



**ROADS AND FLEET MANAGEMENT DEPARTMENT**

**TENDER NO. KWS/OT/TPF/40/2020–2021**

**ROAD REHABILITATION WORKS ON JUNCT 7 -JUNCT 8-JUNCT 9-JUNCT  
10A-HIPPO POOLS-JUNCT 11A-JUNCT 10B-JUNCT 10A**

**IN**

**NAIROBI NATIONAL PARK**

**FEBRUARY 2021**

**(Open to All)**

**HEAD, ROADS AND FLEET MANAGEMENT,  
KENYA WILDLIFE SERVICE,  
P.O.BOX 40241 – 00100 ,  
NAIROBI**

**DIRECTOR GENERAL,  
KENYA WILDLIFE SERVICE,  
P.O.BOX 40241 – 00100 ,  
NAIROBI**

## **Sections of the Tender document**

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**SECTION I**  
**INVITATION TO TENDER**



Address: P.O.BOX 40241-00100  
Nairobi

## INVITATION FOR TENDER

Tender Reference No. KWS/OT/TPF/40/2020–2021

**TENDER NAME: ROAD REHABILITATION WORKS ON JUNCT 7 -JUNCT 8-JUNCT 9-JUNCT 10A-  
HIPPO POOLS-JUNCT 11A-JUNCT 10B-JUNCT 10A IN NAIROBI NATIONAL PARK.**

Kenya Wildlife Service (KWS) has received funds from the Tourism Promotion Fund (TPF) and intends to carry out Rehabilitation works on several selected tourism circuits in Nairobi Park under the Transformation of Nairobi National Park Programme. Eligible contractors are those registered as road works contractors by the **National Construction Authority (NCA) Category 3, 2, or 1** with current practising license for the maintenance work for the above roads in the **Nairobi National Park**. The scope of works is as detailed in the tender documents.

### **SCOPE OF WORK**

The scope of works shall be as described in the tender document.

### **QUALIFICATION FOR TENDERING MANDATORY REQUIREMENTS**

Eligible bidders shall submit the following among other eligibility requirements listed in the instruction to bidders prescribed in the tender document: -

- i) Certified Copy of Certificate of Incorporation/Business Registration name under the Companies Act.
- ii) A certified current copy of Form CR12 for limited companies issued by the Registrar of Companies that clearly indicates the ownership of the company (not older than 12 months), as at the time of the tender closing.
- iii) Copy of a valid Tax Compliance Certificate from Kenya Revenue Authority (K.R.A) as at the time of tender opening.
- iv) Valid current annual NCA practicing licence for each specified category.
- v) A declaration that the bidder will not engage in any corrupt or fraudulent practice.
- vi) A declaration that the bidder or her sub-contractor(s) are not debarred from participating in procurement proceedings by Public Procurement Regulatory Authority (PPRA).
- vii) Original Tender Security of **KES 2,000,000.00** The tender security shall be issued in Kenya shillings or a freely convertible currency and in the form of bank guarantee or an insurance guarantee from insurance companies approved by PPRA / deposit taking microfinance

institutions, SACCO societies, Youth Enterprise Development Fund or Women Enterprise Development Fund.

- viii) The Tender Security shall be in the **standard format** provided in the tender document and valid for a period of 120 days from the date of tender opening.
- ix) Bidders and their respective Directors can only submit **ONE BID**. Non-adherence to this condition shall lead to disqualification.
- x) In compliance with the Covid-19 measures and guidelines issued by the Ministry of Health, there shall be a **MANDATORY VIRTUAL PRE-BID CONFERENCE** on **Friday 5<sup>th</sup> March 2021 at 10:00 am** for the bidders to be able understand the scope of works and instructions to bidders. All those who intend to participate in this tender **MUST** complete the Form of Confirmation of Participation and understanding the scope of works as described in Schedule 3 of the Tender document.
- xi) This form must be submitted through the procuring entity's email: [hps@kws.go.ke](mailto:hps@kws.go.ke) not later than **2<sup>nd</sup> March 2021 for the purposes of recording/registration and planning of pre-bid conference and opening of tenders in line with Covid-19 measures and guidelines**. Those registering for participation beyond **2<sup>nd</sup> March 2021 shall be disqualified**. The procuring entity **shall not** accept any **physical delivery** of Form of Confirmation of Participation and understanding the scope of work. Bidders who shall not comply with this requirement shall be disqualified.
- xii) It is advisable that the representative during the pre-bid conference be of relevant Civil Engineering profession so as to understand the details during the pre-bid meeting and appreciate the scope of work and site conditions.
- xiii) Bidders with ongoing works with KWS that have not been completed will not be eligible for bidding in these tenders and will be disqualified.
- xiv) The bidders shall comply with all the instructions of the tender and submit a complete set of tender documents as per the Instruction to bidders Clause 9.1 and ensure that all the forms required are properly filled for completeness.
- xv) All the pages of bid document **MUST** be serialized sequentially from the first page to the last page. The document **MUST** be book bound. Bidders who fail to comply with this criterion will be disqualified.

Schedule of Roads Tenders and Tender documents containing detailed specifications can be downloaded for free at our website; [www.kws.go.ke](http://www.kws.go.ke) or the Public Procurement Information Portal <https://www.tenders.go.ke>

Communication in regard to the tender must be in writing through email address: [hps@kws.go.ke](mailto:hps@kws.go.ke).

All clarifications and/or amendments will be published in KWS website and tenderers are required to check for any addendums or amendments in the course of the bidding period prior to the closing date.

The complete tenders enclosed in sealed envelopes clearly marked with the appropriate **Tender Number** shall be submitted to:

**Director General,  
Kenya Wildlife Service,  
KWS, Headquarters, Langata Road,**

**P. O. Box 40241-00100,  
NAIROBI, KENYA**

By depositing them in the Tender Box on Ground Floor, Main Reception on or **before 10.00 am Friday 12<sup>th</sup> March, 2021.**

Opening of the Tenders will take place immediately thereafter in the KWS Conference Room in the presence of bidders' representatives who wish to attend.

**DIRECTOR GENERAL**

**SECTION II**  
**INSTRUCTIONS TO TENDERERS**

## SECTION II - INSTRUCTION TO TENDERERS

Note: The tenderer must comply with the following conditions and instructions and failure to do so is liable to result in rejection of the tender.

### GENERAL

#### 1. Definitions

- (a) “Tenderer” means any persons, partnership firm or company submitting a sum or sums in the Bills of Quantities in accordance with the Instructions to Tenderers, Conditions of Contract Parts I and II, Specifications, Drawings and Bills of Quantities for the work contemplated, acting directly or through a legally appointed representative.
- (b) “Approved tenderer” means the tenderer who is approved by the Employer
- (c) Any noun or adjective derived from the word “tender” shall be read and construed to mean the corresponding form of the noun or adjective “bid”. Any conjugation of the verb “tender” shall be read and construed to mean the corresponding form of the verb “bid.”
- (d) “Employer” means a Central Government Ministry, Local Authority, State Corporation or any other Public Institution.

#### 2. Eligibility and Qualification Requirements

##### 2.1 Eligibility requirements

This invitation to tender is open to all bidders who are qualified and meet eligibility requirements stated in the appendix to Instruction to Tenderers (ITT).

##### 2.2 Qualification Requirements

To be qualified for award of Contract, the tenderer shall provide evidence satisfactory to the Employer of their eligibility under Sub clause 2.1 above and of their capability and adequacy of resources to effectively carry out the subject Contract. To this end, the tenderer shall be required to update the following information already submitted during prequalification:-

- (a) Details of experience and past performance of the tenderer on the works of a similar nature and details of current work on hand and other contractual commitments.
- (b) The qualifications and experience of key personnel proposed for administration and execution of the contract, both on and off site.
- (c) Major items of construction plant and equipment proposed for use in carrying out the Contract. Only reliable plant in good working order and suitable for the work required of it shall be shown on this schedule. The tenderer will also indicate on this schedule when each item will be available on the Works. Included also should be a schedule of plant, equipment and material to be imported for the purpose of the Contract, giving details of make, type, origin and CIF value as appropriate.



- (d) Details of sub-contractors to whom it is proposed to sublet any portion of the Contract and for whom authority will be requested for such subletting in accordance with clause 4 of the Condition of Contract.
- (e) A draft Program of Works in the form of a bar chart and Schedule of Payment which shall form part of the Contract if the tender is accepted. Any change in the Program or Schedule shall be subjected to the approval of the Engineer.
- (f) Details of any current litigation or arbitration proceedings in which the tenderer is involved as one of the parties.

### **2.3 Joint Ventures**

Tenders submitted by a joint venture of two or more firms as partners shall comply with the following requirements:-

- (a) The tender, and in case of a successful tender, the Form of Agreement, shall be signed so as to be legally binding on all partners
- (b) One of the partners shall be nominated as being in charge, and this authorization shall be evidenced by submitting a power of attorney signed by legally authorized signatories of all the partners
- (c) The partner in charge shall be authorized to incur liabilities and receive instructions for an on behalf of any and all partners of the joint venture and the entire execution of the Contract including payment shall be done exclusively with the partner in charge.
- (d) All partners of the joint venture shall be liable jointly and severally for the execution of the Contract in accordance with the Contract terms, and a relevant statement to this effect shall be included in the authorization mentioned under (b) above as well as in the Form of Tender and the Form of Agreement (in case of a successful tender)
- (e) A copy of the agreement entered into by the joint venture partners shall be submitted with the tender.

### **3. Cost of Tendering**

- 3.1 The Tenderer shall bear all costs associated with the preparation and submission of his tender and the Employer will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the tendering process.
- 3.2 A complete set of tender documents may be obtained free of charge from Kenya Wildlife Website: [www.kws.go.ke](http://www.kws.go.ke) or through the link <http://www.kws.go.ke/info/tenders.html>.

**4. Site Visit**

- 4.1. The tenderer is advised to visit and examine the Site and its surroundings and obtain for himself on his own responsibility, all information that may be necessary for preparing the tender and entering into a contract. The costs of visiting the Site shall be the tenderer's own responsibility
- 4.2. The tenderer and any of his personnel or agents will be granted permission by the Employer to enter upon premises and lands for the purpose of such inspection, but only upon the express condition that the tenderer, his personnel or agents, will release and indemnify the Employer from and against all liability in respect of, 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.
- 4.3. The Employer shall organize a site visit at a date and venue to be notified. A representative of the Employer will be available to meet the intending tenderers at the Site. Tenderers must provide their own transport. The representative will not be available at any other time for site inspection visits.
- 4.4. Each tenderer shall sign the attendance register and certificate of Site visit at the time of the organized site visit.
- 4.5. Bidders who participated in the organized pretender site visit can revisit the site later at their own time and cost with prior arrangement with the park management.

### **3.3 TENDER DOCUMENTS**

#### **5 Tender Documents**

5.1 The Tender documents comprise the documents listed here below and should be read together with any Addenda issued in accordance with Clause 7 of these instructions to tenderers.

- a. Form of Invitation for Tenders
- b. Instructions to Tenderers
- c. Form of Tender
- d. Appendix to Form of Tender
- e. Form of Tender Surety
- f. Statement of Foreign Currency Requirements
- g. Schedules of Supplementary Information
- h. Details of Sub contractors
- i. General Conditions of Contract – Part I
- j. Conditions of Particular Application – Part II
- k. Specifications
- l. Bills of Quantities
- m. Drawings
- n. Declaration Form

5.2 The tenderer is expected to examine carefully all instructions, conditions, forms, terms, specifications and drawings in the tender documents. Failure to comply with the requirements for tender submission will be at the tenderer's own risk. Pursuant to clause 22 of Instructions to Tenderers, tenders which are not substantially responsive to the requirements of the tender documents will be rejected.

5.3 All recipients of the documents for the proposed Contract for the purpose of submitting a tender (whether they submit a tender or not) shall treat the details of the documents as "private and confidential".

#### **6 Inquiries by tenderers**

6.1 A tenderer making an inquiry relating to the tender document may notify the Employer in writing or by email at the Employer's mailing address indicated in the Invitation to Tender. The Employer will respond in writing to any request for clarification which he receives earlier than 7 days prior to the deadline for the submission of tenders. Written copies of the Employer's response (including the query but without identifying the source of the inquiry) will be sent to all prospective tenderers who have purchased the tender documents.

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

**7 Amendment of Tender Documents**

- 7.1 At any time prior to the deadline for submission of tenders the Employer may, for any reason, whether at his own initiative or in response to a clarification requested by a prospective tenderer, modify the tender documents by issuing Addenda.
- 7.2 Any Addendum will be notified in writing or by e-mail or through the KWS website to all prospective tenderers and will be binding upon them.
- 7.3 In order to allow prospective tenderers reasonable time in which to take the Addendum into account in preparing their tenders, the Employer may, at his discretion, extend the deadline for the submission of tenders.

## **PREPARATION OF TENDERS**

### **8 Language of Tender**

- 8.1 The tender and all correspondence and documents relating to the tender exchanged between the tenderer and the Employer shall be written in the English language. Supporting documents and printed literature furnished by the tenderer with the tender 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 tender, the English language shall prevail.

### **9 Documents Comprising the Tender**

- 9.1 The tender to be prepared by the tenderer shall comprise:

- i) the Form of Tender and Appendix thereto,
- ii) a Tender Security
- iii) the Priced Bills of Quantities and Schedules
- iv) the information on eligibility and qualification
- v) Any other materials required to be completed and submitted in accordance with the Instructions to Tenderers.

The Forms, Bills of Quantities and Schedules provided in the tender documents shall be used without exception (subject to extensions of the schedules in the same format and to the provisions of clause 13.2 regarding the alternative forms of Tender Surety).

### **10 Tender Prices**

- 10.1 All the insertions made by the tenderer shall be made in INK and the tenderer shall clearly form the figures. The relevant space in the Form of Tender and Bills of Quantities shall be completed accordingly without interlineations or erasures except those necessary to correct errors made by the tenderer in which case the erasures and interlineations shall be initialled by the person or persons signing the tender.
- 10.2 A price or rate shall be inserted by the tenderer for every item in the Bills of Quantities whether the quantities are stated or not. Items against which no rate or price is entered by the tenderer will not be paid for by the Employer when executed and shall be deemed covered by the rates for other items and prices in the Bills of Quantities.

The prices and unit rates in the Bills of Quantities are to be the full [all-inclusive] value of the Work described under the items, including all costs and expenses which may be necessary and all general risks, liabilities and obligations set forth or implied in the documents on which the tender is based. All duties, taxes and other levies payable by the Contractor under the Contract, or for any other cause prior to the deadline for submission of tenders, shall be included in the rates and prices and the total Tender Price submitted by the tenderer.

Each price or unit rate inserted in the Bills of Quantities should be a realistic estimate for completing the activity or activities described under that particular item and the tenderer is advised against inserting a price or rate against any item contrary to this instruction.

Every rate entered in the Bills of Quantities, whether or not such rate be associated with a quantity, shall form part of the Contract. The Employer shall have the right to call for any item of work contained in the Bills of Quantities, and such items of work to be paid for at the rate entered by the tenderer and it is the intention of the Employer to take full advantage of unbalanced low rates.

- 10.3 Unless otherwise specified the tenderer must enter the amounts representing 10% of the sub-total of the summary of the Bills of Quantities for Contingencies and Variation of Prices[V.O.P.] payments in the summary sheet and add them to the sub-total to arrive at the tender amount.
- 10.4 The tenderer shall furnish with his tender written confirmation from his suppliers or manufacturers of basic unit rates for the supply of items listed in the Conditions of Contract clause 70 where appropriate. The Employer may require the tenderer to justify such rates so obtained from the suppliers or manufacturers.
- 10.5 The rates and prices quoted by the tenderer are subject to adjustment during the performance of the Contract only in accordance with the Provisions of the Conditions of Contract. The tenderer shall complete the schedule of basic rates and shall submit with his tender such other supporting information as required under clause 70 of the Conditions of Contract Part II.
- 10.6 Contract price variations shall not be allowed within the first 12 months of the contract.
- 10.7 Where quantity contract variation is allowed, the variation shall not exceed 25% of the original contract quantity.
- 10.8 Price variation requests shall be processed by the procuring entity within 30 days of receiving the request.

## 11 Currencies of Tender and Payment

- 11.1 Tenders shall be priced in **Kenya Shillings** and the tender sum shall be in **Kenya Shillings**.
- 11.2 Tenderers are required to indicate in the Statement of Foreign Currency Requirements, which forms part of the tender, the foreign currency required by them. Such currency should generally be the currency of the country of the tenderer's main office. However, if a substantial portion of the tenderer's expenditure under the Contract is expected to be in countries other than his country of origin, then he may state a corresponding portion of the contract price in the currency of those other countries. However, the foreign currency element is to be limited to two (2) different currencies and a maximum of 30% (thirty percent) of the Contract Price.
- 11.3 The rate or the rates of exchange used for pricing the tender shall be the selling rate or rates of the Central Bank ruling on the date thirty (30) days before the final date for the submission of tenders.

- 11.4 Tenderers must enclose with their tenders, a brief justification of the foreign currency requirements stated in their tenders.

