

Bid security from an approved Insurance Company by Public Procurement and Asset Disposal Act, No. 33 of 2015 or a bank guarantee is acceptable. Attached herein, find the list of the approved Insurance Companies by PPRA

Note: The bidder shall complete only this form of Bid Security. No other Form of Bid Bond or any other forms of security will be accepted. Bidders who fail to comply with this requirement will be disqualified.

WHEREAS [*Name of bidder*]

.....  
.....

(herein after called “the Bidder”) has submitted his bid dated.....

For the proposed **REHABILITATION OF A2, CHAKA -SAGANA STATE LODGE ROAD PHASE 1**

herein after called “The Bid”

KNOW ALL MEN by these presents that we [*Name of Bank/ Insurance Company*]

.....  
.....

of [*Name of Country*]

.....

having our registered offices at

.....

(hereinafter called the Bank/Insurance Company) are bound unto the Director General, Kenya Rural Roads Authority (hereinafter called “the Employer”) in the sum of

(in words) KShs.....

.....

(In figures) KShs.....

for which payment will be well and truly made to the said Employer the Bank/Insurance Company binds itself, its successors and assigns by these presents.

Signed for the said Bank/Insurance Company this.....day of ..... 20.....

THE CONDITIONS of this obligation are:

- 1) If the bidder withdraws his Bid during the period of bid validity specified by the Bidder on the Bid Form; or
- 2) If the Bidder refuses to accept the correction of errors in his bid; or
- 3) If the Bidder having been notified of the acceptance of his bid by the Employer during the period of Bid Validity
  - (i) fails or refuses to execute the Form of Agreement in accordance with the Instructions to Bidders when required or
  - (ii) fails or refuses to furnish the Performance Security, in accordance with the Instructions to Bidders.

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 any of the above conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to and including Two hundred and Fifty-Five (255) days after the expiry of the bid validity.

At the request of the Employer the Bid validity period may be extended by mutual agreement between the Employer and the Bidder and we undertake to extend the validity of this surety accordingly without you having to inform us of such an extension of the Bid validity period if within this period the Bidder has been notified of the acceptance of his Bid. This Surety shall remain valid up to the time the Contract Agreement has been executed.

AUTHORIZED SIGNATURE OF THE BANK/INSURANCE COMPANY

.....DATE .....

NAME OF SIGNATORY

.....

TITLE OF SIGNATORY

.....

NAME OF THE WITNESS

.....

SIGNATURE OF THE WITNESS .....: DATE .....

ADDRESS OF THE WITNESS .....

***Below is the list of all insurance companies authorized to transact miscellaneous class of insurance business and by extension bid bonds business:***

- 1) APA Insurance Company Ltd
- 2) Africa Merchant Assurance Company Ltd
- 3) British American Insurance Company Ltd
- 4) Cannon Assurance Ltd
- 5) Chartis Kenya Insurance Co. Ltd
- 6) Concord Insurance Co. Ltd
- 7) CIC Insurance Group Ltd
- 8) Corporate Insurance Co. Ltd
- 9) Fidelity Shield Insurance Co. Ltd
- 10) First Assurance Co. Ltd
- 11) GA Insurance Limited
- 12) Gateway Insurance Co. Ltd
- 13) Geminia Insurance Co. Ltd
- 14) Insurance Company of East Africa Ltd
- 15) Intra Africa Assurance Co. Ltd
- 16) Invesco Insurance Co. Ltd
- 17) Kenindia Assurance Co. Ltd
- 18) Kenya Orient Insurance Co. Ltd
- 19) Lion of Kenya Insurance Co. Ltd
- 20) Madison Insurance Co. Ltd
- 21) Mayfair Insurance Co. Ltd
- 22) Mercantile Insurance Co. Ltd
- 23) Occidental Insurance Co. Ltd
- 24) Pacis Insurance Co. Ltd
- 25) Phoenix East Africa Assurance Co. Ltd
- 26) Real Insurance Co. Ltd
- 27) Takaful Insurance of Africa Ltd
- 28) Tausi Assurance Co. Ltd
- 29) The Monarch Insurance Co. Ltd
- 29) The Heritage Insurance Co. Ltd
- 30) The Kenya Alliance Insurance Co. Ltd
- 31) Trident Insurance Co. Ltd
- 32) UAP Insurance Co. Ltd
- 33) Xplico Insurance Co. Ltd
- 34) Jubilee Insurance Company of Kenya Ltd.

## **SECTION 4: INSTRUCTIONS TO BIDDERS**

## SECTION 4: INSTRUCTIONS TO BIDDERS

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## **CONDITIONS OF BID AND INSTRUCTIONS TO BIDDERS**

### **A. GENERAL**

#### **1 SCOPE OF BID**

- 1.1 The Employer, as defined in the Conditions of Contract Part II hereinafter “the Employer” wishes to receive bids for the construction of works as described in Section 1, clause 102 of the Special Specifications –“Location and extent of the Works”
- 1.2 The successful bidder will be expected to complete the Works within the period stated in the Appendix to Bid from the date of commencement of the Works.
- 1.3 Throughout these bidding documents, the terms bid and BID and their derivatives (bidder/Bidder, bid/Bided, bidding/Bidding etc) are synonymous, and day means calendar day. Singular also means plural.

#### **2 SOURCE OF FUNDS**

- 2.1 The source of funding is the Government of Kenya (Development Vote)

#### **3 CORRUPT PRACTICES**

- 3.1 The Government requires that the bidders, suppliers, sub-contractors and supervisors observe the highest standard of ethics during the procurement and execution of such contracts. in this pursuit of this policy, the government;
  - (a) Defines for the purposes of this provision, the terms set forth below as follows:
    - (i) “corrupt practice” means the offering, giving, receiving, or soliciting of anything of value to influence the action of a public official in the procurement process or in the execution, and
    - (ii) “fraudulent practice” means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Employer, and includes collusive practices among bidders (prior to or after bid submission) designed to establish bid prices at artificial, non-competitive levels and to deprive the Employer of the benefits of free and open competition
  - (b) Will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the Contract, and
  - (c) Will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a government contract if it at any times determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a Government financed contract.

#### **4 ELIGIBLE BIDDERS**

- 4.1 This invitation to bid is open to all (Citizen Contractors) Bidders who are legally registered or incorporated in the Republic of Kenya as of the time of bid submission. Registration with National Construction Authority (NCA) as a Contractor is mandatory.
- 4.2 Bidders shall not have a conflict of interest. Bidders shall be considered to have conflict of interest, if they participated as a consultant in the preparation of the design, documentation or technical specifications of the works that are the subject of this bidding other than as far as required by the Employer.
- 4.3 A firm that is under a declaration of ineligibility by the Employer in accordance with clause 3, at the date of submission of the bid or thereafter, shall be disqualified.
- 4.4 Bidders shall provide such evidence of their continued eligibility satisfactory to the Employer, as the Employer shall reasonably request.

## **5 QUALIFICATION OF THE BIDDER**

### **5.1 Bidders shall as part of their bid:**

- (a) Submit a written power of attorney authorizing the signatory of the bid to commit the bidder; and
- (b) Update any information submitted with their bids and update in any case the information indicated in the schedules and continue to meet the minimum threshold criteria set out in the bid documents.

### **5.2 As a minimum, Bidders shall provide latest information set out below:**

- (a) Certified Certificate of Incorporation by Registrar of Companies.
- (b) Current (dated within 12Months before date of opening) Certified CR12 Certificate from the Registrar of Companies. This should be provided with Identification Documents of Directors. (ID or Passport) or certificate of registration, CR12 and IDS where the Directors are artificial persons.
- (c) Certified Current Single Business permit.
- (d) VAT/PIN Certificate.
- (e) Valid Tax Compliance Certificate.
- (f) Provide a Tender Security of KShs. 500,000 in the required format. The tender guarantee (security) will remain in force up to and including two hundred and fifty five (255) days after the date of bid submission.
- (g) Registration with National Construction Authority “NCA 4 and above and a current valid NCA practicing licence.
- (h) Similar previous experience
- (i) Declaration of current On-going works (The total value of remaining works (based on certified IPC) for the ongoing contracts must not exceed **KShs. one Billion**)
- (j) Equipment holding
- (k) Professional and Technical personnel
- (l) Submission of audited accounts or if not required by the law of the applicant's country, other financial statements acceptable to the Employer, for the last three [3] years for tenders to demonstrate: the current soundness of the applicant’s financial position and its prospective long-term profitability, and capacity to have a cash flow amount, turnover and working capital as stipulated in the evaluation criteria.
- (m) Current work load
- (n) Declaration of Litigation history
- (o) Work Methodology
- (p) Properly filled, signed and stamped confidential Business Questionnaire.
- (q) Properly filled, signed and stamped all schedules of supplementary information.
- (r) Submit a written power of attorney authorizing the signatory of the bid to commit the bidder.
- (s) Duly filled-in the Form of Bid and Appendix to form of bid
- (t) Priced Bills of Quantities (Alterations must be counter signed by the Authorized signatory) and stamped
- (u) Serialization of all the pages (this should be in the format of 1,2,3,4,5…….) from the first page to the last page.



- (v) Attach a Pre Tender Site Visit Certificate duly endorsed by the Authorized KeRRA Staff.
- 5.3 Bidders are free to participate in all distinct Bids (Tenders) as advertised. However no Bidder is allowed to participate in the same bid as an individual and again in a Joint Venture.
- 5.4 Bidders shall also submit proposals of work methods and schedule in sufficient detail to demonstrate the adequacy of the bidders proposals to meet the technical specifications and the completion time referred to in Clause 1.2 above.

## **6 ONE BID PER BIDDER**

- 6.1 Each bidder shall submit only one bid. A bidder who submits or participates in more than one bid will be disqualified.

## **7 COST OF BIDDING**

- 7.1 The bidder shall bear all costs associated with the preparation and submission of his bid and the Employer will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

## **8 SITE VISIT**

- 8.1 The bidder is informed that pre-BID site visit is mandatory and he/she shall examine the Site of Works and its surroundings and obtain for himself all information that may be necessary for preparing the bid and entering into a contract for construction of the Works. The costs of visiting the site shall be at the bidder's own expense.
- 8.2 The bidder and any of his personnel or agents will be granted permission by the Employer to enter its premises and lands for the purpose of such inspection, but only on the express condition that the bidder, its personnel and agents, will release and indemnify the Employer and its personnel and agents from and against all liability in respect thereof, and will be responsible for personal injury (whether fatal or otherwise), loss of or damage to property and any other loss, damage, costs and expenses however caused, which but for the exercise of such permission would not have arisen.
- 8.3 The Employer will conduct a Site Visit concurrently with the pre-bid meeting referred to in Clause 19, attendance for which is mandatory for all bidders. Failure to attend the site visit by any bidder will lead to disqualification of his /her bid.

## **B. BIDDING DOCUMENTS**

### **9 CONTENTS OF BIDDING DOCUMENTS**

9.1 The set of documents comprising the BID includes the following together with any addenda issued in accordance with Clause 11:

- (a) Invitation to Bid
- (b) Instructions to bidders
- (c) Qualification Criteria
- (d) Conditions of Contract - Part II
- (e) Conditions of Contract - Part I
- (f) Standard Specifications
- (g) Special Specifications
- (h) Form of Bid, Appendix to Form of Bid and Bid Security
- (i) Bills of Quantities
- (j) Schedules of Supplementary information
- (k) Form of Contract Agreement
- (l) Form of Performance Security
- (m) Drawings
- (n) BID addenda (BID notices)

9.2 The bidder is expected to examine carefully all instructions, conditions, forms, terms, specifications and drawings in the bidding documents. Failure to comply with the requirements of bid submission will be at the bidder's own risk. Bids that are not substantially responsive to the requirements of the bidding documents will be rejected.

### **10 CLARIFICATION OF BIDDING DOCUMENTS**

10.1 The prospective bidder requiring any clarification of the bidding documents may notify the Employer in writing or by cable (hereinafter the term cable is deemed to include telex and facsimile) at the Employer's mailing address indicated in the Bidding Data.

10.2 The Employer will respond in writing to any request for clarification that he receives earlier than 7 days prior to the deadline for the submission of bids. Copies of the Employer's response to queries raised by bidders (including an explanation of the query but without identifying the sources of the inquiry) will be sent to all prospective bidders who will have purchased the bidding documents.

### **11 AMENDMENT OF BIDDING DOCUMENTS**

11.1 At any time prior to the deadline for submission of bids, the Employer may, for any reason, whether at his own initiative or in response to a clarification requested by a prospective bidder, modify the bidding documents by issuing subsequent Addenda.

11.2 The Addendum thus issued shall be part of the bidding documents pursuant to Sub-Clause 10.1 and shall be communicated in writing or cable to all purchasers of the bidding documents. Prospective bidders shall promptly acknowledge receipt of each Addendum in writing or by cable to the Employer.

11.3 In order to afford prospective bidders reasonable time in which to take an Addendum into account in preparing their bids, the Employer may, at his discretion, extend the deadline for the submission of bids in accordance with Clause 22.

**C. PREPARATION OF BIDS**

**12 LANGUAGE OF BID**

- 12.1 The bid prepared by the bidder and all correspondences and documents relating to the bid exchanged by the bidder and the Employer shall be written in the English Language. Supporting documents and printed literature furnished by the bidder may be in another language provided they are accompanied by an appropriate translation of pertinent passages in the above stated language. For the purpose of interpretation of the bid, the English language shall prevail.

**13 DOCUMENTS COMPRISING THE BID**

- 13.1 The bid to be prepared by the bidder shall comprise:
- (a) Duly filled-in the Form of Bid and Appendix to form of bid;
  - (b) Bid security;
  - (c) Priced Bills of Quantities;
  - (d) Schedules of information
  - (e) Qualification Criteria
  - (f) Any other materials required to be completed and submitted in accordance with the Instructions to Bidders embodied in these bidding documents.
- 13.2 These Forms, Bills of Quantities and Schedules provided in these bidding documents shall be used without exception (subject to extensions of the Schedules in the same format).

**14 BID PRICES**

- 14.1 Unless explicitly stated otherwise in the bidding documents, the contract shall be for the whole works as described in Sub-Clause 1.1, based on the basic unit rates and prices in the Bill of Quantities submitted by the bidder.
- 14.2 The bidder shall fill in rates and prices for all items of Works described in the Bills of Quantities, whether quantities are stated or not.
- 14.3 All duties, taxes (excluding VAT) and other levies payable by the Contractor under the Contract, or for any other cause as of the date 28 days prior to the deadline for submission of bids, shall be included in the rates and prices and the total Bid Price submitted by the bidder.
- 14.4 Unless otherwise provided in the Bidding Data and Conditions of Particular Application the rates and prices quoted by the bidder are subject to adjustment during the performance of the contract in accordance with the provisions of Clause 70 of the Conditions of Contract.

**15 CURRENCIES OF BID AND PAYMENT**

- 15.1 Bids shall be priced in Kenya Shillings.

**16 BID VALIDITY**

- 16.1 The bid shall remain valid and open for acceptance for a period of **255 days** from the specified date of bid opening specified in Clause 22.
- 16.2 In exceptional circumstances prior to expiry of the original bid validity period, the Employer may request that the bidders extend the period of validity for a specified additional period. The request and the responses thereto shall be made in writing or by cable. A bidder may refuse the request without forfeiting his bid security. A bidder agreeing to the request will not be required nor permitted to modify his bid, but will be required to extend the validity of his bid security for the period of the extension, and in compliance with Clause 17 in all respects.

## **17 BID SECURITY**

- 17.1 The bidder shall furnish, as part of his bid, a bid security in the amount shown in the Appendix to Form of Bid.

The bid security shall be in the form of unconditional bid security from a reputable Bank/Insurance company selected by the bidder and located in Kenya. The format of the Bid Security shall be in accordance with bid security included in Section 1. This guarantee will remain in force up to and including two hundred and fifty five **(255) days** after the expiry of the bid validity, and beyond any period of extension subsequently requested under Sub-Clause 16.2.

- 17.2 Any bid not accompanied by an acceptable bid security will be rejected by the Employer as non-responsive.
- 17.3 The bid securities of unsuccessful bidders will be discharged/ returned as promptly as possible but not later than 28 days after the expiration of the period of bid security validity.
- 17.4 The bid security of the successful bidder will be discharged upon the bidder signing the Contract Agreement and furnishing the required performance security.
- 17.5 The bid security may be forfeited:
- (a) if a bidder withdraws his bid, except as provided in Sub-Clauses 24.1 and 24.2.
  - (b) if the bidder does not accept the correction of any errors, pursuant to Sub-Clause 29.2 or
  - (c) in the case of a successful bidder, if he fails within the specified time limit to:
    - (i) sign the Contract Agreement or
    - (ii) furnish the necessary performance security.

## **18 NO ALTERNATIVE OFFERS**

- 18.1 The bidder shall submit one offer, which complies fully with the requirements of the bidding documents.
- 18.2 The bid submitted shall be solely on behalf of the bidder. A bidder who submits or participates in more than one bid will be disqualified.
- 18.3 A price or rate shall be entered in indelible ink against every item in the Bills of Quantities with the exception of items which already have Prime Cost or Provisional sums affixed thereto. The bidders are reminded that no “nil” or “included” rates or “lump-sum” discounts will be accepted. The rates for various items should include discounts if any. Bidders who fail to comply will be disqualified.

## **19 PRE-BID MEETING**

- 19.1 The bidders designated representative and who must be one of the technical persons listed as a key staff in the Schedule No 6 is invited to attend a pre-bid meeting, which will take place **at the time, date and venue** indicated on the invitation to tender notice. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.
- 19.2 The bidder is requested as far as possible to submit any questions in writing or by cable, to reach the Employer not later than one week before the meeting. It may not be practicable at the meeting to answer questions received late, but questions and responses will be transmitted in accordance with the Minutes of the meeting, including the text of the questions raised and the responses given together with any responses prepared after the meeting, will be transmitted without delay to all purchasers of the bidding documents. Any modification of the bidding documents listed in Sub-Clause 8.1, which may become necessary as a result of the pre-bid

meeting shall be made by the Employer exclusively through the issue of an Addendum pursuant to Clause 10 or through the minutes of the pre-bid meeting.

- 19.3 Non-attendance at the pre-bid meeting by a Bidder will be a cause for disqualification of his BID.

## **20 FORMAT AND SIGNING OF BIDS**

- 20.1 The bidder shall prepare one original of the documents comprising the bid as described in Clause 13 of these Instructions to Bidders, bound with the section containing the Form of Bid and Appendix to Bid, and clearly marked “ORIGINAL”. In addition, the bidder shall submit two copies of the bid clearly marked “COPIES”. In the event of discrepancy between them, the original shall prevail.
- 20.2 The original and copies of the bid shall be typed or written in indelible ink (in the case of copies, photocopies are also acceptable) and shall be signed by a person or persons duly authorized to sign on behalf of the bidder pursuant to Sub-Clause 5.1(a). The person or persons signing the bid shall initial all pages of the bid where entries or amendments have been made.
- 20.3 The bid shall be without alterations, omissions or conditions except as necessary to correct errors made by the bidder, in which case such corrections shall be initialled by the person or persons signing the bid.

### **D. SUBMISSION OF BIDS**

## **21 SEALING AND MARKING OF BIDS**

- 21.1 The bidder shall seal the original and each copy of the bid in separate envelopes duly marking the envelopes “ORIGINAL” and “COPY”. The envelopes shall then be sealed in an outer separate envelope.
- 21.2 The inner and outer envelopes shall be:
- (a) addressed to the Employer at the address provided in the Appendix to Form of Bid.
  - (b) bear the name and identification number of the contract. In addition to the identification required in sub-Clause 21.2, the inner envelopes shall indicate the name and address of the bidder to enable the bid to be returned unopened in case it is declared “late” pursuant to Clause 23.1, and for matching purposes under Clause 24.
- 21.3 If the outer envelope is not sealed and marked as instructed above, the Employer will assume no responsibility for the misplacement or premature opening of the bid. If the outer envelope discloses the bidder's identity the Employer will not guarantee the anonymity of the bid submission, but this shall not constitute grounds for rejection of the bid.

## **22 DEADLINE FOR SUBMISSION OF BIDS**

- 22.1 Bids must be received by the Employer at the address specified in Sub Clause 21.2 **not later than the time and date specified in the letter of invitation to bid.**
- 22.2 The Employer may, at his discretion, extend the deadline for the submission of bids through the issue of an Addendum in accordance with Clause 11 in which case all rights and obligations of the Employer and the bidders previously subject to the original deadline shall thereafter be subject to the new deadline as extended.

## **23 LATE BIDS**

- 23.1 Any bid received by the Employer after the deadline for submission of bids prescribed in Clause 22 will be returned unopened to the bidder.

## **24 MODIFICATION, SUBSTITUTION AND WITHDRAWAL OF BIDS**

- 24.1 The bidder may modify, substitute or withdraw his bid after bid submission, provided that written notice of modification or withdrawal is received by the Employer prior to the prescribed deadline for submission of bids.
- 24.2 The bidder's modification, substitution or withdrawal notice shall be prepared, sealed, marked and delivered in accordance with the provisions of Clause 21, with the outer and inner envelopes additionally marked "MODIFICATION" or "WITHDRAWAL" as appropriate.
- 24.3 No bid may be modified subsequent to the deadline for submission of bids, except in accordance with Sub-Clause 28.1.
- 24.4 Any withdrawal of a bid during the interval between the deadline for submission of bids and expiration of the period of bid validity specified in Clause 17 may result in the forfeiture of the bid security pursuant to Sub-Clause 17.5.

### **E. BID OPENING AND EVALUATION**

## **25 BID OPENING**

- 25.1 The Employer will open the bids, including withdrawals and modifications made pursuant to Clause 24, in the presence of bidders' designated representatives who choose to attend, **at the time, date and location specified in the letter of invitation to bid.** The bidders' representatives who are present shall sign a register evidencing their attendance.
- 25.2 Envelopes marked "WITHDRAWAL" and "SUBSTITUTION" shall be opened first and the name of the bidder shall be read out. Bids for which an acceptable notice of withdrawal has been submitted pursuant to Clause 24 shall not be opened.
- 25.3 The bidder's name, the Bid Prices, including any bid modifications and withdrawals, the presence (or absence) of bid security, and any such details as the Employer may consider appropriate, will be announced by the Employer at the opening. Subsequently, all envelopes marked "MODIFICATION" shall be opened and the submissions therein read out in appropriate detail. No bid shall be rejected at bid opening except for late bids pursuant to Clause 23.
- 25.4 The Employer shall prepare minutes of the bid opening, including the information disclosed to those present in accordance with Sub-Clause 25.3.
- 25.5 Bids not opened and read out at bid opening shall not be considered further for evaluation, irrespective of the circumstances.

## **26 PROCESS TO BE CONFIDENTIAL**

- 26.1 Information relating to the examination, evaluation and comparison of bids, and recommendations for the award of contract shall not be disclosed to bidders or any other persons not officially concerned with such process until the award to the successful bidder has been announced. Any effort by a bidder to influence the Employer's processing of bids or award decisions may result in the rejection of the bidder's bid.

## **27 CLARIFICATION OF BIDS AND CONTACTING OF THE EMPLOYER**

- 27.1 To assist in the examination, evaluation, and comparison of bids, the Employer may, at its discretion, ask any bidder for clarification of its bid, including breakdowns of unit rates. The request for clarification and the response shall be in writing or by cable, but no change in the price or substance of the bid shall be sought, offered, or permitted except as required to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the bids in accordance with Clause 29.
- 27.2 Subject to Sub-Clause 26.1, no bidder shall contact the Employer on any matter relating to its bid from the time of the bid opening to the time the contract is awarded. If the bidder wishes to bring additional information to the notice of the Employer, it should do so in writing.

- 27.3 Any effort by the bidder to influence the Employer in the Employer's bid evaluation, bid comparison or contract award decisions may result in the rejection of the bidder's bid.

## **28 EXAMINATION OF BIDS AND DETERMINATION OF RESPONSIVENESS**

- 28.1 Prior to the detailed evaluation of bids, the Employer will determine whether each bid (a) has been properly signed; (b) is accompanied by the required securities; (c) is substantially responsive to the requirements of the bidding documents; and (d) provides any clarification and/or substantiation that the Employer may require to determine responsiveness pursuant to Sub-Clause 28.2.
- 28.2 A substantially responsive bid is one that conforms to all the terms, conditions, and specifications of the bidding documents without material deviation or reservation and has a valid BID bank guarantee. 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 bidding documents, the Employer's rights or the bidder's obligations under the contract; or (c) whose rectification would affect unfairly the competitive position of other bidders presenting substantially responsive bids.
- 28.3 If a bid is not substantially responsive, it will be rejected by the Employer and may not subsequently be made responsive by correction or withdrawal of the nonconforming deviation or reservation.

## **29 CORRECTION OF ERRORS**

- 29.1 Bids determined to be substantially responsive will be checked by the Employer for any arithmetic errors. Errors will be corrected by the Employer as follows:
- (a) Where there is a discrepancy between the amounts in figures and in words, the amount in words as indicated in the Form of Bid will govern; 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 line item total will govern and the unit rate will be adjusted accordingly in such a way that the BID Sum remains unaltered.
- 29.2 Any error by the Bidder in pricing or extending the Bills of Quantities or carrying forward to the summary or BID Sum, shall be corrected in such a way that the BID Sum remains unaltered and the Bidder shall within seven (7) days after issuance of the written notice by the Employer, or such further time as the Employer may allow, correct his BID in such a manner as may be agreed or directed by the Employer failing which the BID may be absolutely rejected and the Bid Security forfeited in accordance with Sub-Clause 17.6. Any discrepancy that results in variation of more than 15% of the corrected figure shall result in rejection of the Tender.

## **30 EVALUATION AND COMPARISON OF BIDS**

- 30.1 The Employer will then evaluate and compare only the bids determined to be substantially responsive in accordance with Clauses 28 and 29. Any variation, deviation and alternative offers will be rejected and shall not be taken into account in bid evaluation.
- 30.2 If the bid, which results in the lowest Evaluated Bid Price is seriously unbalanced or front loaded in relation to the Engineer's estimate of the items of work to be performed under the contract, the Employer may require the bidder to produce detailed price analyses for any or all items of the Bills of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, taking into consideration the schedule of estimated contract payments, the Employer may require that

the amount of the Performance Security set forth in Clause 35 be increased at the expense of the bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful bidder under the contract.

- 30.3 Preference shall be applied in accordance with Clause 157 of the Public Procurement and Asset Disposal Act, No. 33 of 2015 and Clause 28 of the Public Procurement Regulations of 2006 as revised in legal notice No. 58 of 8<sup>th</sup> June 2011.

## **F. AWARD OF CONTRACT**

### **31 AWARD**

- 31.1 Subject to Clause 32, the Employer will award the contract to the bidder whose bid has been determined to be substantially responsive to the bidding documents and who has offered the lowest Evaluated Bid Price pursuant to Clause 29, provided that such bidder has been determined to be (a) eligible in accordance with the provisions of Sub-Clause 4.1, and (b) qualified in accordance with the provisions of Clause 5.

### **32 EMPLOYER'S RIGHT TO ACCEPT ANY BID AND TO REJECT ANY OR ALL BIDS**

- 32.1 The Employer reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids, at any time prior to award of contract, without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders of the grounds for the Employer's action.

### **33 NOTIFICATION OF AWARD**

- 33.1 Prior to expiration of the period of bid validity prescribed by the Employer, the Employer will notify the successful bidder in writing or by cable confirmed by registered letter that its bid has been accepted. This letter (hereinafter and in the Conditions of Contract called "Letter of Acceptance") shall specify the sum, which the Employer will pay the Contractor in consideration of the execution and completion of the works and the remedying of any defects therein by the Contractor as prescribed by the contract (hereinafter and in the Conditions of Contract called "the Contract Price").
- 33.2 At the same time that the Employer notifies the successful bidder that his bid has been accepted, the Employer shall notify the other bidders that their bids have been unsuccessful and that their bid securities will be returned as promptly as possible, in accordance with sub-clause 17.4.

### **34 SIGNING OF AGREEMENT**

- 34.1 At the same time that the Employer notifies the successful bidder that its bid has been accepted, the Employer will send the bidder the Agreement in the form provided in the bidding documents, incorporating all agreements between the parties.

Within 14 days of receipt of the Agreement, the successful bidder shall sign the Form of Agreement and return it to the Employer, together with the required performance security.

### **35 PERFORMANCE SECURITY**

- 35.1 Within 28 days of receipt of the Letter of Acceptance from the Employer, the successful bidder shall furnish to the Employer a performance security in the form stipulated in the Conditions of contract. The form of performance security provided in Section 8 of the bidding documents shall be used.
- 35.2 The successful bidder shall provide a performance security in the form of an Unconditional Bid Security from a reputable bank located in Kenya.
- 35.3 Failure by the successful Bidder to lodge the required Performance Guarantee within 60 days of the receipt of the Letter of Acceptance shall constitute sufficient grounds for the annulment



of the Award and forfeiture of the Bid Surety; in which event the Employer may make the award to another bidder or call for new bids.

### **36 CONTRACT EFFECTIVENESS**

- 36.1 The Contract will be effective only upon signature of the Agreement between the Contractor and the Employer.

## **SECTION 5: QUALIFICATION CRITERIA**

## **SECTION 5: QUALIFICATION CRITERIA**

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

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Qualification Criteria			Compliance Requirements				Documentation
No.	Subject	Requirement	Single Entity	Joint Venture			Submission Requirements
				All Parties Combined	Each Party	One Party	
1. Eligibility							
1.1	Eligibility	Nationality in accordance with Sub-Clause 4.1.	Must meet requirement	Existing or intended JV must meet requirement	Must meet requirement	N / A	Section 7, Schedule 1
1.2	Conflict of Interest	No conflicts of interest in Sub-Clause 4.2.	Must meet requirement	Existing or intended JV must meet requirement	Must meet requirement	N / A	Section 7, Schedule 1
1.3	Employer Ineligibility	Not having been declared ineligible by the Employer, as described in Sub-Clause 4.3.	Must meet requirement	Existing JV must meet requirement	Must meet requirement	N / A	Section 7, Schedule 1
1.4	Incorporation & Registration	Pursuant to sub clause 4.1 the following shall be provided; - Certified Copy of Certificate of incorporation to show that the applicant is a registered company and legally authorised to do business in Kenya  - Proof of registration with the National Construction Authority Category <b>NCA 4 &amp; above</b> for Road Works.	Must meet requirement	Must meet requirement	Must meet requirement	N/A	Section 7, Schedule 1

*Rehabilitation Of A2, Chaka – Sagana State Lodge Road Phase I*

Qualification Criteria			Compliance Requirements				Documentation
No.	Subject	Requirement	Single Entity	Joint Venture			Submission Requirements
				All Parties Combined	Each Party	One Party	
2. Historical Contract Non-Performance							
2.1	History of Non-Performing Contracts	Non-performance of a contract did not occur within the last five (5) years prior to the deadline for application submission based on all information on fully settled disputes or litigation. A fully settled dispute or litigation is one that has been resolved in accordance with the Dispute Resolution Mechanism under the respective contract, and where all appeal instances available to the applicant have been exhausted.	Must meet requirement by itself or as party to past or existing JV	N / A	Must meet requirement by itself or as party to past or existing JV	N / A	Section 7, Schedule 6
2.2	Pending Litigation	All pending litigation shall in total not represent more than fifty percent (50%)] of the Applicant's net worth and shall be treated as resolved against the Applicant.	Must meet requirement by itself or as party to past or existing JV	N / A	Must meet requirement by itself or as party to past or existing JV	N / A	Section 7, Schedule 11
3. Financial Situation							
3.1	Financial Performance	Submission of audited balance sheets or if not required by the law of the applicant's country, other financial statements acceptable to the Employer, for the last three [3] years to demonstrate: (a) the current soundness of the applicant's financial position and its prospective long term profitability, and (b) capacity to have a <b>cash flow amount of KShs. 50 Million</b> equivalent working capital	Must meet requirement  (a) Must meet requirement  (b) Must meet requirement	N / A  (a) N / A  (b) Must meet requirement	Must meet requirement  (a) Must meet requirement  (b) N / A	N / A  (a)N / A  (b) N / A	Section 7, Schedule 10

*Rehabilitation Of A2, Chaka – Sagana State Lodge Road Phase 1*

Qualification Criteria			Compliance Requirements				Documentation
No.	Subject	Requirement	Single Entity	Joint Venture			Submission Requirements
				All Parties Combined	Each Party	One Party	
3.2	Average Annual Construction Turnover	Minimum average annual construction turnover of <b>KShs 250 Million</b> [Two Hundred and fifty million], calculated as total certified payments received for contracts in progress or completed, within the last three [(3)] years	Must meet requirement	Must meet requirement	Must meet ((100-50)/(n-1))% of the requirement where n= number of joint venture members	Must meet fifty (50%) percent of the of the requirement	Section 7, Schedule 10
<b>4. Experience</b>							
4.1	General Construction Experience	Experience under construction contracts in the role of contractor, subcontractor, or management contractor for at least the last Five [5] years prior to the applications submission deadline	Must meet requirement	N / A	Must meet requirement	N / A	Section 7, Schedule 6
4.2(a)	Specific Construction Experience	Participation as contractor, management contractor or subcontractor, <b>in at least two (2) contracts within the last five (5) years, each with a value of at least KShs 100 Million (One hundred million)</b> , that have been successfully and substantially completed and that are similar to the proposed works. The similarity shall be based on the physical size, complexity, methods/technology or other characteristics as described in <b>Section 6, Scope of Works</b>	Must meet requirement	Must meet requirement	N / A	Must meet requirement for one contract	Section 7, Schedule 6

**Rehabilitation Of A2, Chaka – Sagana State Lodge Road Phase 1**

Qualification Criteria			Compliance Requirements				Documentation
No.	Subject	Requirement	Single Entity	Joint Venture			Submission Requirements
				All Parties Combined	Each Party	One Party	
4.2(b)		b) For the above or other contracts executed during the period stipulated in 4.2(a) above, a minimum construction experience in at least one (1) of: - <b>Repair &amp; rehabilitation of bitumen roads.</b> - <b>New Construction to bitumen standard.</b>	Must meet requirements	Must meet requirement	N / A	Must meet requirement	Section 7, Schedule 6
4.3	Work Methodology	Submission of a brief work methodology in accordance with sub clause 5.3	Should demonstrate understanding of the scope of works and other general requirements	Should demonstrate understanding of the scope of works and other general requirements	N/A	N/A	Section 7, Schedule 12
<b>5. Equipment holding</b>							
5.1	Minimum number of Equipment	The bidder must indicate the minimum the core plant and equipment considered by the company to be necessary for undertaking the project together with proof of ownership	Must meet the requirement	Must meet requirement	Must meet requirement	N/A	Section 7, Schedule 5

*Rehabilitation Of A2, Chaka – Sagana State Lodge Road Phase 1*

Qualification Criteria							Documentation
No.	Subject	Requirement	Single Entity	Joint Venture			Submission Requirements
				All Parties Combined	Each Party	One Party	
6. Current Commitment							
6.1	On-going contracts	The total value of current works on the on-going contracts (the total value of remaining works (based on certified IPC) for the ongoing contracts must not exceed <b>KShs. one Billion</b> )	Must meet requirements	Must meet requirements	Must meet ((100-50)/(n-1))% of the requirement where n= number of joint venture members	N/A	Section 7, Schedule 7
7. Site Staff							
1	Site Agent	The site staff shall possess minimum levels set below;  Qualification = BSc. Civil Eng Reg. Eng General Experience = 10 yrs Specific Experience = 7 Yrs	Must meet requirements	Must meet requirements	N/A	N/A	Section 7, Schedule 4
2	Dep. Site Agent/ Site Engineer	Qualification = BSc. Civil Eng General Experience = 6 yrs Specific Experience = 4 Yrs					
3	Senior Foreman	Qualification = H.N.D. Civil Eng General Experience = 6 yrs Specific Experience = 4 Yrs					
4	Site Surveyor	Qualification = H.N.D. Survey General Experience = 6 yrs Specific Experience = 4 Yrs					
5	Foremen (3 NO.)	Qualification = Dip. Civil Eng General Experience = 6 yrs Specific Experience =4 Yrs					



## **SECTION 6: CONDITIONS OF CONTRACT**

**SECTION 6A: CONDITIONS OF CONTRACT PART I:**

**GENERAL CONDITIONS OF CONTRACT**

The Conditions Of Contract Part 1 – General Conditions shall be those forming Part 1 of the Conditions of Contract for works of Civil engineering construction Fourth Edition 1987, reprinted in 1992 with further amendments, prepared by the Federation Internationale des Ingenieurs Conseils (FIDIC)

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

FIDIC Secretariat

P.O. Box 86

1000 Lausanne 12

**Switzerland**

Fax: 41 21 653 5432

Telephone: 41 21 653 5003

## SECTION 6B: CONDITIONS OF CONTRACT PART II: (CONDITIONS OF PARTICULAR APPLICATION)

The following Conditions of Particular Application shall supplement the General Conditions of Contract. Whenever there is a conflict, the provisions herein shall prevail over those in the General Conditions of Contract. The Particular Condition is preceded by the corresponding clause number of the General Conditions to which it relates.

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## **CONDITIONS OF CONTRACT PART II (CONDITIONS OF PARTICULAR APPLICATION)**

### **SUBCLAUSE 1.1 – DEFINITIONS**

Amend this sub-clause as follows:

- (a) (i) The “Employer” is the Government of Kenya, represented by the Director General, Kenya Rural Roads Authority.
- (iv) The “Engineer” is the Director (Road Asset Management), Kenya Rural Roads Authority.
- (b) (i) Insert in line 2 after the Bills Of Quantities”, the following, “the rates entered by the Contractor (whether or not such rate be employed in computation of the Contract Price),”

Amend subparagraph (b) (v) of Sub-Clause 1.1 by adding the following words at the end:

The word “BID” is synonymous with “bid” and the word “Appendix to BID” with “Appendix to Bid” and the word “BID documents” with “bidding documents”.

Add the following at the end of this sub-clause:

- (h) (i) “Materials” means materials and other things intended to form or forming part of the Permanent Works.

### **SUBCLAUSE 2.1 - ENGINEER’S DUTIES AND AUTHORITY.**

With reference to Sub-Clause 2.1 (b), the following shall also apply: The Engineer shall obtain the specific approval of the Employer before taking any of the following actions specified in Part 1:

- (a) Consenting to the subletting of any part of the works under Clause 4;
- (b) Certifying additional cost determined under Clause 12;
- (c) Issuing a variation under Clause 51;
- (d) Fixing rates or prices under Clause 52

### **SUBCLAUSE 5.1 - LANGUAGE AND LAW**

The Contract document shall be drawn up in the ENGLISH LANGUAGE. Communication between the Contractor and the Engineer’s Representative shall be in this given language. The Laws applicable to this Contract shall be the Laws of the Republic of Kenya.

### **SUBCLAUSE 5.2 – PRIORITY OF CONTRACT DOCUMENTS**

Delete the documents listed 1-6 and substitute:

- (1) The Contract Agreement (if completed)
- (2) The Letter of Acceptance;
- (3) The Bid and Appendix to Bid;
- (4) The Conditions of Contract Part II;
- (5) The Conditions of Contract Part I;
- (6) The Special Specifications;
- (7) The Standard Specification for Road and Bridge Construction, 1986;
- (8) The Drawings;
- (9) The priced Bills of Quantities
- (10) Other documents as listed in the Appendix to form of Bid

## **SUBCLAUSE 10.1 - PERFORMANCE SECURITY**

Replace the text of Sub-Clause 10.1 with the following:

“The Contractor shall provide security for his proper performance of the Contract within 60 days after receipt of the Letter of Acceptance. The Performance Security shall be in the form of a bank guarantee as stipulated by the Employer in the Appendix to Bid. *The Performance Security shall be issued by a bank incorporated in Kenya.* The Contractor shall notify the Engineer when providing the Performance Security to the Employer.

“Without limitation to the provisions of the preceding paragraph, whenever the Engineer determines an addition to the Contract Price as a result of a change in cost, the Contractor, at the Engineer’s written request, shall promptly increase the value of the Performance Security by an equal percentage.

## **SUBCLAUSE 10.2 - VALIDITY OF PERFORMANCE SECURITY**

The Performance Security shall be valid until a date 28 days after the date of issue of the Substantial Completion Certificate. The security shall be returned to the Contractor within 14 days of expiration.

## **SUBCLAUSE 10.3- CLAIMS UNDER PERFORMANCE SECURITY**

Delete the entire sub-clause 10.3.

## **SUBCLAUSE 10.4- COST OF PERFORMANCE SECURITY**

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

## **SUBCLAUSE 11.1- INSPECTION OF SITE**

In line 17 after “affect his BID” add

“and the Contractor shall be deemed to have based his BID on all the aforementioned”

Delete the last paragraph completely and replace with the following:

“The Employer in no way guarantees completeness nor accuracy of the soil, materials, subsurface and hydrological information made available to the Contractor at the time of bidding or at any other time during the period of the Contract, and the Contractor shall be responsible for ascertaining for himself all information as aforesaid for the execution of works and his BID shall be deemed to have been priced accordingly.

## **SUBCLAUSE 11.2 - ACCESS TO DATA**

Data made available by the Employer in accordance with Clause 11.1 shall be deemed to include data listed elsewhere in the Contract as open for inspection at the address stipulated in the Appendix to Bid.

## **SUBCLAUSE 14.1 - PROGRAM TO BE SUBMITTED**

The time within which the program shall be submitted shall be as specified in the Appendix to the Form of Bid.

This detailed program shall be based upon the program submitted by the Contractor as part of his BID, where this was required, and shall in no material manner deviate from the said program.

The program shall be in the form of a Critical Path Method Network (CPM Network) showing the order of procedure and a description of the construction methods and arrangements by which the Contractor proposes to carry out the works. It should also be supplemented by a time –bar chart of the same program. The program shall be coordinated with climatic, groundwater and other conditions to provide for completion of the works in the order and by the time specified. The program shall be revised at three-month intervals and should include a chart of the principle quantities of work forecast for execution monthly.

The Contractor shall submit to the Engineer not later than the day or date mentioned in the Appendix to the Form of Bid, a general description of his proposed arrangements and methods for the execution of the Works, including temporary offices, buildings, access roads, construction plant and its intended production output, working shift arrangements, labour strength, skilled and unskilled, supervision arrangements, power supply arrangements, supply of materials including a materials utilization program, stone crushing, aggregate production and storage, cement handling, concrete mixing and handling, methods of excavation, dealing with water, testing methods and facilities.

During the execution of the works, the Contractor shall submit to the Engineer full and detailed particulars of any proposed amendments to the arrangements and methods submitted in accordance with the foregoing.

If details of the Contractors proposals for Temporary Works are required by the Engineer for his own information the Contractor shall submit such details within fourteen days of being requested to do so.

The various operations pertaining to the works shall be carried out in such a progressive sequence as will achieve a continuous and consecutive output of fully completed roadworks inclusive of all bridge works and culverts within the time limits specified in the Contract. Generally the Contractor shall start at one end of the road and progress continuously towards the other without leaving any isolated section or sections of uncompleted road provided always that the site of the works has been acquired in its entirety and the encumbrances and services thereon removed.

The Contractor shall allow in his programme for the following public holidays per calendar year during which the Contractor shall not be permitted to work.

- New Years Day (1st January)
- Good Friday
- Easter Monday
- Labour Day (1<sup>st</sup> May)
- Madaraka Day (1<sup>st</sup> June)
- Idd Ul Fitr
- Mashujaa Day (20<sup>th</sup> October)
- Jamhuri Day (12<sup>th</sup> December)
- Christmas Day (25<sup>th</sup> December)
- Boxing day (26<sup>th</sup> December)

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

#### **SUBCLAUSE 14.3 - CASH FLOW ESTIMATE**

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

#### **SUBCLAUSE 15.1 - CONTRACTOR'S SUPERINTENDENCE**

Add the following at the end of the first paragraph of Sub-Clause 15.1:

“The Contractor shall, within seven (7) days of receipt of the Engineer’s order to commence the works inform the Engineer in writing the name of the Contractor’s Representative and the anticipated date of his arrival on site.”

Add the following Sub-clause 15.2

#### **SUBCLAUSE 15.2 - LANGUAGE ABILITY AND QUALIFICATIONS OF CONTRACTOR’S AUTHORISED AGENT**

The Contractor’s Agent or Representative on the site shall be a Registered Engineer as registered by the Engineer’s Board of Kenya in accordance with the Engineers Act, 2011 or have equivalent status approved by the Engineer and shall be able to read and write English fluently.

The Contractor’s Agent or Representative shall have at least 10 years relevant experience as an Engineer.

#### **SUBCLAUSE 16.2 - ENGINEER AT LIBERTY TO OBJECT**

At the end of this Clause add

“by a competent substitute approved by the Engineer and at the Contractor’s own expense.”

Add the following Sub-Clauses 16.3 and 16.4:

#### **SUBCLAUSE 16.3 - QUALIFICATION AND LANGUAGE ABILITY OF SUPERINTENDING STAFF**

The Contractor’s superintending staff shall meet the following minimum qualifications:

- (a). Should have a working knowledge of English or Kiswahili. Should any of the superintending staff not be able to meet this condition, the Contractor shall propose to the Engineer arrangements for provision of a sufficient number of interpreters of approved qualifications. The Engineer, at his discretion, may amend, approve or reject such arrangements or reject deployment of superintending staff not meeting the language requirements. The Engineer may at any time during the duration of the Contract amend any approved arrangements made for interpreters, which shall be implemented at the Contractors expense.
- (b) The key staff listed below must have academic qualifications from Government recognised institutions or equivalent institutions of the levels set out in Section 5, Part 7.
  - Site Agent
  - Deputy Site Agent
  - Site Engineer
  - Senior Foreman
  - Site Surveyor
  - Foremen
- (c) Qualifications as above shall be subject to verification and approval on site by the Engineer or his representative on site before commencement of the said works.

#### **SUBCLAUSE 16.4 – EMPLOYMENT OF LOCAL PERSONNEL**

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



## **SUBCLAUSE 19.1 - SAFETY, SECURITY AND PROTECTION OF THE ENVIRONMENT**

Add Sub-Clause-paragraph (d) of Sub-Clause 19 as follows:

Notwithstanding the Contractor's obligation under Sub-Clause-paragraph (a), (b) and 9(c) of Sub-Clause 19.1 of the Conditions of Contract, the Contractor shall observe the following measures with a view to reducing or elimination adverse environmental effects by the site works:

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

## **SUBCLAUSE 20.4 - EMPLOYERS RISKS**

Delete Sub-Clause (h) and substitute with;

(h) any operation of the forces of nature (insofar as it occurs on site) which an experienced contractor:

- (i) could not have reasonably foreseen, or
- (ii) could reasonably have foreseen, but against which he could not reasonably have taken at least one of the following measures:
  - (a) prevent loss or damage to physical property from occurring by taking appropriate measures or
  - (b) insure against such loss or damage

## **SUBCLAUSE 21.1 - INSURANCE OF WORKS AND CONTRACTOR 'S EQUIPMENT**

Add the following words at the end of Sub-paragraph (a) and immediately before the last word of Sub-paragraph (b) of Sub-Clause 21.1:

“It being understood that such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred”

Delete the first sentence of this Clause and replace with the following:

“prior to commencement of the Works the Contractor shall, without limiting his or the Employer's obligations and responsibilities under Clause 20, insure to the satisfaction of the Employer:”

## **SUBCLAUSE 21.2 – SCOPE OF COVER**

Amend sub-paragraph (a) of Sub-Clause 21.2 as follows:

Delete words “from the start of work at the site” and substitute the words “from the first working day after the Commencement Date”

Add the following as Sub-Clause (c) under Sub-Clause-21.2

(c) It shall be the responsibility of the Contractor to notify the insurance company of any change in the nature and extent of the Works and to ensure the adequacy of the insurance coverage at all times during the period of the Contract.

#### **SUBCLAUSE 21.4 - EXCLUSIONS**

Amend Sub-Clause 21.4 to read as follows:

“There shall be no obligation for the insurances in Sub-Clause 21.1 to include loss or damage caused by the risks listed under Sub-Clause 20.4 sub-paragraph (a) (i) to (iv) of the Conditions of Particular Application.”

#### **SUBCLAUSE 23.2 – MINIMUM AMOUNT OF INSURANCE**

Add the following at the end of this Clause:

“.. with no limits to the number of occurrences”.

#### **SUBCLAUSE 25.1 – EVIDENCE AND TERMS**

Amend Sub-Clause OF INSURANCE 25.1 as follows:

Insert the words “as soon as practicable after the respective insurances have been taken out but in any case” before the words “prior to the start of work at the site”

Add the following Sub-Clauses 25.6, 25.7

#### **SUBCLAUSE 25.6 – INSURANCE NOTICES**

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

#### **SUBCLAUSE 25.7 – NOTIFICATION TO INSURERS**

It shall be the responsibility of the Contractor to notify insurers under any of the insurance referred to in the preceding clauses 21, 23 and 24 on any matter or event, which by the terms of such insurance are required to be so notified. The Contractor shall indemnify and keep indemnified the Employer against all losses, claims, demands, proceedings, costs, charges and expenses whatsoever arising out of or in consequence of any default by the Contractor in complying with the requirements of this Sub-Clause whether as a result of avoidance of such insurance or otherwise.

#### **SUBCLAUSE 28.2 – ROYALTIES**

Add at the end of this Sub-Clause the following sentence:

“The Contractor shall also be liable for all payments or compensation if any that are levied in connection with the dumping of part or all of any such material.”

#### **SUBCLAUSE 29.1 – INTERFERENCE WITH TRAFFIC**

Supplement Sub-Clause 29.1 by adding the following sentence at the end:

“The Contractor will be permitted to use existing public roads for access to the site. The Contractor shall pay vehicle license tax and road maintenance duty in accordance with relevant regulations and shall obtain any necessary permits or licenses from relevant authorities for transporting his equipment.”

Add the following subclause 29.2:

## **SUBCLAUSE 29.2 – REINSTATEMENT AND COMPENSATION FOR DAMAGES TO PERSONS AND PROPERTY**

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

If in the opinion of the Engineer the Contractor shall have failed to take reasonable and prompt action to discharge his obligations in the matter of reinstatement, the Engineer will inform the Contractor in writing of his opinion, in which circumstances the Employer reserves the right to employ others to do the necessary work of reinstatement and to deduct the cost thereof from any money due or which shall become due to the Contractor.

The Contractor shall refer to the Employer without delay all claims which may be considered to fall within the provisions of Clause 22.1.

Add the following Sub-Clause 34.2 to 34.8

## **SUBCLAUSE 34.2 – CONDITIONS OF EMPLOYMENT OF LABOUR**

The Contractor shall be responsible for making all arrangements for and shall bear all costs relating to recruitment, obtaining of all necessary visas, permits or other official permission for movements of staff and labour.

## **SUBCLAUSE 34.3 – FAIR WAGES**

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

- (a) The Contractor shall pay rates of wages, observe hours of labour and provide conditions of labour, housing, amenities and facilities not less favourable than those required by the latest Regulation of Wages (Building and Construction Industry) Order as at the time of bid submission, and subsequent amendments thereto, or in any wage scales, hours of work or conditions agreed by the Ministry of Labour or other Government Departments in consultation with the appropriate wage fixing authority and generally recognized by other employees in the district whose general circumstances in the trade or industry in which the Contractor is engaged are similar.
- (b) In the absence of any rates of wages, hours or conditions of labour so established the Contractor shall pay rates of wages and observe hours and conditions of labour which are not less favourable than the general level of wages, hours and conditions observed by other Employers whose general circumstances in the trade or industry in which the Contractor is engaged are similar.
- (c) Where the absence of established rates of wages, hours and conditions of labour or the dissimilarity of the general circumstances in the trade of industry in which the Contractor is engaged prevent the Contractor from observing rates of wages, hours and conditions of labour ascertained under sub-paragraph (a) and (b) above the Contractor in fixing the rates of wages, hours and conditions of labour of his employees shall be guided by the advice of the Labour Department.
- (d) The Contractor shall recognize the freedom of his employees to be members of trade unions.
- (e) The Contractor shall maintain records in English of the time worked by, and the wages paid to, his employees. The Contractor shall furnish to the Engineer or Employer, if called upon to do so, such particulars of the rates, wages and conditions of labour as the Employer or Engineer may direct.
- (f) The Contractor shall at all times during the continuance of the contract display, for the information of his employees in every factory, workshop or place occupied or used by him for

the execution of the Contract, a copy of this clause together with a notice setting out the general rates of wages, hours and conditions of labour of his employees.

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

#### **SUBCLAUSE 34.4 – BREACH OF FAIR WAGES CLAUSE**

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

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

#### **SUBCLAUSE 34.5 – RECRUITMENT OF UNSKILLED LABOUR**

Any additional unskilled labour which is required by the Contractor for the works and which is not in his employment at the time of the acceptance of the BID shall be recruited by the Contractor from the Labour Exchange or Exchanges nearest to the site or sites of the work.

#### **SUBCLAUSE 34.6 – COMPENSATION FOR INJURY**

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

#### **SUBCLAUSE 34.7 – LABOUR STANDARD**

- (a) The Contractor shall comply with the existing local labour laws, regulations and labour STANDARD
- (b) The Contractor shall formulate and enforce an adequate safety program with respect to all work under his contract, whether performed by the Contractor or subcontractor. The Contractor has assurance from the Employer of cooperation where the implementation of these safety measures requires joint cooperation.
- (c) Upon written request of the Employer the Contractor shall remove or replace any of his employees employed under this Contract.

Add the following Sub-Clause 35.2 and 35.3.

#### **SUBCLAUSE 35.2 – RECORDS OF SAFETY AND HEALTH**

The Contractor shall maintain such records and make such reports concerning safety, health and welfare of persons and damage to property as the Engineer may from time to time prescribe.

#### **SUBCLAUSE 35.3 – REPORTING OF ACCIDENTS**

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

#### **SUBCLAUSE 41.1 – COMMENCEMENT OF WORKS**

Amend Sub-Clause 41.1 as follows:

Delete the words “as soon as is reasonably possible” in the first sentence and replace with “within the period stated in the Appendix to Bid”.

#### **SUBCLAUSE 43.1 – TIME FOR COMPLETION**

Amend Sub-Clause 43.1 as follows:

Delete the words “within the time” to “such extended time” and substitute “by the date or dates stated or implied in Clause 14 of these Conditions of Particular Application.

#### **SUBCLAUSE 44.1 – EXTENSION OF TIME FOR COMPLETION**

Add at the end of Sub-Clause 44.1 the following:

“Neither rains falling within the rainy seasons as occurs in Kenya nor floods caused by such rains shall be deemed exceptional weather conditions such as may fairly entitle the Contractor to an extension of time for the completion of the work.”

#### **SUBCLAUSE 45.1 – RESTRICTION ON WORKING HOURS**

Add at the end of Sub-Clause 45.1 the following:

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

“In addition the Contractor will be required to provide, for any work carried out at night or recognized days of rest, adequate lighting and other facilities so that the work is carried out safely and properly.

“In the event of the Engineer granting permission to the Contractor to work double or rotary shifts or on Sundays, the Contractor shall be required to meet any additional costs to the Employer in the administration and supervision of the Contract arising from the granting of this permission.”

#### **SUBCLAUSE 47.2 – REDUCTION OF LIQUIDATED DAMAGES**

Add the following paragraphs at the end of this Sub-Clause:

“There shall be no reduction in the amount of liquidated damages in the event that a part or a section of the Works within the Contract is certified as completed before the whole of the Works comprising that Contract.

The Employer shall pay no bonus for early completion of the Works to the Contractor.

The sum stated in the Appendix to Bid as liquidated damages shall be increased by a sum equivalent to any additional amount payable by the Employer to the Contractor under clause 70.1 in respect of an increase in costs in such a period that would not have been incurred by the Contractor if the works had been completed by the due date for completion prescribed by Clause 43.”

#### **SUBCLAUSE 52.1 – VALUATION AND VARIATIONS**

Add new Clause 52.2(c)

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

Modification to Clause 52(3)

#### **SUBCLAUSE 52.4 – DAYWORKS**

Add the following at the end of Sub-Clause 52.4:

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

#### **SUBCLAUSE 54.1 – CONTRACTORS EQUIPMENT, TEMPORARY WORKS AND MATERIALS: EXCLUSIVE USE FOR THE WORKS**

Amend Sub-Clause 54.1 as follows:

Line 5: add “written” between “the” and “consent”.