## **12 Tender Validity**

- 12.1 The tender shall remain valid and open for acceptance for a period of ninety (90) calendar days from the specified date of tender opening or from the extended date of tender opening (in accordance with clause 7.3 here above) whichever is the later.
- 12.2 In exceptional circumstances prior to expiry of the original tender validity period, the Employer may request the tenderer for a specified extension of the period of validity. The request and the responses there to shall be made in writing or by email or through the KWS website and advert through local daily newspapers. A tenderer may refuse the request without forfeiting his Tender Surety. A tenderer agreeing to the request will not be required nor permitted to modify his tender, but will be required to extend the validity of his Tender Surety correspondingly.

## **13 Tender Security**

- 13.1 The tenderer shall furnish as part of his tender, a Tender Security in the amount and form stated in the Appendix to Instructions to Tenderers.
- 13.2 The Tender Security shall be valid at least thirty (30) days beyond the tender validity period.
- 13.3 Any tender not accompanied by an acceptable Tender Surety will be rejected by the Employer as non-responsive.
- 13.4 The Tender Sureties of unsuccessful tenderers will be returned as promptly as possible as but not later than twenty eight (28) days after expiration of the tender validity period. The Tender Surety of the successful tenderer will be returned upon the tenderer executing the Contract and furnishing the required Performance Security.
- 13.5 The Tender Surety may be forfeited:
- a) If a tenderer withdraws his tender during the period of tender validity: or
  - b) in the case of a successful tenderer, if he fails, within the specified time limit
    - i. to sign the Agreement, or
    - ii. to furnish the necessary Performance Security
  - c) If a tenderer does not accept the correction of his tender price pursuant to clause 23.

## **14 No Alternative Offers**

- 14.1 The tenderer shall submit an offer which complies fully with the requirements of the tender documents unless otherwise provided for in the appendix.

Only one tender may be submitted by each tenderer either by himself or as partner in a joint venture. A tenderer who submits or participates in more than one tender will be disqualified.

- 14.2 The tenderer shall not attach any conditions of his own to his tender. The tender price must be based on the tender documents. The tenderer is not required to present alternative construction

options and he shall use without exception, the Bills of Quantities as provided, with the amendments as notified in tender notices, if any, for the calculation of his tender price. Any tenderer who fails to comply with this clause will be disqualified.

## **15 Pre-tender Meeting**

- 15.1 If a pre-tender meeting is convened, the tenderer's designated representative is invited to attend at the venue and time in the Invitation to Tender. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.
- 15.2 The tenderer is requested as far as possible to submit any questions in writing or by email, to reach the Employer not later than seven (7) days 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 following:
- (a) 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 tender documents. Any modification of the tender documents listed in – Clause 9 which may become necessary as a result of the pre-tender meeting shall be made by the Employer exclusively through the issue of a tender notice pursuant to Clause 7 and not through the minutes of the pre-tender meeting.
  - (b) Non attendance at the pre-bid meeting will not be cause for disqualification of a bidder.

## **16 Format and Signing of Tenders**

- 16.1 The tenderer shall prepare his tender as outlined in clause 9 above and mark appropriately one set “ORIGINAL” and the other “COPY”.
- 16.2 The copy of the tender and Bills of Quantities shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the tenderer. All pages of the tender where amendments have been made shall be initialled by the person or persons signing the tender.
- 16.3 The complete tender shall be without alterations, interlineations or erasures, except as necessary to correct errors made by the tenderer, in which case such corrections shall be initialled by the person or persons signing the tender.



## **SUBMISSION OF TENDERS**

### **17 Tender format, Sealing and Marking of Tenders**

- 17.1 The tenderer shall seal the original and copy of the tender in separate envelopes, duly marking the envelopes as “ORIGINAL” and “COPY”. The envelopes shall then be sealed in an outer separate envelope. The **copy** shall be a replica of the **Original**.
- 17.2 The inner and outer envelopes shall be addressed to the Employer at the address stated in the Appendix to Instructions to Tenderers and bear the name and identification of the Contract stated in the said Appendix with a warning not to open before the date and time for opening of tenders stated in the said Appendix.
- 17.3 The inner envelopes shall each indicate the name and address of the tenderer to enable the tender to be returned unopened in case it is declared “late”, while the outer envelope shall bear no mark indicating the identity of the tenderer.
- 17.4 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 tender. A tender opened prematurely for this cause will be rejected by the Employer and returned to the tenderer.

### **18 Deadline for Submission of Tenders**

- 18.1 Tenders must be received by the Employer at the address specified in clause 17.2 and on the date and time specified in the Letter of Invitation, subject to the provisions of clause 7.3, 18.2 and 18.3.
- Tenders delivered by hand must be placed in the “tender box” provided in the office of the Employer. Proof of posting will not be accepted as proof of delivery and any tender delivered after the above stipulated time, from whatever cause arising will not be considered.
- 18.2 The Employer may, at his discretion, extend the deadline for the submission of tenders through the issue of an Addendum in accordance with clause 7, in which case all rights and obligations of the Employer and the tenderers previously subject to the original deadline shall thereafter be subject to the new deadline as extended.
- 18.3 Any tender received by the Employer after the prescribed deadline for submission of tender will be returned unopened to the tenderer.

**19 Modification and Withdrawal of Tenders**

- 19.1** The tenderer may modify or withdraw his tender after tender submission, provided that written notice of the modification or withdrawal is received by the Employer prior to the prescribed deadline for submission of tenders.
- 19.2** The tenderer's modification or withdrawal notice shall be prepared, sealed, marked and dispatched in accordance with the provisions for the submission of tenders, with the inner and outer envelopes additionally marked "MODIFICATION" or "WITHDRAWAL" as appropriate.
- 19.3** No tender may be modified subsequent to the deadline for submission of tenders.
- 19.4** No tender may be withdrawn in the interval between the deadline for submission of tenders and the period of tender validity specified on the tender form. Withdrawal of a tender during this interval will result in the forfeiture of the Tender Surety.
- 19.5** Subsequent to the expiration of the period of tender validity prescribed by the Employer, and the tenderer having not been notified by the Employer of the award of the Contract or the tenderer does not intend to conform with the request of the Employer to extend the period of tender validity, the tenderer may withdraw his tender without risk of forfeiture of the Tender Surety.

**TENDER OPENING AND EVALUATION****20 Tender Opening**

- 20.1 The Employer will open the tenders in the presence of the tenderers' representatives who choose to attend at the time and location indicated in the Letter of Invitation to Tender. The tenderers' representatives who are present shall sign a register evidencing their attendance.
- 20.2 Tenders for which an acceptable notice of withdrawal has been submitted, pursuant to clause 19, will not be opened. The Employer will examine the tenders to determine whether they are complete, whether the requisite Tender Sureties have been furnished, whether the documents have been properly signed and whether the tenders are generally in order.
- 20.3 At the tender opening, the Employer will announce the tenderer's names, total tender price, tender price modifications and tender withdrawals, if any, the presence of the requisite Tender Surety and such other details as the Employer, at his discretion, may consider appropriate. No tender shall be rejected at the tender opening except for late tenders.
- 20.4 The Employer shall prepare minutes of the tender opening including the information disclosed to those present.
- 20.5 Tenders not opened and read out at the tender opening shall not be considered further for evaluation, irrespective of the circumstances.

**21 Process to be Confidential**

- 21.1 After the public opening of tenders, information relating to the examination, clarification, evaluation and comparisons of tenders and recommendations concerning the award of Contract shall not be disclosed to tenderers or other persons not officially concerned with such process until the award of Contract is announced.
- 21.2 Any effort by a tenderer to influence the Employer in the process of examination, evaluation and comparison of tenders and decisions concerning award of Contract may result in the rejection of the tenderer's tender.

**22 Clarification of Tenders**

- 22.1 To assist in the examination, evaluation and comparison of tenders, the Employer may ask tenderers individually for clarification of their tenders, including breakdown of unit prices. The request for clarification and the response shall be in writing or by email, but no change in the price or substance of the tender shall be sought, offered or permitted except as required to confirm the correction of arithmetical errors discovered by the employer during the evaluation of the tenders in accordance with clause 24.
- 22.2 No tenderer shall contact the Employer on any matter relating to his tender from the time of the tender opening to the time the Contract is awarded. If the tenderer wishes to bring additional information to the notice of the Employer, he shall do so in writing.

## **23 Determination of Responsiveness**

- 23.1** Prior to the detailed evaluation of tenders, the Employer will determine whether each tender is substantially responsive to the requirements of the tender documents. KWS's determination of a Tender's responsiveness is to be based on the contents of the Tender itself without recourse to extrinsic evidence.
- 23.2** For the purpose of this clause, a substantially responsive tender is one which conforms to all the terms, conditions and specifications of the tender documents without material deviation or reservation. A material deviation or reservation is one which affects in any substantial way the scope, quality, completion timing or administration of the Works to be undertaken by the tenderer under the Contract, or which limits in any substantial way, inconsistent with the tender documents, the Employer's rights or the tenderers obligations under the Contract and the rectification of which would affect unfairly the competitive position of other tenderers who have presented substantially responsive tenders.
- 23.3** Each price or unit rate inserted in the Bills of Quantities shall be a realistic estimate of the cost of completing the works described under the particular item including allowance for overheads, profits and the like. Should a tender be seriously unbalanced in relation to the Employer's estimate of the works to be performed under any item or groups of items, the tender shall be deemed not responsive.
- 23.4** A tender determined to be not substantially responsive will be rejected by the Employer and may not subsequently be made responsive by the tenderer by correction of the non-conforming deviation or reservation.
- 23.5** Post-qualification criteria are as provided in the Appendix to instruction to tenderers.

## **24 Correction of Errors**

Tenders determined to be substantially responsive shall be checked by the Employer for any arithmetic errors in the computations and summations. Errors will be corrected by the Employer as follows:

- (a) Where there is a discrepancy between the amount in figures and the amount in words, the amount in words will govern.
- (b) Where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will prevail, unless in the opinion of the Employer, there is an obvious typographical error, in which case adjustment will be made to the entry containing that error.
- (c) In the event of a discrepancy between the tender amount as stated in the Form of Tender and the corrected tender figure in the main summary of the Bills of Quantities, the amount as stated in the Form of Tender shall prevail.
- (d) The Error Correction Factor shall be computed by expressing the difference between the tender amount and the corrected tender sum as a percentage of the corrected builder's work (i.e. corrected tender sum less Prime Cost and Provisional Sums).

- (e) The Error Correction Factor shall be applied to all builder's work (as a rebate or addition as the case may be) for the purposes of valuations for Interim Certificates and valuations of variations.
- (f) The amount stated in the tender will be adjusted in accordance with the above procedure for the correction of errors and, with concurrence of the tenderer, shall be considered as binding upon the tenderer. If the tenderer does not accept the corrected amount, the tender may be rejected and the Tender Security may be forfeited in accordance with clause 13.

## **25 Conversion to Single Currency**

**25.1** For compensation of tenders, the tender price shall first be broken down into the respective amounts payable in various currencies by using the selling rate or rates of the Central Bank of Kenya ruling on the date twenty one (21) days before the final date for the submission of tenders.

**25.2** The Employer will convert the amounts in various currencies in which the tender is payable (excluding provisional sums but including Day works where priced competitively) to Kenya Shillings at the selling rates stated in clause 25.1.

## **26 Evaluation and Comparison of Tenders**

**26.1** The Employer will evaluate only tenders determined to be substantially responsive to the requirements of the tender documents in accordance with clause 23.

**26.2** In evaluating tenders, the Employer will determine for each tender the evaluated tender price by adjusting the tender price as follows:

- (a) Making any correction for errors pursuant to clause 24.
- (b) Excluding Provisional Sums and provision, if any, for Contingencies in the Bills of Quantities, but including Day works where priced competitively.

**26.3** The Employer reserves the right to accept any variation, deviation or alternative offer. Variations, deviations, alternative offers and other factors which are in excess of the requirements of the tender documents or otherwise result in the accrual of unsolicited benefits to the Employer, shall not be taken into account in tender evaluation.

**26.4** Price adjustment provisions in the Conditions of Contract applied over the period of execution of the Contract shall not be taken into account in tender evaluation.

**26.5** If the lowest evaluated tender is seriously unbalanced or front loaded in relation to the Employer's estimate of the items of work to be performed under the Contract, the Employer may require the tenderer to produce detailed price analyses for any or all items of the Bills of Quantities, to demonstrate the relationship between those prices, proposed construction methods and schedules. After evaluation of the price analyses, the Employer may require that the amount of the Performance Security set forth in clause 29 be increased at the expense of the successful tenderer to a level sufficient to protect the Employer against financial loss in the event of subsequent default of the successful tenderer under the Contract.

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- 26.6** Firms incorporated in Kenya where indigenous Kenyans own 51% or more of the share capital shall be allowed a 10% preferential bias provided that they do not sub-contract work valued at more than 50% of the Contract Price excluding provisional sums to a non-indigenous sub-contractor.
- 26.7** Preference where allowed in the evaluation of tenders shall not exceed 15%
- 26.8** The procuring entity may at any time terminate procurement proceedings before contract award and shall not be liable to any person for the termination.
- 26.9** The procuring entity shall give prompt notice of the termination to the tenderers and on request give its reasons for termination within 14 days of receiving the request from any tenderer.
- 26.10** A tenderer who gives false information in the tender document about its qualification or who refuses to enter into a contract after notification of contract award shall be considered for debarment from participating in future public procurement.
- 26.11** Poor past performance shall not be used as an evaluation criteria unless specifically provided for in the appendix.

**AWARD OF CONTRACT****27. Award Criteria**

- 27.1 Subject to Sub-clause 27.2, the Employer will award the Contract to the tenderer whose tender is determined to be substantially responsive to the tender documents and who has offered the lowest evaluated tender price subject to possessing the capability and resources to effectively carry out the Contract Works as required in Sub-clause 2.1 and 2.2 here above.
- 27.2 The Employer reserves the right to accept or reject any tender, and to annul the tendering process and reject all tenders, at any time prior to award of Contract, without thereby incurring any liability to the affected tenderers or any obligation to inform the affected tenderers of the grounds for the Employer's action.

**28 Notification of Award**

- 28.1 Prior to the expiration of the period of tender validity prescribed by the Employer, the Employer will notify the successful tenderer by cable, telefax or telex and confirmed in writing by registered letter that his tender has been accepted. This letter (hereinafter and in all Contract documents called "Letter of Acceptance") shall name the sum (hereinafter and in all Contract documents called "the Contract Price") which the Employer will pay to the Contractor in consideration of the execution and completion of the Works as prescribed by the Contract.
- 28.2 At the same time that the Employer notifies the successful tenderer that his tender has been accepted, the Employer shall notify the other tenderers that the tenders have been unsuccessful.
- 28.3 Within fourteen [14] days of receipt of the Form of Contract Agreement from the Employer, the successful tenderer shall sign the form and return it to the Employer together with the required Performance Security.
- 28.4 The parties to the contract shall have it signed within 30 days from the date of notification of contract award unless there is an administrative review request.

**29 Performance Guarantee**

- 29.1 Within twenty eight [28] days of receipt of the notification of award from the Employer, the successful tenderer shall furnish the Employer with a Performance Security in the amount stated in the Appendix to Instructions to Tenderers and in the format stipulated in the Conditions of Contract.
- 29.2 The Performance Security to be provided by the successful tenderer shall be an unconditional Bank Guarantee issued at the tenderer's option by a reputable Bank approved by the Employer and located in the Republic of Kenya and shall be divided into two elements namely, a performance security payable in foreign currencies (based upon the exchange rates determined in accordance with clause 60(5) of the Conditions of Contract) and a performance security payable in Kenya Shillings. The value of the two securities shall be in the same proportions of foreign and local currencies as requested in the form of foreign currency requirements.

- 29.3 Failure of the successful tenderer to lodge the required Performance Security shall constitute a breach of Contract and sufficient grounds for the annulment of the award and forfeiture of the Tender Security and any other remedy under the Contract. The Employer may award the Contract to the next ranked tenderer.

**30 Advance Payment**

An advance payment, if approved by the Employer, shall be made under the Contract, if requested by the Contractor, in accordance with clause 60(1) of the Conditions of Contract. The Advance Payment Guarantee shall be denominated in the proportion and currencies named in the form of foreign currency requirements. For each currency, a separate guarantee shall be issued. The guarantee shall be issued by a Bank located in the Republic of Kenya, or a foreign Bank through a correspondent Bank located in the Republic of Kenya, in either case subject to the approval of the Employer.