Delete Sub-Clauses 54.2 and 54.5.

#### **SUBCLAUSE 55.2 – OMISSIONS OF QUANTITIES**

Items of Works described in the Bills of Quantities for which no rate or price has been entered in the Contract shall be considered as included in other rates and prices in the Contract and will not be paid for separately by the Employer.

Add the following Sub-Clause 58.4:

#### **SUBCLAUSE 58.4 – PROVISIONAL ITEMS**

Provisional items shall be read as Provisional Sums and shall be operated as such in accordance with Sub-Clauses 58.1 to 58.3.

#### **CLAUSE 60: – CERTIFICATES AND PAYMENTS**

Clause 60 of the General Conditions is deleted and substituted with the following:-

#### **SUBCLAUSE 60.1 – MONTHLY STATEMENT**

The Contractor shall submit a statement to the Engineer at the end of each month, in a tabulated form approved by the Engineer, showing the amounts to which the Contractor considers himself to be entitled. The statement shall include the following items, as applicable;

- the value of the Permanent Work executed up to the end of previous month
- such an amount (not exceeding 75 percent of the value) as the Engineer may consider proper on account of materials for permanent work delivered by the Contractor in the site
- such amount as the Engineer may consider fair and reasonable for any Temporary Works for which separate amounts are provided in the Bill of Quantities
- adjustments under Clause 70
- any amount to be withheld under retention provisions of Sub-Clause 60.3
- any other sum to which the Contractor may be entitled under the Contract

If the Engineer disagrees with or cannot verify any part of the statement, the Contractor shall submit such further information as the Engineer may reasonably require and shall make such changes and corrections in the statement as may be directed by the Engineer. In cases where there is difference in opinion as to the value of any item, the Engineer's view shall prevail.

#### **SUBCLAUSE 60.2 - INTERIM PAYMENT CERTIFICATE**

The Contractor shall forward to the Engineer an Interim Payment Certificate based on the statement as corrected above and, should it be necessary in the Engineers opinion, shall promptly make any further amendments and corrections to the Interim Payment Certificate.

The Engineer shall not unreasonably withhold certifying an Interim Payment Certificate and in case of likely delay in establishing the value of an item, such item may be set aside and the remainder certified for payment.

Within 30 days after receipt of the Interim Payment Certificate and subject to the Contractor having made such further amendments and corrections as the Engineer may require, the Engineer will forward to the Employer the certified Interim Payment Certificate.

Provided that the Engineer shall not be bound to certify any payment under this Clause if the net amount thereof, after all retentions and deductions, would be less than the minimum amount of Interim Payment Certificate's stated in the Appendix to Form of Bid. However, in such a case, the uncertified amount will be added to the next interim payment, and the cumulative unpaid certified amount will be compared to the minimum amount of interim payment.

### **SUBCLAUSE 60.3 – PAYMENT OF RETENTION MONEY**

A retention amounting to the percentage stipulated in the Appendix to Bid shall be held by the Employer in the first and following Interim Payment Certificates until the amount retained shall reach the "Limit of Retention Money" named in the Appendix to Form of BID.

Upon the issue of the Taking-Over Certificate, with respect to the whole of the works one half of the retention money shall become due and shall be paid to the Contractor when the Engineer shall certify in writing that the last section of the whole works has been substantially completed.

Upon expiration of the Defects Liability Period for the works, the other half of the Retention Money shall be certified by the Engineer for payment to the Contractor.

Provided that in the event of different Defects Liability Periods being applicable to different Sections of the Permanent Works pursuant to Clause 48, the expression "expiration of the Defects Liability Period " shall, for the purpose of this subclause, be deemed to mean the expiration of the latest of such periods.

Provided also that if at such time, there remain to be executed by the Contractor any work instructed, pursuant to Clause 49 and 50, in respect of the works, the Engineer shall be entitled to withhold certification until completion of any such work or so much of the balance of the Retention money as shall in the opinion of the Engineer, represents the cost of the remaining work to be executed.

Bank Retention Guarantees shall be accepted in lieu of cash retentions

### **SUBCLAUSE 60.4 – CORRECTION OF CERTIFICATES**

The Engineer may in any Interim Payment Certificate make any correction or modification to any previous Interim Payment Certificate signed by him and shall have authority, if any work is not being carried out to his satisfaction to omit or reduce the value of such work in any Interim Payment Certificate.

### **SUBCLAUSE 60.5 – STATEMENT AT COMPLETION**

Not later than 84 days after the issue of the Taking-Over Certificate in respect of the whole of the works, the Contractor shall submit to the Engineer a statement at completion showing in detail, in a form approved by the Engineer;

The final value of all work done in accordance with the Contract up to the date stated in such Taking-Over Certificate.

(a) Any further sums which the Contractor considers to be due; and

- (b) An estimate of amounts that the Contractor considers will become due to him under the Contract.

Estimate amounts shall be shown separately in the Statement at Completion. The Contractor shall amend and correct the Statement as directed by the Engineer and submit a Certificate at Completion to be processed as in SubClause 60.2.

#### **SUBCLAUSE 60.6 – FINAL STATEMENT**

Not later than 56 days after the issue of the Defects Liability Certificate pursuant to Sub-Clause 62.1, the Contractor shall submit to the Engineer for consideration a draft final statement with supporting documents showing in detail, in the form approved by the Engineer;

- (a) The final value of all work done in accordance with the Contract

- (b) Any further sums which the Contractor considers to be due to him.

If the Engineer disagrees with or cannot verify any part of the draft final statement, the Contractor shall submit such further information as the Engineer may reasonable require and shall make such changes in the draft as may be required.

#### **SUBCLAUSE 60.7 – DISCHARGE**

Upon submission of the Final Statement, the Contractor shall give to the Employer, with a copy to the Engineer, a written discharge confirming that the total of the Final statement represents full and final settlement of all monies due to the Contractor arising out of or in respect of the Contract. Provided that such discharge shall become effective only after payment under the Final Payment Certificate issued pursuant to Sub-Clause 60.8 has been made and the Performance Security referred to in Sub-Clause 10.1 has been returned to the Contractor.

#### **SUBCLAUSE 60.8 – FINAL PAYMENT CERTIFICATE**

Upon acceptance of the Final Statement as given in Sub-Clause 60.6, the Engineer shall prepare a Final Payment Certificate which shall be delivered to the Contractor's authorized agent or representative for his signature. The Final Payment Certificate shall state:

- (a) The final value of all work done in accordance with the Contract;
- (b) After giving credit to the Employer for all amounts previously paid by the Employer, the balance, if any, due from the Employer to the Contractor or the Contractor to the Employer.

Final Certificate shall be issued for any sum due to the Contractor even if such is less than the sum named in the Appendix to the Form of BID.

#### **SUBCLAUSE 60.9 – CESSATION OF EMPLOYERS LIABILITY**

Unless the Contractor notifies the Engineer of his objection to the Final Certificate within fourteen days of delivery thereof he shall be deemed to have agreed that he accepts the total Contract Price as set out in the Final Certificate as full settlement for all work done under the Contract including any variations and omissions thereof but excluding any variations and claims previously made in writing.

#### **SUBCLAUSE 60.10 – TIME FOR PAYMENT**

The amount due to the Contractor under any Interim Payment Certificate or Final Payment Certificate issued pursuant to this Clause or to any other term of the Contract, shall, subject to Clause 47, be paid by the Employer to the Contractor as follows:



- (i) In the case of Interim Payment Certificate, within the time stated in the Appendix to Form Of Bid, after the Engineer has signed the Interim Payment Certificate.
- (ii) In the case of the Final Payment Certificate pursuant to Subclause 60.8, within the time stated in the Appendix to Form Of Bid, after the Engineer has signed the Final Payment Certificate.
- (iii) In the event of the failure of the Employer to make payment within the times stated, the Employer shall make payment to the Contractor of simple interest at a rate equal to two percentage points above the average bank lending rates obtained from Central Bank of Kenya. The provisions of this subclause are without prejudice to the Contractor's entitlements under Clause 69 or otherwise.

#### **SUBCLAUSE 60.11 – CURRENCY OF PAYMENT**

The Contract Price shall be designated in Kenyan Currency.

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

#### **SUBCLAUSE 60.12 – ADVANCE PAYMENT**

“The Employer may make an interest free advance payment to the contractor for the cost of mobilization in respect of the Works, in a lump sum of equivalent to a maximum of ten (10) percent of the Contract Price named in the Letter of Acceptance. Payment of such advance amount will be due under a separate certification by the Engineer after:

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

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

The advance payment shall be repaid with percentage reductions from the monthly interim payments certified by the Engineer. The reimbursement of the lump sum advance payment shall be made by deductions from the interim payments and where applicable from the balance owing to the contractor. Reimbursement shall begin when the amount of the sums due under the Contract reaches 20% of the original 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 the means of the formula:

$$RI = \frac{A(x-X)}{80-20}$$

Where:

RI = the amount to be reimbursed.

A = the amount of the advance which has been granted.

x = the amount of proposed cumulative payments as a percentage of the original amount of the contract. This figure will exceed 20% but not 80%.

X = the amount of the previous cumulative payments as a percentage of the original amount of the Contract. This figure will be below 80% but not less than 20%.

With each reimbursement the guarantee will be reduced accordingly.

#### **SUBCLAUSE 60.13 - MATERIALS FOR PERMANENT WORKS**

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

-Receive a credit in the month, in which these materials are brought to site,

-Be charged a debit in the month in which these materials are incorporated in the permanent works.

Both such credit and debit to be determined by the Engineer in accordance with the following provisions.

- (a) No credit shall be given unless the following conditions shall have been met to the Engineers satisfaction
  - (i) The materials are in accordance with the specifications for the works;
  - (ii) The materials have been delivered to site and are properly stored and protected against loss, damage or deterioration;
  - (iii) The Contractors record of the requirements, orders receipts and use of materials are kept in a form approved by the Engineer, and such records are available for inspection by the Engineer;
  - (iv) The Contractor has submitted a statement of his cost of acquiring and delivering the materials and plant to the Site, together with such documents as may be required for the purpose of evidencing such cost;
  - (v) The materials are to be used within a reasonable time.
- (b) The amount to be credited to the Contractor shall not be more than 75% of the Contractor's reasonable cost of the materials delivered to site, as determined by the Engineer after review of the documents listed in subparagraphs (a) (iv) above;
- (c) The amount to be debited to the Contractor for any materials incorporated into the works shall be equivalent to the credit previously granted to the Contractor for such materials pursuant to Clause (b) above as determined by the Engineer.

#### **SUBCLAUSE 67.1 – ENGINEER'S DECISION**

Delete the entire sub clause 67.1 and add the following;

“If a dispute of any kind whatsoever arises between the Employer and the Contractor in any connection with, or arising out of, the Contract or the execution of the works, whether during the execution of the works or after their completion and whether before or after repudiation or other termination of the Contract including any dispute as to any opinion, instruction, determination, certificate or valuation of the Engineer, the matter in dispute shall, in the first place, be referred in writing to the Engineer, with a copy to the other party. Such reference shall state it is made pursuant to this clause. No later than 28 (twenty eight) day after the day on which he received such reference the Engineer shall give notice of his decision to the Employer and the Contractor. Such decision shall state it is made pursuant to this clause.

Unless the Contract has already been repudiated or terminated, the Contractor shall, in every case, continue to proceed with the works with all due diligence and the Contractor and the Employer shall give effect forthwith to every such decision of the Engineer unless and until the same shall be revised, as hereinafter provided, in an Amicable Settlement, Adjudicator's or Arbitrator's award.

If either the Employer or the Contractor be dissatisfied with the any decision of the Engineer, or if the Engineer fails to give notice of his decision on or before the 28th (twenty eighth) after the day on which he received the reference, then either the Employer or the Contractor may, on or before the 28th (twenty eighth) day after the day the day on which he received notice of such decision, or on or before the 28th (twenty eighth) day after the day on which the said period of 28 days expired, as the case may be, give notice to the other party, with a copy for information to the Engineer, of his intention to commence Adjudication, as hereinafter provided, as to the matter in dispute. Such notice shall establish the entitlement of the party giving the same to commence Adjudication, as hereinafter provided, as to such dispute; no adjudication in respect thereof may be commenced unless such notice is given.

If the Engineer has given notice of his decision as to a matter in dispute to the Employer and the Contractor and no notice of intention to commence adjudication as to such dispute has been given by either the Employer or the Contractor on or before the twenty eighth day after the day on which the parties received notice as to such decision from the Engineer, the said decision shall become final and binding upon the Employer and the Contractor. “

#### **SUBCLAUSE 67.2 – AMICABLE SETTLEMENT**

Delete the entire sub-clause 67.2 and replace with the following;

##### **67.2 (a) Amicable Settlement**

"Where notice to of intention to commence adjudication as to a dispute has been in accordance with sub-clause 67.1, the parties shall attempt to settle such dispute in amicably before the commencement of Adjudication; provided that, unless the parties otherwise agree, Adjudication may be commenced on or after the 14<sup>th</sup> (fourteenth) day after the day on which notice of intention to commence adjudication of such dispute was given, even if an attempt at amicable settlement thereto has been made."

##### **67.2 (b) Adjudication**

The adjudication shall commence when it shall be referred in writing to the Dispute Adjudication Board (the "Board") for its decision. Such reference shall state that it is made under this clause.

1. Unless the member or members of the board have been previously mutually agreed upon by the parties and named in the Contract, the parties shall within 28 days of the contract commencement date jointly ensure the appointment of the Board. The Board shall comprise of suitably qualified persons as members, the number of members being either one or three as stated in the Appendix to form of Tender. If the board is to comprise three members each party shall nominate one member and the two members shall mutually agree upon and appoint the third member (who shall act as chairman)
2. The terms of appointment of the Board shall include: -
  - a) An hourly rate which if not otherwise agreed shall be the average of the rates set by the Chartered Institute of Arbitrators for the class of membership of the member save that the rates for associate membership shall apply to non - members;
  - b) A retainer monthly rate equal to 12 times the hourly rate;
  - c) The hourly rate shall apply when the board members are attending site, travelling and/or engaged in actual dispute resolution work. A member of the board throughout his appointment will act independently at all times without bias or favour;

- d) Members of the board to act impartially and in accordance with the Contract;
- e) Undertakings by the parties (to each other and to Board) that the members of the Board shall under no circumstances be liable for anything done or omitted in the discharge of their functions unless the act or omission is shown to have been in bad faith;
- f) The Board shall be free to pay and seek refund from the parties of any expenses paid out by members of the board in connection with their work;
- g) The Employer and the Contractor shall each be responsible for paying one half of the Board's remuneration.

The appointment of any member of the Board may be terminated (other than on a member's own initiative) only by mutual agreement of the Employer and the Contractor. The appointment of each member of the Board shall expire when the discharge referred to in sub-clause 60.7 shall have become effective, or at such other time as the parties may mutually agree.

- 3. If the parties so agree, they may at any time, appoint a suitably qualified person or persons to replace (or to be available to replace) any or all members of the Board. Unless the parties agree otherwise, the appointment will cease if a member of the Board declines to act or is unable to act as a result of death, disability, resignation or termination of appointment. If any of such circumstances occur and no such member is available, the member shall be replaced in the same manner as he had been nominated or agreed upon.
- 4. If any of the following conditions apply, namely: -
  - a) The parties fail to agree upon the appointment of the sole member of a one-person Board within 28 days of the commencement date;
  - b) Either party fails to appoint a member in a Board of three members, within 28 days of the commencement date;
  - c) The two members of the Board fail to agree upon the appointment of the third member (to act as chairman) for a Board of three members within 28 days from date of appointment of latest member;
  - d) The parties or the members fail to appoint a replacement member of the Board within 28 days of the date on which a member of the Board declined to act or is unable to act as a result of death, disability, resignation or termination of appointment;

then the appointing body or official named in the Appendix to Form of Tender shall appoint such member of the Board on request of any party and such appointment shall be final and conclusive.

#### **67.2 (c) Dispute Adjudication Board's Decision**

- 1. When in accordance with sub-clause 67.2 (b) a dispute is referred by one party to the Board, a copy of such reference shall be sent by that party to the other party and (for information) to the Engineer. The parties shall promptly make available to the Board all such additional information, further access to the site, and appropriate facilities as the Board may require for the purposes of rendering a decision.
- 2. The rules published by the Chartered Institute of Arbitrators Kenya branch shall apply.

3. The Board shall have full power among other things to open up, review and revise any opinion, instruction, determination, certificate or valuation of the Engineer related to the dispute. No later than the 28<sup>th</sup> day after the day on which it received such a reference the Board acting as a panel of experts and not as arbitrator(s) shall give notice of its decision to the parties and for information to the Engineer. Such decision, which shall be reasoned, shall state that it is given under this Sub-Clause.
4. Unless the Contract has already been repudiated or terminated, the Contractor shall in every case continue to proceed with the works with all due diligence and the Contractor and the Employer as well as the Engineer shall give effect forthwith to every decision of the Board notwithstanding the fact that there may be a party dissatisfied as shown thereunder.
5. If either party is dissatisfied with the Board's decision, then either party on or before the 28<sup>th</sup> (twenty eighth) day after the day on which it received notice of such decision, may refer the decision to Arbitration.
6. If the Board has given notice of its decision as to a matter in dispute to the Employer, the Contractor and the Engineer and no notice of dissatisfaction has been given by either party on or before the 28<sup>th</sup> (twenty eighth) day after the day on which the parties received the Board's decision, then the Board's decision shall become final and binding upon the Employer and the Contractor.

#### **67.2 (d) Failure to Comply with the Board's Decision**

Where neither party has given notice of dissatisfaction within the period in Sub-Clause 67.2 (c) and Board's related decision, if any has become final and binding either party may, if the other party fails to comply with such decision and without prejudice to any other rights it may have, refer the failure itself to Arbitration under Sub-Clause 67.3. The provisions of Sub-clause 67.2 shall not apply to any such reference.

#### **67.2 (e) Expiry of the Board's Appointment**

When the appointment of the members of the Board, including any replacement, has either been terminated or has expired, any such dispute referred to in Sub-clause 67.2 shall be finally settled by Arbitration pursuant to Sub-clause 67.3. The provisions of Sub-clause 67.2 shall not apply to any such reference.

#### **SUBCLAUSE 67.3(D) – ARBITRATION**

Delete all the words from line 6 onwards beginning with the words "unless otherwise" up to line 8 ending with the words "... under such rules", and substitute with the following:

"by an arbitrator to be agreed upon between the parties or failing agreement to be nominated on the application of either party by the appointee designated in the form of Tender for the purpose and any such referee shall be deemed to be a submission to arbitration within the meaning of the Arbitration Laws of the Republic of Kenya.

#### **SUBCLAUSE 68.2 – NOTICES TO EMPLOYER AND ENGINEER**

Delete in Sub-Clause 68.2 the words "nominated for that purpose in Part II of these conditions".

- a. The Employer's address is:  
Director General  
Kenya Rural Roads Authority  
P.O. Box 48151 – 00100  
**NAIROBI.**

- b. The Engineer's address is:  
Director (Road Asset Management)  
Kenya Rural Roads Authority  
P.O. Box 48151 – 00100  
**NAIROBI.**

#### **SUBCLAUSE 68.4 – CORRESPONDENCES**

All letters and notices from the Contractor to the Employer and/Engineer must be signed by the Managing Director or the person given written power of Attorney.

#### **CLAUSE 69 – DEFAULT OF EMPLOYER**

Delete in Sub-Clause 69.1 (a) the words ("28 days") and insert the words "ninety (90) days".

Delete Sub-Clause 69.1 (c)

Delete in Sub-Clause 69.4 line 4 the words "(28 days)" and insert the words "sixty (60) days".

In Sub-Clause 69.4 add at the end of first paragraph the following "the period of such suspension shall be as agreed upon by both parties and in any case not more than six (6) months".

In Subclause 69.4 of General Conditions of Contract Part I, insert at the end -----"The amounts of such costs which shall be added to the Contract Price shall exclude any cost due to idle time for equipment, plant and labour."

#### **CLAUSE 70 – CHANGES IN COST AND LEGISLATION**

##### **SUB-CLAUSE 70.1 - PRICE ADJUSTMENT**

The amounts payable to the Contractor, in various currencies pursuant to Sub-Clause 60.1, shall be adjusted in respect of the rise or fall in the cost of labour, Contractor's Equipment, Plant, materials, and other inputs to the Works, by applying to such amounts the formulae prescribed in this clause.

##### **SUB-CLAUSE 70.2 - OTHER CHANGES IN COST**

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

##### **SUB-CLAUSE 70.3 - ADJUSTMENT FORMULAE**

The adjustment to the Interim Payment Certificates in respect of changes in cost and legislation shall be determined from separate formulae for each of the currencies of payment and each of the types of construction work to be performed and Plant to be supplied. The formulae will be of the following general type:

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

Where:

**pn** is a price adjustment factor to be applied to the amount in each specific currency for the payment of the work carried out in the subject month, determined in accordance with Paragraph 60.1 (d), and with Paragraphs 60.1 (e) and (f), where such variations and daywork are not otherwise subject to adjustment;

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

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

**Ln, Mn, En**, etc., are the current cost indices or reference prices of the cost elements in the specific currency of origin for month “**n**,” determined pursuant to Sub-Clause 70.5, applicable to each cost element; and

**Lo, Mo, Eo**, etc., are the base cost indices or reference prices corresponding to the above cost elements at the date specified in Sub-Clause 70.5.

If a price adjustment factor is applied to payments made in a currency other than the currency of the source of the index for a particular indexed input, a correction factor **Zo/Zn** will be applied to the respective component factor of **pn** for the formula of the relevant currency. **Zo** is the number of units of currency of the country of the index, equivalent to one unit of the currency of payment on the date of the base index, and **Zn** is the corresponding number of such currency units on the date of the current index.

#### **SUB-CLAUSE 70.4 - SOURCES OF INDICES AND WEIGHTINGS**

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

#### **SUB-CLAUSE 70.5 - BASE, CURRENT, AND PROVISIONAL INDICES**

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

#### **SUB-CLAUSE 70.6 - ADJUSTMENT AFTER COMPLETION**

If the Contractor fails to complete the Works within the time for completion prescribed under Clause 43, adjustment of prices thereafter until the date of completion of the Works shall be made using either the indices or prices relating to the prescribed time for completion, or the current indices or prices, whichever is more favorable to the Employer, provided that if an extension of time is granted pursuant to Clause 44, the above provision shall apply only to adjustments made after the expiry of such extension of time.

#### **SUB-CLAUSE 70.7 - WEIGHTINGS**

The weightings for each of the factors of cost given in the Appendix to Bid shall be adjusted if, in the opinion of the Engineer, they have been rendered unreasonable, unbalanced, or inapplicable as a result of varied or additional work already executed or instructed under Clause 51 or for any other reason.

## **SUB-CLAUSE 70.8 - SUBSEQUENT LEGISLATION**

If, after the date 28 days prior to the latest date for submission of bids for the Contract, there occur in the country in which the Works are being or are to be executed changes to any National or State Statute, Ordinance, Decree, or other Law or any regulation or by-law of any local or other duly constituted authority, or the introduction of any such State Statute, Ordinance, Decree, Law, regulation, or by-law that causes additional or reduced cost to the Contractor, other than under the preceding sub-clauses of this clause, in the execution of the Contract, such additional or reduced cost shall, after due consultation with the Employer and the Contractor, be determined by the Engineer and shall be added to or deducted from the Contract Price and the Engineer shall notify the Contractor accordingly, with a copy to the Employer. Notwithstanding the foregoing, such additional or reduced cost shall not be separately paid or credited if the same shall already have taken into account in the indexing of any inputs to the Price Adjustment Formulae in accordance with the provisions of Sub-Clauses 70.1 to 70.7.

## **CLAUSE 72 – RATES OF EXCHANGE COST**

Delete clause 72 in its entirety and substitute the following:

The currency of BID and payment is Kenya Shillings and rates of exchange requirements are not applicable.

## **CLAUSE 73 – BRIBERY AND COLLUSION**

Add new Clause 73.1:

**“The Contractor shall not:**

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

Any breach of this condition by the Contractor or by anyone employed by him or acting on his behalf (whether with or without the knowledge of the Contractor) or the commission of any offence by the Contractor or by anyone employed by him or acting on his behalf in relation to this or any other contract to which the Government of Kenya is a party shall entitle the Employer to determine the Contract (See Condition 63 hereof) and/ or to recover from the Contractor the amount or value of any such gift, consideration or commission.

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

## **CLAUSE 74 - CONTRACT TO BE CONFIDENTIAL**

Add new Clause 74.1:

The Contractor shall treat the details of this Contract as Private and Confidential and shall not publish or disclose the same or any particulars thereof in any trade or technical paper or elsewhere (save in so far as may be necessary for the purpose thereof) without the previous consent in writing



of the Government. If any dispute arises as to the necessity of any publication or disclosures for the purposes of this Contract the same shall be referred to the decision of the Engineer mentioned in the said Conditions of Contract whose award shall be final.

## **SECTION 7: SCHEDULES OF SUPPLEMENTARY INFORMATION**

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## SCHEDULE 1: CONFIDENTIAL BUSINESS QUESTIONNAIRE

This Confidential Business Questionnaire of the Government of Kenya shall be completed by the Bidder.

### REPUBLIC OF KENYA

#### CONFIDENTIAL BUSINESS QUESTIONNAIRE

You are requested to give the particulars indicated in Part 1 and either Part 2 (a), 2(b) or 2(c) 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

.....

PlotNo.....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 one time:

KShs.....

Name of your bankers.....

Branch.....

Are you an agent of the Kenya National Trading Corporation? YES/NO

##### 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:

Name	Nationality	Citizenship Details*	Shares
1.....	1.....	1.....	1.....
2.....	2.....	2.....	2.....
3.....	3.....	3.....	3.....

**Note: Attach proof of citizenship(Compulsory)**

**Part 2(c) – Registered Company**

Give details of partners as follows:

Private or Public.....

State the Nominal and Issued Capital of the Company

Nominal Shares (KShs)

Issued Shares (KShs)

.....

Give details of all directors as follows:

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

**Note: Attach proof of citizenship (Compulsory)**

Part 2 (d) Interest in the Firm:

Are there any person / persons in Kenya Rural Roads who has interest in this firm? Mark in the box alongside as necessary.

Yes	No

Date:.....Signature of Tenderer.....

**SCHEDULE 2: FORM OF WRITTEN POWER OF ATTORNEY**

The Bidder shall state here below the name(s) and address of his representative(s) who is/are authorized to receive on his behalf correspondence in connection with the Bid.

.....  
(Name of Bidder's Representative in block letters)

.....  
(Address of Bidder's Representative)

.....  
(Signature of Bidder's Representative)

Alternate:

.....  
(Name of Bidder's Representative in block letters)

.....  
(Address of Bidder's Representative)

.....  
(Signature of Bidder's Representative)

\*To be filled by all Bidders.

**SCHEDULE 3: CERTIFICATE OF BIDDER’S VISIT TO SITE**

This is to certify that

[Name/s].....

.....

Being the authorized representative/Agent of [Name of bidder]

.....

.....

participated in the organised inspection visit of the site of the works for **RECONSTRUCTION AND REHABILITATION OF A2, CHAKA - STATE LODGE ROAD**

held on

.....day of.....20.....

Signed.....  
(Employer’s Representative)

.....  
(Name of Employer’s Representative)

.....  
(Designation)

NOTE: This form is to be completed at the time of the organized site visit.

# SCHEDULE 4: KEY PERSONNEL

**Note:** The Bidder **shall list in this schedule** the key personnel he will employ from the Contractor's headquarters and from the Contractor's site office to direct and execute the work together with their qualifications, experience, position held and nationality in accordance with Clause 15.2 and 16.3 of the Conditions of Contract Part II. Bidders shall attach signed and certified CVs of all key staff.

Designation	Name	Nationality	SUMMARY OF QUALIFICATIONS AND EXPERIENCE		
			Qualifications	General Experience (Yrs)	Relevant Experience (Yrs)
<b>Headquarters</b>					
Partner/Director or other key staff (give designation)					
<b>Site Office</b>					
Site Agent					
Deputy Site Agent/Site Engineer.					
Senior Foreman					
Construction supervisors					
Site Surveyor					
<b>Other Key Staff</b>					
Foremen					
(i) Earthworks					
(ii) Asphalt Concrete					
(iii) Concrete					
(iv) Pavement					
(v) Drainage					

Bidders shall attach CV's of key personnel and Certificates, to which CVs should be signed by the staff and the Academic Certificates certified by a Commissioner of Oaths.

I certify that the above information is correct.

.....  
(Signature of Bidder)

.....  
(Date)



**Format of Resume of Proposed Personnel** (use the same)

Bidders shall attach signed and certified CVs of all key staff use the format given below for all other required staff (where required, use separate sheets to add extra data)

<b>Proposed Position</b>			
<b>Personnel information</b>	<b>Name of Personnel</b>		<b>Date of birth</b>
	<b>Professional qualifications</b>		
	<b>Years of Experience</b>		<b>Years with present employer</b>
<b>Present employment</b>	<b>Present Employer's Name:</b>		
	<b>Job Title</b>		
	<b>Name of Contact person (Supervisor)</b>		<i>Telephone No</i>
			<i>E-mail</i>
<b>From</b>	<b>To</b>	<i>(Summarize professional experience, in reverse chronological order. Indicate particular technical and managerial experience relevant to the project)</i>	
		<b>Company:</b> <b>Project</b> <b>Position</b> <b>Role in project</b>	

**Signature of Proposed Staff.....Date:.....**

Note: Please attach Certified Copies of Qualification Certificates

**SCHEDULE 5: SCHEDULE OF THE MAJOR ITEMS OF PLANT TO BE USED ON THE PROPOSED CONTRACT.**

The Bidder must indicate the core plant and equipment considered by the company to be necessary for undertaking the project together with proof ownership (\*Mandatory minimum number of equipment required by the Employer for the execution of the project that the bidder must make available for the Contract.)

Item No.	Equipment Details	Minimum Number Required for the execution of the Contract	No. of owned by the Bidder	No. to be availed for the project	No of equipment to be made available for the Contract by the Bidder
1	<b>A) General plant</b>  1. Primary/Secondary /Crusher Unit/Power Screen Min capacity 60/hr 2. Concrete batching plant Min Cap 20m <sup>3</sup> /hr  <b>Subtotal for A</b>	-  Optional  <b><u>0</u></b>			
2	<b>B) Bituminous Plants</b>  1. Bitumen pressure distributor  2. Bitumen heater tank (10,000 litres)  3. Asphalt plant  4. Paver  <b>Subtotal for B</b>	1  -  -  1  <b><u>2</u></b>			
3	<b>C) Compactors</b>  1. Vibrating compaction plate 300mm wide  2. Vibrating compaction plate 600mm wide  <b>Subtotal for C</b>	1  1  <b><u>2</u></b>			
4	<b>D) Mobile Compressors</b>  1. Single tool (1.8m <sup>3</sup> /min)	1			

Item No.	Equipment Details	Minimum Number Required for the execution of the Contract	No. of owned by the Bidder	No. to be availed for the project	No of equipment to be made available for the Contract by the Bidder
	2. Two tool (2.8 – 7.3 m <sup>3</sup> /min) 3. Four tool (11.3 – 25.3 m <sup>3</sup> /min) 4. Medium rock drill (1.5 m <sup>3</sup> /min) 5. Heavy rock drill (1.5 m <sup>3</sup> /min) <b>Subtotal for D</b>	0 0 0 0 <u>1</u>			
5	<b>E) Concrete Equipment</b> 1. Mobile concrete mixers 2. Truck mounted mixers 3. Concrete vibrators 4. Continuous pugmill mixer <b>Subtotal for E</b>	1 - 1 - <u>2</u>			
6	<b>F) Transport (Tippers, dumpers, water tankers)</b> 1. 4x2 tippers payload 7-12 tonnes 2. 6x4 tippers payload 16-20 tonnes 3. 8x8 tippers payload 16-20 tonnes 4. Articulated trailers (low loaders) 5. Dump trucks 6. Flat bed lorries 7. Water tankers (18,000-20,000 lts capacity) 8. Water tankers (8,000-10,000 lts capacity)	2 1 2 - 3 0 0 1			

Item No.	Equipment Details	Minimum Number Required for the execution of the Contract	No. of owned by the Bidder	No. to be availed for the project	No of equipment to be made available for the Contract by the Bidder
	<b>Subtotal F</b>	<b><u>12</u></b>			
7	<b>G) Earth moving equipment</b>  1. Tractor dozers with dozer attachment (D6-D9)  2. Tracked loaders  3. Wheel loaders  4. Motor scrappers  5. Motor graders (93-205KW)  6. Trench excavators  <b>Subtotal G</b>	1   1  2  -  1  -  <b><u>5</u></b>			
8	<b>H) Diesel Generators</b>  1. Diesel generators (15-200KVa)  <b>Subtotal H</b>	Optional   <b><u>0</u></b>			
9	<b>I) Excavators</b>  1. Hydraulic crawler mounted (7-10 tonnes) – 0.25-0.4m <sup>3</sup> SAE bucket  2. Hydraulic crawler mounted (7-10 tonnes) – 0.25-0.4m <sup>3</sup> SAE bucket  3. Hydraulic wheel mounted (7-10 tonnes) – 0.25-0.4m <sup>3</sup> SAE bucket  4. Hydraulic wheel mounted (7-10 tonnes) – 0.25-0.4m <sup>3</sup> SAE bucket  5. Hydraulic wheel mounted (10-16 tonnes) – 0.4-0.6m <sup>3</sup> SAE bucket	1  -  -  -  -			

Item No.	Equipment Details	Minimum Number Required for the execution of the Contract	No. of owned by the Bidder	No. to be availed for the project	No of equipment to be made available for the Contract by the Bidder
	<b>Subtotal for I</b>	<b><u>1</u></b>			
10	<b>J) Rollers</b>  1. Self-propelled single drum vibrating (various types, 12 tonnes and above)  2. Pneumatic rubber tyre (1-2 tonnes/wheel)  3. Sheep foot roller  4. Double drum vibrating pedestrian roller  <b>Subtotal for J</b>	  1  1  1  1  <b><u>4</u></b>			
11	<b>K) Stabilization</b>  1. Pulvimixer  <b>Subtotal for K</b>	  1  <b><u>1</u></b>			

We hereby certify that notwithstanding the list of plant detailed above, we will provide sufficient, suitable and adequate plant in good working order for the successful completion of works

.....  
(Signature of Contractor)

.....  
(Date)

**SCHEDULE 6: SCHEDULE OF ROADWORKS CARRIED OUT BY THE BIDDER IN THE LAST FIVE YEARS**

DESCRIPTION OF WORKS	NAME AND ADDRESS OF CLIENT	VALUE OF CONTRACT SUM (KSHS) *	YEAR COMPLETED /REMARKS
<u>A) Non-completed Works</u>			
<u>B) Completed Works</u>			
<u>C) Specific Construction Experience</u>			

I certify that the above works were successfully carried out by me (the bidder). ***Attach Completion Certificates /Substantial completion certificate and Award Letters.***

.....  
(Signature of Bidder)

.....  
(Date)

\*Value in KShs using Central Bank of Kenya mean exchange rate at a reference date 7 days before date of BID opening.

**SCHEDULE 7: SCHEDULE OF ONGOING PROJECTS**

DESCRIPTION OF WORKS	NAME AND ADDRESS OF CLIENT	DATE OF COMMENCEMENT	DATE OF COMPLETION	VALUE OF CONTRACT SUM (KSHS)	VALUE COMPLETED UP TO DATE %	PHYSICALLY COMPLETED UP TO DATE %

I certify that the above works are being carried out by me and that the above information is correct. ***Attach Award Letters***

.....  
(Signature of Bidder)

.....  
(Date)

**SCHEDULE 8: SCHEDULE OF BASIC RATES OF MATERIALS**

This schedule has been omitted in view of the provisions of Clause 70, Conditions of Contract Part II (Conditions of Particular Application) given in Section 6B of this document.

**SCHEDULE 9: SCHEDULE OF LOCAL LABOUR BASIC RATES**

(Ref: Conditions of Contract Part II, Clause 70)

This schedule has been omitted in view of the provisions of clause 70 of Condition of Contract part II (Condition of Particular Application) given in section 8 B of this document.

**SCHEDULE 10: FINANCIAL STANDING**

- 1 Submit copies of audited profit and loss statements and balance sheet for the last five calendar years and estimated projection for the next two years with certified English translation where appropriate.
- 2 Give turnover figures for each of the last three (3) financial years. Quote in millions and decimal thereof.

	Year 2016	Year 2017	Year 2018
	KShs.	KShs.	KShs.
Roadworks			
Other civil Engineering works			
Other (specify)			
Total			

**SUMMARY OF ASSETS AND LIABILITIES OF THE AUDITED FINANCIAL STATEMENTS OF THE LAST THREE (3) FINANCIAL YEARS**

	Year 2016	Year 2017	Year 2018
	KShs.	KShs.	KShs.
1. Total Assets			
2. Current Assets			
3. Bank Credit Line Value			
4. Total Liabilities			
5. Current Liabilities			
6. Net Worth (1-4)			
7. Working capital (2+3-5)			

- (a) Name/Address of Commercial Bank providing credit line

.....  
 .....

- (b) Total amount of credit line KShs.....

Attach certified copies of financial bank statements of the last three years.

Attach a certified copy of Undertaking of the Bank to providing the credit. The credit line should be specific to the project.



# **SCHEDULE 11: OTHER SUPPLEMENTARY INFORMATION**

1. Financial reports for the last three years, balance sheets, profit and loss statements, auditors' reports etc. List them below and attach copies.

.....

.....

.....

.....

2. Evidence of access to financial resources to meet the qualification requirements. Cash in hand, lines of credit etc. List below and attach copies of supporting documents. The line of credit should be specific to the project.

.....

.....

.....

.....

3. Name, address, telephone, telex, fax numbers of the Bidders Bankers who may provide reference if contacted by the Contracting Authority.

.....

.....

.....

4. Information on current litigation in which the Bidder is involved.

OTHER PARTY (IES)	CAUSE OF DISPUTE	AMOUNT INVOLVED (KSHS)

I certify that the above information is correct.

.....  
Date

.....  
Signature of Bidder

## **SCHEDULE 12: WORK METHODOLOGY**

Give a brief description of how you plan to carry out the works including traffic management, quality assurance of works and any designs to be carried out by the Bidder within the contract period, in not less than five (5) pages and not more than fifteen (15) pages.

The Works execution programme should include all relevant information to the project. The information given should be clear, not flawed description and compliance to standard and special specification.

Note Works Execution programme is different from form “programme of works referred in FIDIC and Standard Specification for Roads and Bridge Construction. The said “programme of works” is but part of Works Execution Programme (WEP).

The Contents of Works Execution Programme shall include:

### **i. General information**

#### **a) Project data**

- Project name,
- financier,
- employer,
- implementing agency
- contract period,
- date of completion,
- defects liability period,
- date of submission of works execution programme,

#### **b) Scopes of works**

A brief description of the project which includes major work items.

### **ii. Mobilization Management Plan**

- The Plan should show, the location of site office and site organization chart,
- Personnel management plan (Head Office and Site Office staff)  
Deployment plan and schedule of key personnel together with their qualification, and experience statements are shown in WEP. The information in this part includes; name, address, ID, phone number, assigned work types, Subcontractor's information and wage payment plan are also to be included if necessary.
- Equipment management plan  
List of the equipment's: Name, type, manufacturer, usage, number, schedule. The bidder shall prepare the maintenance and repair plan for all the equipments.

### **iii. Work execution schedule**

- a) Signed Programme of works
- b) Signed cash flow plan during the contract period  
It is desirable that work execution schedule includes time frame of each activity such as in bar chart format.

### **iv. Quality and Quantity Management**

- Method statement  
This includes Work procedures, order and methods for execution.
- Proposal on material testing.

Material and structural test methods, test laboratory, test frequency, standard values. The relevant clause on quality in SSRBC should also be incorporated.

- Proposal on measurements
- Photograph plan

The bidder shall provide a photograph plan to record the progress and proof of quality control, measurement and any event that may arise. Type of works, filming item description, filming frequency and filming location mapping should be incorporated in the plan.

**v. Safety management plan**

This includes but not limited compliance with safety rules and regulation, traffic control and detour plans, emergency contact list

For quick actions during emergency, emergency contact list should be in WEP and shared with staff in the Authority.

**vi. Environmental and social management plan**

When the negative impacts on third parties during the execution are predicted, the management and mitigation plans should be included in WEP. For example, if earthwork likely cause dust problem around the working site, the contractor needs to make a plan for water spraying; how often and what time water is sprayed, how many water-spraying vehicles are mobilized, and how many workers are assigned. The following issues are also necessary to be considered in the plan.

- ✓ Soil erosion on slopes and sedimentation deposition on the drainage works.
- ✓ Preservation of trees and shrubbery
- ✓ Entrance and accidental spillage of solid matters, debris, pollutants and waste into water sources.
- ✓ Disposal of waste material
- ✓ HIV prevention.

**Note:**

Works Execution Programme to be submitted by the bidder shall not be less than five (5) pages covering all the above stated items.

## **SECTION 8: FORM OF AGREEMENT**

## **SECTION 8: FORM OF AGREEMENT**

**THIS AGREEMENT** is made on the ..... day of ..... 20 .....  
between the Kenya Rural Roads Authority of P. O. Box 48151 - 00100, Nairobi, Kenya  
hereinafter called "the Employer" of the one part and

..... hereinafter called "the  
Contractor" of the other part.

**WHEREAS** the Employer is desirous that certain works should be executed, viz.

**REHABILITATION OF A2, CHAKA – SAGANA STATE LODGE ROAD PHASE ONE**  
and has accepted a Bid by the Contractor for the execution completion and maintenance of such  
works **NOW THIS AGREEMENT WITNESSETH** as follows:

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.

The following document shall be deemed to form and be read and construed as part of this  
Agreement, viz.:

- The said BID dated .....
- The Conditions of Contract
- The Standard and Special Specification
- The Priced Bill of Quantities
- The Letter of Acceptance
- Schedules of Supplementary Information
- The Drawings
- Other documents as may be agreed and listed

All aforesaid documents are hereinafter referred to as "The Contract".

In consideration of the payment to be made by the Employer to the Contractor, the Contractor  
hereby covenants with the Employer to execute, complete and maintain the works in conformity  
in all respects with the provisions of the Contract.

The Employer hereby covenants to pay the Contractor in consideration of the execution,  
completion and maintenance of the works the Contract Price at the times and in the manner  
prescribed by the Contract.

**IN WITNESS WHEREOF** the parties hereto have caused their respective common seals to be  
hereto affixed (or have hereunto set their respective hands and seals) on the day and year first  
above written.

**SIGNED AND DELIVERED**

By the said Employer: .....  
(Director General, Kenya Rural Roads Authority)  
For and on behalf of the said Employer.

In the presence of: .....  
(Name and Designation of Witness)

.....  
(Signature of Witness)

.....  
(Address of witness)

By the said Contractor: .....

In the presence of: .....  
(Name and Designation of Witness)

.....  
(Signature of Witness)

.....  
(Address of witness)

## **SECTION 9**

### **FORMS OF PERFORMANCE BID SECURITY AND ADVANCE PAYMENT GUARANTEE (UNCONDITIONAL)**

**PERFORMANCE BANK GUARANTEE**

To;  
Director General,  
Kenya Rural Roads Authority,  
P.O. Box 48151 - 00100,  
NAIROBI.

WHEREAS ..... (Hereinafter called  
“the Contractor”)

has undertaken in pursuance of Contract No .....Dated .....to  
execute the **REHABILITATION OF A2, CHAKA – SAGANA STATE LODGE ROAD  
PHASE ONE** ( hereinafter called the “Contract”)

**AND WHEREAS** it has been stipulated by you in the said Contract that the Contractor shall  
furnish you with a Bid Securityby a recognized bank for the sum specified in the Appendix to  
Form of Bid as security for compliance with his obligations in accordance with the Contract;

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

**NOW THEREFORE** we hereby affirm that we are the Guarantor and responsible to you on  
behalf of the Contractor, up to a total of

KShs.....(amount in figures)

KShs.....

.....(amount in words)

and we undertake to payment to you, upon your first written demand and without cavil or  
argument, any sum or sums within and up to the limits as aforesaid without your needing to prove  
or show grounds or reasons for the sum specified therein.

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

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 you 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

This Guarantee shall be valid until 28 days after issuing of the Taking Over Certificate.

**SIGNATURE AND SEAL OF BANK**.....

Name of Signatory.....

Name of bank.....

Address.....Date .....



**ADVANCE PAYMENT GUARANTEE**

To: The Director General,  
Kenya Rural Roads Authority,  
P.O. Box 48151 - 00100,  
**NAIROBI.**

**REHABILITATION OF A2, CHAKA -SAGANA STATE LODGE ROAD PHASE ONE**  
Gentlemen:

In accordance with the provision of the Conditions of Contract, sub clause 60.12 (“Advance Payment”) of the above – mentioned contract .....

.....  
(hereinafter called the “Contractor”) shall deposit with the Director General, Kenya Rural Roads Authority a Bid Security to guarantee his proper and faithful performance under the said Clause of the contract in an amount equal to ten (10) % of the contract price, i.e.

KShs.....(amount in figures)

KShs.....

.....(amount in words)

We, ..... as instructed by the Contractor, agree unconditionally and irrevocably to guarantee as primary obligator and not as Surety merely, the payment to the Director General, Kenya Rural Roads Authority 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 in figures)

KShs.....

.....amount in words)

We further agree that no additional to or other modification of the terms of the Contract or of the Works to be performed there under or of the Contract documents which may be made between the Director General, Kenya Rural Roads Authority and the Contractor, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any change or modification.

This guarantee shall remain valid and in full effect from the date of the advance payment under the contract until the Director General, Ministry of Roads and Public Works, Nairobi, Kenya receives full payment of the same amount from the Contractor.

This guarantee shall be reduced pro rata with the deductions from the down payment made on the Interim Certificates in Accordance with Sub – Clause 60.2 of the Conditions of Contract.

Any dispute over the interpretation of the conditions of this letter of Guarantee shall be subject to the Laws of the Republic of Kenya.

After expiry, this document shall be returned to us for cancellation.

**SIGNATURE AND SEAL OF BANK:**

.....

Name of  
Signatory.....

Name of bank.....

Address.....Date.....

## **SECTION 10: STANDARD SPECIFICATIONS**

## **SECTION 10: STANDARD SPECIFICATIONS**

The Standard Specifications referred to in this document is the *Standard Specifications for Road and Bridge Construction, 1986 Edition* published by the Ministry of Transport and Communications. This document shall form part of the Contract

Work shall be carried out in accordance with the Standard Specification except as supplemented or revised in the Special Specification.

## **SECTION 11: SPECIAL SPECIFICATIONS**

## SECTION 11: SPECIAL SPECIFICATIONS

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## **SECTION 1 – GENERAL**

### **SPECIAL SPECIFICATIONS.**

- 100** Special specification is supplementary to the Standard Specifications and the two must be read in conjunction. In any case where there appears to be conflict between the two then the Special Specifications will take precedence.

**101 LOCATION AND EXTENT OF CONTRACT**

The project road is located in Nyeri County and is approximately 20 km long with the existing alignment being red coffee soil. The road starts from Chaka center along A2 and terminated at

**102 EXTENT OF CONTRACT.**

The major works to be executed under the Contract comprise mainly of but are not limited to the following:

The major works to be executed under the Contract comprise mainly of but are not limited to the following:

1. Provision of facilities to the supervising Engineers.
2. Site clearance
3. Earthworks as shall be instructed by the Engineer,
4. Provision of Drainage structures
5. Scarifying the existing pavement, water, spread and mix with gravel and compact as stabilized base to a thickness of 150mm as directed by the Engineer and to achieve a CBR of 160,
6. Laying of 35mm AC Type II extended to shoulder
7. Single seal of 10/14mm chippings on carriageway and shoulders
8. The carriageway shall be 6.0m wide with shoulders (0.5m wide)
9. Relocation of services as necessary
10. Installation of road furniture.
11. Maintenance of passage of traffic through and around the works.
12. Maintenance of works during construction.
13. The defects liability period shall be 24 months.
14. Any other activity not listed above in either category but deemed to be necessary by the Engineer, shall be subject to the Engineer's formal instructions and within the mode of payment stipulated either by day-works or on a measured basis.

The defects liability period shall be 24 months or as specified in each contract.

**104 PROGRAMME OF EXECUTION OF THE WORKS**

The contractor shall provide the works programme, required under clause 14 of the Conditions of Contract, within 21 days of receipt of the Engineer's Order to commence work.

The programme shall be co-ordinated with climatic and other conditions to provide for the completion of the works in the order and by the time specified.

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

## **105 ORDER OF EXECUTION OF WORKS**

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

## **107 TAKING OVER CERTIFICATE**

The minimum length of the road for which a certificate will be issued is the whole length of the project road when substantially completed.

## **109 NOTICE OF OPERATIONS**

Add the following sub- Clause.

### **Notification Terms**

It shall be the Contractor's responsibility to notify the Engineer when any item of works scheduled are completed and ready for approval, and the contractor shall give sufficient notice to allow control test to be performed.

### **Explosive and Blasting**

- (a) The requirements of the Laws of Kenya governing explosives and other requirements and regulations of Government of Kenya and other authorities shall be complied with.
- (b) No explosives of any kind shall be used without prior written consent of the Engineer.
- (c) The Contractor shall be solely responsible for the provision, handling, storage and transporting of all explosives, ancillary materials and all other items of related kind whatsoever required for blasting.

## **117 HEALTH, SAFETY AND ACCIDENTS**

Add the following:

In addition to providing, equipping and maintaining adequate first aid stations throughout the works in accordance with the laws of Kenya, the contractor shall provide and maintain on site during the duration of the Contract, a fully equipped dispensary. This shall be with a qualified Clinical Officer / Nurse who shall offer the necessary medical advice on HIV and related diseases to the Engineer's and Contractor's Site staff. The Contractor shall allow for this in the rates and be responsible for all site welfare arrangements at his own cost.

**121 DIVERSION OF SERVICES**

- (a) The Contractor shall acquaint himself with the location of all existing services such as telephone lines, electricity cables, water pipes, sewers etc., before execution of any works that may affect the services. The cost of determining the location of the existing services together with making good or repairing of any damage caused all to the satisfaction of the Engineer shall be included in the BID rates.
- (b) Subject to the agreement with the Engineer, the Contractor shall be responsible for removal of alteration and relocation of existing services.
- (c) The Contractor shall indemnify the Employer against claims originating from damage to existing services or works.

**123 LIAISON WITH GOVERNMENT AND POLICE OFFICIALS**

The Contractor shall keep in close touch with the Police and the other Government officials of the area regarding their requirements in the control of traffic, or other matters, and shall provide all assistance or facilities, which may be required by such officials in the execution of their duties.

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

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

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

**128 STORAGE OF MATERIALS**

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

**129 TEST CERTIFICATES**

When instructed by the Engineer the Contractor shall submit certificates of test from the suppliers of materials and goods required in connection with the works as the Engineer may require.

Such certificates shall certify that the materials or goods concerned have been tested in accordance with the requirements of the specifications and shall give the results of

all the tests carried out. The Contractor shall provide adequate means of identifying the materials and goods delivered to the site with the corresponding certificates.

### **131 SIGNBOARDS**

The Contractor shall provide and erect Two (2) publicity signboards on the site as directed. The Engineer shall, as shown in the Drawings, direct the minimum dimensions of the boards. The boards shall be prepared, primed and painted cream and lettered in black. The boards shall be of stout construction, resistant to the effects of weather.

### **132 HOUSING ACCOMMODATION FOR THE RESIDENT ENGINEER AND HIS STAFF, OFFICE AND LABORATORY INCLUDING FURNITURE**

#### **132.1 HOUSING AND ACCOMMODATION FOR THE ENGINEER'S SENIOR STAFF**

The contractor shall provide or rent for the Engineer's site staff. This staff will generally comprise the following;

<b>Designation</b>	<b>Number</b>
Resident Engineer	1
Assistant Resident Engineer	1
Materials Engineer	1
Surveyor	1
Senior Inspector	1
Senior Lab. Technologist	1
Inspectors	4
Lab Technician	3
CAD Technician/Draughtsman	1

The Contractor shall provide rent for the Engineer's senior staff.

#### **132.2 HOUSING ACCOMMODATION FOR ENGINEER'S JUNIOR STAFF**

The Contractor shall provide rent for the Engineer's junior staff.

#### **132.4 MAIN OFFICE**

The contractor shall provide a furnished and equipped main office of plan area not smaller than 155 metre squares that is equivalent of the MORPW Standard Resident Engineer's Office. This office shall be of weather proof construction, provided with mosquito proof and burglar-proof windows and lockable doors and suitably insulated against heat and cold, all to the satisfaction of the Engineer. The room to be occupied by the Engineer's Representative and its front office shall be provided with a floor carpet to be approved by the Engineer. All other floors shall be given a PVC tile finish using approved adhesive including 150mm wood skirting or superior finish. The windows shall be fitted with curtains and blinders.

A telephone shall also be provided for the Resident Engineer's office for his exclusive use. All the charges and fees related to the installation and maintenance of the telephone shall be deemed to have been included in the rates for providing

and maintaining the Main Office. The Contractor will be reimbursed, separately, the cost of operating the telephone under appropriate bill item in the BoQ.

The offices shall be provided with day and night watchmen and security lights, the cost of which shall be deemed to have been included in the rates for the offices.

The office for the Resident engineer shall be completely separate from that of the Contractor.

Latrines and washrooms graded to staff seniority, together with a drinkable water supply and waterborne sewage disposal shall be provided for the office. The Contractor shall also provide 24 hours a day security and electricity supply to the offices and shall allow for any water and electricity consumed and for any statutory charges associated.

The main office shall revert to the Contractor at the end of the project.

The Contractor may be instructed by the Engineer under clause 58 of the General Conditions of Contract to make payments of general receipted accounts for such items as stationery, stores, furniture and equipment, claims and allowances for supervision personnel and any miscellaneous claims or the Engineer may direct the Contractor to purchase or pay for the above. The Contractor will, on provision of receipts, be paid under appropriate bill items in the BoQ.

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

The Personal Computer, Laptop and Photocopying Machine shall revert to the Employer at the end of the Contract. The contractor shall be paid for these items under appropriate bill items in the BoQ.

#### **EQUIPMENT FOR ENGINEERS MAIN OFFICE**

All furniture and equipment bought under the Contract for the Engineer's office shall revert to the Employer at the end of the Contract.

#### **RESIDENT ENGINEER'S LABORATORY EQUIPMENT AND FURNITURE**

As listed in Appendix B the bills of quantities or as instructed by the Engineer. All furniture and equipment bought under the Contract shall revert to the Employer.

Payment for provision of the office including the furniture shall be paid against the appropriate bill items in the BoQ.

### **132.5 ENGINEER'S LABORATORY AND SURVEY EQUIPMENT**

#### **RESIDENT ENGINEER'S SURVEY EQUIPMENT**

The contractor may be directed to pay for stationery, equipment or reagents that are foresaid and also pay for servicing and repair of the laboratory equipment being used on the project.

The Contractor shall provide, install and maintain in a good state of repair, such laboratory, survey and other equipment as listed for the duration of the contract.

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

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

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

Failure by the Contractor to provide or maintain the equipment shall make him responsible to bear all costs that may be incurred as a result of the Engineer's staff using alternative means of communication, including delays in supervision and approval of Works by the Engineer.

#### **137 ATTENDANCE UPON THE ENGINEER AND HIS STAFF**

The Contractor shall pay wages (including all overtime) and house all attendant staff to fulfil the requirements of Clause 137 of the Standard Specification. The number of staff required for these duties shall be a minimum but not limited to 1 (One) No. secretary, 1 (One) No. Office attendants, 1 (One) No. leveller, 2(Two) No. chainmen, 2 (Two) No. Lab attendants.

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

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

The Contractor shall when instructed to do so provide and maintain in good working condition for the exclusive use of the Engineer and his staff throughout the contract;

- **Type 1 – 1 No.**–new 4WD Fully loaded double cabin pickups of <2500cc engine capacity Turbo charged diesel propelled;
- **Type 1 – 1 No.**–new 4WD Standard double cabin pickups of <2500cc engine capacity Turbo charged diesel propelled;
- **Type 2 – 1 No.**–new 4WD Standard single cabin pickups fitted with fibre glass body of <2500cc engine capacity Turbo charged diesel propelled.