**31 Corrupt or fraudulent practices**

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



**SECTION III:**  
**APPENDIX TO INSTRUCTION TO BIDDERS**

### 3.1 Appendix to Instructions to Tenderers

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

**Table 3.1 Notes on the Appendix to Instructions to Tenderers**

| Clause | Description   |
|--------|---|
| 2.1    | <p>Pursuant to clause 2.1 the following shall be mandatory.</p> <ul style="list-style-type: none"> <li>i) Properly filled, stamped and signed Form of Bid</li> <li>ii) Valid Bid Security and in the standard format provided in this tender document</li> <li>iii) Completed Confidential Business questionnaire</li> <li>iv) Copy of proof of citizenship of all the director(s) in the company who must be Kenyan Nationals.</li> <li>v) Certified Copy of Form CR12(current within the last 12 months). This will be verified with the Registrar of Companies.</li> <li>vi) Certified copies of Certificate of incorporation/registration of business name or partnership deed</li> <li>vii) Valid tax compliance certificate as at the time of tender opening/closing. This will be verified with Kenya Revenue Authority.</li> <li>viii) Copies of Current annual NCA practicing licence from National Construction Authority as a Roads contractor for NCA Category <b>3, 2 and 1</b> valid as at the date of tender closing/Opening. This will be verified with National Construction Authority.</li> <li>ix) Written power of attorney authorizing the signatory of the bid to commit the bidder</li> <li>x) The bidder shall be required to submit dully filled, signed and stamped confirmation of participation and understanding the scope of works at least three (3) days before tender opening to the procuring entity's email <a href="mailto:hps@kws.go.ke">hps@kws.go.ke</a> and also alongside his/her bid.</li> <li>xi) Information on Litigation and performance history as per schedule 10</li> <li>xii) All the pages of bid document to be <b>Serialized Sequentially</b> from cover page to the last page. The document <b>MUST</b> be book bound. Bidders who fail to comply with this criterion will be disqualified</li> <li>xiii) Completeness of the tender document (<b>All the required forms including the BOQs are properly filled as per clause 9.1 of ITT and in the format Described in this Appendix to Instructions to Tenderers Clause 17</b>).</li> </ul> |
| 2.2    | <p><b>Qualification Requirements</b></p> <ul style="list-style-type: none"> <li>(a) Evidence of access to funds or financing agreement/lines of credit of at least 20% of tender sum and or availability of other financial resources. E.g. Bank Statement current within the last 6 months. The Line of credit must be current to</li> </ul>   |

|                   |   |
|-------------------|---|
|                   | <p>the last <b>one (1)</b> month before the date of submission.</p> <p>(b) Financial predictions for the current year and the two subsequent years, including the effect of known commitments,</p> <p>(c) Current financial soundness and bidder's long-term profitability, Cash flow or equivalent positive working capital</p> <p>(d) Current Work commitments</p> <p>(e) Availability of critical equipment Major items of construction plant and equipment proposed for use in carrying out the Contract.</p> <p>(f) The qualifications and experience of key personnel proposed for administration and execution of the contract, both on and off site.</p> <p>(g) Bidders shall also submit proposals of work execution programme in sufficient detail to demonstrate the adequacy of the bidders' proposals to meet the technical specifications and the completion time referred to in Schedule 11.</p> <p>(h) Details of experience and past performance of the tenderer on the works of a similar nature.</p> <p>(i) Details of Non-performance of contract and any current litigation or arbitration proceedings in which the tenderer is involved as one of the parties within the last Three (3) years prior to the deadline of the tender submission, based on all information on fully settled disputes or litigation.</p> |
| 4.3               | Each tenderer must <b>dully fill, sign and stamp schedule of confirmation of participation and understanding the scope of works and this form submitted three days before the date of pre bid conference.</b>   |
| 4.4 & 4.5         | Site visit is not Mandatory   |
| 12.1              | Tender validity period is 90 days <b>from the specified date of tender opening</b> or from the extended date of tender opening in accordance with ITT clause 7.3  |
| 13.2              | The tender security shall be <b>KES 2,000,000.00</b>  |
| 13.3              | Tender Security shall remain valid for a least 30 days beyond tender validity   |
| 15 (b)            | <b>The pre bid conference is Mandatory. Non-attendance at the pre-bid meeting shall be a cause for disqualification of a bidder</b>   |
| 23.3, 26.5 and 27 | <p>The total budget for the rehabilitation works for various tourist circuits is <b>KES 188,000,000.00.</b></p> <p>The procurement Entity shall award to the lowest evaluated tenderer, whose tender is substantially responsive to the tender document. Each price or unit rate inserted in the Bills of Quantities <b>shall be a realistic estimate of the cost</b> of completing the works described under the particular item including allowance for overheads, profits and the like.</p> <p>Should a tender be seriously unbalanced in relation to the Employer's estimate or current government cost estimation of such works, as per the Cost Estimation Manual, to be performed under any item or groups of items, the tender <b>shall be deemed not responsive.</b></p>   |
| 24                | There shall be no correction of errors.   |

|      |  |
|------|--|
|      | Any errors in the submitted tender arising from a miscalculation of unit price, quantity, sub-total and total bid price shall be considered as a major deviation that affects the substance of the tender and shall lead to disqualification of tender as non-responsive.  |
| 28.3 | Delete the entire paragraph and replace with,<br>“Within fourteen [14] days of receipt of the notification of award from the Employer, the successful tenderer shall furnish the Employer with acceptance of notification of award and return it to the Employer together with the required Performance Security.”   |
| 29.1 | Delete the entire paragraph and replace with,<br>“Within fourteen [14] days of receipt of the notification of award from the Employer, the successful tenderer shall furnish the Employer with Performance Security in the amount stated in the Appendix to Instructions to Tenderers and in the format stipulated in the Conditions of Contract”  |
| 29.2 | Delete the following statement. “...and shall be divided into two elements namely, a performance security payable in foreign currencies (based upon the exchange rates determined in accordance with clause 60(5) of the Conditions of Contract) and a performance security payable in Kenya Shillings. The value of the two securities shall be in the same proportions of foreign and local currencies as requested in the form of foreign currency requirements.” |
| 30   | There shall be no Advance Payment  |
| 31   | The procuring entity shall conduct verification before award and any bidder found to have given <b>false information or forged documents</b> shall be <b>disqualified and recommended for debarment</b> .  |

|      |   |
|------|---|
| 17   | <p><b><u>Tender Format, No of sets, Sealing and Marking of Tenders</u></b></p> <p>The Tender shall be bound and divided clearly in descending order as listed below</p> <ol style="list-style-type: none"> <li>1. Letter of Invitation to Tender</li> <li>2. Instruction to Tenders</li> <li>3. Appendix to Instruction to bidders</li> <li>4. Form of Bid</li> <li>5. Appendix to Form of Bid</li> <li>6. Bid Security</li> <li>7. Schedule of Supplementary Information for Eligibility</li> <li>8-A1 Confidential Business Questionnaire</li> <li>8-A2 Certificate of Incorporation/Registration</li> <li>8-A3 Copy of Form CR12</li> <li>8-A4 Copy of Valid Tax Compliance Certificate</li> <li>8-A5 Copy of Current annual NCA practicing licence for NCA Category 3,2 and 1.</li> <li>8-B Form of Power of Attorney</li> <li>8-C <b>Schedule of confirmation of participation and understanding the scope of works.</b></li> <li>8-D Schedule of Major Items of Plant</li> <li>8-E Schedule of Key Personnel and Signed CV</li> <li>8-F Schedule of Road Works Completed Satisfactorily and Certified together with completion certificates or their proof of execution</li> <li>8-G Schedule of ongoing Works</li> <li>8-H A declaration that the bidder will not engage in any corrupt or fraudulent practice and</li> <li>8-I A declaration that the person or his or her sub-contractors are not debarred from participating in procurement proceeding</li> <li>9 Schedule of Supplementary Information on Financial standings</li> <li>9-A Audited Financial Accounts.</li> <li>9-B Construction Turnover.</li> <li>9-C History of Non-Performance and Ligation History</li> <li>10 Work Execution Programme.</li> <li>11 Priced Bill of Quantities</li> <li>12 Drawings</li> <li>13 Specifications</li> <li>14 Conditions of Contract.</li> </ol> |
| 17.2 | The format indicated above <b>Shall</b> be used for submission of this tender.  |
| 17.3 | <b>Original and one copy</b> to be submitted, Sealing and Marking of tenders will be as per clause 17 of ITT <u>Copy must be replica of the original</u>  |
| 23.5 | <p><b><u>Examination of and Determination of Responsiveness</u></b></p> <p>Determination of a Tender's responsiveness will be based on the contents of the Tender itself without recourse to extrinsic evidence</p>   |
|      | (a) <b>Details of experience and past performance of the tenderer</b> The contractor must have:   |

|  |   |
|--|---|
|  | <p>i. Successfully completed, as a prime contractor or subcontractor or management contractor, in the execution of at least <b>Two (2) Rehabilitation contracts</b> of a similar nature and comparable in complexity methods/technology or other characteristics to the proposed contract within <b>the last Five (5) Years, each with a minimum value at least KES 200 Million (Kenya Shillings Two Hundred Million Only) successfully and substantially completed</b></p> <p>ii. Average annual Construction Turnover of <b>KES. 500 Million</b>, calculated as total certified payments received for contracts in progress or completed, within the last Five[5] years in the role of contractor, subcontractor, or management contractor prior to the applications submission deadline.</p>   |
|  | <p>The minimum qualification of key personnel are as listed:</p> <p>(i) <b>Bachelor's degree</b> in Civil Engineering with minimum Seven (7) years' experience in road works for <b>Site Agent</b>. Training in low volume seal technology provided by Kenya Institute of Highway and Building Technology (KIHBT) or equivalent Government Institution, will be an added advantage</p> <p>(ii) <b>Ordinary Diploma with Land Survey</b> or Equivalent with minimum of Five (5) years' experience in road works for the <b>surveyor</b> and</p> <p>(iii) <b>Ordinary Diploma Civil Engineering/Building and Construction</b> with minimum 5 years' experience in road works for <b>Foremen</b>.</p>  |
|  | <p>(b) <b>Equipment Capabilities:</b> The bidder should list down with summary of their details , the major plants and equipment's as per schedule 4 of schedule of supplementary information. – Bidder must attach evidence of ownership, Lease agreement or any hiring arrangements. Bidders with proof of ownership of own equipment's will be awarded full marks, Leasing agreement will be awarded 75 % of full marks whereas proof of hiring from Mechanical and Transport Department will be awarded 25% of the full marks</p>   |
|  | <p>(c) <b>Financial Soundness;</b></p> <p>i) The bidder should demonstrate that <b>the firm has access to or has available, liquid assets, unencumbered real assets, lines of credit, and other financial means sufficient to meet the construction cash flow for a period of 2 months, estimated at 20% of the estimated tender sum.</b></p> <p>ii) <b>Signed and stamped Audited accounts</b>, balance sheets and computed working capital for the last three (3) years should be submitted and must demonstrate the soundness of the Applicant's financial position. The practicing Auditors Registration number <b>must</b> be indicated.</p> <p>iii) The bidder's financial information will be assessed in terms <b>Liquidity Ratios, current ratio and the point scale criteria</b> on their financial position given on this basis The bidder is therefore required to submit this.</p> |
|  | <p>(d) Bidders shall also submit <b>proposals of work execution programmed in sufficient detail to demonstrate the adequacy of the bidders' proposals to meet the technical specifications and the completion time</b></p>  |
|  | <p>(e) The bidder must provide most current history of litigation and non-performance.</p>  |
|  | <p>(f) The pass mark for Technical Evaluation shall be <b>75%</b>.</p>  |

### 3.2. SECTION III (B): TECHNICAL EVALUATION CRITERIA

This Section shall apply to tenderers whose bids have been determined to be responsive and have met all the Mandatory requirements based on the qualification Criteria as per the instruction to bidders. The information to be provided in relation to each factor and the definitions of the corresponding terms are included in the respective supplementary information Forms (Schedules). Table 3.2 summarises the post qualification score.

The Technical Evaluation Committee shall examine tender documents and score them based on their validity, accuracy and quality. Table 3-3 on the other hand illustrates how the marks will be tallied for each bidder based on their responsiveness to ITT. Where the bidder fails to meet the requirement, the bidder shall be disqualified.

**Table 3.2: Post Qualification Score.**

The information to be provided in relation to each factor in table 3.2 below and the definitions of the corresponding terms are included in the respective supplementary information Forms (Schedules).

| Table 3.2 Contractors Capability To Supervise and Perform the Works |    |                   |  |  |       |
|---|----|-------------------|--|--|-------|
| Qualification Criteria  |    |                   | Submission Requirement   | Compliance and Documentation             | Score |
| Item  | No | Subject           |  |  |       |
| Contractors Capability to supervise and perform the work            | 1  | Equipment holding | <ul style="list-style-type: none"> <li>- Proof of ownership of the required equipment. Attach <b>certified</b> copies of logbooks together with <b>copy of TIMS</b> account print out from NTSA Portal confirming ownership of the Equipment.</li> <li>- Authorization letter of hiring from the Ministry of Transport &amp; Infrastructure Housing and Urban Development &amp; Public Works, Mechanical &amp; Transport Services Department. The authorization letter should be current within the last six months of this tender invitation date.</li> <li>- Or lease agreement from reputable hiring company(s) whose equipment details must be accompanied by <b>certified</b> copies of logbooks and <b>copies of TIMS</b> account print out from NTSA Portal confirming ownership of the Equipment.</li> </ul> <p><b><i>Bidders with proof of ownership of own equipment's will be awarded full marks, Leasing agreement will be awarded 50% of full marks whereas proof of hiring will be awarded 25% of the full marks</i></b></p> | Clause 27.6 of ITT Section V, Schedule 4 | 30    |
|   | 2  | Key Personnel     | Provide List of Key Site technical staff, their certified Qualification Certificates and resume. <ul style="list-style-type: none"> <li>- General Experience ( CV)</li> <li>- Certified copies of Qualification Certificates.</li> </ul>   | Clause 27.5 of ITT Section V, Schedule 5 | 15    |

|                 |                               |  |  |    |
|-----------------|-------------------------------|--|--|----|
| 3               | Past relevant work Experience | <ul style="list-style-type: none"> <li>- Completion certificate, Taking over Certificate or Substantial Completion Certificate of at least <b>two (2) Road contracts</b> of a similar nature and comparable in complexity, methods/technology and or other characteristics to the proposed contract in the last 5 years. <b>Each of the two jobs above should be of minimum value of at least KES 200 Million.</b></li> <li>- Average annual Construction Turnover of KES.500 Million, calculated as total certified payments received for contracts in progress or completed, within the last Five [5] years in the role of contractor</li> <li>- Value of ongoing work must be &lt; 50% of Working Capital</li> </ul>  | Clause 27.4 of ITT Section VII, Schedule 7 and 8   | 16 |
| 4               | Litigation history            | <ul style="list-style-type: none"> <li>- Record of litigation and non-performance in the previous 3 years.</li> </ul>  | Clause 26.11, of ITT Section V, Schedule 10 (4)    | 1  |
| 5               | Financial Capability          | <p>The following information will be assessed from the documents provided by the bidders:</p> <p><b>i. Current financial soundness:</b><br/> <i>Submission of audited balance sheets or other financial statements for the last Three [3] years <b>certified by practicing Auditor whose practicing number MUST be indicated.</b></i><br/>           Computation shall be made for the following Ratios;</p> <ul style="list-style-type: none"> <li>- <i>Liquidity Ratios, Current Ratio and Return on Capital</i></li> </ul> <p><b>ii. Financial Proposal</b></p> <ul style="list-style-type: none"> <li>- Evidence of access to financial resources to meet the qualification requirements equivalent to <b>20% of the tender sum:</b></li> <li>- <i>Authenticated bank statement from the issuing bank for the last 6 months with authority for verification from the bank providing the statements</i></li> <li>- <i>Line of Credit or current bank balance in the last one month of tendering amount equivalent to 20% of the tender sum. The line of credit must be original, signed, stamped and specifies credit limit.</i></li> </ul> | Clause 23.5 of ITT Section V, Schedule 10 (1 to 3) | 18 |
| Sub Total Score |                               |  |  | 80 |



| <b>Table 3.2 contractors capability to Supervise and Perform the Works Cont"</b> |            |   |  |                               |              |
|--|------------|---|--|-------------------------------|--------------|
| <b>Qualification Criteria</b>  |            |   | <b>Submission Requirement</b>  | <b>Compliance Requirement</b> | <b>Score</b> |
| <b>Item</b>  | <b>No.</b> | <b>Subject</b>                            |  |                               |              |
| Technical Proposal and comments  | 6          | Mobilization Management plan              | Bidder to submit the following Proposals in accordance with Clause 27.10 of ITT section VII<br>i) Site lay plan out and Site Organization Chart<br>ii) Mobilization and management plan for<br>✓ Materials for use<br>✓ Equipment to be used<br>✓ Personnel to be deployed | Section V, Schedule 11        | 2            |
|  | 7          | Quality and Quantity Management           | Bidder to submit the following Proposals in accordance with Clause 26.1 of ITT section VII<br>- Methodology work execution<br>- Proposals on material testing<br>- Proposal on measurements<br>- Photograph plan   | Section VII, Schedule 11      | 10           |
|  | 8          | Working Schedule and Projected Cash flow. | Bidder to submit the following Proposals in accordance with Clause 26.1 of ITT section VII<br>1. Signed work programme chart<br>2. Signed Cash flow plan during the contract period.   | Section VII, Schedule 11      | 2            |
|  | 9          | Work safety management                    | Bidder to submit the following Proposals in accordance with Clause 26.1 of ITT section VII<br>the following shall be provided;<br>- Proposals on traffic control<br>- workers safety &<br>- accident prevention  | Section VII, Schedule 11      | 2            |
|  | 10         | Environmental and social management       | Bidder to submit the following Proposals in accordance with Clause 26.1 of ITT section VII<br>- Proposal on environmental impact and social mitigation measures  | Section VII, Schedule 11      | 4            |
| <b>Sub Total Score</b>   |            |   |  |                               | <b>20</b>    |
| <b>GRANT TOTAL TECHNICAL SCORE</b>   |            |   |  |                               | <b>100</b>   |

Bidders whose shall **score 75%** and above shall proceed to financial evaluation stage.