The Contractor shall insure comprehensively the vehicles for any licensed drivers and shall provide competent drivers during normal working hours and whenever required by the Engineer.

Should any vehicle supplied not be in road worthy condition, the Contractor shall provide an acceptable equivalent replacement vehicle until such time as the original vehicle is repaired to the satisfaction of the Engineer and returned for use. Payment for the vehicles (up to 5,000Km.), shall be by vehicle months. Payment for mileage above 5,000Km shall be made at a rate per Kilometre. These payments shall be inclusive of all fuels, lubricants, servicing, insurance, maintenance, drivers and repairs. The rate shall include any overtime the drivers might be due or any other allowances in addition to the normal working hours. Payment shall be made under appropriate items in the Bills of Quantities.

The vehicles shall revert to the Employer at the end of the contract.

#### **139 RECEIPTED ACCOUNTS**

The Contractor may be instructed by the Engineer to make payments of general miscellaneous accounts for such items as stationary, stores and equipment and miscellaneous supervision personnel and claims or the Engineer may direct the Contractor to purchase or pay for the above. The Contractor will be paid on a prime cost basis plus a percentage for overheads and profits under appropriate items in the Bills of Quantities.

#### **141 MEASUREMENT AND PAYMENT**

Contrary to provisions of Standard Specifications, payment for Item (b) & (c) shall be per month for the contract period and any approved extensions. Any period beyond the contract period shall be borne by the contractor.

#### **142 LIQUIDATED DAMAGES**

Liquidated Damages at the rate of KShs. 50,000/- per day shall apply in the event of the work not being completed within the time for completion plus any extension of time which may be determined by the Engineer.

#### **143 ENVIRONMENTAL PROTECTION**

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

- (a) After extraction of materials, all borrows pits shall be backfilled to the satisfaction of the Engineer. In particular borrow pits near the project road shall be backfilled in such a way that no water collects in them.
- (b) Spilling of bitumen fuels Oils and other pollutants shall be cleared up.

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The contractor shall as instructed by the Engineer carry out off – road mitigation measures to the approval and satisfaction of the Engineer and to the required STANDARD. The contractor shall obtain Environmental mitigation licence for the same and also comply with Environmental Management Coordination Act (EMCA) 1999, Environmental Impact Assessment (EIA) and Environmental Audit (EA) Regulations 2003.

Payment will be under appropriate items in the BOQ.



## **SECTION 2 - MATERIALS AND TESTING OF MATERIALS**

All materials testing shall be in accordance with Section 2 of the Standard Specifications.

## **SECTION 3 - SETTING OUT & TOLERANCES**

### **301 SETTING OUT**

- a) In addition to the provisions of clause 3.01(a) if the traverse points to be used for the setting out are close to the existing carriageway and interfere with construction works then the Contractor will have to relocate them to a location where they will not be disturbed. The co-ordinates and heights of all traverse points so located shall be listed and provided to the Engineer for checking and/or approval. Contractor shall also monument the new centreline every 200m along straight and all salient points along curves by a pin in the concrete beacon before commencement of any works.

The road reserve boundary posts shall have 12mm diameter steel pins embedded in concrete, 200mm long with 25mm exposed to the air, sticking out from its top surface. This pin shall be co-ordinated and heighted and result of the same shall be provided to the Engineer for approval. Cost of these works shall be included in the rates as no separate item has been provided.

Commencement of the works shall not be permitted until this basic survey data has been provided and approved by the Engineer for at least 5 KMs of the road.

- b) Detailed Setting Out

Reference pegs shall be 50mm by 50mm in section 600mm long driven 400mm firmly into ground and painted white above the ground. The offset from centre line shall be indicated by small nail 20mm to 25mm long with its head driven flush with the top of the peg.

Chainages, offset and reference elevation shall be clearly indicated to the sides of the peg to the satisfaction of the Engineer.

After cutting of benches and prior to commencement of earthworks or subgrade works, Contractor shall take cross-sections again and submit the copy of the same to Engineer for agreement. These cross-sections shall then be used as basis of measurement for all subsequent layers, unless otherwise stated.

**SECTION 4- SITE CLEARANCE AND TOP SOIL STRIPPING**

**401 SITE CLEARANCE**

Site Clearance shall be carried out as directed by the Engineer.

**402 REMOVAL OF TOPSOIL**

Topsoil shall include up to 200mm depth of any unsuitable material encountered in existing or newly constructed drains, drainage channels, and accesses.

## **SECTION 5 - EARTHWORKS**

### **504 PREPARATION PRIOR TO FORMING EMBANKMENT**

Where benching is required for existing pavement to accommodate earthworks, subgrade or subbase for widening the road, the rate for compaction of existing ground shall be deemed to cover this activity.

Excavation in the pavement of the existing road shall be kept dry. In the event of water penetrating the underlying layer, construction of the subsequent layers shall be postponed until the underlying layers are dry enough to accommodate the construction plant without deforming or otherwise showing distress.

Step construction shall be carried out per layer at the joint where excavating both vertically and perpendicular to the direction of the travel. The step shall be 500mm perpendicular to the direction of the travel and 150mm vertical unless otherwise instructed by the Engineer.

Special care shall be taken when compacting the new material at the joint ensuring that specified density is achieved.

### **505 CONSTRUCTION OF EMBANKMENTS**

Only material approved by the Engineer shall be used for fill in embankments.

Material with high swelling characteristics or high organic matter content and any other undesirable material shall not be used, unless specifically directed by the Engineer. Unsuitable material shall include:

- (i) All material containing more than 5% by weight or organic matter (such as topsoil, material from swamps, mud, logs, stumps and other perishable material)
- (ii) All material with a swell of more than 3% (such as black cotton soil)
- (iii) All clay of plasticity index exceeding 50.
- (iv) All material having moisture content greater than 105% of optimum moisture content (Standard Compaction)

Subgrade repair: Where directed by the Engineer, any localized failure in the subgrade shall be repaired by filling in selected soft, hard or natural of minimum CBR 30% and compacted in accordance with clauses in the specifications applying to normal subgrade.

Embankment repair:

Where directed by the Engineer, any localized filling in soft, hard or natural; selected material requirements shall be executed in accordance with Clause 505.

### **508 COMPACTION OF EARTHWORKS**

At pipe culverts, all fill above ground level around the culverts shall be compacted to density of 100% MDD (AASHTO T.99) up to the level of the top of the pipes or top of the surround(s), if any and for a width equal to the internal diameter of the pipe on either side of the pipe(s) or surround(s) as applicable.

At locations adjacent to structures, all fill above ground level up to the underside of the subgrade shall be compacted to density of 105% MDD (AASHTO T.99). In case of fill around box culverts this should be carried out for the full width of the fill and for a length bounded by the vertical plane passing through the ends of the wingwalls.

Notwithstanding the provision of clause 503 of the standard Specification, Compaction of subgrade material (i.e. material immediately below formation) in cut areas shall not be carried out by the contractor in areas where the formation is formed in hard material, unless specific instructions to the contrary are issued by the Engineer.

Where improved sub-grade material shall be required, this shall be compacted and finished to the same STANDARD and tolerances as those required for normal subgrade and clauses in the specifications applying to normal subgrade shall also apply.

## **511 BORROW PITS**

The first part of the Standard Specification is amended as follows:-

Fill material which is required in addition to that provided by excavation shall be obtained from borrow pits to be located and provided by the Contractor but to the approval of the Engineer contrary to what has been stated.

## **517 MEASUREMENT AND PAYMENT**

Notwithstanding the provisions of clause 517 of the standard specifications, the rate for compaction of fill in soft material shall allow for the requirements of clause 508 of the special specification and no extra payment shall be made for compaction around pipe culverts (100% MDD AASHTO T.99).

## **SECTION 6 - QUARRIES, BORROW PITS, STOCKPILES AND SPOIL AREAS**

### **601 GENERAL**

Notwithstanding any indications to the contrary in the Standard specification the Engineer will not make available to the Contractor any land for quarries, borrow pits, stockpiles and spoil areas, except for those areas in road reserves specifically approved by him.

The contractor will be entirely responsible for locating suitable sources of materials complying with the Standard and Special Specifications, and for the procurement, Wining, haulage to site of these materials and all costs involved therein. Similarly the contractor will be responsible for the provision and costs involved in providing suitable areas for stockpiling materials and spoil dumps. Should there be suitable sites for spoil dumps or stockpiles within the road reserve forming the site of the works the Contractor may utilise these subject to the approval of the Engineer.

No additional payment will be made to the Contractor to cover costs arising from the requirements for this Clause and the Contractor must include these costs in the rates inserted into the Bills of Quantities.

## **SECTION 7 - EXCAVATION AND FILLING FOR STRUCTURES**

### **703 EXCAVATION OF FOUNDATIONS FOR STRUCTURES**

Unless otherwise instructed by the Engineer, all excavated surfaces in material other than hard material, on which foundations for structures shall be placed, shall be compacted to 100% MDD (AASHTO T.99) immediately before structures are constructed.

Paragraph 4, last line: - Replace "95%" with "100%".

### **707 BACKFILLING FOR STRUCTURES**

Unless otherwise instructed by the Engineer, all backfilling material shall be compacted to a minimum of 100% MDD (AASHTO T.99).

### **709 EXCAVATIONS FOR RIVER TRAINING AND NEW WATER COURSES**

Payments for river training and establishment of new watercourses shall only be made where such work constitute permanent works. Works done for road deviation or other temporary works shall not qualify for payment.

### **710 STONE PITCHING**

Stone pitching to drains, inlets and outlets of culverts to embankments and around structure shall consist of sound unweathered rock approved by the Engineer.

The stone as dressed shall be roughly cubical in shape with minimum dimensions of 150 x 150mm for normal thickness of stone pitching. Grouting will be done for all stone pitching areas and the top line of the stone pitching should be grouted/sealed with concrete class 15/20.

The surface to receive the pitching shall be compacted and trimmed to slope and the stone laid, interlocked and rammed into the material to give an even finished surface. Soil erosion is rampant along the project location and this can be minimised by ensuring that proper protection works is carried out along the drains using stone pitching. Most of the sections shall be stone pitched especially areas where we have steep slopes to minimise undermining of the road by rain water or as may be instructed by the Engineer.

In areas where stone pitching has been damaged, the Contractor shall identify such areas and notify the Engineer for his agreement of the extent of the Works required and his approval and instructions to proceed with the Works. Stone Pitching Repair and Reconstruction shall be carried out in accordance with Clause 710 of the Standard Specifications.

### **711 GABIONS**

Where instructed by the Engineer the Contractor will install gabions as protection works to washout areas or bridge Piers and or Abutments. Gabions shall be constructed in accordance with Clause 711 of the Standard Specification.

In cases where existing gabions have been damaged, the Contractor shall identify them and notify the Engineer for his agreement of the extent of the Work required and his approval and instructions to proceed with the Works.

The Works shall involve removal of the damaged gabions / rocks, excavation to the correct levels and grades as directed by the Engineer, and in accordance with Clause 711 of the Standard Specifications and reconstruction with new gabions and other necessary materials as necessary. The damaged gabions shall be recovered and transported to the nearest KeRRA Regional Manager's Yard or MoR Department depot.

## **712 RIP-RAP PROTECTION WORK**

Quarry waste or similar approved material shall be used to backfill scoured and eroded side, outfall and cut-off drain. The material shall be compacted to form a flat or curved surface preparatory to stone pitching of drainage channels, existing and new scour checks as directed by the Engineer.

The surface to receive the pitching shall be compacted and trimmed to slope and the stone hand laid, interlocked and rammed into the material to give an even finished surface. The interstices of the Pitching shall be rammed with insitu material. The insitu material immediately behind the pitching shall be compacted to minimum density of 100% MDD compaction (AASHTO T.99)

## **714 BACKFILL BELOW STRUCTURES**

Where instructed this shall be carried out in compliance with the requirements of Clause 507 and 804 of the Standard Specification.



## **SECTION 8 - CULVERTS AND DRAINAGE WORKS**

### **801 SCOPE OF SECTION**

The operations specified in this section apply to the installation of drainage works and reinstatement and improvement of the same.

In addition, this Section covers: -

- Installation of 600mm, 900mm and 1200mm diameter pipe culverts
- Construction of associated inlet and outlet structures to specifications and/or instructions

### **804 EXCAVATION FOR CULVERTS AND DRAINAGE WORKS**

In the Standard Specifications, make the following amendments: -

- (a) In paragraph 6, line 3, and in paragraph 7, line 5 and in paragraph 11, line 6, delete "95%" and insert "100%".
- (b) Removal of Existing Pipe Culverts

Where instructed by the Engineer, the Contractor shall excavate and remove all existing blocked or collapsed culvert pipes of 450mm, 600mm and 900mm diameter including concrete surround, bedding, inlet and outlet structure.

The void left after removal of culvert pipes shall be widened as necessary to accommodate new concrete bedding, pipe and haunching.

The payment of this work shall be per linear metre of pipes removed. The void left by removal of these pipes shall be carefully preserved in order to accommodate replacement 600mm, 900mm or 1200mm diameter pipe culverts as shall be directed by the Engineer.

- (c) Removal of Other Existing Drainage Structures

When instructed by the Engineer, the Contractor shall demolish or remove any other structure and payment for this shall be made on day work basis.

- (d) Excavation for Culverts and Drainage Works  
The Contractor shall carry out all excavations for new culverts and drainage works to the lines, levels, inclinations, and dimensions shown on the drawings or as instructed by the Engineer.

### **805 EXCAVATION IN HARD MATERIAL**

In the Standard Specifications, Sub-clauses 805(a) and 805 (b) delete "95%" and insert "100%".

In sub-clause 809(a), paragraph 1, line 1, substitute "95%" with "100%".

In sub-clause 809(c), paragraph 2, line 4, between the words "compacted" and "and shaped" insert the words "to 100% MDD (AASHTO T.99)".

Hard material is material that can be excavated only after blasting with explosives or barring and wedging or the use of a mechanical breaker fitted with a rock point in good condition and operated correctly. Boulders of more than 0.2m<sup>3</sup> occurring in soft material shall be classified as hard material.

#### **809 BEDDING AND LAYING OF PIPE CULVERTS**

Concrete pipes shall be laid on a 150mm thick concrete bed of class 15/40 and the pipes shall be bedded on 1:3 cement: sand mortar at least 50mm thick, 150mm wide and extending the full length of the barrel.

The rates inserted shall allow for compaction of the bottom of excavation to 100% MDD (AASHTO T.99).

#### **810 JOINTING CONCRETE PIPES**

The concrete pipes for the culverts shall have ogee joints and will be jointed by 1:2 cement: sand mortar and provided with fillets on the outside as described in clause 810 of the Standard Specification.

#### **812 BACKFILLING OVER PIPE CULVERTS**

In the Standard Specifications, clause 812

- 1). Delete paragraph 6 “for pipe culverts ..... depth of 150mm”, entirely.
- 2). Wherever the expression "dry density of 95% MDD (AASHTO T. 99)" occurs delete and replace with "dry density of 100% MDD (AASHTO T.99)".

The rates entered for laying of pipe culverts shall allow for backfilling to pipe culverts and compacting to 100% MDD (AASHTO T.99) and these works shall **not** be measured and paid for separately.

#### **814.1 SUBSOIL DRAINS**

In the event of excavation for repairs exposing local seepage, springs or unacceptably high water table, the Engineer may instruct the provision of counter fort or French drains.

These drains shall consist of a trench excavated to the alignment, width, depth and gradient instructed by the Engineer, and backfilled with approved compacted clean hard crushed rock material as specified in clause 815 of the standard specification. Where these drains lie within the carriageway the carriageway shall be reinstated with compacted stabilised gravel and surfaced with hot asphalt or a surface dressing as instructed by the Engineer.

#### **814.2 FILTER FABRIC TO SUBSOIL DRAINS**

A filter fabric shall be placed under, around and over rock fill of the subsoil drains. The provisions and placing of the fabric shall be in accordance with manufacturer's instructions and complying with Clause 804 and 814 of the Standard Specification. Payment shall be in metre square of the fabric used.

## **815 INVERT BLOCK DRAINS AND HALF ROUND CHANNELS**

Invert Block Drains and Half Round Channels shall be constructed in accordance with the Standard Specifications where directed by the Engineer.

## **817 REPAIRS TO DRAINS**

### **817.1 Cleaning and Repair of Existing Drains**

In areas of existing side drains, mitre or outfall drains where such are blocked, the Engineer shall instruct the Contractor to clean and clear the drains to free flowing condition.

The work shall consist of:

- (a) Stripping and removal of any extraneous material to spoil including vegetation and roots in the drains to the satisfaction of the engineer.
- (b) Spreading of any spoil to the satisfaction of the Engineer.
- (c) Shaping the drains to free flowing condition as directed by the Engineer.

Measurement and Payment for cleaning drains shall be by cubic metre of drain cleaned measured as the product of plan area and vertical depth of extraneous material instructed to be removed. No extra payment will be made for removal of vegetation and roots.

### **817.2 Channels**

The Engineer may instruct that the Contractor provides open channels in place of existing subdrains where the latter may be damaged or in any other place. The rates entered by the Contractor in the bills of quantities must include for removal and disposal of any subdrain material, excavation to line and level, backfilling and compaction as directed by the engineer. The channels shall be constructed of precast class 20/20 concrete of minimum 80mm thickness and lengths or widths not exceeding 1000mm. Joints shall be at least 15mm wide filled with 1:2 cement sand mortar.

### **817.3 Spoil Material**

The contractor shall be responsible for removal from site of all materials excavated in the course of undertaking works in this section of the specification, unless suitable for re-use, and deposit of the material in a spoil dump to be approved by the Engineer.

## **818 SCOUR CHECKS**

Scour checks are to be constructed in mass concrete in accordance with clause 818 of the Standard Specifications and the drawings as shall be provided.

**819 CLEANING AND MAINTENANCE**

**819.1 Desilting of Pipe Culverts**

Where instructed, the Contractor shall desilt the existing pipe culverts by removing all the material from the pipe to make them clean and free flowing.

Measurement and payment shall be by the linear metres of pipes de-silted, regardless of diameter size.

## **SECTION 9 - PASSAGE OF TRAFFIC**

### **901 SCOPE OF THE SECTION**

The Contractor shall so arrange his work to ensure the safe passage of the Traffic at all times and if necessary construct and maintain an adequate diversion for traffic complete with all the necessary road traffic signs.

The contractor shall provide to the satisfaction of the Engineer adequate warning signs, temporary restriction signs, advance warning signs, barriers, temporary bumps and any other device and personnel equipped with two way radios to ensure the safe passage of traffic through the works.

When carrying out the Works the Contractor shall have full regard for the safety of all road users.

The Contractor shall also provide sign posts and maintain to the satisfaction of the Engineer all deviations necessary to complete the works. The contractor should allow for the costs of complying with the requirements of this clause in his rates.

The contractor will be deemed to have inspected the site and satisfied himself as to the adequacy of his bid for these works and no additional payments will be made to the contractor for any expenditure on traffic control or the provision of deviations. The employer shall not be liable for inadequate prior investigations of this nature by the contractor.

### **903 MAINTENANCE OF EXISTING ROADS**

The Contractor shall maintain roads covered in the project using compacted natural gravel in accordance with provision of section 10 of Standard Specification.

### **904 CONSTRUCTION OF DEVIATIONS**

#### **a) General**

In addition to requirement of this clause, the maximum length of deviation road shall be restricted to 5 Kms at any given time unless otherwise instructed. The Contractor shall construct and complete deviations to the satisfaction of the Engineer before commencing any permanent work on the existing road. Also during these works the contractor is supposed to provide a detour of adequate pipe culverts for pedestrian and traffic crossing where there is bridge works.

Contractor will be allowed to open further 5 Km of the deviation road only when 80% of the permanent work has been completed on first one and he will not be allowed to open further 5 Km till he has completed first 10 Km of the road and has it opened to traffic. The sequencing of deviation road has been shown on the drawing.

Where the old road exists near the main road, Contractor shall use this road as deviation road.

b) **Geometry**

The carriageway width of the deviations shall not be less than 6m wide and suitable for 2-way lorry traffic unless otherwise specified.

c) **Construction**

Unless otherwise instructed gravel wearing course for the deviation shall be 150 mm compacted thicknesses complying with section 10 of the Standard Specification. The Contractor shall allow in his rate for removal of any unsuitable material before placing of gravel wearing course, as this will not be paid for separately.

In addition to provision of this clause, Contractor is required to sprinkle water at least 4 times a day at the rate of 1 to 1.4 litres/day in regular interval to minimise the effects of dust. Latest sprinkling time shall be one hour before the sunset.

**906 PASSAGE OF TRAFFIC THROUGH THE WORKS**

The Contractor shall arrange for passage of traffic through the works during construction whenever it is not practicable to make deviations.

Any damage caused by passing traffic through the works shall be made good at the contractor's own cost.

**907 SIGNS, BARRIERS AND LIGHTS**

Contractor shall provide signs, barriers and lights as shown in the drawing in Book of Drawings at the locations where the traffic is being carried off the existing road to the deviation and back again to existing road. The Contractor shall provide ramps and carry out any other measures as instructed by the Engineer to safely carry traffic from the road to deviation.

Contrary to what has been specified in this clause the road signs provided shall be fully reflectorised and in conformity with clause 9.1 of the "Manual for Traffic Signs in Kenya Part II".

**909 ASSISTANCE TO PUBLIC**

In addition to provision of clause 909, Contractor shall maintain close liaison with the relevant authorities to clear any broken down or accident vehicles from the deviations and the main road, in order to maintain smooth and safe flow of the traffic.

**912 MEASUREMENT AND PAYMENT**

(a) **Passage of traffic through the works**

Payment shall be made on Lump Sum basis.

(b) **Construct Deviation**

**(i) Road Deviation**

The Contractor shall be paid only 50% of the rate for this when he completes deviation road to the satisfaction of the Engineer. The balance shall be paid in equal monthly instalments over the contract period, as he satisfactorily maintains the deviation (as per clause 904 and 905 above) when it is in operation.

**(ii) Deviation using Pipe Culverts**

The Contractor shall be paid only 50% of the rate for this when he completes deviation to the satisfaction of the Engineer. The balance shall be paid in equal monthly instalments over the contract period, as he satisfactorily maintains the deviation when it is in operation. The Contractor shall be paid full amount when the bridge under construction will be in use.

**(c) Assistance to Public**

The Contractor will be deemed to have included cost of this item in other items and no separate payment shall be made.

## **SECTION 11 – SHOULDERS TO PAVEMENT**

### **1101 GENERAL**

Shoulders shall be constructed in accordance with guidelines given in 1102 and as directed by the Engineer.

For sections where shoulders are extremely low and requires fill material before the shoulder is reconstructed, the construction of fill embankment shall be in accordance with Section 5 of this specification.

### **1102 MATERIAL FOR CONSTRUCTION OF SHOULDERS**

The shoulders shall be 2.0m wide both sides on the main project road and 1.0m wide on the access and township roads. All the shoulders shall be formed of 150mm thick well compacted cement-stabilized gravel, unless directed otherwise by the Engineer, conforming to the specifications given in Section 12 of the Standard Specifications.

Low shoulder shall be reconstructed by cutting benches, filling and compacting approved fill material to form the formation to the shoulders.

Shoulder reconstruction shall be same in all sections including the slip roads.

### **1105 SURFACE TREATMENT OF SHOULDERS**

The shoulders of the main project road shall be provided with double seal surface dressing of 14/20 gradation & 6/10 gradation Class 3 chippings along the entire length of the road in accordance with Section 15 of the Standard Specifications. The shoulders of the access and township roads shall be treated in the same manner as the carriageway.

### **1106 MEASUREMENT AND PAYMENT**

Payment for shoulder construction shall be in accordance with the relevant clauses in sections 12, 14, 15 and 16 of the relevant Specifications. Payment for fill material on shoulder shall be in accordance with Section 5 of this specification.



## **SECTION 12 - NATURAL MATERIAL SUBBASE AND BASE**

### **1201 GENERAL**

Where instructed by the Engineer, the Contractor shall undertake repairs, widening and reprocessing to the existing carriageway and shoulders in accordance with sections 12 and 14 of the Special Specifications.

#### **a) Areas to be scarified and reprocessed**

The contractor will scarify, add new material and reprocess sections as determined by the Engineer.

#### **b) Pavement repairs**

The Contractor will carry out repairs to base and subbase as directed by the Engineer and according to Specifications given in Sections 12 and 14 of the Standard Specifications.

#### **c) Pavement widening**

The Contractor shall, as directed by the Engineer, bench and compact the subgrade to 100% MDD (AASHTO T99), provide lay and compact material for subbase and base as directed by the Engineer and in accordance with Sections 5 and 12 of the Standard Specifications.

### **1203 MATERIAL REQUIREMENTS**

Natural materials for base and subbase shall conform to the specifications given in Section 12 of the Standard Specifications for Road and Bridge Construction for cement and lime improved base and subbase.

### **1209 MEASUREMENT AND PAYMENT**

Natural material for subbase and base shall be measured by the cubic metre placed and compacted upon the road calculated as the product of the compacted sectional area laid and the length.

### **1211 REPROCESSING EXISTING PAVEMENT LAYERS**

#### **a) General**

The existing surfacing and the base shall be reprocessed with additional material and the composite mixture shall be stabilized with 3 – 5 % cement as instructed by the Engineer to have CBR  $\geq$  160%

Before commencement of the work the Contractor shall propose plants and equipments he proposes to use for this activity.

The Contractor after approval of his proposal shall carry out test section in accordance with Section 3 of the Standard Specifications.

- b) The existing surfacing and base course shall be broken up to specified depth and reprocessed in place, where required. The underlying layers shall not be damaged, and material from one layer may normally not be mixed with that of another layer. Where unauthorized mixing occurs or where the material is contaminated in any way by the actions of the Contractor, and the contaminated material does not meet the specified requirements of for the particular layer, he shall remove such material and replace it with other approved material, all at his own expense.
- c) Any mixture composition of the new layer must not contain more than 30% of the bituminous material by volume. The mixture must not contain pieces of bound bituminous material larger than 37.5mm, and any such material shall be removed at the Contractor's cost.
- d) The requirements for imported material used in the respective pavement layers shall comply with the limitations, norms, sizes and strengths specified in the Standard Specifications clause 1203(b) and (d) and shall be worked as per Section 14 of the Standard Specification.
- e) Material reworked in-situ or that obtained from existing pavement is not expected to comply with the material requirements but the reworking should achieve the specified requirements.
- f) Where the thickness of any existing pavement layer requires to be supplemented within reprocessing and the thickness of the additional material after compaction will be less than 100mm, the existing layer shall be scarified to a depth that will give a layer thickness of at least 100mm after compacting the loosened existing and the additional material.

### **Controlling the Reworked Depth**

The Contractor shall submit a proven method to method to control the depth of excavation, or layer to be reworked, to the Engineer for approval. The Engineer may order a trial section to be reprocessed before any major length of the road is rehabilitated.

### **Excavations**

- (i) Excavations in the pavement shall be kept dry. In the event of water penetrating the underlying layers, construction of the consecutive layers shall be postponed until the underlying layers are dry enough to accommodate the construction plant without deforming or otherwise showing distress.
- (ii) Step construction shall be carried out per layer at the joint when excavating, both longitudinally (if appropriate) and perpendicular to the direction of travel. The step width shall be 500mm perpendicular to the direction of travel, and 150mm long longitudinally, unless otherwise instructed by the Engineer.  
Special care shall be taken when compacting the new material at the joint, ensuring that the specified density is achieved.

### **Measurement and Payment**

- (a) Item: In-situ reprocessing of existing pavement layers as subbase compacted to specified density (95% MDD AASHTO T180) and thickness.

Unit: m<sup>3</sup>

The tendered rate shall include full compensation for breaking up the existing pavement layer to specified depth, breaking down and preparing the material and the spreading and mixing in of any additional material

- (b) Item: The addition of extra gravel to subbase.

Unit: m<sup>3</sup>

The tendered rate shall include full compensation for procuring and addition of the material to the in-situ scarified layers and the transportation of the material over a free-haul distance of 1Km. The tendered rates will also include full compensation for prospecting for materials and any payments necessary to acquire the specified quality material.

- (c) Excavation of existing bituminous pavement materials including free-haul up-to 1Km.