Table 3.3: Technical Score Sheet

| Technical Evaluation of Tender No.....in ..... National Park.   |  |   |   |                   |            |                                 |   |   |
|---|--|---|---|-------------------|------------|---------------------------------|---|---|
| Required References to be submitted in Tendering Forms from Tender for evaluation as indicated in section III (A) |  |   |   |                   |            | Evaluated score for Each Bidder |   |   |
| Item  | Sub-Items                                  |   | No Reqd   | Distributed Score | Maxi Score | X                               | Y | Z |
| Contractor's Capability to Execute Works  | Equipment holding                          | Mobile Concrete Mixers and Vibrator                                     | 1   | 1                 | 30         |                                 |   |   |
|   |  | 6 X 4 tippers payload 16 – 20 tones                                     | 8   | 8                 |            |                                 |   |   |
|   |  | Water tankers (18,000 – 20,000lts. capacity)                            | 3   | 3                 |            |                                 |   |   |
|   |  | Wheeled loaders (2m3)   | 2   | 2                 |            |                                 |   |   |
|   |  | Motor graders (93 - 205kW)  | 4   | 8                 |            |                                 |   |   |
|   |  | Crawler Dozer (D6 and above ) or Excavator                              | 2   | 2                 |            |                                 |   |   |
|   |  | Bitumen Distributer   | 1   | 2                 |            |                                 |   |   |
|   |  | Self-propelled single Flat drum vibrating (10 tons)                     | 2   | 1                 |            |                                 |   |   |
|   |  | Pulvimixer  | 1   | 2                 |            |                                 |   |   |
|   |  | Self-propelled single Sheep foot drum vibrating (10 tons)               | 1   | 1                 |            |                                 |   |   |
|   |  | Pneumatic Tyre roller (10Tons)  | 1   | 1                 |            |                                 |   |   |
|   | Key staff                                  | Site Agent  | Minimum Qualification Bachelor's Degree in Civil Eng.   |                   | 2          | 15                              |   |   |
|   |  |   | Certificate of training in Low volume seal technology   |                   | 1          |                                 |   |   |
|   |  |   | Exp. 7Yrs and above   |                   | 1.5        |                                 |   |   |
|   |  |   | Signed CV   |                   | 0.5        |                                 |   |   |
|   |  | Concrete Foreman  | Minimum Dip in Civil Eng.   |                   | 1          |                                 |   |   |
|   |  |   | Exp.5Yrs and above  |                   | 1          |                                 |   |   |
|   |  |   | Signed CV   |                   | 0.5        |                                 |   |   |
|   |  | Earthworks Foreman  | Minimum Dip in Civil Eng.   |                   | 1          |                                 |   |   |
|   |  |   | Exp.5Yrs and above  |                   | 1          |                                 |   |   |
|   |  |   | Signed CV   |                   | 0.5        |                                 |   |   |
|   |  | Bitumen Foreman   | Minimum Dip in Civil Eng.   |                   | 1          |                                 |   |   |
|   |  |   | Exp.5Yrs and above  |                   | 1          |                                 |   |   |
|   |  |   | Signed CV   |                   | 0.5        |                                 |   |   |
|   |  | Surveyor  | Minimum Dip. Cert in Survey and above   |                   | 1          |                                 |   |   |
|   |  |   | Exp.5Yrs and above  |                   | 1          |                                 |   |   |
|   |  |   | Signed CV   |                   | 0.5        |                                 |   |   |
|   | Past relevant work                         | Completion Certificate for at least two similar Works @ KES 200 Million | > 2no. Projects   |                   | 10         | 16                              |   |   |
|   |  | Average annual Construction Turnover of KES.500 Million.                | Over last 5 years   |                   | 6          |                                 |   |   |
|   | History of litigation and non-performance. |   |   | 1                 | 1          |                                 |   |   |
|   | Financial capability                       | Certified audited accounts for the last <b>Three 3yrs</b>               | 2016-2019 FY (3 Years)  |                   | 5          | 18                              |   |   |
|   |  |   | 2017-2019 FY (2 Years)  |                   | 2          |                                 |   |   |
|   |  |   | 2018-2019 FY (1Year)  |                   | 1          |                                 |   |   |
|   |  | Current Financial Soundness ratios,                                     | Financial ratios  |                   | 5          |                                 |   |   |
|   |  |   | Proof of bidders access to financial resources e.g. <b>Authenticated Bank Statement</b> current within the last 6 months or <b>current Line of credit</b> within the last one month-(20% of tender sum) |                   | 8          |                                 |   |   |
| Technical Proposal (Work Execution Programme)   | Mobilization management plan               | Site Organization chat and material mobilization                        |   | 0.5               | 2          |                                 |   |   |
|   |  | Equipment management plan   |   | 1                 |            |                                 |   |   |
|   |  | Personnel mobilization  |   | 0.5               |            |                                 |   |   |
|   | Quality and quantity management            | Methodology statement   |   | 5                 | 10         |                                 |   |   |
|   |  | Proposals on material testing   |   | 2                 |            |                                 |   |   |
|   |  | Proposals on measurements   |   | 2                 |            |                                 |   |   |
|   |  | Photographic Plan   |   | 1                 |            |                                 |   |   |
|   | Work scheduling                            | Work Programme charts   |   | 1                 | 2          |                                 |   |   |
|   |  | Cash flow plan  |   | 1                 |            |                                 |   |   |
|   | Work safety management                     | Traffic control, and accident prevention                                |   | 1                 | 2          |                                 |   |   |
|   |  | Workers safety  |   | 1                 |            |                                 |   |   |

| Technical Evaluation of Tender No.....in ..... National Park.   |                                     |          |                   |            |                                 |   |   |
|---|-------------------------------------|----------|-------------------|------------|---------------------------------|---|---|
| Required References to be submitted in Tendering Forms from Tender for evaluation as indicated in section III (A) |                                     |          |                   |            | Evaluated score for Each Bidder |   |   |
| Item  | Sub-Items                           | No Req'd | Distributed Score | Maxi Score | X                               | Y | Z |
|   | Environmental and social management |          | 4                 | 4          |                                 |   |   |
| Total Score   |                                     |          |                   | 100        |                                 |   |   |

### 3.4 Prequalification Checklist for Completeness and responsiveness

The bidder is provided with the following checklist to confirm if the bidders is complete and responsive.

**Table 3.4:** Prequalification Checklist for Completeness and responsiveness

| S/No. | Completeness and responsiveness criteria  | References                 | Required  |
|-------|---|----------------------------|---|
| 1     | Form of Bid   | Section IV                 | Amount must be indicated, properly filled, Stamped and signed. The tender sum should be valid for a period of ninety (90) calendar days from the specified date of tender opening   |
| 2     | Bid Security  | Section IV, ITT clause 12. | Unconditional guarantee, in the standard format provided in the tender document<br>Must be valid for 120days  |
| 3     | Eligibility   | ITT clause 2.1             | Provide all information requested,  |
| 4     | Confidential Business Questionnaire   | Section V, Schedule 1      | Properly fill stamp and sign. and Provide all information requested., Conflict of Interest explicitly Stated Copy of National IDs or passports for all the directors and certified copy of Form CR12 (Current within the last 12 months)  |
| 5     | Tax Compliance Certificate  | ITT clause 2.1             | Copy provided must be valid as at the date of Tender opening/closing  |
| 6     | NCA practicing licence  | ITT clause 2.1             | Current annual NCA practicing licence for NCA Category 3, 2 and 1.<br>valid as at the date of Tender opening  |
| 7     | Certificate of Incorporation  | ITT clause 2.1             | Certified Copy of Incorporation certificate valid as at the date of Tender opening/Closing  |
| 8     | Form of Power of Attorney   | Section V, Schedule 2      | Properly fill sign and Stamp  |
| 9     | Schedule of confirmation of participation and understanding the scope of works. | Section V, Schedule 3      | Declaration of participation and understanding the scope of works.<br>Must be stamped and signed by the bidder's representative and be submitted to procuring entity's email <a href="mailto:hps@kws.go.ke">hps@kws.go.ke</a> <b>three (3) days prior</b> to the date of scheduled pre bid conference. Bidders must also attach the form together with an email print out showing proof of submission to the above email in his bid. This form should also contain clearly printed email which will be used in sending credentials for the pre bid meeting. |
| 10    | Schedule of Major Items of Plant  | Section V, Schedule 4      | Fill properly in the format given stamp and sign. In addition, attach proof of ownership in form of <b>certified clear copy</b> of Log book together with a <b>certified copy of TIMS</b> account print out from NTSA Portal confirming ownership of the Equipment or   |

|    |   |  |   |
|----|---|--|---|
|    |   |  | any lease or hire agreement where applicable.   |
| 11 | Schedule of Key Personnel   | Section V,<br>Schedule 5                           | Properly fill and sign in the format given. Also attach signed CV and <b>Certified copies of qualification Certificates</b> as required   |
| 12 | Declaration Form For Non – Corrupt Practices                      | Section V,<br>Schedule 6                           | Fill properly in the format given stamp and sign  |
| 13 | Declaration Form For Non – Debarment by PPRA                      | Section V,<br>Schedule 12                          | Fill properly in the format given stamp and sign  |
| 14 | Schedule of ongoing Works   | Section V,<br>Schedule 7                           | Fill properly in the format given and sign  |
| 15 | Road Works Completed Satisfactorily                               | Section V,<br>Schedule 8                           | Fill properly in the format given and sign and attach certified copies of completion certificates.  |
| 16 | Basic Labour rates  | Section V,<br>Schedule 9                           | Fill properly in the format given and sign  |
| 17 | Schedule of other supplementary, information /Financial standings | Section V,<br>Schedule 10                          | Fill properly in the format given and sign  |
| 18 | Litigation History  | ITT clause 23.5                                    | Fill properly in the format given and sign  |
| 19 | History of Non-performance  | ITT clause 27.12                                   | Fill properly in the format given and sign  |
| 20 | Work Execution Programme  | Section V,<br>Schedule 11 & Table 3.2, clause 23.5 | Must be provided in the format given, brief and to the point  |
| 21 | Priced Bill of Quantities   | Section II,<br>clause 11                           | Fill all rates, prices and amounts  |
| 22 | Preparation and submission of the Tenders                         | Clause 9.1 of the ITT                              | Submit a complete set of tender documents as per the instruction to bidders Clause 9.1 and also ensure that all the forms BOQ and Schedules provided in the tender documents are properly filled for completeness |
| 23 | Copy of Bid Document  | Section II,<br>clause 10 17.3                      | An Original and a copy (a replica of the Original)  |

**Note:** Where certification is a requirement, the bidder shall submit an original certified document by the Commissioner of Oaths who shall append his signature, stamp, and date.

**SECTION IV:**  
**FORM OF TENDER AND TENDER SECURITY**

**FORM OF TENDER**

{Name of  
Contract.....}:

The Director General,  
Kenya Wildlife Service,  
P.O Box 40241,  
Nairobi

Dear Sir,

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

Dated this .....day of .....20.....

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

Duly authorized to sign tenders for and on behalf of

.....*[Name of Tenderer]* of

.....*[Address of Tenderer]*

*Witness:*

Name.....

Address.....

Signature.....

Date.....

**APPENDIX TO FORM OF TENDER**

This Appendix to Form of Tender forms part of the Agreement. (Note: with the exception of the items for which the Employer's requirements have been inserted, the Contractor shall complete the following information before submitting his offer.)

| CONDITIONS OF CONTRACT  | CLAUSE        | AMOUNT  |
|---|---------------|---|
| Bid Security  | 13.2          | KES 2,000,000.00  |
| Amount of Performance Security (Unconditional Bank Guarantee)                             | 4.4           | 5% per cent of Contract Price in the form of Unconditional Bank Guarantee   |
| Submission of Performance Security  |               | Submitted by the 14 <sup>th</sup> day from the date of award letter   |
| Programme to be submitted   | 7.2           | Not later than 14 (fourteen) days after issuance of Order to Commence   |
| Cash flow estimate to be submitted  | 7.2           | Not later than 14 (fourteen) days after issuance of Order to Commence   |
| Minimum amount of Contractors All Risk Insurance Cover                                    | 14.1          | 0.3% of the Contract Price  |
| persons and damage to property<br>Workers compensation                                    |               | Contractor to indemnify employer against claims by those in employment of the contractor  |
| Submission of Contractors All Risk Insurance Cover  |               | Submitted by the 14 <sup>th</sup> day from the date of award letter   |
| Currency of Payment   | 11.7          | Kenya Shilling  |
| Period for commencement, from Engineer's order to commence                                | 7.1           | 14 days   |
| Time for Completion   | 7.1           | Six (6) months  |
| Amount of liquidated damages  | 7.4           | 0.05 % of the contract price per day to a limit of 10% of contract sum.   |
| Limit of liquidated damages   | 7.4           | 10% of contract sum.  |
| Defects Liability period  | 9.1 and 11.5  | Six (6) months calculated from the date stated in the notice under sub clause 8.2   |
| Period of Contract Validity   | 14.1          | From contract award up to the date of settlement of the agreed final statement issued pursuant to clause 60.6 rendering the contractor's clause 60.7 discharge to the employer effective.   |
| Percentage of Retention   | 11.4 and 11.5 | 5% of Interim Payment Certificate   |
| Limit of Retention Money  | 11.4          | 5% of Contract Price  |
| Minimum amount of interim certificates  | 11.2          | 10% of contract price   |
| Time within which payment to be made after Interim Payment Certificate signed by Engineer | 11.3          | 28 (Twenty eight) days  |
| Appointer of Arbitrator   | 15.3          | The Chartered Institute of Arbitrators - Kenya.   |
| Notice to Employer and Engineer   |               | <div> The Employer's address is:<br/> <b>The Director General,</b><br/> <b>Kenya Wildlife Service,</b><br/> <b>P.O. Box 40241 - 00100</b><br/> <b><u>NAIROBI</u></b> </div> <div> The Engineer's address is:<br/> <b>Head of Roads &amp; Fleet</b><br/> <b>Management -,</b><br/> <b>Kenya Wildlife Service,</b><br/> <b>P.O. Box 40241 - 00100</b><br/> <b><u>NAIROBI</u></b> </div> |



## FORM OF TENDER SECURITY

(Note: The tenderer shall complete only this form of bank guarantee. No other Form of Tender Bond or any other forms of security will be accepted. Tenderers who fail to comply with this requirement will be disqualified).

WHEREAS [Name of tenderer].

.....

.....

(Hereinafter called “the Tenderer”) has submitted his tender dated .....

For the

.....

.....

hereinafter called “the Bid”

KNOW ALL MEN by these presents that we [Name of Bank]

.....

.....

of (Name of Country) having our registered offices at

.....

(Hereinafter called the Bank) are bound unto **Kenya Wildlife Services**, (hereinafter called “the Procurement Entity”) in the sum of (in words) Kenya Shillings

.....

(In figures) KES).....

for which payment will be well and truly made to the said Procurement Entity the Bank binds itself, its successors and assigns by these presents.

Signed for the said Bank this ..... day of ..... , 20.....

THE CONDITIONS of this obligation are:

- a) If the tenderer withdraws his Tender during the period of tender validity specified by the bidder on the Tender Form; or
- b) If the Tenderer refuses to accept the correction of errors in his bid; or
- c) If the Tenderer having been notified of the acceptance of his tender by the Procurement Entity during the period of Tender Validity
  - (i) Fails or refuses to execute the Form of Agreement in accordance with the Instructions to bidder when required or
  - (ii) Fails or refuses to furnish the Performance Security, in accordance with the Instructions to bidder.

We undertake to pay to the Procurement Entity up to the above amount upon receipt of his first written demand, without the Procurement Entity having to substantiate his demand, provided that in his demand the Procurement Entity 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 thirty (30) days after the date of expiration of the tender validity, as stated in the Instructions to bidders.

At the request of the Procurement Entity the Tender validity period may be extended by mutual agreement between the Procurement Entity 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 Tender 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.

SIGNATURE AND SEAL OF THE BANK

.....

NAME OF THE SIGNATORY:

.....DATE..... , .....

TITLE OF THE SIGNATORY

.....

NAME OF THE WITNESS:

.....

SIGNATURE OF WITNESS

.....DATE.....

ADDRESS OF THE WITNESS :

**SECTION V:**  
**SCHEDULES OF SUPPLEMENTARY INFORMATION**

**SCHEDULE 1: CONFIDENTIAL BUSINESS QUESTIONNAIRE****REPUBLIC OF KENYA****CONFIDENTIAL BUSINESS QUESTIONNAIRE**

This Confidential Business Questionnaire of the Government of Kenya shall be completed by the Bidder or by each member of a Joint venture if the Bidder is a Joint-venture.

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 also advised that it is a serious offence to give false information on this Form.