Unit: m<sup>3</sup>

The tendered rates shall include full compensation for excavating the existing bituminous material from the pavement layers and for loading, transporting the material for a free-haul of 1 Km, off-loading and disposing of the materials as specified..

- (d) Excavation of the existing pavement

Unit: m<sup>3</sup>

The tendered rate shall include full compensation for excavating the existing material from the pavement layers and for loading, transporting the material for a free-haul distance of 1 Km, off-loading and disposing of the material as specified.

Payment will only be made for breaking up and excavating existing pavement layers to the specified depth if the material is to be removed to spoil.

## SECTION 13 – GRADED CRUSHED STONES

### 1301 MATERIAL REQUIREMENTS

#### a) Properties

If deemed necessary to be used in the project as base material, and subject to the directives of the Engineer, Graded Crushed Stone shall comply in all respects with the Section 13 of the Standard Specifications and shall have the following properties:-

L.A.A.	Max	40
A.C.V.	Max	30
S.S.S.	Max	12
F.I.	Max	30
C.R.	Max	80

#### b) Grading

The nominal size of the material shall be 0/30 mm and its grading after compaction shall be a smooth curve within and approximately parallel to the following envelope:

-

Sieve size (mm)	Percentage by weight passing		
	37.5		100
28.0	90	-	100
20	65	-	95
10	40	-	70
6.3	30	-	55
2	20	-	40
1	15	-	32
0.425	10	-	24
0.075	4	-	10

### 1302 LAYING AND COMPACTION

Contrary to Section 1306 of the Standard Specifications, graded crushed stone may be laid by hand in small areas and compacted by roller, a vibrating plate compactor or hand tampers. The method of compaction and size of the roller used will depend on the area involved and will be as directed by the Engineer.

## **SECTION 14- CEMENT TREATED MATERIALS**

### **1401 CEMENT TREATMENT**

#### **i) Cement**

Cement for stabilisation will be Ordinary Portland cement complying with clause 207 of the Standard Specifications. The cement content of the stabilised material shall be as indicated by the engineer and will normally be about 2-4%. The Engineer shall exercise his discretion to any variation in the rate of application of the cement, which he may see fit to order from time to time.

#### **ii) Moisture content**

The moisture content of the stabilised material shall be as directed by the Engineer but nevertheless within the range of 85% to 105% of the Optimum Moisture Content (AASHTO T180).

#### **iii) Mixing and Placing**

The material to be stabilised and the cement shall be mixed by an approved mixing plant for material to be used for pavement construction, widening and shoulders.

### **1403 LIME TREATMENT**

Lime treatment will be as outlined in the Standard Specifications for road and bridge construction. The lime content of the stabilised material shall be as indicated by the Engineer and will normally be about 2-4%.

### **1409 PROTECTION AND CURING**

Protection and curing shall be carried out in accordance with the provisions of Clause 1409(i) of the Standard Specification but provision shall be made to wet the surface from time to time as directed by the Engineer.

### **1412 MEASUREMENT AND PAYMENT**

#### **Stabilizer**

The provision of the stabilizer shall be measured by the tonne calculated as the specific weight of stabilizer added to the material.

#### **Mix-in stabilizer**

Mixing stabilizer into the material shall be measured by the cubic metre of treated material calculated as the product of the compacted sectional area treated and the length.

#### **Curing treated material**

Curing treated material shall be measured by the square metre of the layer cured calculated as the product of the specified width of treated layer and the length cured.

## **SECTION 15 - BITUMINOUS SURFACE TREATMENTS**

### **PART A - GENERAL**

#### **1501A GENERAL**

Details of the spray rates for bitumen and the spread rates for chippings will be directed by the Engineer but the under listed is anticipated and can be used for guidance purpose i.e;

a) Chippings

14/20mm size pre-coated chippings at a spread rate of 65 - 90 m<sup>2</sup>/m<sup>3</sup> or as directed by the Engineer.

6/10mm size pre-coated chippings at a spread rate of 120 - 150 m<sup>2</sup>/m<sup>3</sup> or as directed by the Engineer.

b) Bitumen Spray Rates

- 1.0 – 1.4l/m<sup>2</sup> for the seal or as directed by the Engineer.

The Average Least Dimension (ALD) shall be determined in the field after crushing the rock for chippings and then determine the actual spray rates and chipping spread rates

### **PART B - PRIME COAT AND TACK COAT**

#### **1502B MATERIALS FOR PRIME COAT AND TACK COAT.**

For prime coat, the binder shall be a medium-curing cutback MC 30 unless otherwise directed by the Engineer.

The rate of spray of bituminous prime coat refers to the gross volume of the cutback bitumen, that is to say the volume of the bitumen plus dilatants.

Prime coat shall be applied to gravel areas that are to receive double seal surface dressing or bituminous mixes as directed by the Engineer.

The tack coat shall consist of bitumen emulsion KI-60 unless otherwise directed by the Engineer.

The rates of spray of the binder shall be as instructed by the Engineer and shall generally be within the range 0.5-1.2 litres/square metre.

#### **1502C MATERIALS FOR SURFACE DRESSING.**

a) Binder

The bituminous binder shall be 80/100 penetration grade bitumen cut back with kerosene fuel in accordance with prevailing road temperature, and conforming to clause 211 of the Standard Specification.

b) Chippings

Chippings shall be of Class 3 material and shall comply in all respects with clause 1502C of the Standard Specification. The Contractor's attention is drawn to the requirements of Clause 1501C of the Standard Specification with regard to cleanliness and the dust content of chippings for surface dressing. Should it prove necessary in the Engineer's opinion to wash chippings, no extra payment will be made to the contractor for this operation.

**PART C – SURFACE DRESSING**

**1502C MATERIALS FOR SURFACE DRESSING**

**MATERIALS FOR SURFACE DRESSING.**

a) Binder

The bituminous binder shall be 80/100 penetration grade bitumen cut back with kerosene fuel in accordance with prevailing road temperature, and conforming to clause 211 of the Standard Specification.

b) Chippings

Chippings shall be of Class 3 material and shall comply in all respects with clause 1502C of the Standard Specification. The Contractor's attention is drawn to the requirements of Clause 1501C of the Standard Specification with regard to cleanliness and the dust content of chippings for surface dressing. Should it prove necessary in the Engineer's opinion to wash chippings, no extra payment will be made to the contractor for this operation.

**1503C SPRAY AND SPREAD RATES OF BITUMEN AND CHIPPINGS.**

Spray and Spread Rates for bitumen and chippings cannot be calculated until samples of the chippings to be used are available for test.

After submission of samples and completion of laboratory tests on chippings and binder, the contractor shall in the presence of the Engineer and the Chief Materials Engineer or representatives, lay trial sections of seal at various rates of spray and spread as directed by the Engineer and in accordance with clause 1503C of the Standard Specification.

Should any change occur in nature of source of chippings or bitumen, the contractor shall advise the Engineer accordingly who will then decide if any revisions are required to the spray and spread rates.

If any changes are required, the Contractor shall carry out further trials as instructed by the Engineer.



Payment for binder and chippings will be based on the instructed spray and spread rates used which may not necessarily be those specified. The Engineer will specify the spray rates of bitumen as residual bitumen per square meter. Actual spray rates used by the Contractor must be adjusted to compensate for any cutter added.

#### **1505C            PRECOATED CHIPPINGS**

Chippings utilized for surface dressing works under this contract shall be pre-coated in accordance with clause 1505C of the Standard Specification. The binder used for pre-coating chippings shall be MC 30 cut-back bitumen.

The amount of bituminous binder used to pre-coat chippings will be as instructed by the Engineer and will normally be between 0.4% and 1.0% residual bitumen as percentage of the total dry weight.

Prior to laying any pre-coated chippings the Contractor shall prepare trial mixes of bitumen and chippings in the presence of the Engineer. After completion of trial mixes the Engineer shall issue written instructions to the Contractor indicating the amount of binder to be added in pre-coated chippings. The Contractor shall maintain this proportion unless the surface or nature of the chippings changes when the Contractor shall repeat the trials and the Engineer will issue revised instruction.

#### **1511C    MEASUREMENT AND PAYMENT**

##### **(a)    Seal coat**

Seal coats shall be measured by the litre, for each type of bituminous binder for each seal coat, calculated as the product of the area in square metres sprayed and the rate of application in litres/square metres, corrected to 15.6 ° C.

##### **(b)    Chippings**

Chippings shall be measured by the cubic metre of each nominal size for each class calculated as the product of the area in square metres covered and the reciprocal of the instructed rate of application in square metres/cubic metre or the actual rate of application in square metres/cubic metre whichever calculation gives the lower volume.

## **SECTION 16 - BITUMINOUS MIX BASES, BINDER COURSES AND WEARING COURSES**

This section covers different types of bituminous mixes for base and surface (wearing and binder courses) and is divided into the following parts: -

Part A                      General

Part B                      Asphalt Concrete for carriageway and shoulders.

### **PART A – GENERAL**

#### **1601A SCOPE OF PART A**

Part A comprises all the general requirements for bituminous mixes, which apply to Part B as well.

#### **1602A REQUIREMENTS FROM OTHER SECTIONS**

The following sections of this Specification apply to Part B of this section and shall be read in conjunction therewith:-

Section 2	Materials and Testing of Materials
Section 3	Setting Out and Tolerances
Section 6	Quarries, Borrow Pits, Stockpile and Spoil Areas
Section 15	Bituminous Surface Treatments and Surface Dressing

#### **1603A CONSTRUCTION PLANT**

##### **(a) General**

The Contractor shall submit to the Engineer in accordance with Section 1 of its Specification, full details of the construction plant he proposes to use and the procedures he proposes to adopt for carrying out the permanent Works.

The Engineer shall have access at all times to construction plant for the purposes of inspection. The Contractor shall carry out regular calibration checks in the presence of the Engineer and shall correct forthwith any faults that are found.

All construction plant used in the mixing, laying and compacting of bituminous mixes shall be of adequate rated capacity, in good working condition, and shall be acceptable to the Engineer. Obsolete or worn-out plant will not be allowed on the work.

##### **(b) Mixing Plant**

Bituminous materials shall be mixed in a plant complying with ASTM Designation D995 and shall be located on the Site unless otherwise agreed by the Engineer. It shall be equipped with at least three bins for the storage of heated aggregates and a separate bin for filler. All bins shall be covered to prevent the ingress of moisture.

The plant may be either the batch-mix type or the continuous-mix type and shall be capable of regulating the composition of the mixture to within the tolerances specified in Clause 1614A of this Specification.

The bitumen tank shall be capable of maintaining its contents at the specified temperature within a tolerance of 50C and a fixed thermometer easily read from outside the tank. Any bitumen that has been heated above 1800C or has suffered carbonisation from prolonged heating shall be removed from the plant and disposed of.

(c) **Laying Plant**

Bituminous materials shall be laid by a self-propelled spreader finisher equipped with a hopper, delivery augers and a heated adjustable vibrating screed. It shall be capable of laying bituminous materials with no segregation, dragging, burning or other defects and within the specified level and surface regularity tolerance. Delivery augers shall terminate not more than 200mm from the edge plates.

(d) **Compaction Plant**

The Contractor shall provide sufficient rollers of adequate size and weight to achieve the specified compaction. Prior to commencing the laying of bituminous mixes in the permanent Works the Contractor shall carry out site trials in accordance with Section 2 of this Specification to demonstrate the adequacy of his plant and to determine the optimum method of use and sequence of operation of the rollers.

It is important to achieve as high a density as possible at the time of construction and it is expected that vibrating rollers will be required to produce the best results. However, it is essential that thorough pre-construction trials are carried out to ensure that:-

- The roller is set up to have the optimum amplitude and frequency of vibration for the particular material being laid
- That the roller does not cause breakdown of the aggregate particles.
- That the optimum compaction temperatures are established which allow compaction without causing ripple effects or other distortions of the surfacing.

**1604A PREPARATION OF SURFACE**

Immediately before placing the bituminous mix in the pavement, the existing surface shall be cleaned of all material and foreign matter with mechanical brooms or by other approved methods. The debris shall be deposited well clear of the surface to be covered.

Any defect of the surface shall be made good and no bituminous mix shall be laid until the Engineer has approved the surface.

A tack coat shall be applied in accordance with Section 15 of this Specification. If the Engineer considers a tack coat is required prior to laying the bituminous mix or between layers of the bituminous mix, due solely to the

Contractor's method of working, then such tack coat shall be at the Contractor's expense.

#### **1605A DESIGN AND WORKING MIXES**

At least two months prior to commencing work using a bituminous mix, the Contractor shall, having demonstrated that he can produce aggregates meeting the grading requirements of the Specification, submit samples of each constituent of the mix to the Engineer. The Engineer will then carry out laboratory tests in order to decide upon the proportion of each constituent of the initial design mix or mixes to be used for site trials to be carried out in accordance with Clause 1606A of this Specification.

Should the Engineer conclude from the site trials that the mix proportion or aggregate grading are to be changed, the Contractor shall submit further samples of the constituents and carry out further site trials all as directed by the Engineer.

The Engineer may instruct the alteration of the composition of the -75 micron fraction of the aggregates by the addition or substitution of mineral filler. The Engineer may also instruct the alteration of all or part of the -6.3mm fraction of the aggregates by the addition or substitution of natural sand.

The Contractor shall make the necessary adjustments to his plant to enable the revised mix to be produced.

Following laboratory and site trials the Engineer will determine the proportions of the working mix and the Contractor shall maintain this composition within the tolerances given in Clause 1614A.

Should any changes occur in the nature or source of the constituent materials, the Contractor shall advise the Engineer accordingly. The procedure set out above shall be followed in establishing the new mix design.

#### **1606A SITE TRIALS**

Full scale laying and compaction site trials shall be carried out by the Contractor on all asphalt pavement materials proposed for the Works using the construction plant and methods proposed by the Contractor for constructing the Works. The trials shall be carried out with the agreement, and in the presence of the Engineer, at a location approved by the Engineer.

The trials shall be carried out to: -

- a) Test materials, designed in the laboratory, so that a workable mix that satisfies the specification requirements can be selected.
- b) To enable the Contractor to demonstrate the suitability of his mixing and compaction equipment to provide and compact the material to the specified density and to confirm that the other specified requirements of the completed asphalt pavement layer can be achieved.

Each trial area shall be at least 100 metres long and to the full construction width and depth for the material. It may form part of the Works provided it complies with this Specification. Any areas that do not comply with this Specification shall be removed.

The Contractor shall allow in his programme for conducting site trials and for carrying out the appropriate tests on them. The trial on any pavement layer shall be undertaken at least 21 days ahead of the Contractor proposing to commence full-scale work on that layer.

The Contractor shall compact each section of trial over the range of compactive effort the Contractor is proposing and the following data shall be recorded for each level of compactive effort at each site trial: -

- i) The composition and grading of the material including the bitumen content and type and grade of bitumen used.
- ii) The moisture content of aggregate in the asphalt plant hot bins.
- iii) The temperature of the bitumen and aggregate immediately prior to entering the mixer, the temperature of the mix on discharge from the mixer and the temperature of the mix on commencement of laying, on commencement of compaction and on completion of compaction. The temperature of the mixture is to be measured in accordance with BS 598, Part 3, Appendix A.
- iv) The type, size, mass, width of roll, number of wheels, wheel load, tyre pressures, frequency of vibration and the number of passes of the compaction equipment, as appropriate for the type of roller.
- v) The target voids and other target properties of the mix together with the results of the laboratory tests on the mix.
- vi) The density and voids achieved.
- vii) The compacted thickness of the layer.
- viii) Any other relevant information as directed by the Engineer.

At least eight sets of tests shall be made by the Contractor and the Engineer on each 100 metres of trial for each level of compactive effort and provided all eight sets of results over

the range of compactive effort proposed by the Contractor meet the specified requirements for the material then the site trial shall be deemed successful. The above data recorded in the trial shall become the agreed basis on which the particular material shall be provided and processed to achieve the specified requirements.

#### **1607A MIXING OF AGGREGATES AND BITUMEN**

The bitumen shall be heated so that it can be distributed uniformly and care shall be taken not to overheat it. The temperature shall never exceed 170<sup>0</sup> C for 80/100 bitumen.

The aggregates shall be dried and heated so that they are mixed at the following temperatures: -

125-165°C when 80/100 bitumen is used.

The dried aggregates shall be combined in the mixer in the amount of each fraction instructed by the Engineer and the bitumen shall then be introduced into the mixer in the amount specified. The materials shall then be mixed until a complete and uniform coating of the aggregate is obtained.

The mixing time shall be the shortest required to obtain a uniform mix and thorough coating. The wet mixing time shall be determined by the Contractor and agreed by the Engineer for each plant and for each type of aggregate used. It shall normally not exceed 60 seconds.

#### **1608A TRANSPORTING THE MIXTURE**

The bituminous mix shall be kept free of contamination and segregation during transportation. Each load shall be covered with canvas or similar covering to protect it from the weather and dust.

#### **1609A LAYING THE MIXTURE**

Immediately after the surface has been prepared and approved, the mixture shall be spread to line and level by the laying plant without segregation and dragging.

The mixture shall be placed in widths of one traffic lane at a time, unless otherwise agreed by the Engineer. The compacted thickness of any layer shall be at least 2.5 times the maximum size of the aggregate for wearing course and at least 2 times for binder course. The minimum thickness shall be 25mm.

Only on areas where irregularities or unavoidable obstacles make the use of mechanical laying impracticable, may the mixture be spread and compacted by hand.

#### **1610A COMPACTION**

Immediately after the bituminous mixture has been spread, it shall be thoroughly and uniformly compacted by rolling.

The layer shall be rolled when the mixture is in such a condition that rolling does not cause undue displacement or shoving.

The number, weight and type of rollers furnished shall be sufficient to obtain the required compaction while the mixture is in a workable condition. The sequence of rolling operations shall be as agreed with the Engineer and proved during site trials. Initial rolling

with steel tandem or three-wheeled roller shall follow the laying plant as closely as possible. The rollers shall be operated with the drive roll nearest the laying plant, at a slow and uniform speed (not exceeding 5 Km/Hr).

Rolling shall normally commence from the outer edge and proceed longitudinally parallel to the centreline, each trip overlapping one half of the roller width. On super elevated curves, rolling shall begin at the low side and progress to the high side. Where laying is carried out in lanes care must be taken to prevent water entrapment.

Intermediate rolling with a pneumatic-tyred or vibratory roller shall follow immediately. Final rolling with a steel-wheeled roller shall be used to eliminate marks from previous rolling.

To prevent adhesion of the mixture to the rollers, the wheels shall be kept lightly moistened with water.

In areas too small for the roller, a vibrating plate compactor or a hand tamper shall be used to achieve the specified compaction.

#### **1611A FINISHING, JOINTS AND EDGES**

Any mixture that becomes loose and broken, mixed with dirt or foreign matter or is in any way defective, shall be removed and replaced with fresh hot mixture, which shall be compacted to conform to the surrounding area.

Spreading of the mixture shall be as continuous as possible. Transverse joints shall be formed by cutting neatly in a straight line across the previous run to expose the full depth of the course. The vertical face so formed shall be painted lightly with hot 80/100 penetration grade bitumen just before the additional mixture is placed against it.

Longitudinal joints shall be rolled directly behind the paving operation. The first lane shall be placed true to line and level and have an approximately vertical face. The mixture placed in the abutting lane shall then be tightly crowded against the face of the previously placed lane. The paver shall be positioned to spread material overlapping the joint face by 20-30mm. Before rolling, the excess mixture shall be raked off and discarded.

When the abutting lane is not placed in the same day, or the joint is destroyed by traffic, the edge of the lane shall be cut back as necessary, trimmed to line and painted lightly with hot 80/100 penetration grade bitumen just before the abutting lane is placed.

Any fresh mixture spread accidentally on the existing work at a joint shall be carefully removed by brooming it back on to uncompacted work, so as to avoid formation of irregularities at the joint. The finish at joints shall comply with the surface requirements and shall present the same uniformity of finish, texture and density as other sections of the work.

The edges of the course shall be rolled concurrently with or immediately after the longitudinal joint. In rolling the edges, roller wheels shall extend 50 to 100mm beyond the edge.

#### **1612A SAMPLING AND TESTING OF BITUMINOUS MIXTURES**

The sampling of bituminous mixtures shall be carried out in accordance with AASHTO T168 (ASTM Designation D979).

## **1613A QUALITY CONTROL TESTING**

During mixing and laying of bituminous mixtures, control tests on the constituents and on the mixed material shall be carried out in accordance with Clause 1612A and Section 2 of this Specification.

If the results of any tests show that any of the constituent materials fail to comply with this Specification, the Contractor shall carry out whatever changes may be necessary to the materials or the source of supply to ensure compliance.

If the results of more than one test in ten on the mixed material show that the material fails to comply with this Specification, laying shall forthwith cease until the reason for the failure has been found and corrected. The Contractor shall remove any faulty material laid and replace it with material complying with this Specification all at his own expense.

## **1614A TOLERANCES**

Surfacing courses and base shall be constructed within the geometric tolerances specified in Section 3 of this Specification.

The Contractor shall maintain the composition of the mixture as determined from the laboratory and site trials within the following tolerances, per single test: -

Bitumen Content	±0.3% (by total weight of total mix)
Passing 10mm sieve and larger sieves	±6% (by total weight of dry aggregate including mineral filler)
Passing sieves between 10mm and 1.0mm sieves	±4% (by total weight of dry aggregate including mineral filler)
Passing sieves between 1.0mm and 0.075mm sieve	±3% (by total weight of dry aggregate including mineral filler)
Passing 0.075mm sieve including mineral filler)	±2% (by total weight of dry aggregate

The average amount of bitumen in any length of any layer, calculated as the product of the bitumen contents obtained from single tests and the weight of mixture represented by each test, shall not be less than the amount ordered.

The average amount of bitumen for each day's production calculated from the checked weights of mixes shall not be less than the amount ordered.

The average amount of bitumen in any length of any layer, calculated as the product of the bitumen contents obtained from single tests and the weight of mixture represented by each test, shall not be less than the amount ordered.

The average amount of bitumen for each day's production calculated from the checked weights of mixes shall not be less than the amount ordered.



The final average overall width of the upper surface of a bituminous mix layer measured at six equidistant points over a length of 100m shall be at least equal to the width specified. At no point shall the distance between the centreline of the road and the edge of the upper surface of a bituminous mix layer be narrower than that specified by more than 13mm.

#### **1615A MEASUREMENT AND PAYMENT**

No separate measurement and payment shall be made for complying with the requirements of Clauses 1601A to 1614A inclusive and the Contractor shall be deemed to have allowed in his rates in Parts B and C of Section 16 of this Specification for the costs of complying with the requirements of Part A of Section 16 of this Specification.

### **PART B - ASPHALT CONCRETE FOR SURFACING**

**1601B** Asphaltic Concrete Type II shall be used and shall meet all the requirements of the relevant Clauses of both Standard Specifications for Roads and Bridges construction of Ministry of Transport and Communication and the current (August 1987) Ministry of Roads and Public Works Road Design Manual Part III. Where the requirements of the two differ, those of Standard Specifications for Roads and Bridges shall prevail.

The material requirements will be as follows:

- a) Bitumen shall be 80/100 penetration grade
- b) Aggregates:
  - Stone Class b
  - Grading 0/14
- c) Mineral filler – ordinary Portland cement complying with Clause 1602B (c)

Introduce the following amendments to Section 16 of Standard Specifications:

-1602B(b) - the aggregate for asphalt concrete Type II shall comply with the requirements for coarse aggregates class b as specified in clause 1602B(b) of standard specifications. The crushing ratio of the coarse aggregate shall be as specified by the Engineer and not less than 60%.

-1602B(c) - the grading for aggregate shall conform to the requirements for Type II asphalt concrete as given in table 16B-1

- 1604B - the requirements for asphalt concrete shall conform to the specifications for Type II asphalt concrete as given in clause 1604(B) of Standard Specifications table 16B-2

-1607B(b) Variation in binder content - there shall be no extra payment for variation of binder content from the that specified in the design mix.

## **SECTION 20 - ROAD FURNITURE**

### **2001 ROAD RESERVE BOUNDARY POSTS**

Road reserve boundary posts shall be provided as directed by the Engineer and in compliance with Standard Specification clause 2001. They shall be placed at 50m intervals along the boundary of the road reserve.

### **2003 EDGE MARKER POSTS**

Edge marker posts shall be provided as directed by the Engineer and in compliance with the requirements of Standard Specification clause 2003.

### **2004 PERMANENT ROAD SIGNS**

Permanent Road Signs shall be provided as directed by the Engineer and in compliance with the requirements of the "Manual for Traffic Signs in Kenya" Part II and standard Specification clause 2004.

### **2004B EXISTING ROAD SIGNS**

Where directed by the Engineer, the Contractor shall take down road signs including all posts, nuts, bolts and fittings, and remove and dispose of the concrete foundation and backfill the post holes. The signs shall be stored as directed by the Engineer.

Measurement and payment for taking down road signs shall be made by the number of signs of any type and size taken down, cleaned and stored as directed.

### **2005A ROAD MARKING**

Paint for road marking shall be internally reflectorised hot applied thermoplastic material in accordance with Clause 219 of the Standard Specification.

The rates inserted in the Bills of Quantities for road marking shall include for prior application of approved tack coat.

### **2005B RAISED PAVEMENT MARKERS – ROAD STUDS**

#### **MATERIAL**

Road studs are moulded of acrylonitrile butadiene styrene (ABS) conforming to ASTM Specification D1788 – 68, class 5-2-2 shell filled with inert, thermosetting compound and filler. The lens portion of the marker of the marker is of optical menthly methacrylic.

#### **CONSTRUCTION**

The road studs shall be constructed of high impact ABS containing a multi-biconvex glass lens reflector system. It shall be of monolithic construction, and not less than

98.5. m<sup>2</sup>. The height of the marker shall not exceed 17mm and the underside shall contain a non-honeycomb base (flat).

## **REQUIREMENTS**

The markers shall conform to the following requirements

### **(A) Colour**

Shall be white, yellow or red as specified and the Retro – reflectance values should conform to the testing procedures of ASTM E 809.

### **(B) Impact Resistance**

The marker shall not crack or break when tested using a 1000-gram weight from a height of 1 metre. (ASTM D 2444) or BS 3900 Part E3.

### **(C) Resistance to Water Penetration**

Shall not have water penetration behind the lens after submerged in a water bath at 70 + 50 °F for 10 minutes. And it should still meet the reflectance Requirement. BS 998.

### **(D) Heat Resistance**

Shall comply with the initial brightness as per BS 873 Part IV of 1978

### **(E) Night Visibility**

The marker shall be bright as per BS 873 Part IV of 1978

### **(F) Compression Resistance**

There shall be no cracking sound at a pressure lower than 25 tones as per BS 873 Part IV of 1978.

### **(G) Corrosion Resistance**

After immersing a sample of Road stud in a solution containing 30g/l of sodium chloride for 30 days, there shall not be any signs of corrosion -(BS998).

**NOTE:** These markers are intended for application directly to pavement surfaces and are compatible with raised pavement markers. These adhesives should be of high quality and tested for conformance to customer requirements.

## **ADHESIVES**

- (a) They shall be of Resin Type–Epoxy of 2 different components part 1 and 2 i.e Adhesive and Reactor without any volatile solvents in both.
  - (i) Pot life: not less than 20 minutes at 20 °C

- |       |                       |                                    |
|-------|-----------------------|------------------------------------|
| (ii)  | Rotational cure time: | between 20 and 30 minutes at 20 °C |
| (iii) | Hard cure:            | Between 40 and 60 minutes at 20 °C |

## **APPLICATION INSTRUCTION**

### **Preparation of Pavements**

Make sure that the road surface is absolutely dry and free of oil and grease.

### **Mixing of Adhesive**

Pour component B into the container of component A. Stir mixture by hand with a wooden or metal stick until uniform Grey Tint without a striae is obtained.

### **Installation**

Pour the mixture on to the underside of the road stud. Then place the road stud firmly on the road surface. Adhesive should stand out for about 5mm to 10 mm over the edges of the stud.

### **Protection from the Traffic**

Protect studs from traffic for 2 hours until the adhesive has properly hardened. Try by touching the adhesive.

## **NUMBER OF STUDS NEEDED FOR LABORATORY TESTS.**

In order to approve a particular type of road stud, 4 sample road studs of each colour shall be submitted.

## **2006 GUARDRAILS**

Contrary to the Standard Specification, guardrail posts shall be concrete 200 mm diameter set vertically at least 1.2m into the shoulder as directed by the Engineer. Spacer blocks shall also be made of concrete.

Beams for guardrails shall be "Armco Flexbeam" or similar obtained from a manufacturer approved by the Engineer.

## **2007 KERBS**

### **(a) Vertical Joints**

Vertical joints between adjacent kerbs shall not be greater than 5 mm in width and shall mortar consisting of 1:3 cement:sand by volume.

### **b) Transition between flush and raised kerbs**

The transition between flush and raised kerbs (e.g. at bus bays) shall be termed as ramped kerbs and shall occur within a length of 2.0m

**2008 KILOMETRE MARKER POSTS**

Kilometre marker posts shall be provided as directed by the Engineer and in compliance with Standard Specification clause 2008.

**2009 RUMBLE STRIPS**

Where directed by the Engineer, the contractor shall provide, place, trim, shape and compact to line and level asphaltic concrete rumble strips on the finished shoulders. This shall be done to the satisfaction of the Engineer.

**2010 BOLLARDS**

Where directed by the Engineer, the contractor shall provide and install class 20/20 200mm diameter reinforced concrete bollards concreted 300mm into the ground.

**2011 MEASUREMENT AND PAYMENT**

**Road reserve boundary posts**

Road reserve boundary posts shall be measured by the number erected

**Permanent road signs**

Permanent road signs shall be measured by the number of each particular size erected.

**Road marking**

Road markings in yellow or white material shall be measured in square metres calculated as the plan area painted.

**Road Studs**

Road studs shall be measured by the number of each particular size erected.

**Guardrail**

Guardrail shall be measured by the metre as the length of the guardrail constructed.

**Kerbs**

Kerbs shall be measured by the metre as the length of kerb constructed.

## **SECTION 22-DAYWORKS**

### **2202 MEASUREMENTS AND PAYMENT**

#### **(a) Plant**

Where items of major plant listed in the schedule of Dayworks are specified by type (e.g. Concrete mixer etc.) the power rating of such items of plant provided by the Contractor shall not be lower than the power ratings of such plant manufactured within the last two years prior to the date of BID. Any item of major plant employed upon Dayworks that has a power rating lower than specified above shall be paid for at rates lower than those in the schedule of Dayworks. The reduction in the rate payable shall be in proportion to the reduction in power rating below that specified above.

## **SECTION 25- HIV/AIDS, GENDER ISSUES, SOCIAL ISSUES AND LOCAL PARTICIPATION**

### **2501 SCOPE**

This specification sets out the Contractor's obligations with regard to on-site HIV/AIDS awareness campaign and preventive measures, which are to be instituted.

### **2502 GENERAL REQUIREMENTS**

#### **a) AIDS Prevention Campaign**

The contractor shall institute an HIV/AIDS awareness campaign amongst his workers for the duration of the contract. As part of the campaign the Contractor will be required to display AIDS awareness posters in all buildings frequented by workers employed on the contract, where such buildings fall under the control of the Contractor. In addition, at least ten (10) of the Contractor's vehicles, regularly used on site shall display HIV/AIDS awareness posters. The posters shall be printed on gloss paper and shall be at least A1 size on buildings and A3 size, or other approved size on vehicles. The message on the posters shall be supplied by the Employer through the Supervising Consultant before the posters are printed.

Aids awareness shall also be included in the orientation process of all workers employed on the contract.

The Contractor shall institute an HIV/AIDS prevention campaign amongst his workers for the duration of the contract. As part of the campaign the Contractor will be required to make condoms available to workers. The condoms shall be from an approved manufacturer and comply with the current ISO STANDARD or WHO/UNAIDS Specifications and Guidelines for Condoms, 1988, or any more recent publication. The Contractor shall make available at least 4,000 condoms every month, through dispensing machines or other approved method of distribution. The Contractor shall at all times keep the site adequately supplied with condoms.

#### **b) HIV/AIDS Training**

##### **• Introduction**

HIV/AIDS is having a Significant and increasing impact in Kenya. Statistics show a prevalence of 10-15% in the country. Interventions that stimulate the movement of people increase both the exposure to the HIV virus and the spread of the virus. Road construction has been identified as one such intervention.

KeRRA policy is to integrate HIV/AIDS awareness and prevention into all road construction and rehabilitation programmes. This is in accordance with the Third National Strategic Plan (2000-5) for HIV/AIDS prevention and control as approved by the Government of Kenya. International Bank for Reconstruction and Development (IBRD) and other organizations.

The upgrading of the project roads will involve both local labour and other contractor's labour. It is a contractual requirement for the Contractor to carry out HIV/AIDS awareness and prevention activities during the construction period as stipulated in this specification.



## **Objective**

The Objective of the HIV/AIDS training programme is to reduce the risk of exposure to and spread of the HIV virus in the area influenced by the construction. The target group will be local labourers and their supervisors employed by the works contractors. The wider community will benefit indirectly through their normal day-to-day interaction with the target group.

## **Scope of activities**

Activities for HIV/AIDS awareness and prevention will be broad-based, targeting both individuals and groups. They may consist of:-

- (i) Information posters in public places, both on and offsite (eating houses, bars, guest houses, etc.) and on contractor's vehicles.
- (ii) Availability of socially marketed condoms
- (iii) Peer educators (reference people) drawn from the local labour and educated in HIV/AIDS issues for discussions with colleagues (estimate 1 per 100 employees).
- (iv) Small focus group discussions to disseminate information covering key issues.
- (v) Theatre groups and video presentations.
- (vi) Promotional events (such as football matches) to encourage openness and discussion of HIV/AIDS issues.
- (vii) Promotional billboards to raise awareness of the integration of construction and HIV/AIDS activities.
- (viii) Inclusion of HIV/AIDS activities at site meetings with District Aids Committee and other approved representatives.
- (ix) Availability of promotional materials such as T-shirts, caps, bumper stickers, key rings etc.

The Scope of activities may be tailored as required to meet the perceived needs and priorities of the labourers, and should involve participatory approaches to ensure that they are appropriate and have a public health impact. The scale and frequency of activities may also be adjusted to suit requirements of the target group. Education will cover.

Preventive behaviours including partner reduction, condom use, awareness and appreciation of the importance of treatment of sexually transmitted incidences (STIs); Skills including negotiating safer sex, correct condom use, purchase of condoms without embarrassment; and referral to local health centres and available services.

Tasks to be undertaken to support the above activities include:

- 1 Establishing the status and focus of all current and planned HIV/AIDS activities in the area to ensure complementarity and determining potential involvement in project activities.
- 2 Carrying out a brief review of regional activities combining road construction with HIV/AIDS campaigns to determine options, best practice key issues, constraints etc.
- 3 Reviewing of Information, Education and Communication (IEC) materials available and their relevance to road construction, making recommendations for future development of IEC materials.
- 4 Providing education and training for site personnel, supervisors and peer educators for the scope of activities as above.
- 5 Providing supervision for peer educators to ensure sustained quality of

education.

incentives for their continual work may be small promotional items such as T - shirts, Caps etc.

- 6 Providing mechanism for the social marketing of condoms and distribution of materials.
- 7 Monitoring activities regularly to assess effectiveness and impact. This should include an initial, interim and final assessment of basic knowledge, attitude and practices (KAP) taking account of existing data sources and recognizing the limitations due to the short time frame to show behaviour change. The KAP will be supported by qualitative information from focus group discussions.

### **Collaboration**

HIV/AIDS activities are co-ordinated nationally by the National Aids Control Council (NACC). KeRRA, in consultation with NACC and the Ministry of Health (MOH), will co-ordinate with the provincial, district and local representatives. Representatives of local health authorities will be invited to attend training and communication activities.

Activities on the construction site will be linked as far as possible with on-going HIV/AIDS awareness and prevention in the area. This will ensure complementarity of approaches, reinforcing education and minimizing duplication. In addition, these links will ensure that the target group will have access to continued information after the end of the construction period.

#### **• Contractor Responsibilities**

The Contractor will employ and designate a HIV/AIDS expert, to be approved by the Engineer, who will work closely with the Client, MOH and other implementing agencies to support the HIV/AIDS awareness and prevention activities. This will ensure maximum effectiveness and integration with construction activities. Specific, but not exclusive issues to be addressed by the Contractor are:

- Scheduling appropriate timing and durations of the implementations of HIV/AIDS activities as part of work plan for labourers and supervisors. Designated rest times such as lunch breaks and pay days should be excluded.
- Identification of suitable individuals from recruitment records of education with the implementation organization.
- Provision of suitable sites for communication activities and for condom distribution.
- Monitoring of the implementation of peer educator activities.
- Provision of support as necessary to the implementation organization.

#### **• Inputs**

An organization experienced in the provision of HIV/AIDS awareness and prevention activities will be selected as a subcontractor to provide the above scope of activities on behalf of the main Contractor.

#### **• Reporting**

The Implementation organisation will produce the following reports to be submitted to the Contractor, Consultants, KeRRA and NACC:

- Monthly progress briefs for inclusion in site meetings.
- Quarterly reports detailing activities carried out, issues, follow up, etc.
- A review report of activities in the road construction sector,
- A review report of existing IEC materials with recommendations for development of materials specifically for the road sector.

- A final report detailing the methodology and activities carried out under this project including lessons learnt, impact, liaison, with the Contractor and other parties, etc.

In addition, a report with the recommended approach for integration of HIV/AIDS awareness and prevention activities in the road construction sector will be produced. This will be a synthesis of project activities including contractual approaches, communication activities, availability of materials, liaison with existing organizations, etc. It will be developed with all parties involved in the construction activities to ensure the wide range of views and experiences gained.

• **Timing**

Activities shall commence at the start of the construction period and continue throughout the 24 months to ensure a sustained impact. Reporting and dissemination activities shall continue for three months after the project is completed to ensure integration into current practice.

## **2503 ENVIRONMENTAL MITIGATION MEASURES**

In order to minimise the negative effects on the environment during construction phase, the following issues and the corresponding mitigation measures have been recommended:

### **A Borrow pits and Quarries**

Possible sources of materials will be identified and the sites investigated for material extraction. Materials sites (borrow bit areas) if not reinstated and rehabilitated after project completion, cause landscape scarring, dangers of overhanging cliffs and falling rocks which creates environmental, health and safety hazards, stagnant water pits where children and animals drown.

Land will be acquired for obtaining construction materials i.e. borrow pits and quarries.

### **Mitigation Measures**

The Contractor is required carry out the following:

1. Ensure that appropriate authorisation to use the proposed borrows pits has been obtained before commencing activities by seeking approval from the National Environmental Management Authority before use of any active quarry site;
2. Carry out inspection of each of the site's soil stability before excavation;
3. All borrow pits sites shall be clearly indicated on a plan and approved by the Resident Engineer;
4. Borrow pits and quarries shall be located more than 20 meters from watercourses in a position that will facilitate the prevention of storm water runoff from the site from entering the watercourse;

5. The Contractor shall give 14 days' notice to nearby communities of his intention to begin excavation in the borrow pits or quarries;
6. Prepare health and safety plan before any work on the quarries is commenced;
7. Cordon off the quarry and borrow areas to keep livestock and children off;
8. Maintain fences and "make good" of the sites afterwards.
9. The Contractor shall prepare and implement borrow pit plans and borrow pit rehabilitation plans, which would minimise the risk of erosion.
10. Topsoil shall be stripped prior to removal of borrow and stockpiled on site. This soil shall be replaced on the disturbed once the operation of the borrow site or quarry is complete;
11. The use of borrow pits or quarries for material spoil sites may be approved by the Engineer (and/or with the appropriate consent of the "landowner"). Where this occurs, the materials spoiled in the borrow pit shall be profiled to fit into the surrounding landscape and covered with topsoil;
12. Decommission the borrow pits and quarries upon completion of the Contract and reinstate the land to its natural condition by grading excavations and planting suitable saplings.

## **B Air pollution**

During construction there is going to be dust generated in these areas. Other possible sources of air pollution will arise from exhaust and engine emissions and construction machinery.

Air emissions including dust, is regarded as a nuisance when it reduces visibility, soils private property, is aesthetically displeasing or affects palatability of grazing. Dust generated by construction related activities must be minimised.

### **Mitigation Measures**

- a) Workers shall be trained on management of air pollution from vehicles and machinery. All construction machinery shall be maintained and serviced in accordance with the contractor's specifications;
- b) Workers shall be trained on dust minimisation techniques;
- c) The removal of vegetation shall be avoided until such time as clearance is required and exposed surfaces shall be re-vegetated or stabilised as soon as practically possible;
- d) Do not carry out dust generating activities (excavation, handling and transport of soils) during times of strong winds. The Engineer shall suspend earthworks operations wherever visible dust is affecting properties adjoining the road;
- e) Water sprays shall be used on all earthworks areas within 200 metres of human settlement. Water shall be applied whenever dust emissions (from vehicle movements or wind) are visible at the site in the opinion of the Engineer;
- f) Vehicles delivering soil materials shall be covered to reduce spills and windblown dust;
- g) Vehicle speeds shall be limited to minimise the generation of dust on site and on diversion and access roads;

- h) Any complaints received by the Contractor regarding dust will be recorded and communicated to the Engineer;
- i) Plants and all construction works should be undertaken strictly during business hours;
- j) NEMA and the Ministry of Transport has published regulatory measures related to vehicle air pollution. It is anticipated that these measures will be adhered to and the law enforcers will take control;
- k) Project-specific design improvements to limit motor vehicle air pollution impacts include:
  - i) The carriage way provides sufficient capacity to avoid traffic congestion, with projected increases in traffic flow;
  - ii) Avoiding steep grades and sharp curves which would promote deceleration, acceleration and shifting wherever possible;
  - iii) Planting tall, leafy, and dense vegetation along the road to filter pollutants.

## **C Noise pollution**

Road constructions generally require the use of machinery, and although these activities may be intermittent and localized, they nevertheless contribute tremendous amounts of sustained noise during equipment operation. These can degrade the human welfare and by disrupting noise sensitive areas like schools and hospitals.

### **Mitigation Measures**

1. The Contractor shall keep noise level within acceptable limits and construction activities shall, where possible, be confined to normal working hours in the residential areas;
2. Schools, hospitals and other noise sensitive areas shall be notified by the Contractor at least 5 days before construction is due to commence in their vicinity. Any excessively noisy activity shall be conducted outside of school hours, where approved by the Resident Engineer;
3. Construction workers will be required to wear ear muffs in areas exposed to excessive noise levels;
4. Equipment should be maintained regularly to reduce noise resulting from friction;
5. No unnecessary hooting by project and resident vehicles;
6. Any complaints received by the Contractor regarding noise will be recorded and communicated to the Engineer.

## **D Vegetation Loss**

The proposed project roads will follow the old roads alignment during construction, only vegetation which, has encroached into the road reserve will be cleared to give way for the proposed road.

### **Mitigation Measures**

1. Except to the extent necessary for establishing the construction site and carrying out the construction works, vegetation shall not be removed, damaged or disturbed nor should any unauthorised planting of vegetation take place;

2. The clearance of the site for construction purposes shall be kept to a minimum.
3. Areas to be cleared should be agreed and demarcated before the start of the clearing operations;
4. Clearing and removal of vegetation, especially at borrow sites must be carried out in such a way that damage to adjacent areas is prevented or minimised;
5. All vegetation encroaching into the road reserve must be cleared to give room for visibility;
6. Areas with dense indigenous vegetation are not to be disturbed unless required for construction purposes.

#### Measurement and Payments

No separate payment shall be made for this item. The Contractor shall include the costs in the rates for other measured items

### **E Impacts on soils and drainage**

#### **a. Storm water and Soil Erosion**

It is expected on a properly improved road, there should be no problems of erosion or sedimentation because side drains, mitre drains, culverts and drifts are installed to effectively drain away any water.

Soil erosion is attributed to:

1. Run-off from unprotected steep slopes in the hilly areas;
2. Run-off from blockage of culverts or lack of drainage facilities;
3. Lack of scour checks on the side drains;
4. Poor drains in feeder roads.

Construction activities such as excavation and hauling of material from borrow pits and cuts for construction of embankments may also result in soil erosion.

Environmental protection measures on road works has two main benefits:

- It protects the road, thereby cutting maintenance costs, and
- It prevents off-road damage.

In terms of roadwork implementation, the contractor is responsible for ensuring that the protection measures as stipulated in the contract are carried out and that the required quality of work is provided.

Particular care is required where slopes have to be cut, fills made and drainage systems constructed. It is the contractor's obligation to protect slopes from erosion and to ensure that drainage outlets do not cause erosion

#### Mitigation Measures

1. Earthworks should be controlled so that land that is not required for the road works

is not disturbed;

2. Wherever possible, earthworks should be carried out during the dry season to prevent soil from being washed away by the rain;
3. Excavated materials and excess earth should be kept at appropriate sites approved by the Supervising Engineer;
4. The earth dumping sites should be designed in such a manner as to facilitate natural water discharge;
5. The contractor should adhere to specified cut and fill gradients and planting embankments with shrubs and grass to reduce erosion and take care of stability problems of road embankments. Areas cleared for improving sight distance should be planted with grass to reduce erosion
6. The Contractor shall protect areas susceptible to erosion by installing necessary temporary and permanent drainage works as soon as possible and by taking measures to prevent the surface water from being concentrated in drainage channels or streams and from scouring slopes, use of check dams, soak pits and gabions;
7. Areas affected by construction related activities and/or susceptible to erosion must be monitored regularly for evidence of erosion.
8. On any areas where the risk of erosion is evident, special measures may be necessary to stabilise the areas and prevent erosion. These may include, but not be limited to:
  - i. Confining construction activities;
  - ii. Using cut off drains;
  - iii. Using mechanical cover or packing structures such as geofabric to stabilise steep slopes or hessian, gabions and mattress and retaining walls;
  - iv. Mulch or chip cover;
  - v. Constructing anti-erosion berms;
  - vi. Where erosion does occur on any completed work/working areas, the Contractor shall reinstate such areas and areas damaged by the erosion at his own cost and to the satisfaction of the Engineer

**b. Drainage**

Bridges (Reinforced Concrete, Composite) and pipe culverts are the only drainage structures existing on the project road.

The project design has catered for the following to mitigate against drainage problems:

1. Cross drains will be used to replace some broken or damaged cross pipe culverts that by visual inspection appeared to overtop during floods.
2. Depending on the structural integrity some bridges/box culverts may be retained but extended.

Mitigation Measures

1. Where new culverts are to be installed, consultation with people settled there will be required to avoid possible conflicts that may arise due to channelling of water;
2. The Contractor shall ensure that provision is made to facilitate continuity of base water flow at all times during construction of these features across streams, rivers, lagoons and flood plains;
3. Reduction of baseline water quality through construction actions / activities shall be prevented (for example coffer dams, silt traps);
4. The Contractor shall not divert a dam or modify any watercourse without the approval of the Engineer and relevant authorities as required by the law.

#### Measurement and Payments

The Engineer will instruct the permanent works related to this clause such as soil erosion measures and pay under the relevant bill items. No separate payment shall be made for the other items as the Contractor shall include their costs in the rates for other measured items

### **F Impacts on water resources**

#### **a. Reduced water supply to local community**

While the water sources within the project area are sufficient for the construction works, livestock and community domestic use, the concern is the water quality due to abstraction by the project works and its associated waste water management.

##### Mitigation Measures

1. The contractor should consult the community on partitioning of access to this resource for construction purposes;
2. The Contractor must adhere to water quality regulations described in Legal Notice No. 120 of the Kenya Gazette Supplement No. 68 of September 2006.
3. Abstractions shall be approved by the Water Resources Management Authority.

#### **b. Water contamination**

This impact will only apply where the contractor will supplement labour based methods with substantial machinery for construction and where the contractor is to set up camp. Construction equipment generates large amounts of waste oil and its proper handling is critical. Haphazard storage and leakage can result in the contamination of soils, surface and ground waters.

Pollution of water resources by oil-based pollutants from lorries and construction machinery during construction works could cause health problems for the population. Moreover it is a common practice for vehicles to be washed along the rivers and streams.

##### Mitigation Measures

1. The contractor should construct machinery and vehicle maintenance areas as well as sealed areas for the storage of pollutants so as to avoid any accidental discharge that would pollute water resources



2. Measures should be taken to ensure proper storage of fuel, oil and bitumen. Oil-water interceptors or sumps should be constructed to capture discharge of oils, fats and other polluting liquids from maintenance workshops, vehicle and equipment washing bays.
3. A safety and emergency response plan will need to be developed for all operations with emphasis on the protection of the environment prior to start up.

**c. Water Sources and Springs**

Riparian areas and other water sources along the rivers and streams along the road may be contaminated during construction of the roads.

Mitigation measures

1. Rehabilitation of the existing water points, use of soak pits, stone pitching and check dams as velocity and siltation reducing measures of this water sources and springs
2. No construction materials shall be stockpiled within areas that are at risk of flooding;
3. The Contractor shall ensure that all construction activities at the seasonal river crossings are commenced and completed during the dry seasons (as far as possible);
4. All temporary and permanent fill used adjacent to, or within, the perennial river bed shall be of clean and or larger particles. Silts and clays shall not be permitted in the fill;
5. Plastic sheeting, sandbags or geofabric approved by the RE shall be used to prevent the migration of fines through the edges of the fill into the river;
6. The Contractor shall not modify the banks or bed of a watercourse other than necessary to complete the specified works. If such unapproved modification occurs, the Contractor shall restore the affected areas to their original profile;
7. The Contractor shall preserve all riparian vegetation;
8. The Contractor shall not pollute the watercourse or sources through any construction activities.

**Measurement and Payments**

No separate payment shall be made for this item. The Contractor shall include the costs in the rates for other measured items

25-50-002-7 Contractor's camp site

The construction contractor will need to establish camps including site offices, workshops, stores, vehicle parking.

Mitigation Measures

The mitigation measures have been divided according to the different components of the contractor's camp.

**General**

1. The site for the Contractor's Camp shall be determined in collaboration with the RE taking into consideration the following:
  - i. The security situation in the area.
  - ii. The local administration shall be involved in the site location to avoid destruction of any cultural sites or any other conflict;
  - iii. The Contractor's Camp layout shall take into account availability of access for deliveries and services and any future works;
  - iv. The Contractor's Camp should also be of sufficient size to accommodate the needs of all sub-contractors that may work on the project.
  - v. Decommission the camps and reinstate the land to its natural condition by filling excavations and planting suitable saplings.

### ***Sanitation***

1. The Contractor shall comply with all laws and any by-laws relating to public health and sanitation;

### ***Workshops***

1. Where practical, all maintenance of equipment and vehicles on site shall be performed in the workshop.
2. If it is necessary to do maintenance on site, but outside of the workshop area, the Contractor shall obtain the approval of the Engineer prior to commencing activities;
3. The Contractor shall ensure that there is no contamination of the soil, vegetation or surface water in his workshop and other plant or emergency maintenance facilities.
4. The workshop shall be kept tidy at all times and shall have the following as a minimum:
  - i. A smooth impermeable floor either constructed of concrete or suitable plastic covered with sufficient gravel to protect the plastic from damage;
  - ii. the floor shall be bounded and sloped towards an oil trap or sump to contain any spillages of substances (e.g. oil);
  - iii. Drip trays shall be used to collect the waste oil and lubricants during servicing and shall also be provided in construction areas for stationary plant (such as compressors);
  - iv. The drip trays shall be inspected and emptied daily;
  - v. Drip trays shall be closely monitored during wet weather to ensure that they do not overflow.

### ***General Materials Handling and Storage***

1. All materials shall be stored within the Contractor's camp unless otherwise approved by the Engineer;
2. All imported fill, soil and/or sand materials shall be free of weeds, litter and contaminants. Sources of imported materials shall be listed and approved by the Engineer

3. The Contractor shall ensure that delivery drivers are informed of all procedures and restrictions (including 'No go' areas) required;
4. Any electrical or petrol driven pumps shall be equipped and positioned so as not to cause any danger of ignition of the stored product;
5. Collection containers (e.g. drip trays) shall be placed under all dispensing mechanisms for hydrocarbons or hazardous liquid substances to ensure contamination from any leaks is reduced;
6. Regular checks shall be conducted by the Contractor on the dispensing mechanisms for all above ground storage tanks to ensure faulty equipment is identified and replaced in timely manner;
7. Only empty and externally clean tanks may be stored on bare ground. All empty and externally dirty tanks shall be sealed and stored on an area where the ground has been protected.

### **Measurement and Payments**

No separate payment shall be made for this item. The Contractor shall include the costs in the rates for other measured items

#### **25-50-002-8 Solid Waste**

Construction will result in the creation of various solid wastes, principally surplus earth (spoil) and rock (soil debris), office wastes including.

#### **Mitigation Measures**

1. The contractor should develop a waste management plan;
2. All personnel shall be instructed to dispose of all waste in a proper manner;
3. At all places of work the contractor shall provide litter collection facilities;
4. The final disposal of the site waste shall be done at the location that shall be approved by the Engineer, after consultation with local administration and local leaders;
5. The provision of sufficient bins (preferably vermin and weatherproof) at the camp and work sites to store the solid waste produced on a daily basis;
6. Wherever possible, materials used or generated by construction shall be recycled;
7. Provision for responsible management of any hazardous waste generated during the construction works;
8. Dispose of surplus material ("spoil") only at designated sites and by approved methods.
9. The spoil area should preferably be located on land already cleared wherever possible. Communities shall be involved in the site location to avoid destruction of any ritual site or any other conflict;
10. The development and rehabilitation of spoil areas.

### **Measurement and Payments**

No separate payment shall be made for this item. The Contractor shall include the costs in the

rates for other measured items

## **G Liquid wastes**

### **a. Wastewater and Contaminated Water Management**

During the construction phase, various liquid wastes including grey and black water (respectively washing water and sewage), concrete washings, runoff from camp and workshop areas, and various liquid waste streams from washing construction vehicle and equipment washing will be generated.

#### Mitigation Measures

1. No grey water runoff or uncontrolled discharges from the site/working areas
2. Water containing such pollutants as cements, concrete, lime, chemicals and fuels shall be discharged into a conservancy tank for removal from site.
3. The Contractor shall also prevent runoff loaded with sediment and other suspended materials from the site/working areas
4. Potential pollutants of any kind and in any form shall be kept, stored and used in such a manner that any escape can be contained and the water table not endangered;
5. Wash areas shall be placed and constructed in such a manner so as to ensure that the surrounding areas (including groundwater) are not polluted;
6. The Contractor shall notify the Engineer of any pollution incidents on site.

### **b. Fuels, Oils, Hazardous Substances and other Liquid Pollutants**

The construction phase will involve the use of stationary and mobile plant and equipment requiring refuelling and the construction of permanent and temporary fuel storage facilities.

#### Mitigation Measures

1. Hazardous materials shall not be stored within 2 kilometres of the top water level of public water supply reservoirs;
2. Hazardous materials shall be stored above flood level and at least 20 metres from any watercourse;
3. Areas for the storage of fuel and other flammable materials shall comply with standard fire safety regulations;
4. Chemicals and fuel shall be stored in storage tanks within a secure compound.
5. Storage areas or secondary containment shall be constructed of waterproof reinforced concrete or approved equivalent
6. The minimum volume for secondary containment shall be 110% of the capacity of the largest tank system, plus 10% of the total capacity of all other separate tanks and containers within the bund wall with closed valves for controlled draining during rains;
7. Tank equipment such as dispensing hoses, valves, meters, pumps, and gauges shall be located within the containment or provided with own containment;

8. Fence of the tank compound with locks or other adequate security controls at the site;
9. Locks on unattended dispensing hoses;
10. Appropriate training for the handling and use of fuels and hazardous material
11. Extreme care will be taken when transferring chemicals and fuels from storage vessels to equipment and machinery on an impervious sealed area which is kerbed and graded to prevent run-off
12. All chemicals stored within the bunded areas shall be clearly labelled detailing the nature and quantity of chemicals within individual containers;
13. Any chemical or fuel spills shall be cleaned up immediately. The spilt liquid and clean-up material shall be removed, treated and transported to an appropriate site licensed for its disposal;
14. Stormwater shall be diverted away from the fuel handling and storage areas. An oil water interceptor shall be provided to treat any rainwater from fuel storage and handling areas.