**Part 1 - General:**

*Business Name:* .....  
.....

*Location of Business Premises* .....

*Plot No.* ..... *Street/Road* .....

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

*Email address (Please print clearly)*  
.....

*Nature of Business*.....  
.....

*Current Trade License No.* ..... *Expiring Date* .....

*Maximum value of Business which you can handle at any one time:*  
*Kes.* .....

*Name of your Bankers*.....

*Branch*.....

**Part 2(a) - Sole Proprietor:**

*Your Name in full*.....  
.....

*Age:* .....  
.....

*Nationality \* Country of Origin*.....

**\*Attach Copy of Citizenship (Compulsory).**



**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 of all partners (Compulsory) and Certified Copy of Form CR12 (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 (KES)

Issued Shares (KES)

.....

.....

Give details of all directors as follows:

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

**Note: Attach proof of citizenship of all directors (Compulsory) and Certified Copy of Form CR12 (Compulsory).**

Part 2 (d) Interest in the Firm:

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

| Yes | No |
|-----|----|
|     |    |

If yes (specify)

.....

.....

.....

.....

*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 Tender.

.....  
(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.

Both representative and alternate must attach copy of National Identification card or Passport



### SCHEDULE 3: FORM OF CONFIRMATION OF PARTICIPATION AND UNDERSTANDING OF THE SCOPE OF WORKS

1. This is to certify that

[Name/s].....

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

.....

.....

Wish to participate in the pre bid conference scheduled for the purposes of familiarizing myself on the tender document and site conditions in accordance with the instruction to Bidders, for purposes of bidding for the following Tender(s).

.....

.....

.....

.....

.....

[name and location of the project]

2. The official email address for use during the **MANDATORY VIRTUAL PRE-BID CONFERENCE** will be

(Please print clearly) .....

**Signed and Stamped**.....

(Bidder's Representative)

#### NOTE:

- This form must be submitted **three (3) days** before the PRE BID CONFERENCE through the procuring entity's email **[hps@kws.go.ke](mailto:hps@kws.go.ke)** for the purposes of recording/registration and planning of pre-bid conference and opening of tenders in line with Covid-19 measures and guidelines.
- Bidders must also attach the form together with an email print out showing proof of submission to the above email in his bid. This form should also contain clearly printed email which will be used in sending credentials for the pre bid meeting.

**SCHEDULE 4: MAJOR ITEMS OF CONSTRUCTION PLANT AND EQUIPMENT**

| Item No. | Equipment Details                            | Minimum Number Required for the Contract Execution | No. of equipment to be made available for the Contract by the Bidder | Registration No. and Details of Vehicle/Equipment | Date of Arrival on Project (Days after commencement. ) |
|----------|--|--|--|---|--|
| (i)      | Mobile Concrete Mixers and Vibrator          | 1  |  |   |  |
| (ii)     | 6 X 4 tippers payload 16 – 20 tones          | 8  |  |   |  |
|          |  |  |  |   |  |
|          |  |  |  |   |  |
|          |  |  |  |   |  |
|          |  |  |  |   |  |
|          |  |  |  |   |  |
|          |  |  |  |   |  |
|          |  |  |  |   |  |
| (iii)    | Water tankers (18,000 – 20,000lts. capacity) | 2  |  |   |  |
|          |  |  |  |   |  |
|          |  |  |  |   |  |
| (iv)     | Wheeled loaders (2m3)                        | 2  |  |   |  |
| (v)      | Motor graders (93 - 205kW)                   | 4  |  |   |  |

| Item No. | Equipment Details   | Minimum Number Required for the Contract Execution | No. of equipment to be made available for the Contract by the Bidder | Registration No. and Details of Vehicle/Equipment | Date of Arrival on Project (Days after commencement. ) |
|----------|---|--|--|---|--|
| (vi)     | Crawler Dozer (D6 and above ) or Excavator                | 2  |  |   |  |
| (vii)    | Bitumen Distributer                                       | 1  |  |   |  |
| (ix)     | Self-propelled single Flat drum vibrating (10 tons)       | 2  |  |   |  |
| (x)      | Pulvimixer  | 1  |  |   |  |
| (xi)     | Self-propelled single Sheep foot drum vibrating (10 tons) | 1  |  |   |  |
| (xii)    | Pneumatic tyre Roller (10 Tonnes)                         | 1  |  |   |  |

The bidder shall enter in this schedule all major items of plant and equipment which he proposes to bring to site. **Only reliable plant in good working order, and suitable for the work, shall be shown on this Schedule.**

The bidder must attach proof of ownership or authorized letter of hire from reputable agencies. Refer to Table 3.2 for Submission requirements and Table 3.3 for award of scores on equipment holding.

I certify that the above information is correct.

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

Name of Signatory: .....

**SCHEDULE 5: KEY PERSONNEL****i) Key Personnel proposed by Tenderer**

The Bidder shall list in this schedule the key professional and technical personnel he will employ, providing Proof of qualifications, experience, position held and nationality.

| Name of Key Staff | Designation        | Required (attach certified copies of qualification certificates) |   |
|-------------------|--------------------|--|---|
|                   | Site Agent         | Qualification  | Bachelor's degree in Civil Engineering/Equivalent |
|                   |                    | General Experience   | At least 7 yrs                                    |
|                   | Concrete Foreman   | Qualification  | Ordinary Dip in Civil Engineering/Equivalent      |
|                   |                    | Minimum Specific Experience to these Proposed works              | 5 years   |
|                   | Earthworks Foreman | Qualification  | Ordinary Dip in Civil Engineering/Equivalent      |
|                   |                    | Minimum Specific Experience to these Proposed works              | 5 years   |
|                   | Bitumen Foreman    | Qualification  | Ordinary Dip in Civil Engineering/Equivalent      |
|                   |                    | Minimum Specific Experience to these Proposed works              | 5 years   |
|                   | Surveyor           | Qualification  | Ordinary Dip in Engineering Survey/Equivalent     |
|                   |                    | General Experience   | At least 5 yrs                                    |

I certify that the above information is correct.

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

**Note**

The CV's for each of the proposed key should be ***presented in the format*** indicated in the next page. ***Certified copies of the academic qualifications for each key staff must be attached.*** The Certification shall be by the Commissioner of oaths who shall append his signature, date and stamp with the document being submitted in original.

a) **Format of Resume of Proposed Personnel** (use the same format for all other required staff)

|                              |           |   |                                    |                                      |
|------------------------------|-----------|---|------------------------------------|--------------------------------------|
| <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>  |                                    | <b>Telephone No</b><br><b>E-mail</b> |
| <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 / Project / Position / Role in project</b>   |                                    |                                      |

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

**Note:** Please attach **Certified Copies of Qualification Certificates**

## SCHEDULE 6: SELF DECLARATION THAT THE PERSON/TENDERER WILL NOT ENGAGE IN ANY CORRUPT OR FRAUDULENT PRACTICE

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

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

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

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

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

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

.....

(Title)

(Signature)

(Date)

**Bidder's Official Stamp**

**SCHEDULE 7: SCHEDULE OF ONGOING PROJECTS**

Bidders should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, or for which an unqualified, or full completion certificate has yet to be issued.

| Name of Contract | Procurement Entity's contact address/fax | Value of Works (KES) | Date of commencement (M/YR) | Date of completion (M/YR) | Physically completed up to date % |
|------------------|--|----------------------|-----------------------------|---------------------------|-----------------------------------|
|                  |  |                      |                             |                           |                                   |
|                  |  |                      |                             |                           |                                   |
|                  |  |                      |                             |                           |                                   |
|                  |  |                      |                             |                           |                                   |

**NOTE:** Provide the requested information as per the table above. Information presented in other format will be accepted (you may use an extra page of this format)

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

Signature of bidder: ..... Date: .....

**SCHEDULE 8: SCHEDULE OF ROADWORKS CARRIED OUT BY THE TENDERER IN THE LAST FIVE YEARS**

| S/No. | DESCRIPTION OF WORKS | CLIENT'S NAME | VALUE OF WORKS (KES) | YEAR COMPLETED |
|-------|----------------------|---------------|----------------------|----------------|
|       |                      |               |                      |                |
|       |                      |               |                      |                |
|       |                      |               |                      |                |
|       |                      |               |                      |                |
|       |                      |               |                      |                |
|       |                      |               |                      |                |
|       |                      |               |                      |                |
|       |                      |               |                      |                |
|       |                      |               |                      |                |
|       |                      |               |                      |                |
|       |                      |               |                      |                |
|       |                      |               |                      |                |

I certify that the above works were successfully carried out (**Bidders must attach completion certificates/ Substantial completion certificates**)

Signature and stamp of the tenderer.....

Date.....



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

The rates inserted in this schedule will be those used in determining changes in cost of local labour market.

| LABOUR CATEGORY     | MONTH/SHIFT/HOUR | UNIT | RATE (KES) |
|---------------------|------------------|------|------------|
| Skilled Labour      |                  |      |            |
| Semi-Skilled Labour |                  |      |            |

NOTE: Categories to be generally in accordance with those used by the Kenya Building Construction Engineering and Allied Trade Workers Union and Ministry of labour

I certify that the above information is correct.

Signature of bidder: ..... Date:.....

**SCHEDULE 10: FINANCIAL CAPACITY/CURRENT COMMITMENTS**

1. Financial reports for the last three (3) years, balance sheets, profit and loss statements, auditors' reports for the last three calendar years with certified English translation where appropriate. 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 (bank to fill attached form).

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

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

.....  
 .....

Total amount of credit line KES. ....

**(Attach a valid and current copy of the current Letter of Line of credit from the Bank.)**

- (b) Attach certified copies of financial bank statements of the last six months.

3. Name, address, telephone, email address of the Tenders' Bankers who may provide reference if contacted by the Contracting Authority.

.....  
 .....

4. Information on History of Non performing contract and current Litigation in which the Tenderer is involved.

- a) Provide Information on History of Non performing contract

| OTHER PARTY (IES) | DETAILS OF NON PERFORMANCE | AMOUNT INVOLVED (KES) |
|-------------------|----------------------------|-----------------------|
|                   |                            |                       |

- b) Provide Information on current Litigation involved.

| OTHER PARTY (IES) | CAUSE OF DISPUTE | AMOUNT INVOLVED (KES) |
|-------------------|------------------|-----------------------|
|                   |                  |                       |

***All the requested information in spaces provided in the schedule 1-12 must be duly filled by the bidder.***

I certify that the above information is correct

Signature of bidder:..... Date:.....

## **SCHEDULE 11: WORK EXECUTION PROGRAMME**

Give a brief description of how you plan to carry out the works within the contract period. 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 WEP will be used hand in hand with Supervision Check-list Manual indicated in Section –IX and the Supervision Check-list sheet in Appendix II below of the Tender Document for evaluation of the contractors’ performance and scoring during works execution. .

The Content s of Works Execution Programme shall include:

### **ii. General information**

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

- Project name,
- 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

### **iii. Mobilization Management Plan**

- Site office Plan and site organization chart,
- Material mobilization plan
- Personnel management plan
- Equipment management plan

### **iv. 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.

### **v. Quality and Quantity Management**

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

### **vi. Safety management plan**

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

**vii. 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.

**Note:**

Works Execution Programme to be submitted by the bidder shall not be less 3 pages and not more than five (5) pages covering all the above stated items.

## **SCHEDULE 12: SELF DECLARATION THAT THE PERSON/TENDERER IS NOT DEBARRED IN THE MATTER OF THE PUBLIC PROCUREMENT AND ASSET DISPOSAL ACT 2015.**

I, ....., of Post Office Box .....  
being a resident of ..... in the Republic of .....  
do hereby make a statement as follows:-

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

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

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

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

(Title)

(Signature)

(Date)

**Bidder Official Stamp**

**SECTION VI:**  
**CONDITIONS OF CONTRACT**

## **SECTION V (A) - CONDITIONS OF CONTRACT PART I: GENERAL CONDITIONS OF CONTRACT**

The Conditions of Contract, Part I: General Conditions shall be those forming Part I of the “Conditions of Contract for Works of Civil Engineering construction,” fourth edition 1987, reprinted in 1992 with further amendments, prepared by the Fédération Internationale des Ingénieurs-Conseils (FIDIC). These Conditions are subject to the variations and additions set out in Part II hereof entitled “Conditions of Particular Application.”

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

FIDIC Secretariat  
P.O. Box 86  
1000 Lausanne 12  
Switzerland  
Facsimile: 41 21 653 5432  
Telephone: 41 21 653 5003

## SECTION V (B) - 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)

### NOTES:

The Conditions of Particular Application (Conditions of Contract, Part II) modify and compliment like-numbered clauses in the General Conditions of Contract (Conditions of Contract, Part I). Both parts shall be read together, with the Conditions of Particular Application prevailing in case of conflict or discrepancy. Clauses of the General Conditions of Contract not specifically modified and supplemented shall remain in effect.

## DEFINITIONS AND INTERPRETATION

### 1.1 Definitions

- (a) (i) The “Employer” shall be The DIRECTOR GENERAL, KENYA WILDLIFE SERVICE.
- (ii) The “Engineer” shall be The HEAD ROADS AND FLEET MANAGEMENT or any other competent person appointed by the Employer, and notified to the Contractor, to act in replacement of the Engineer.
- (b) (i) Insert in line 2 after “the Bill of Quantities”, the following, ”the rates entered by the Contractor (whether or not such rate be employed in computation of the Contract Price)”.
- (ii) The word “Tender” and its derivatives are synonymous with the word ‘Bid,’ and its derivatives, and the words ‘Tender Documents’ with ‘Bidding Documents’. The words “Appendix to Tender” and the words “Appendix to Bid” shall have the same meaning as the words ‘Appendix to the Form of Bid’.”

Add the following paragraph at the end of Subclause 1.1 (f) (vii):

The aforesaid includes lands waters, river beds and other places on, under, in through which the Works are to be carried out including all offices, workshops or places where materials are to be stored or used for the purposes of the Contract. It also includes quarries; borrow pits, stock pile areas and spoil areas”

Add Subclause 1.1 (g) (v):

Dates shall be construed in accordance with the Gregorian Calendar.

Add the following Subclause 1.6:

### 1.6 Gender Specific Words

Wherever in the Contract Documents the word ‘man’ or ‘men’ is used directly or as a suffix it means ‘woman’ or ‘women’ also. The Word ‘he’ includes ‘she’ also.

## ENGINEER AND ENGINEER’S REPRESENTATIVE

### 2.1 Engineer’s Duties and Authority

With reference to Sub-Clause 2.1(b): Add the following

The Engineer shall obtain specific approval of the Employer before taking any of the following actions specified in the General Conditions of Contract:

- (a) Consenting to the sub-letting of any part of the Works under Clause 4.
- (b) Certifying additional cost determined under Clause 12
- (c) Determining an extension of time under Clause 44
- (d) Issuing a variation under Clause 51 except:
  - (i) In an emergency situation as reasonably determined by the Engineer, or
  - (ii) if such variation would increase the Contract Price by less than the amount stated in the Appendix to Bid.

- (e) Certifying payment if the Contract Price will be exceeded
- (f) Authorising the use of provisional sums in excess of the monetary limit for variations
- (g) Issuing any Taking-over Certificate
- (h) Certifying additional payment/costs under Clause 65;
- (i) Issuing a Defects Liability Certificate under Clause 62
- (j) Fixing rates or prices under Clause 52.

Notwithstanding the provisions set out above, to obtain approval of the employer, if in the opinion of the Engineer, an emergency occurs affecting the safety of life or of the Works or of adjoining property, he may, without relieving the Contractor of any of his duties and responsibilities under the Contract, instruct the Contractor to execute all such work or to do all such things as may, in the opinion of the Engineer, be necessary to abate or reduce the risk. The Contractor shall forthwith comply, despite the absence of approval of the Employer, with any such instruction of the Engineer. The Engineer shall determine an addition to the Contract Price, in respect of such instruction, in accordance with Clause 52 and shall notify the Contractor accordingly, with a copy to the Employer.”

## ASSIGNMENT AND SUBCONTRACTING

### 4.1 Subcontracting

Delete the second and third sentence and substitute:

All Solar Street lighting Works shall be executed by a Nominated Subcontractor to be appointed by the Client.

In addition no single subcontract may be for more than 10 percent of the Contract Price nor shall the sum of all subcontracts exceed 25 percent of the Contract price. No one subcontractor may be awarded subcontracts to a total value greater than 10 percent of the Contract Price. All subcontracts greater than 2 percent of the Contract Price are to have the prior consent of the Engineer. The Contractor shall however, not require such consent for purchases of materials or to place contracts for minor details or for any part of the Works of which the manufacturer or supplier is named in the Contract. Any such consent shall not relieve the Contractor from any liability or obligation under the Contract and he shall be responsible for the acts, defaults and neglects of any subcontractor, his agents, servants or workmen as fully as if they were the acts, defaults or neglects of the Contractor, his agents, servants or workmen.

Add the following:

The Engineer should satisfy whether:

- (a) The circumstances brought out warrant such subcontracting; and
- (b) The subcontractors so proposed for the Work possess the necessary experience, qualifications and equipment for the job proposed to be entrusted to them in proportion to the quantum of work to be subcontracted.

If the contractor proposes payments to be made directly to that subcontractor, this should be subject to specific authorization by the Contractor so that such consent does not relieve him from any liability or obligations under the contract.

## CONTRACT DOCUMENTS

### 5.1 Language and Law

- (a) The language governing this Contract shall be English.

The “Ruling Language” which shall be used to interpret this Contract shall be English. Communication between the Contractor and Engineer or Engineer’s representative shall be in English.

- (b) The laws applicable to this Contract shall be the laws of the Republic of Kenya. Except to the extent otherwise provided by the Contract, the Kenyan courts shall have exclusive jurisdiction to hear and to determine all actions and proceedings in connection with and arising out of the Contract and the Contractor shall submit to the jurisdiction of Kenyan courts for the purpose of any such actions and proceedings.

## 5.2 Priority of Contract Documents

Delete the documents listed as (1) to (6) and substitute with the following:

- (1) The Contract Agreement (if completed)
- (2) The Letter of Acceptance
- (3) Minutes of Pre-Contract Award Discussion
- (1) Bid and Appendix to Form of Bid
- (2) The Conditions of Contract, Part II; Conditions of Particular Application
- (3) The Conditions of Contract, Part I; General Conditions of Contract
- (4) The Special Specifications
- (5) The Standard Specifications for Road and Bridge construction , Ministry of Transport and Communications, 1986
- (6) Clarifications and Rectifications accepted by the Employer
- (7) The Drawings
- (8) The Priced Bill of Quantities
- (9) Schedules and other documents forming part of the Contract.

Add to Clause 6 the following Subclauses 6.6 to 6.10:

### 6.6 Metric Units

All units used in the Contract shall be metric and for measurement of angles the 360 degrees circles systems shall be used

### 6.7 Intent of Drawings and Specifications

The intent of Drawings and Specifications is to describe the details for the complete construction and maintenance of the Works which the Contractor undertakes to perform in accordance with the terms of the Contract.

Where the Drawings or Specifications describe portions of the Works in general terms, but not in complete detail, it is understood that only materials and workmanship of the first quality are to be used. First quality refers to the quality as approved by the Engineer.

Unless otherwise specified, the Contractor shall furnish all labour, material, tools, equipment and incidentals, and do all the work involved in executing the Contract in a satisfactory and workman-like manner.

### 6.8 Design, Drawings and Specifications Prepared by the Contractor

No payment will be made to the Contractor for undertaking any kind of design work, preparation of drawings and specification, other than that specifically required by the terms of the Contract. Payment for design work, preparation of drawings and specifications, specifically required by the terms of the Contract shall be deemed to be included in the Rates and Lump Sums entered in the Bill of Quantities.

### 6.9 Submissions of Designs and Drawings

All detailed working drawings/shop drawings, design calculations and fabrication drawings for Temporary Works (such as formwork, staging, centring, scaffolding, specialized constructional, handling and launching equipment and the like) as well as bar bending and cutting schedules for reinforcement, material lists for structural fabrication including detailed drawings for templates, end anchorage and temporary support details for pre-stressing cables shall be prepared by the Contractor at his own cost and forwarded in triplicate to the Engineer at least six weeks in advance of actual constructional requirements. The Engineer will check and return one copy of the same for the Contractor's use with amendments, if any, noted in red ink. Such approval shall not relieve the Contractor of any of his responsibilities in connection with temporary works.

The Contractor will supply four copies of the approved drawings for the Engineer's use. The cost of preparing all such items of work shall be deemed to have been included in the respective rates/prices quoted by the Contractor in the Bill of Quantities.

### 6.10 As-Built Drawings

On completion of the Works, the Contractor shall arrange to furnish to the Employer two (2) bound sets of all "As Built" drawings for every component of the Works at his own cost, all such copies being on Polyester film of quality to be approved by the Engineer or his Representative and digitized copy (2 No.) in a Compact Discs (CDs) of quality approved by the Engineer or his Representative. The Taking-over Certificate of the Works, as per the

provisions of Clause 48.1 herein, shall not be issued by the Engineer in the event of the Contractor's failure to furnish the aforesaid "As Built" drawings for the entire works."

Add to Clause 7 the following Subclauses 7.4 to 7.6:

#### **7.4 Drawings for Temporary Works**

Drawings for Temporary works to be carried out by the Contractor shall be submitted to the Engineer for approval.

Working drawings of concrete structures consisting of such details as may be reasonably required for the successful execution of the work and which are not included in the plans furnished by the Employer, shall be prepared by the Contractor. Three sets of working drawings shall be submitted to the Engineer for approval.

#### **7.5 Size of Drawings**

All drawings submitted by the Contractor shall for convenience in filing be as far as possible of a uniform size, and not more than 1010 mm x 680 mm. The drawings shall be numbered and dated, and shall include the title of the Contract at the bottom of the drawing followed by the title of the drawing. All drawings shall have the appropriate scales drawn on them and notes shall be in English. All amendments to such drawings shall be noted and dated on the drawing.

#### **7.6 Submission to the Engineer**

Whenever the Contractor is required to submit to the Engineer proposals, details, drawings, calculations information, literature, materials, test report and certificates, the Engineer will consider each submission and, if appropriate, will reply to the Contractor in accordance with the relevant provision of the Conditions of Contract. Unless a defined period of time is stated in the contract, each submission shall be made by dates to be agreed with the Engineer having regard to the approved programme and the need to give the Engineer adequate time to consider each submission.

The approval of the Engineer of any submission shall not relieve the Contractor of his responsibilities under the Contract.

### **GENERAL OBLIGATIONS**

Add to Subclause 8.1 the following:

#### **8.1 Contractors General Responsibilities**

- (a) Within 28 days after receipt of the Engineer's Order to Commence the Works, the Contractor shall establish an office at the Site duly equipped for the Contractor's representative and his superintending personnel.

The Contractor shall maintain this office throughout the Contract period. The said office shall be the legal domicile of the Contractor, and all correspondence sent to this office shall be deemed to have been sent to the Contractor's head office.

- (b) A foreign Contractor or a Kenya-foreign joint venture, if not registered in Kenya under the applicable laws of Kenya, shall undertake registration upon receipt of the Letter of Acceptance and prior to signing of the Contract.

Add to Clause 8 the following Subclause 8.3:

#### **8.3 General Requirements**

- (a) Materials delivered to the site by Contractor or materials made available or supplied by the Employer shall be used solely for the execution of the Works.
- (b) The Contractor shall minimise the pollution of and disturbance of lands, roads and other places on and around the Site. No trees or other vegetation shall be removed except to the extent necessary for the works.
- (c) The Contractor shall comply with the current Government regulations with regard to the transport, storage and use of explosives and radio-active materials and use of radio communication equipment.

- (d) The Contractor shall take all reasonable precautions:
  - (i) In connection with any rivers, streams, waterways, drains, water courses, lakes and the like to prevent as a consequence of the works, silting, erosion of beds and banks and pollution of the water that may adversely affect the quality or appearance thereof or cause injury or death to human, animal or plant life.
  - (ii) In connection with underground water resources, including percolating water, to prevent any interference as a consequence of the work with the supply to or abstraction from such sources and to prevent pollution of water that may adversely affect the quality thereof.
- (e) The Contractor shall provide, maintain and remove on completion of the Works, settling lagoons and other facilities to minimise pollution due to the Contractor's operations including but not limited to quarrying, aggregate washing, concrete mixing and grouting.
- (f) The Contractor shall provide, maintain and remove on completion of the Works, fencing around the site installations including housing, camps, offices and laboratories, providing free access to the Employer, the engineer, other Contractors and any other persons entitled to such access and provide appropriate security measures on such access roads.
- (g) All buildings erected by the Contractor upon the site and camp sites, and the layout of the buildings and the sites, shall comply with the Laws of the country and all local By-laws in so far as they are applicable.
- (h) The Contractor shall be absolutely and solely responsible for the safety and security of Temporary Works or other works and for the Plant and Contractor's Equipment in connection therewith which may be erected or provided for the execution of the Contract Works.  
  
This provision shall be applicable to all temporary Works, Plant and Contractor's Equipment whenever provided and erected by the Contractor or his Subcontractor(s) for the purpose of or in connection with the Contract Works.
- (i) The contractor shall keep in close contact with the police, Labour officers and all other officials as appropriate regarding their requirements for the control of workmen, restricted area permits or other matters and shall provide all assistance and facilities which may be required by such officials in the execution of their duties.

## 10.1 Performance Security

Replace the text of Subclause 10.1 with the following:

The Contractor shall provide security for his proper performance of the Contract to the Employer within 28 days after the receipt of the Letter of Acceptance. The Performance Security shall be as stipulated in the Appendix to the Form of Bid. The Performance Security shall normally be in the currency or currencies requested for payment by the Contractor and in the same proportions as those requested for payment in the Contract. The Contractor shall notify the Engineer when providing the Performance Security to the Employer.

The Performance Security shall be a bank guarantee which shall be issued either:

- (a) By a bank located in Kenya or a foreign bank through a correspondent established and reputable bank located in Kenya or;

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 and/or legislation or as a result of a variation amounting to more than 25 percent of the portion of the Contract Price payable in a specific currency, the Contractor, at the Engineer's written request, shall promptly increase the value of the Performance Security in that currency by an equal percentage.

The performance security of a joint venture shall be in the name of the joint venture.



## 10.2 Period of Validity of Performance Security

The performance security shall be valid until a date 28 days from the date of issue of the Taking-Over Certificate for the last section in case of partial handover. The security shall be returned to the Contractor within 28 days of expiration.

## 10.3 Claims under Performance Security

Delete sub-clause 10.3

Add the following Subclause 10.4:

## 10.4 Cost of Performance Security

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

## 11.1 Inspection of Site

Add the words “and the Contractor shall be deemed to have based his tender on all the aforementioned” after the words “affect his tender”.

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.

Add a new Subclause 11.2:

## 11.2 Access to Data

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

## 14.1 Programme to be submitted

Delete Subclause 14.1 and replace with the following:

The time within which the Programme shall be submitted shall be twenty eight (28) days. This detailed Programme shall be based upon the programme submitted by the Contractor as part of his bid and shall, in no material manner, deviate from the said programme.

The Contractor shall allow in his Programme for the following 11 public holidays per calendar year in Kenya upon which the Contractor shall not be permitted to work:

- New Year's Day (1st January)
- Good Friday
- Easter Monday
- Labour Day (1st May)
- Madaraka Day (1st June)
- Idd-ul-Fitr
- Mashujaa Day (20th October)
- Jamhuri Day (12th December)
- Christmas Day (25th December)
- Boxing Day (26th December)

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

The Programme shall be submitted in two copies in the form of a Critical Path Method Network (CPM Network) showing the order of procedure and description of the construction methods and arrangements by which he proposes to carry out the Works. In addition, the aforesaid critical path programme should be supplemented by:

- (i) A Gantt/time-bar chart detailing each construction activity, showing for each construction activity; the periods of construction activity planned; the percentage completion anticipated per month; the total estimated quantity of work; the average monthly production planned, and
- (ii) A detailed work method statement in respect of each construction activity. It should also be supplemented by a time-bar chart of the same programme. The programme shall be coordinated with climatic, groundwater and other conditions to provide for the completion of the works in the order and by the time specified. The Programme shall be revised at quarterly intervals and should include a chart of the principal quantities of the forecast for execution monthly.

The detailed work method statement of each particular construction activity shall list by category/type and quantity the labour, skilled labour, supervisors, plant, equipment and materials to be employed on the particular construction activity; together with: the estimated average daily production anticipated, the estimated equipment availability and utilisation factor anticipated and a detailed step description of the way in which resources are to be utilised to achieve the required rate of construction/production.

The Contractor's attention is particularly drawn to the need to familiarise himself with customs procedures in connection with importation and to allow sufficient time in its programme for these to be completed.

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

If details of the Contractor's proposals for Temporary Works are required by the Engineer for his own information the Contractor shall submit such detail 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 so as to achieve a continuous and consecutive output of fully completed road works inclusive of bridge works and culverts within the time limits specified in the Contract.

The Contractor shall, wherever required by the Engineer, also provided in writing for information a detailed description of the arrangements and methods which the Contractor proposes to adopt for the execution of any particular part of the Works as directed by the Engineer.

Progress reporting by the Contractor should be supported on a monthly basis with an up-to-date analysis of the progress including a statement on items which are or are about to become critical to the Progress of Works, along with proposals on how the Contractor intends to address the situation.

The consent by the Engineer on any programme shall have no contractual significance other than that the Engineer would be satisfied if the work is carried out according to such programme, and that the Contractor undertakes to carryout the work in accordance with the programme, nor shall it limit the right of the Engineer to instruct the Contractor to vary the programme should circumstances make this necessary. The above shall not be taken to limit the right of the Contractor to claim for damage or extension of time to which he may be fairly entitled to in terms of the General Conditions of the Contract for delay or disruption of his activities.

Notwithstanding the General Conditions of Contract Clause 14.1, the programme to be submitted for the execution of the Works shall, in addition to the programme of pure construction activities, include an alleviation programme for Site staff and labour in respect of Sexually Transmitted Disease (STD) including HIV/AIDS. The STD and HIV/AIDS alleviation programme shall indicate when, how and what cost the Contractor plans to satisfy the requirements of Subclause 19.1 herein and the related Technical Specifications. For each component, the programme shall detail the resources to be provided or utilized and any related sub-contracting proposed. The programme shall also include provision of a detailed cost estimate with supporting documentation.

## 14.2 Revised Programme

Add the following at the end of this subclause:

The Contractor shall, when instructed by the Engineer, amend, correct or modify the Programme of the Works so as to take into account any delays and/or advances and modifications designs or for other reasons considered necessary by the Engineer.

If, during the progress of the work, the quantities of work performed per month fall below those shown in the Programme, or if the sequence of operations is altered, or if the Programme is deviated from in any other way, the Contractor shall, within two weeks after being notified by the Engineer, submit a revised Programme necessary to ensure completion of the Works or any part thereof within the Time for Completion, or any extended time granted pursuant to Clause 43 and Clause 44 of the General Conditions of Contract or so as to take into account any delays or advances or for other reasons considered necessary by the Engineer without prejudice to the Employer's right under Clause 63 of the General Conditions of Contract.

Any proposal to increase the tempo of work must be accompanied by positive steps to increase production by providing more labour and plant on Site, or by using the available labour and plant in a more efficient manner.

Should the Employer request and the Contractor undertake to finish the whole or part of the Works ahead of the time originally required by the Contract, payment for accelerating the work shall only be made if agreed to beforehand in writing and according to the terms of such agreement.

If the Programme is to be revised by reason of the Contractor falling behind his Programme, he shall produce a revised Programme showing the modifications to the original Programme to complete the Works within the time as defined in Clause 43 of the General Conditions of Contract.

The Employer shall have the right to withhold payment at any time if the Contractor fails to submit the contractual construction programmes in accordance with Subclause 14.1 above or revise construction programmes due to his negligence, failure or omission.

### **14.3 Cash Flow Estimate to be Submitted**

The time limit within which a detailed cash flow estimate is to be submitted shall be twenty eight (28) days.

In preparing the estimates, the Contractor shall make provision for Advance payment, repayment of advance, retention, payment for services provided by the Employer and timing implications of Clause 60 Certificates and Payments.

A schedule of Payments for both local and foreign currency expected to be made to the Contractor by the Employer, shall be provided.

The cash flow estimate submitted with the bid shall be revised each time the construction Programme is submitted, and revised, under Subclauses 14.1 and 14.2 above.

### **15.1 Contractor's Superintendence**

Add the following at the end of the first paragraph of Subclause 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 Subclause 15.2:

### **15.2 Contractor's Agent or Representative**

The Contractor's agent or representative on the Site shall be an Engineer registered by the Engineer's Registration Board of Kenya in accordance with the Laws of Kenya cap. 530 or have equivalent status approved by the Engineer and shall be able to read, write and speak English fluently.

### **16.2 Engineer at Liberty to Object**

At the end of this clause add "by a competent substitute approved by the Engineer at the Contractor's own expense".

Add the following Subclauses 16.3 and 16.4:

### **16.3 Language Ability of Superintending Staff**

A reasonable proportion of the Contractor's superintending staff shall have a working knowledge of the language specified in the Appendix to Form of Bid pursuant to Subclause 5.1(a), or the Contractor shall have available on site at all times a number of competent interpreters, as required by the Engineer, to ensure proper transmission of instructions and information.

## 16.4 Employment of Local Personnel

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

## 17.1 Setting Out

The following additional paragraph shall apply to the provisions of the Subclause 17.1:

- (d) The checking of all the setting-out of the proposed works relative to existing ground features, to be undertaken prior to the commencement of fabrication of structural steelworks for superstructures. This preparation is to include providing the facility for the Engineer to undertake a timely check on this setting-out and alerting the Engineer to any likely problems foreseen.

The contractor shall give to the Engineer not less than 48 hours of notice of his intention to set out or give layout for any part of the works so that timely assignment can be made for checking the same.

Add the following new Subclause 17.2:

## 17.2 Notice to Engineer

The Contractor shall give to the Engineer not less than 48 (Forty eight) hours notice of his intention to set out or give levels for any part of the works so that timely arrangement may be made for checking or issuing instructions. He shall indicate therein by which date the information, if any, is required by him.”