**c. Concrete Batching (Where applicable)**

This is principally a labour based gravel surfaced works and concreting works may be required, e.g. for drainage structures

**Mitigation Measures**

1. Concrete batching plant shall be located more than 20 m from the nearest stream/river channel;
2. Topsoil shall be removed from the batching plant site and stockpiled;
3. Concrete shall not be mixed directly on the ground;
4. The concrete batching works shall be kept neat and clean at all times;
5. Contaminated stormwater and wastewater runoff from the batching area and aggregate stockpiles shall not be permitted to enter streams but shall be led to a pit where the water can soak away;
6. Unused cement bags are to be stored so as not to be effected by rain or runoff events;
7. Used bags shall be stored and disposed of in a manner which prevents pollution of the surrounding environment (e.g. via wind blown dust);
8. Concrete transportation shall not result in spillage;
9. Cleaning of equipment and flushing of mixers shall not result in pollution of the surrounding environment;
10. Suitable screening and containment shall be in place to prevent wind blown contamination associated with any bulk cement silos, loading and batching;
11. Waste concrete and cement sludge shall be scraped off the site of the batching plant and removed to an approved disposal site;

12. All visible remains of excess concrete shall be physically removed on completion of the plaster or concrete and disposed at an approved disposal site. Washing the remains into the ground is not acceptable;
13. All excess aggregate and sand shall be removed

#### **Measurement and Payments**

No separate payment shall be made for this item. The Contractor shall include the costs in the rates for other measured items

#### **25-50-002-10 Disruption of Access to Property**

The road construction may lead to disruption of access to property.

##### Mitigation Measures

Disruption of access to property must be kept to a minimum at all times. Where such disruption is unavoidable, the Contractor shall advise the affected parties and the Engineer at least seven working days in advance of such disruption.

#### **H Relocation of public utilities**

Road construction could lead to disruption of existing utilities. This includes water pipes and electricity lines. However, this will be temporary as the contractor will relocate the services to the edge of the road reserve. These interruptions will be of a short time but may lead to disturbances and inconveniences.

##### Mitigation Measures

1. Notice should be given to the utility users prior to any interruption in supply;
2. Liaise with relevant parties which include water service institutions and KPLC.

#### **25-50-002-12 Delays in transportation**

During construction phase, the road traffic will be controlled and in some cases complete road closure will be necessary. This will entail disruption to traffic flows resulting in delay to transport of people and goods.

##### Mitigation Measures

1. To avoid delays to road users, the contractor will be required to plan itineraries for site traffic on a daily basis. Traffic management and control is mandatory throughout the project;
2. Temporary road signs that are visible both during the day and at night indicating road works and restrictions will be required, as detailed in section 9 of the specifications;
3. The contractor should also set aside footpaths, cycle lanes and parking bays for heavy goods vehicles and public transport vehicles;
4. Areas where construction is taking place should have clearly marked speed reduction signage.

#### **Measurement and Payments**

Traffic Control will be paid under item 09-50- 004, No separate payment shall be made for the other items. The Contractor shall include the costs in the rates for other measured items.

## **J Disruption of Community**

All construction activities may cause disturbance to the community around the area. Managing the welfare of a significant number of workers is inevitably a major challenge, and the co-existence of multiple contractor crews of workers from diverse ethnic and geographic backgrounds can be problematic.

### Mitigation Measures

1. The Engineer is to establish a formal grievance and redress mechanisms.
2. The Contractor will be required to minimise the risk of grievances with the local communities.
3. Where grievances occur, the Contractor will be required to assist in the process to investigate and resolve the grievance as effectively and quickly as reasonable;
4. The Contractors shall keep a 'Complaints register' on Site. The register shall contain:
  - i. All contact details of the person who made the complaint and information regarding the complaint itself;
  - ii. The investigations undertaken and response provided;
  - iii. Actions taken and by whom;
  - iv. Any follow-up actions taken.
5. Copies of complaints received are to be copied to the Engineer, and where pertinent.

### Measurement and Payments

No separate payment shall be made for this item. The Contractor shall include the costs in the rates for other measured items

## **K Site Security**

It is expected that the Contractor will make arrangements for security of its properties, equipment and worker's

### Mitigation Measures

1. The Supervising Engineer and Contractor in liaison with the security organs must create awareness to the security situation on the ground all the times;
2. Appropriate fencing, security gates, shelter and security guards are to be provided at the Construction
3. The Contractor must ensure that good relations are maintained with local communities and their leaders to help reduce the risk of vandalism and theft;
4. Site staff that are found to be involved in incidences of theft or pose other security risks to the local community are to be dismissed and reported to the authorities.

### Measurement and Payments

No separate payment shall be made for this item. The Contractor shall include the costs in the rates for other measured items

#### 25-50-002-15 Fire Incidences

Fire is an inherent risk in any construction which might lead to loss of property and sometimes loss of life.

#### Mitigation Measures

1. The Contractor shall ensure there is control of potential fire ignition points;
2. The Contractor shall ensure that there is basic fire-fighting equipment available on site;
3. Flammable materials should be stored in approved conditions
4. Smoking shall not be permitted in those areas where there is a fire hazard.
5. The Contractor shall ensure that all site personnel are aware of the fire risks and how to deal with any fires that occur.

#### Measurement and Payments

No separate payment shall be made for this item. The Contractor shall include the costs in the rates for other measured items

### **2505 HEALTH AND SAFETY MEASURES ON SITE**

The Contractor shall ensure that all possible means of protection are given to the labour force at all times. Such protection shall include provision of high visibility clothing or vests, goggles and masks for workers in potentially dangerous locations or dealing with potentially harmful materials.

#### **The following Safety Measures should be adhered to:**

- First aid kits must be available on site, a qualified first aider should be on site during the working time and the Site Supervisor should also be conversant with first aid procedures. The Contractor shall maintain first aid kits with a minimum of the following items:-
  - Non Stick wound dressing
  - Selection of plaster/band aids
  - Crepe bandages
  - Gauze and cotton wool
  - Antiseptic solution (washing wounds)
  - Antiseptic cream – Betadine, Burnol
  - Pain killers Panadol, Disprin
  - Anti diarrhoea – Immodium, Diadis, Charcoal, diastop or approved brand
  - Anti histamine – Piriton, Triludan
  - Anti nausea – Stemetil
  - Eye ointment
  - Oral re-hydration sachets
  - Surgical gloves
- Protective goggles for stone cutting, chiselling, grinding, and welding.



- Face masks when working in dust and smouldering waste.
- Helmets when working on sites where there is a danger of falling objects, e.g. in deep drains, digging pit latrines, work in quarries, etc.
- The Site Supervisor should also know where the nearest hospital / clinic is and where an ambulance or quick transport can be found.
- Special safety measures are required when deep trenches have to be dug, for example for culverts or structures. Depending on the material (natural soil slope) and the depth of the trench, strutting will be required to avoid collapsing trench sides. The construction of strutting has to be done carefully and requires an experienced builder.
- No alcoholic drinks or drugs during work.

### **Quality Control**

No worker will be assigned works without protective clothing; a percentage of the payment will be deducted whenever the Engineer or his representative finds a worker without protective gear.

### **Payment**

50% of the Lump Sum payment for this item will be made when the contractor mobilises and provides all items as required by this clause, 25% will be paid when the works are 50% complete and the remaining 25% upon final completion.

## **2506 GENDER EQUALITY**

According to constitutional law of the Government of Kenya, women and men have the same rights and responsibilities which are to be ensured at all levels and in all aspects of daily life.

It is therefore the obligation of Contractor to ensure that gender equalisation is achieved in all aspects of contract works. That means women should get equal opportunities with men and the recruitment process must clearly demonstrate this. Opportunities for employment should also be offered to disabled people. Special activities that they can carry out have to be identified and allocated to them.

### **Measurement & Payments**

No separate payment shall be made for this item but the Contractor will be expected to comply fully with the requirements of this clause.

## **2507 LABOUR STANDARDS**

It is an obligatory duty of the construction sector to maintain the international labour standards, as Kenya is one of the signatories of the International Labour Conventions of the International Labour Organisation (ILO). The contractor should observe the following requirements:

### **Equality:**

- Men and women should receive equal pay for work of equal value.
- Persons should be given equal opportunity and treatment in employment;

There should be no discrimination against persons in their employment and occupation on the basis of their race, colour, sex, religion, political opinion, national extraction or social origin, or on any other basis set out in new constitution.

**Freedom from forced labour:**

- Work or service should not be exacted from any person under the menace of penalty or under circumstances where the person has not offered himself or herself voluntarily.
- Work or service should not be exacted from any person:
  - As a means of political coercion;
  - As a method of mobilising and using labour for purposes of economic development;
  - As a means of labour discipline;
  - As a punishment for having participated in strikes
  - As a means of racial origin,
  - Social, national or religious discrimination.

**Freedom of association:**

All steps to be taken to protect, respect and promote workers and community's rights of association

**Minimum age:**

No person under the age of 18 years should be employed or work

**Minimum wages:**

Minimum wages should be established for groups of wage earner, in consultation with employers and Labour Department and workers organizations;

**Protection of wages:**

Wages should be paid in cash money. Workers should be informed of any deduction made from wages, and national regulations should set down condition for deductions from wages. Wages should be paid regularly at or near the place of work.

Before recruitment, adequate notice should be given and the notices posted in public places such as schools, chief's office and churches in order to reach as many people as possible.

During recruitment, the information on the number of jobs available and terms of employment (pay rates, timing and arrangements for payment including first payment date), should be disclosed openly. The recruitment process should be conducted in transparent manner without biases or any discrimination.

The unskilled labour is supposed to be sourced from the project area apart from specialised personnel like craftsmen and technicians who may be hired from elsewhere if they cannot be found in the project area.

Measurement & Payment

No separate payment shall be made for this item; the Contractor will be expected to comply fully with the requirements of this clause.

## **SECTION 12: BILLS OF QUANTITIES**

## **PREAMBLE TO BILL OF QUANTITIES**

1. The Bills of Quantities forms part of the Contract Documents and are to be read in conjunction with the Instructions to Bidders, Conditions of Contract Parts I and II, Specifications and Drawings.
2. The brief description of the items in the Bills of Quantities is purely for the purpose of identification, and in no way modifies or supersedes the detailed descriptions given in the conditions of Contract and Specifications for the full direction and description of work and materials.
3. The Quantities set forth in the Bills of Quantities are estimated, representing substantially the work to be carried out, and are given to provide a common basis for bidding and comparing of Bids. There is no guarantee to the Contractor that he will be required to carry out all the quantities of work indicated under any one particular item or group of items in the Bill of Quantities. The basis of payment shall be the Contractor's rates and the quantities of work actually done in fulfilment of his obligation under the Contract.
4. The prices and rates inserted in the Bills of Quantities will be used for valuing the work executed, and the Engineer will only measure the whole of the works executed in accordance with this Contract.
5. A price or rate shall be entered in ink against every item in the Bills of Quantities with the exception of items that already have Provisional sums affixed thereto. The bidders are reminded that no “nil” or “included” rates or “lump-sum” discounts will be accepted. The rates for various items should include discounts if any. Bidders who fail to comply will be disqualified.
6. Provisional sums (including Day works) in the Bills of Quantities shall be expended in whole or in part at the discretion of the Engineer.
7. The price and rates entered in the Bills of Quantities shall, except insofar as it is otherwise provided under the Contract, include all Constructional plant to be used, labour, insurance, supervision, compliance testing, materials, erection, maintenance of works, overheads and profits, taxes and duties together with all general risks, liabilities and obligations set out or implied in the Contract, transport, electricity and telephones, water, use and replenishment of all consumables, including those required under the contract by the Engineer and his staff.
8. Errors in the pricing of the Bills of Quantities will be corrected in accordance with Clause (28) of instructions to bidders.

# REHABILITATION OF A2, CHAKA -SAGANA STATE LODGE ROAD PHASE 1

## TENDER No.

### BILL NO. 1. PRELIMINARIES AND GENERAL ITEMS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1.01	Allow a prime cost sum of Kshs. 8,000,000.00 for accomodation for Engineer's senior and junior staff	PC Sum	1	8,000,000.00	8,000,000.00
1.02	E.O item 1.01 for contractor's overhead and profit	%	Item		-
1.03	Allow a Prime Cost Sum of Kshs.2,000,000.00 for material testing as shall be directed by the Engineer.	PC Sum	1	2,000,000.00	2,000,000.00
1.04	EO item 1.03 for contractor's overhead and profit	%	Item		-
1.05	Provide with drivers, fuel and maintain One (1) new 4WD fully loaded double cabin pick-ups of minimum diesel engine capacity 3000cc approved by the Engineer for his exclusive use, inclusive of the first 5000km per vehicle month. Vehicle to revert to the Employer at the end of the project.	Veh Month	24		-
1.06	EO item 1.05 for total aggregated mileage in excess of 5000 km per vehicle month.	Km	12,000		-
1.07	Ditto item 1.05, but ONE (1) new 4WD standard double cabin pick-ups of minimum diesel engine capacity 3000cc approved for the exclusive use of the Engineer inclusive of the first 5000km per vehicle month. Vehicles to revert to the Employer at the end of the project.	Veh Month	24		-
1.08	E.O item 1.07 for total aggregated mileage in excess of 5000 km per vehicle per month.	Km	12,000		-
1.09	Ditto item 1.05, but ONE (1) new 4WD Single cabin pick-up with fibre glass body of minimum diesel engine capacity 3000cc approved for the exclusive use of the Engineer inclusive of the first 5000km per vehicle month.Vehicle to revert to the Contractor at the end of the project.	Veh Month	24		-
1.10	E.O item 1.09 for total aggregated mileage in excess of 5000 km per vehicle per month.	Km	12,000		-
1.11	Allow a Prime Cost Sum of Kshs.4,800,000 for the RE's miscellaneous account to be spent in whole or part as directed by the RE against receipts.	PC Sum	1	4,800,000.00	4,800,000.00
1.12	E.O. item 1.11 for Contractor's overheads and profits.	%			720,000.00
1.13	Allow a Prime Cost Sum of Kshs.7,500,000.00 for attendance upon the Resident Engineer' staff.	PC Sum	1	7,500,000.00	7,500,000.00
1.14	E.O. item 1.13 for Contractor's overheads and profits.	%			1,125,000.00
1.15	Provide, erect and maintain publicity signs as directed by the Engineer.	No	2		-
1.18	Allow a Prime Cost Sum of Kshs.500,000.00 for relocation of services as directed or instructed by the Engineer	PC Sum	1	500,000.00	500,000.00
1.19	E.O item 1.18 for Contractor's overheads and profits.	% of item			-
1.20	Allow a Prime Cost Sum of Kshs.2,000,000.00 for ESIA as directed or instructed by the En	PC Sum	1	2,000,000.00	2,000,000.00
1.21	E.O item 1.18 for Contractor's overheads and profits.	% of item			-
1.22	Allow a Prime Cost Sum of Kshs.1,500,000.00 for relocation of services as directed or instructed by the Engineer	PC Sum	1	1,500,000.00	1,500,000.00
1.23	E.O item 1.18 for Contractor's overheads and profits.	% of item			-

# REHABILITATION OF A2, CHAKA -SAGANA STATE LODGE ROAD PHASE 1

## TENDER No.

	Bill No. 1 Total Carried Forward to Grand Summary				

### BILL NO. 4 : SITE CLEARANCE AND TOP SOIL STRIPPING

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<i>Note: No separate payments shall be made for gravel for blinding or hauling to spoil unsuitable excavation materials and the cost of such shall be included in the rates and prices</i>				
4.01	Clear site on road reserve including removal of all growths, bushes,hedges, trees, stumps, grub up roots, and other deleterious materials and back-fill and compact to 100% MDD(AASHTO T99) with approved material as directed by the Engineer.	Ha.	16.00		-
4.02	Strip top soil upto 0.2m in thickness along alignment or material sites including removal of all grass and other vegetation,transport to spoil and spread or stock pile for re-use as directed by the Engineer.	m <sup>3</sup>	11,200.00		-
4.03	Allow a Provisional Sum of KShs. 500,000 for the removal of structures and obstructions to be paid on dayworks basis	Prov. Sum	1.00		-
	Bill No. 4 Total Carried Forward to Grand Summary				0.00

REHABILITATION OF A2, CHAKA -SAGANA STATE LODGE ROAD PHASE 1

## TENDER No.

**BILL NO. 5 : EARTHWORKS**

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<i>Note: No separate payments shall be made for gravel for blinding or hauling to spoil unsuitable excavation materials and the cost of such shall be included in the</i>				
5.01	Fill in soft material including benching of shoulders and embankments and compaction to 95% MDD (AASHTO T99) in layers not exceeding 150mm	m <sup>3</sup>	4,500		
5.02	Extra Over Item 5.01 for compaction of the top 300mm subgrade to 100% MDD	m <sup>3</sup>	0		
5.03	Ditto item 5.01 but in hard material	m <sup>3</sup>	500		
5.04	Cut to spoil in soft material	m <sup>3</sup>	6,300		
5.05	Ditto item 5.03 but in hard material	m <sup>3</sup>	315		
5.06	Provide improved sub grade material to a thickness as shall be instructed by the Engineer and process, water and compact to 100% MDD (AASHTO T99)	m <sup>3</sup>	1,200		
5.07	Compaction of top 300mm below formation level in cuts to 100% MDD.(AASHTO T99)	m <sup>3</sup>	6,300		
5.08	Compaction of 150mm original ground below fills and cuts to 95% MDD.(AASHTO T99)	m <sup>3</sup>	3,150		
5.09	Top-soiling prior to planting grass as directed by the Engineer	m <sup>2</sup>	20,000		
5.10	Grassing as directed by the Engineer	m <sup>2</sup>	20,000		
Bill No. 5 Total Carried Forward to Grand Summary					0



REHABILITATION OF A2, CHAKA -SAGANA STATE LODGE ROAD PHASE 1

## TENDER No.

**BILL NO. 7 : EXCAVATION AND FILLING OF STRUCTURES**

[illegible]

# REHABILITATION OF A2, CHAKA -SAGANA STATE LODGE ROAD PHASE 1

TENDER No.

## BILL NO. 8. CULVERTS AND DRAINAGE WORKS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<i>Note: No separate payments shall be made for gravel for blinding or hauling to spoil unsuitable excavation materials and the cost of such shall be included in the rates and prices</i>				
8.01	Excavate for inlet,outfall,mitre and catch water drains in soft material	m3	750		
8.02	As per item 8.01, but for hard material	m3	40		
8.03	Excavation in soft material for pipe culverts,headwalls, wingwalls, apron,toewalls,and drains	m3	880		
8.04	As per item 8.03, but for hard material	m3	50		
8.05	Provide,lay and joint 600mm dia. concrete pipes (precast to BS 5911 Parts 1 & 3) for access roads	m	800		
8.06	As for item 8.05 but 900mm dia concrete pipes (precast to BS 5911 parts 1 & 3) for cross drains	m	100		
8.07	As for item 8.05 but 1200mm dia concrete pipes (precast to BS 5911 parts 1 & 3)for cross drains	m	30		
8.07 b	Provide and place class 15/20 concrete to beds, surround and haunches	m3	569		
8.08	Provide, place and compact class 25(20) concrete for headwalls, wingwalls, aprons, and toe walls to access and cross pipe culverts including all form work and the provision and placing of reinforcement as shown in the drawings	m3	359		
8.09	Provide and place invert block drains with two course side slabs	m	250		
8.10	Construct in concrete class 15(20) side drains scour checks as instructed	m3	650		
8.11	Provide and place precast concrete slabs 600mm x 600mm x 50mm and place over open lined drains in trade centres and markets	No.	80		
8.12	Provide subsoil filter drains fabric to isolated wet spots inclusive of artesian cloth, and 14/20mm single size aggregates as directed by Engineer.	m	250		
8.13	Remove existing pipe culverts of any diameter either for re-use or to be discarded as directed by the Engineer	m	450		
8.14	Desilt and clean existing culverts to free flowing condition	M	650		
	Bill No. 8 Total Carried Forward to Grand Summary				-

REHABILITATION OF A2, CHAKA -SAGANA STATE LODGE ROAD PHASE 1

TENDER No.

## BILL NO. 9: PASSAGE OF TRAFFIC

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	NOTE: Notwithstanding the provision of Section 9 of the Standard Specification, no extra payments shall be due as all costs shall be deemed to be included in the rates inserted herein				
9.01	Allow for the passage of traffic through and around the works	LS	1		
	<b>Bill No. 9 Total Carried Forward to Grand Summary</b>				-

REHABILITATION OF A2, CHAKA -SAGANA STATE LODGE ROAD PHASE 1

TENDER No. \_\_\_\_\_

**BILL NO. 12 : NATURAL MATERIAL FOR SUBBASE AND BASE**

[illegible]

# REHABILITATION OF A2, CHAKA -SAGANA STATE LODGE ROAD PHASE 1

TENDER No.

	Bill No. 12 Total Carried Forward to Grand Summary				0.00

## BILL NO. 14 : CEMENT OR LIME TREATED SUBBASE AND BASE

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<i>Note: No overhaul will be paid for separately under these items as it shall be deemed to have been included in the Contractor's rates</i>				
14.01	Provide and spread Lime as an improvement agent for Sub-Base and Base	Tonne			
14.02	Provide and spread Cement as an improvement agent for base	Tonne			
14.03	Mix and process natural material with improvement agent for pavement layers as instructed by the Engineer or as specified	m <sup>3</sup>			
14.04	Curing and protection of cement/lime treated Base layer (Cement Improved Patched areas )	m <sup>2</sup>			
	Bill No. 14 Total Carried Forward to Grand Summary				0.00

REHABILITATION OF A2, CHAKA -SAGANA STATE LODGE ROAD PHASE 1

TENDER No.

**BILL NO. 15: BITUMINOUS SURFACE TREATMENT & SURFACE DRESSING TO CARRIAGEWAY, JUNCTIONS, BUSBAYS AND SHOULDERS**

[illegible]

REHABILITATION OF A2, CHAKA -SAGANA STATE LODGE ROAD PHASE 1

TENDER No.

BILL NO. 16: BITUMINOUS MIXES

[illegible]

REHABILITATION OF A2, CHAKA -SAGANA STATE LODGE ROAD PHASE 1

## TENDER No.

**BILL NO. 20: ROAD FURNITURE**

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
20.01	Provide Road Reserve Boundary posts	No.	160		
20.02	Excavate for, provide & place 250 x 125mm precast concrete raised or ramped kerbs haunched in 100mm thick class 15/20 concrete base bedding and mortar joined in support to carriageway, busbays and junctions as directed by the Engineer.  a) Straight kerbs b) Kerbs radius 12m - 6m c) Ditto but radius 5m - 1m	m m m	100 20 20		
20.03	As 20.02 but for flush kerbs 100 x 125mm	m	100		
20.04	Provide and erect permanent road signs where instructed by the Resident Engineer and in accordance with Special Specifications Clause 2004 as follows:  a) warning signs b) Priority prohibitory and mandatory signs c) Standard informatory signs d) Non standard informantor signs area  i) Less than 70m ii) More than 70m less than 5m <sup>2</sup>	No. No. No.  No. No.	50 20 20  20 20		
20.05	Provide, deliver, paint and mark the road as specified or as directed by the Engineer, with white reflectionized thermoplastic paint from an approved supplier.	m <sup>2</sup>	4,000		
20.06	As item 20.05 but for yellow reflectionized thermoplastic paint	m <sup>2</sup>	2,000		
20.07	Provide and erect Steel posts for guardrails complete with spacers (size and interval) as per specifications or as directed by the Engineer	No.	275		
20.08	Provide and erect flex-beam guardrails complete with connections as shown on the drawings or as directed by the Engineer	m	1,000		
20.09	Provide Edge marker posts	No.	100		
<b>Bill No. 20 Total Carried Forward to Grand Summary</b>					<b>0.00</b>



# REHABILITATION OF A2, CHAKA -SAGANA STATE LODGE ROAD PHASE 1

TENDER No.

## BILL NO. 22: SCHEDULE OF DAYWORKS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<b>PLANT</b>				
	<i>The rates inserted herein are to include all operational and Maintenance costs, fuel,</i>				
22.01	Crawler dozers with hydraulic attachments to include ripper				
	a) Up to 135 kw rated flywheel power	hrs	20		
	b) Over 136 kw rated flywheel power	hrs	20		
22.02	Motor Grader				
	a) Up to 110kw rated flywheel power	hrs	20		
	b) Over 100kw rated flywheel power	hrs	20		
22.03	Vibratory Roller				
	a) 6.5 - 8.81 tonne un-ballasted weight	hr	20		
	b) Over 8.91 tonne un-ballasted weight	hr	20		
22.04	Hand propelled vibrating roller 650 - 1300kg	hrs	20		
22.05	Cat 950G wheel loader or equivalent	hrs	20		
22.06	10 Tonne tipper lorry	hrs	20		
22.07	Small dumpers, 750-1000kg rated payload	hrs	20		
22.08	Dual purpose hydraulic excavator with backhoe/loader and a rated bucket capacity of upto 1m3.	hrs	20		
22.09	Articulated wheel loader with 1.5-2.0m3 rated bucket capacity	hrs	20		
22.10	50mm delivery water pump and motor	hrs	20		
22.11	Self propelled water tanker 4,500ls min. capacity with pick-up pump	hrs	20		
22.12	Concrete Mixer of 100 - 150litres	hrs	20		
22.13	Concrete poker vibrator	hrs	20		
	<b>LABOUR</b>				
	<i>The rates inserted herein are to include the cost of labour such as insurance accomodation, travelling time, over-time, use and maintenance of small tools of trade. Only the actual time engaged upon the work will be paid for supervision,</i>				
22.14	Unskilled Labour	hrs	20		
22.15	Artisans	hrs	20		
22.16	Office attendants and chainmen	hrs	20		
22.17	Watchmen (all round surveillance)	hrs	20		
	<b>TOTAL CARRIED FORWARD TO THE NEXT PAGE</b>				-

# REHABILITATION OF A2, CHAKA -SAGANA STATE LODGE ROAD PHASE 1

## TENDER No.

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	TOTAL BROUGHT FORWARD				0.00
	<b>MATERIALS</b>				
	<i>All materials are to comply with the Specification. The rates inserted herein are to include for delivery to the site, storage, handling, overheads and profit</i>				
22.18	Ordinary Portland Cement	Ton	1		
22.19	Hydrated Lime	Ton	1		
22.20	Mild Steel( any diameter)	Ton	1		
22.21	High Yield Steel ( any diameter)	Ton	1		
22.22	Fine Aggregate for Concrete	m <sup>3</sup>	10		
22.23	Coarse Aggregate for Concrete	m <sup>3</sup>	10		
22.24	Wrot Shuttering Timber	m <sup>2</sup>	10		
22.25	Rough shuttering timber.	m <sup>2</sup>	20		
22.26	Bitumen Emulsion KI-60.	Litre	200		
22.27	Straight run bitumen Grade 80/100.	Litre	200		
22.28	Kerosene	Litre	200		
22.29	14/20 mm nominal size surface chips.	m <sup>3</sup>	100		
22.30	6/10mm nominal size surface chips	m <sup>3</sup>	100		
22.31	AC Type II Ex-plant	m <sup>3</sup>	50		
	Bill No. 22 Total Carried Forward to Grand Summary				

# REHABILITATION OF A2, CHAKA -SAGANA STATE LODGE ROAD PHASE 1

TENDER No.

REHABILITATION OF A2, CHAKA - SAGANA STATE LODGE ROAD		
SUMMARY PAGE		
BILL ITEM	DESCRIPTION	AMOUNT(KShs)
1	Preliminaries and General Items	
4	Site Clearance and Top Soil Stripping	
5	Earthworks	
7	Excavation and Filling of Structures	
8	Culverts and Drainage Works	
9	Passage to Traffic	
12	Natural Gravel Sub-base	
14	Lime/Cement Improved gravel Subbase	
15	Bituminous Surface Treatment and Surface Dressing	
16	Bituminous Mixes	
20	Road Furniture	
22	Schedule of Dayworks.	
( A )	<b>SUB-TOTAL ( 1 )</b>	
( B )	Add 10% VARIATION OF PRICE of sub total ( 1 )	
( C )	Add 5% CONTIGENCIES of sub total ( 1 )	
( D )	<b>SUB-TOTAL ( 2 ) = ( A + B + C )</b>	
( E )	Add ...16% VAT of sub-total ( 2 )	
<b>TOTAL CARRIED FORWARD TO FORM OF BID</b>		