## 19.1 Safety, Security and Protection of the Environment

Add Subclauses 19.1 (d), (e), (f), (g), (h), (i), (j), (k), (l) and (m) and the subsequent text as follows:

- (d) Notwithstanding the Contractor’s obligation under Subclauses 19.1 (a), (b) and (c) of the Conditions of Contract, the Contractor shall carry out, without limitation, the following measures with a view to reducing or eliminating adverse environmental effects by the site Works:
  - (i) All quarries, borrow pits, diversions and detours shall be filled and landscaped, as far as practical, to their original condition after extraction of construction material.
  - (ii) Soil erosion and sedimentation due to the surface runoff or water from culverts or other drainage structures should be avoided by putting in place proper erosion control measures.
  - (iii) Long traffic diversion roads shall be avoided so as to minimise the effect of dust on the surrounding environment. In any case, all diversions shall be kept damp to reduce dust.
  - (iv) Haulage routes shall be kept as short as possible and watered as necessary.
  - (v) Spillage of oil, fuel, and lubricants shall be avoided. If spilt, they shall be collected and disposed of in such a way that they do not adversely affect the natural environment.
  - (vi) Rock blasting near settlement areas shall be properly coordinated with the relevant officers of the Kenya government in an attempt to minimise levels of noise pollution and community interference.
- (e) The formulation and enforcement of an adequate safety programme shall be the obligation of the Contractor with respect to all the works under this Contract, regardless of whether performed by the Contractor or his Subcontractors. The Contractor shall, within 14 days after commencement of the Works, meet the Engineer to present and discuss his plan for the establishment of such safety measures as may be necessary to provide against accidents, unsafe acts, and so forth.

Within 28 days after commencement of the Works, the Contractor shall submit a written safety, security and environmental protection programme to the Engineer covering the overall works and based on the laws and regulations of Kenya. In addition, he shall prepare special safety programmes for blasting and handling of explosives as may be stipulated in the Specifications.

- (f) The Contractor shall take all due precautions to avoid soil and water contamination by spillage of oil, grease, fuel and paint in the equipment yard, workshop or the site of works. Lubricants should be recycled.

- (g) The Contractor shall install pollution control device in his asphalt plant.
- (h) The Contractor shall implement re-plantation and grading of steep slopes in quarries and borrow pits to prevent disfiguration of landscape.
- (i) The Contractor shall implement compensatory afforestation plan to counteract destruction of vegetation when required to do so by the Engineer. The Contractor shall pay proper attention to the aspect of borrow pit drainage to prevent formation of stagnant pools of water and incidence of mosquito vectors. All borrow pits will be provided with efficient drains which shall be connected to the natural outfalls.
- (j) Notwithstanding implementation of any other provision contained in the Conditions of Contract, the failure on the part of the Contractor or his staff in the cases listed bellow will be considered default on the part of the Contractor and will attract the terms of Subclause 63.1 for remedies.
  - Poor sanitation and solid waste in the workers camp
  - Possible transmission of communicable diseases, including HIV/AIDS, between local people and the Contractor's workers
  - Poaching by the Contractor's workers
- I. Illegal invasion of indigenous people by the Contractor's labour.
- (k) All lights provided by the Contractor shall be screened so as not to interfere with any signal light on the railways or with any traffic or signal lights of any local or other authority.
- (l) The Contractor shall be deemed to be in possession of, and ensure that the Contractor's personnel are fully aware of, relevant safety regulations.
- (m) The Contractor shall ensure that all equipment, tools and other items used in accomplishing the Works, whether purchased, rented or otherwise provided by the Contractor are in safe, sound and good condition for performing the intended function.

Notwithstanding the terms of Clause 19.1 of the General Conditions of Contract, the Contractor shall throughout the contract (including the Defects Liability Period):

- (i) Conduct Information, Education and Consultation (IEC) campaign, at least every other month, addressed to all the Site staff and labour (including all Contractor's Employees, all Subcontractors and Consultant's employees, and all truck drivers and crew marketing deliveries to Site) and to the immediate local communities, concerning the dangers and impact of Sexually Transmitted Diseases (STD) in general and HIV/AIDS in particular;
- (ii) Provide male or female condoms for all Site staff and labour as appropriate; and
- (iii) Provide for STD and HIV/AIDS professional screening, diagnosis, counselling and full treatment(except that in the case of HIV/AIDS cases treatment shall be limited to referral to a dedicated national or regional HIV/AIDS programme)of all Site staff and labour.

Amend Subclause 20.4 to read as follows:

## **20.4 Employer's Risks**

The Employer's risks are:

- (a) Insofar as they directly affect the execution of the Works in Kenya where the Permanent Works are to be executed:
  - (i) War and hostilities (whether war be declared or not), invasion, act of foreign enemies
  - (ii) Rebellion, revolution, insurrection, or military or usurped power, or civil war

- (iii) Ionising radiations, or contamination by radioactivity from any nuclear fuel, or from any nuclear waste from the combustion of nuclear fuel, radioactive toxic explosive or other hazardous properties of any explosive nuclear assembly or nuclear component thereof;
  - (iv) Pressure waves caused by aircraft or other aerial devices travelling at sonic or supersonic speeds
  - (v) Riot, commotion or disorder, unless solely restricted to the employees of the Contractor or of his Subcontractors and arising from the conduct of the Works.
- (b) Loss or damage due to the use or occupation by the Employer of any section or part of the Permanent Works, except as may be provided for in the Contract
  - (c) Loss or damage to the extent that it is due to the design of the Works, other than any part of the design provided by the Contractor or for which the Contractor is responsible, and
  - (d) Any operation of the forces of nature (insofar as it occurs on the 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:
      - i. Prevent loss or damage to physical property from occurring by taking appropriate measures, or
      - ii. Insure against such loss or damage.”

### **21.1 Insurance of Works and Contractor’s Equipment**

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.”

Add the following words at the end of subparagraph (a) and immediately before the last word of subparagraph (b):

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

In Subclause 21.1(b), delete the words “or as may be specified in Part II of these Conditions”.

### **21.2 Scope of Cover**

- (a) Delete the words “from the start of Work at the Site” and substitute with the words “from the first working day after the commencement date”

Add the following Subclause 21.2 (c):

- (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.

Amend Subclause 21.4 to read as follows:

### **21.4 Exclusions**

There shall be no obligation for the insurances in Subclause 21.1 to include loss or damage caused by the risks listed under Subclause 20.4 subparagraphs (a) (i) to (v) above.

Add the following Subclause 21.5:

## 21.5 Insurance of Goods

The Contractor shall insure or cause to be insured all imported goods financed out of the proceeds of the Contract against marine and other hazards incidental to the acquisition, transportation and delivery thereof to the place of use or installation and where appropriate against all usual risks pertaining to the construction of the Works.

## 23.1 Third Party Insurance (Including Employer's Property)

Add the following at the beginning of this Subclause:

**Prior to commencement of the Works ...**

## 23.2 Minimum Amount of Insurance

Add the following at the end of this subclause:

... with no limits to the number of occurrences

## 25.1 Evidence of Terms of Insurance

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 Subclauses 25.5 to 25.8:

## 25.5 Source of Insurance

The Contractor shall be entitled to place all insurance relating to the Contract (including, but not limited to, the insurance referred to in Clauses 21, 23, and 24) with insurers from Kenya which has been determined to be acceptable to the Employer.

## 25.6 Insurance Notices

Each policy of insurance effected by the Contractor for the purpose 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 not more than thirty (30) days after the giving of such notice.

## 25.7 Insurance in Kenya

The risks against which the Contractor is obliged to insure under the Contract shall be insured through established and reputable companies approved by the Employer and located in Kenya and any cover against risks which the Contractor may enjoy shall be insured in Kenya by an approved Kenyan Insurance Company in respect of the Contractor's obligations under the Contract.

## 25.8 Notification to Insurers

It shall be the responsibility of the Contractor to notify the insurers under any of the insurances referred or event which by the terms of such insurances are required to be so notified and 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 subclause whether as a result of avoidance of such insurance or otherwise.

Add the following Subclauses 26.2 and 26.3

## 26.2 Compliance with Statutes, Regulations

The Employer will repay or allow to the Contractor all such sums as the Engineer shall certify to have been properly payable and paid by the Contractor in respect of such fees, provided always that, without prejudice to Subclause 26.1, nothing contained in this sub clause shall be deemed to render the Employer liable to all claims which may be considered to fall within the provisions of Subclause 22.1.

## 26.3 Inspection and Audit by the Funding Agency

The Contractor shall permit the funding agency to inspect the Contractor's accounts and records relating to the performance of the Contract and to have them audited by auditors appointed by the agency, if so required by the agency.

## 28.2 Royalties

Add the following at the end of Subclause 28.2:

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

Add the following Subclauses 29.2 to 29.5:

## 29.2 Passage and Control of Traffic

The Contractor's attention is drawn to Specifications covering the Passage and Control of Traffic and in particular to the requirement for the submission of a detailed Programme for Passage of Traffic as required following the award of the Contract.

In case any operation connected with traffic which necessitates diversion, obstruction or closure of any road, railway or any other right of way, the approval of the Engineer or the Engineer's Representative and the concerned authorities shall be obtained well in advance by the Contractor.

## 29.3 Reinstatement and Compensation for Damage to Persons or 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 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 to become due to the Contractor.

The Contractor shall promptly refer to the Employer all claims, which may be considered to fall within the provisions of Clause 22.1.

## 29.4 Protection of Existing Works and Services

The Contractor shall acquaint himself with the position of all existing services, such as sewers, surface water drains, cables for electricity, data and telephone, telephone and lighting poles, water mains, and the like before commencing any excavation or other works likely to affect the existing services.

The Contractor will be held liable for all damage to roads, irrigation ditches, mains pipes, electric cables, lines or services of any kind caused by him or his subcontractors in the execution of the Works. The Contractor must make good any damage without delay and, if necessary, carry out any further work ordered by the Engineer or Engineer's Representative, all at the Contractor's cost. Where work is to be carried out in the vicinity of overhead power lines, the Contractor shall ensure that all persons working in such areas are aware of the relatively large distance that high voltage electricity can “short” to earth when crane, or other large masses of steel, are in the vicinity of power lines. The Contractor's attention is drawn to appropriate standards which gives safe clearances for the various voltages.

The Contractor shall be held responsible for damage to existing works or services, and shall indemnify the Employer against any claims in this respect (including consequential damages). The Contractor shall be responsible for the reinstatement of the services, so affected, to the satisfaction of the Engineer.

In all cases where such works or services are exposed, they shall be properly shored, hung up or otherwise protected. Special care must be exercised in filling and compaction of the grounds under mains and cable. The exposed water meters, stopcock boxes and similar items shall be left uncovered.

As soon as any such existing works or services or structures are encountered on, over, under, in or through the Site during the performance of the Contract, the Contractor shall make a record of the location and description of such service or structure and shall send the same forthwith to the Engineer.

Installations adjacent to the Works shall be kept securely in place until the work is completed and shall then be made as safe and permanent as before.

Notwithstanding the foregoing requirements, and without reducing the Contractor's responsibility, the Contractor shall inform the Engineer immediately if any existing works or services are located, exposed or damaged.



## **29.5 Protection of Survey Beacons**

The Contractor shall not remove, damage, alter or destroy in any way plot beacons. Should the Contractor consider that any beacons will be interfered with by the Work he shall notify the Engineer who, if he considers it necessary, will make arrangements for the removal and replacement of the beacons.

## **30.2 Transport of Contractor's Equipment or Temporary Works**

Add the following at the end of this subclause.

If it is found necessary for the Contractor to move one or more loads of heavy constructional plant and equipment, materials or pre-constructed units of work over roads, highways, bridges on which such oversized and overweight items are not normally allowed to be moved, the Contractor shall obtain prior permission from the concerned authorities. Payments for complying with the requirements, if any, for protection of or strengthening of the roads, highways or bridges shall be made by the Contractor and such expenses shall be deemed to be included in his Contract Price.

Add the following Subclauses 30.5 and 30.6.

## **30.5 Complying with State Laws and Regulations**

Nothing contained above shall excuse the Contractor or any of his Subcontractor(s) from complying with state laws regulating traffic on highways and bridges.

## **30.6 Effects of other Concurrent construction Projects**

The Contractor shall be deemed to have fully familiarised himself with planned construction operations or any other concurrent construction projects in Kenya which may have any material effect on the Contractor's own operations. In particular, the Contractor shall be deemed to have allowed for the effects of other concurrent construction contract(s) on any necessary transportation operations in connection with the Contract(s).

## **LABOUR**

Add the following Subclauses 34.2 to 34.23

## **34.2 Labour Regulations**

The Contractor and his Subcontractors shall, at all times, during the Contract period abide fully by the governing local laws and regulations.

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.

## **34.3 Engagement of Local Labour**

The Contractor is encouraged to the extent practicable and reasonable to employ staff and labour with the required qualifications and experience from sources within Kenya, particularly in the vicinity of the Site.

## **34.4 Rates of Wages and Conditions of Labour**

The Contractor shall pay rates of wages and observe conditions of labour not less favourable than those established for the trade or industry where the work is carried out. In the absence of any rates of wages or conditions of labour so established, the Contractor shall pay rates of wages and observe conditions of labour which are not less favourable than the general level of wages and conditions observed by other employers whose general circumstances in the trade or industry in which the Contractor is engaged are similar.

## **34.5 Repatriation of Labour**

The Contractor shall be responsible for the return to the place where they were recruited or to their domicile of all such persons as he recruited and employed for the purposes of or in connection with the Contract, and shall maintain such persons as are to be so returned in a suitable manner until they shall have left the site or, in the case of persons who are not nationals of and have been recruited outside the Republic of Kenya shall have left Kenya or the site, as appropriate.

### **34.6 Housing for Labour**

Save insofar as the Contract otherwise provides, the Contractor shall provide and maintain such accommodation and amenities as he may consider necessary for all his staff and labour, employed for the purposes of or in connection with the Contract, including all fencing, water supply (both for drinking and other purposes), electricity supply, sanitation, cookhouses, fire prevention and fire-fighting equipment, cookers, refrigerators, furniture, and other requirements in connection with such accommodation or amenities. On completion of the Contract, unless otherwise agreed with the Employer, the temporary camps or housing provided by the Contractor shall be removed and the site reinstated to its original condition, all to the approval of the Engineer.

### **34.7 Accident Prevention Officer**

The Contractor shall have on his staff on Site an officer dealing only with questions regarding the safety and protection against accidents of all staff and labour. This officer shall be qualified for this work and shall have the authority to issue instructions and shall take protective measures to prevent accidents.

### **34.8 Health and Safety**

Due precautions shall be taken by the Contractor, and at his own cost, to ensure the safety of his staff and labour and, in collaboration with and to the requirements of the local health authorities, to ensure that medical staff, first aid equipment and stores, sick bay and suitable ambulance services are available at the camps, housing, and on the Site at all times throughout the period of the Contract and that suitable arrangements are made for the prevention of epidemics and for all necessary welfare and hygiene requirements. Workers shall always be transported using vehicles that meet the current transport regulations.

### **34.9 Life Saving Appliances and First Aid Equipment**

The Contractor shall provide and maintain upon the Works sufficient, proper and efficient life-saving appliances and first-aid equipment to the approval of the Engineer. The appliances and equipment shall be available for use at all times.

### **34.10 Measures against Insect and Pest Nuisance**

The Contractor shall at all times take the necessary precautions to protect all staff and labour employed on the Site from insect nuisance, rats, and other pests and reduce the dangers to health and the general nuisance caused by the same. The Contractor shall provide his staff and labour with suitable prophylactics for the prevention of malaria, and shall take steps to prevent the formation of stagnant pools of water. He shall comply with all the regulations of the local health authorities in these respects and shall in particular arrange to spray thoroughly with approved insecticide all buildings erected on the Site. Such treatment shall be carried out at least once a year or as instructed by the Engineer. The Contractor shall warn his staff and labour of the dangers of bilharzias and wild animals.

### **34.11 Epidemics**

In the event of any outbreak of illness of an epidemic nature, the Contractor shall comply with and carry out such regulations, orders, and requirements as may be made by the Government or the local medical or sanitary authorities for the purpose of dealing with and overcoming the same.

### **34.12 Burial of the Dead**

The Contractor shall make any necessary arrangements for the transport, to any place as required for burial, of any of his expatriate employees or members of their families who may die in Kenya. The Contractor shall also be responsible, to the extent required by the local regulations, for making any arrangements with regard to burial of any of his local employees who may die while engaged upon the Works.

### **34.13 Supply of Foodstuffs**

The Contractor shall arrange for the provision of a sufficient supply of suitable food at reasonable prices for all his staff, labour, and subcontractors for the purposes of or in connection with the Contract.

### **34.14 Supply of Water**

The Contractor shall, so far as is reasonably practicable, having regard to local conditions, provide on the Site an adequate supply of drinking and other water for the use of the Engineer and his staff, the Contractor's staff and labour.

### **34.15 Alcoholic Liquor or Drugs**

The Contractor shall not, otherwise than in accordance with the Statutes, Ordinances, and Government Regulations or Orders for the time being in force, import, sell, give, barter, or otherwise dispose of any alcoholic liquor or drugs, or permit or suffer any such importation, sale, gift, barter, or disposal by his subcontractors, agents, staff, or labour.

### **34.16 Arms and Ammunition**

The Contractor shall not give, barter, or otherwise dispose of, to any person or persons, any arms or ammunition of any kind or permit or suffer the same as aforesaid.

### **34.17 Festivals and Religious Customs**

The Contractor shall, in all dealings with his staff and labour, have due regard to all recognised festivals, days of rest, and religious and other customs.

### **34.18 Disorderly Conduct**

The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous, or disorderly conduct by or among his staff and labour and take all reasonable precautions for the preservation of peace and protection of persons and property in the neighbourhood of the Works against the same.

### **34.19 Records of Labour**

The Contractor shall keep proper wages books, in the language stipulated in the Appendix to the Form Bid, pursuant to Sub-Clause 5.1 (a) showing the time worked and wages paid to all employees in and about the execution of the Works, together with such other records as are required by any Statute, Ordinance, Law, Regulation or Bye-Law in force in Kenya governing the employment of labour. He shall be bound, whenever required, to produce such wages books and other records for the inspection of any persons authorized by the Engineer.

### **34.20 Trade Unions**

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

### **34.21 Default in payment of Wages**

In the event of default in payment of wages of any workmen employed on the Contract, and if a claim thereafter is filed in the office of the Engineer and satisfactory proof thereof is furnished, the Employer shall be notified forthwith and may, failing payment of such claim by the Contractor, arrange the payment out of monies at any time payable under the Contract and the amount so paid shall be deemed payment to the Contractor under the Contract.

### **34.22 Breach and Removal from List**

Should the Contractor or any subcontractor be found to be in breach of any of the provisions of Clause 34, the Employer may recommend to the Government for his removal from the list of approved Contractors.

### **34.23 Observance by Subcontractors**

The Contractor shall be responsible for the observance by his subcontractor of the foregoing provisions.

Add the following Subclauses 35.2 and 35.3:

### **35.2 Maintenance of Records**

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 prescribe from time to time.

### **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 (ies) whenever such report is required by the law of Kenya.

## **MATERIALS, PLANT AND WORKMANSHIP**

Rename Subclause 36.1 as below.

### **36.1 Quality of Materials, Equipment, Supplies, Plant, and Workmanship**

Add the following paragraph at the end of this subclause.

The Contractor is encouraged, to the extent practicable and reasonable, to use materials, Contractor's Equipment, Plant, and supplies from sources within Kenya.

## **COMMENCEMENT AND DELAYS**

### **41.1 Commencement of Works**

Replace the words "as soon as reasonably possible" with the words "on Site within 28 days".

Add the following subclause:

### **41.2 Definition of Commencement**

For the purposes of this subclause, the Works shall be deemed to have commenced when all of the following conditions are satisfied:

- (a) The approved competent and authorized agent or representative of the Contractor is resident in the project area and is giving his whole time to the superintendence of the Works.
- (b) The provision by the Contractor of evidence that all insurances required by the Contract are in force.
- (c) The Contractor has established an office in the project area with postal address for receipt of correspondence.
- (d) The principal items of constructional plant have been brought to Site and put to work in the execution of the permanent Works.

### **42.1 Possession of Site and Access Thereto**

At the end of Subclause 42.1, add the following:

The Contractor shall bear all costs and charges for such lands as the Contractor may reasonably require for camps, offices, workshops, diversion roads, borrow pits, and quarries and any additional facilities outside the site required by him for the purpose of works.

Add the following subclause:

### **42.4 Possession of Site and Access thereto**

The Contractor shall not enter any part of the Site until he has requested and received permission to do so from the Employer or the Engineer.

The Contractor shall not use any portion of the Site for any purpose not connected with the Works.

### **45.1 Restriction on Working Hours**

Delete Subclause 45.1 and substitute with the following:

If the Contractor requests for permission to work by day and night and if the Engineer shall grant such permission, the Contractor shall not be entitled to any additional payment 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 carrying out night work and from against all claims, demands, proceeding, costs, charges and expenses whatsoever in regard or in relation to such liability. In addition, the Contractor shall be required to provide, for any work carried out by night or recognised days of rest, adequate lighting and other facilities, so that the work is carried out safely and properly.

## 45.2 Overtime Hours

Working hours shall be observed by the Contractor as stipulated in the Labour Laws of Kenya. However when deemed necessary to expedite the Works, overtime, night time or holiday working may be allowed by the Engineer in accordance with the provisions of Subclause 46.1. The Contractor, in these cases, shall pay all costs of the Engineer and his staff for such overtime, night time or holiday working at site as stipulated under Subclause 46.1 of the General Conditions of Contract.

## 47.2 Reduction of Liquidated Damages

The following supplements this subclause.

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.

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

The sum stated in the Appendix to Form of Bid as liquidated damages shall be increased by a sum equivalent to any amount payable by the Employer to the Contractor under clause 70.1 in respect of an increase in costs in such 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.

Add the following Subclause 47.3:

## 47.3 Currency of Liquidated Damages

Liquidated damages shall be paid by the Contractor to the Employer in the types and proportions of currencies as shall be payable to the Contractor under the Contract.

## DEFECTS LIABILITY

## 49.2 Completion of Outstanding Work and Remedying Defects

Add at the end of this subclause the following sentence:

Any work ordered to be executed under this subclause shall be carried out at a time and in a manner as directed by the Engineer so as to interfere as little as possible with the operations of the Employer or of other contractors and no extension(s) of the defects liability period will be allowed for the execution of this work.

Add Subclause 49.5 as follows:

## 49.5 Defects Liability Period Replacements

The provisions of this clause shall apply to all replacements or renewals of Plant and equipment to be provided with respect to the utilities under the Contract, carried out by the Contractor to remedy defects and damages as if the replacements and renewals had been taken over on the date they were completed. The Defects Liability Period for the Works shall be extended by a period equal to the period during which the Works cannot be used by reason of the defect or damage. If only part of the Works is affected the Defects Liability Period shall be extended only for that part.

## ALTERATIONS, ADDITIONS AND OMISSIONS

## 52.1 Valuation of Variation

Add the following final sentences to this subclause:

The agreement, fixing or determination of any rates or prices as aforesaid shall include any foreign currency and the proportion thereof.

Where the Contract provides for the payment of the Contract Price in more than one currency, and varied work is valued at, or on the basis of, the rates and prices set out in the Contract, payment for such varied work shall be made in the proportions of various currencies specified in the Appendix to Form of Bid for payment of the Contract Price. Where the Contract provides for payment of the Contract Price in more than one currency, and new rates or prices are agreed, fixed, or determined as stated above, the amount or proportion payable in each of the applicable currencies shall be specified when the rates or prices are agreed, fixed, or determined, it being understood that in specifying these amounts or proportions the Contractor and the Engineer (or, failing agreement, the Engineer) shall

take into account the actual or expected currencies of cost (and the proportions thereof) of the inputs of the varied work without regard to the proportions of various currencies specified in the Appendix to Form of Bid for payment of the Contract Price.

## **52.2 Power of Engineer to Fix rates**

Add a final sentence to the first paragraph as follows:

Where the Contract provides for the payment of the Contract Price in more than one currency, the amount or proportion payable in each of the applicable currencies shall be specified when the rates or prices are agreed, fixed, or determined as stated above, it being understood that in specifying these amounts or proportions the Contractor and the Engineer (or, failing agreement, the Engineer) shall take into account the actual or expected currencies of cost (and the proportions thereof) of the inputs of the varied work without regard to the proportions of various currencies specified in the Appendix to Form of Bid for payment of the Contract Price.

## **52.3 Daywork**

Add the following at the end of this subclause:

The Work so ordered shall immediately become part of the Works under the Contract. The Contractor shall, as soon as practicable after receiving the Daywork Order from the Engineer undertake the necessary steps for due execution of such Work. Prior to commencement of any work to be done on a Daywork basis, the Contractor shall give a notice to the Engineer stating the exact time of such commencement.

## **PROCEDURE FOR CLAIMS**

### **53.1 Notice of Claims**

Add the following at the end of this subclause:

The Contractor shall also state the references of the Contract Clauses and Subclauses on which he has based his claims.

## **CONTRACTOR'S EQUIPMENT, TEMPORARY WORKS AND MATERIALS**

For the purpose of these subclauses, the term "Equipment" shall be read as "Contractor's Equipment" where the context so requires.

### **54.1 Contractor's Equipment, Temporary Works and Materials**

Amend Subclause 54.1 as follows:

Line 5; add "written" between "the" and "consent".

Add a final sentence to this subclause as follows:

The Contractor shall every month give to the Engineer a statement showing the amount of plant and Contractor's equipment, which has been brought to the Site.

### **54.2 Employer not Liable for Damage**

Delete this subclause entirely.

### **54.5 Conditions of Hire of Contractor's Equipment**

Delete this subclause entirely.

Add Subclauses 54.9 and 54.10 as follows:

### **54.9 Contractor's Responsibilities for Licenses**

The Contractor shall obtain his own information with regard to the granting of import and export licenses for materials, equipment and plant. The Contractor shall bear all expenses for Plant, Materials, Equipment and Maintenance required for the completion and maintenance of the works and shall be deemed to have satisfied himself with regard to all his liabilities under the laws and regulations governing the granting of these licenses. The

Contractor shall ensure that requests for import and export licenses are submitted in sufficient time to clear all formalities before the said licenses are required.

#### **54.10 Equipment and Plant**

The Contractor shall identify each piece of his equipment, other than hand tools, by means of an identification number plainly stencilled or stamped on the equipment at a conspicuous location, and shall furnish to the Engineer a list giving the description of each piece of equipment and its identification number. In addition, the make, model number and empty gross weight of each unit of compaction equipment shall be plainly stamped or stencilled in a conspicuous place on the unit. The gross weight shall be either the manufacturer's rated weight or the scale weight. The make, model, serial number and manufacturer's rated capacity of each scale shall be clearly stamped on the load-receiving element and its indicator or indicators. All meters shall be similarly identified, rated and marked.

### **MEASUREMENT**

#### **55.1 Quantities**

Add the following to this subclause:

The quality and quantity of the Work included in the Contract Price shall be deemed to be that which is set out in the Contract Bill of Quantities. The Bill of Quantities, unless otherwise expressly stated therein, shall be deemed to have been prepared in accordance with the principles of the latest edition of the Civil Engineering Standard Method of Measurement.

Any error in description or in quantity or any omission of items from the Contract Bill of Quantities or Specifications shall not vitiate this Contract but shall be corrected and deemed to be a variation required by the Engineer. Subject to the foregoing, any error whether arithmetical or not in the computation of the Contract Price shall be deemed to have been accepted by the parties hereto.

The Contract Price shall not be adjusted or altered in any way whatsoever otherwise than in accordance with the express provisions of these conditions.

Add the following new sub clause:

#### **55.2 Bill of Quantities with no Rates**

Any item of Work described in the Bill 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.

#### **56.1 Works to be measured**

Delete Subclause 56.1 and replace with the following:

The Contractor shall prepare and submit to the Engineer all necessary field notes and other records taken and computations made for the purpose of quantity measurements, of which the forms shall be approved by the Engineer, for the monthly progress payment under Clause 60. The measurement of work quantities made by the Contractor shall be verified and certified by the Engineer based on the above mentioned documents.

The Contractor shall furnish all personnel, equipment and materials to make such surveys and computations as necessary to determine the quantities of work performed. Unless otherwise prescribed in the specifications or the drawings, all measurements for payment shall be made by the dimensions, lines and grades as shown on the drawings or by direct survey of which the methods shall be approved by the Engineer.

The documents submitted for measurement and payment shall become the property of the Employer and shall be used to the extent necessary to determine the monthly progress payment to be made to the Contractor under the Contract. Direct survey, if conducted, shall be subject to checking and verification by the Engineer and all errors in the said survey work and related computations as found during such checking shall be immediately corrected by the Contractor.

In case of any disagreement on an item of measurement, the Engineer's opinion will prevail during the assessment of the statement for monthly interim payments. Should the Contractor consider himself entitled to any form of claim with respect to the disagreement in measurement, the procedure for such is detailed under Clause 53 of the Conditions of Contract.

## 57.1 Method of Measurement

Delete this subclause and substitute with the following:

The Works shall be measured net with deductions made in accordance with the principles of the latest edition of the Civil Engineering Standard Method of Measurement. All measurements shall be given in metric (SI) units.

## PROVISIONAL SUMS

Add the following Subclause 58.4:

### 58.4 Prime Cost Sum

Wherever an item in the Bill of Quantities has been referred to as a “P.C. Sum” (Prime Cost Sum), that item shall be construed as a Provisional sum and the provisions of Subclauses 58.1 to 58.3 will apply.

## NOMINATED SUBCONTRACTORS

### 59.5 Certification of Payment to Nominated Subcontractors

Add the following paragraph at the end of Subclause 59.5:

If the Engineer desires to secure final payment to any nominated subcontractor before final payment is due to the Contractor and if such subcontractor has satisfactorily indemnified the Contractor against any latent defects, the Engineer may, in an interim certificate, include an amount to cover the said final payment, and thereupon the Contractor shall pay to such nominated subcontractor the amount so certified. Upon such final payment, the amount named in the Appendix to Form of Bid as Limit of Retention Money shall be reduced by the sum which bears the same ratio to the amount as does the subcontract and subcontractor shall be discharged from all liability for the Work, materials or goods executed or supplied by such subcontractor under the Contract to which the payment relates.

## CERTIFICATES AND PAYMENTS

Delete Subclauses 60.1 to 60.10 entirely and substitute with the following:

### 60.1 Advance Payment

In the event that an Advance Payment is granted, the following shall apply:

- (a) On signature of the Contract, the Contractor shall at his request, and without furnishing proof of expenditure, be entitled to an advance of up to maximum of 10% (ten percent) of the original amount of the Contract Sum. The advance shall not be subject to retention money.
- (b) No advance payment may be made before the Contractor has submitted proof of the establishment of deposit or of a directly liable guarantee satisfactory to the Employer in the amount of the advance payment. The guarantee shall be in the same currency as the advance.
- (c) Amortization of the advance shall be effected by deductions from monthly interim payments.
- (d) Amortization of the lump sum advance shall be made by deductions from the Interim payments and where applicable from the balance owing to the Contractor.

The amortization 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 amortized by way of successive deductions shall be calculated by means of the formula:

$$R = \frac{A(X1 - X11)}{80 - 20}$$

Where:

R = Amount to be amortized

A = Amount of the advance which has been granted

X1 = Amount of proposed cumulative payments as a percentage of the original amount of the Contract. This figure will exceed 20% but not exceed 80%.

X11 = 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 amortization, the counterpart of the directly liable guarantee may be reduced accordingly.

## 60.2 Interim Payment Certificate

The Contractor shall submit to the Engineer, in the manner required by the Engineer after the end of each month a statement showing the estimated total value of permanent Work properly executed and materials or goods for permanent works brought to Site up to the end of the previous month (if the value shall justify the issue of an interim certificate) together with any adjustments under Clause 70 and any outstanding claims and sums the Contractor considers may be due to him. The Contractor shall amend or correct his estimate as directed by the Engineer and the latter shall not accept it until he is satisfied that it is fair and reasonable. With respect to the said materials and goods, no payment for them shall be made unless:

- (i) The materials are in accordance with the specifications for the Works.
- (i) The materials have been delivered to Site and are properly stored and protected against loss, damage or deterioration.
- (ii) The Contractor's 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.
- (iii) The Contractor has submitted a statement of his cost of acquiring and delivering the materials and goods to the Site, together with such documents as may be required for the purpose of evidencing such cost.
- (ii) The materials are to be used within a reasonable time.

The Contractor will be paid on the certificate of the Engineer the amount due to him on account of the estimated total value of the permanent Work executed up to the end of the previous month together with such amount (not exceeding 75% of the value) as the Engineer may consider proper on account of materials and goods for permanent Work delivered by the Contractor on Site and in addition, 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, all of which shall be subject to a retention of the percentage named in the Appendix to Form of Bid until the amount retained (hereinafter and in all Contract documents called the "Retention Money") shall reach the "Limit of Retention Money" named in the said Appendix to the Form of Bid. Provided always that no interim certificate shall be issued for a sum [such sum always being the net amount thereof after all deductions for retention etc) less than that named in the Appendix to Form of Bid as "Minimum Amount of Interim Certificate" at one time.

Within 14 days after receiving a statement from the Contractor as aforesaid, and subject to the Contractor having made such further amendments and corrections as the Engineer may require, the Engineer shall issue a Certificate of Payment to the Employer showing the amount due, with a copy to the Contractor.

The Engineer shall not unreasonably withhold certifying an Interim Payment Certificate and where there is a dispute regarding an item for payment, the Engineer may delete this disputed item from the Interim Payment Certificate and certify the remainder for payment provided the said payment is in accordance with the preceding paragraph. In cases of difference in opinion as to the value of any item, the Engineer's view shall prevail.

## 60.3 Final Account and Final Payment Certificate

As soon as possible after the issue of Taking - Over Certificate or the termination of the Contract and not later than the time of issue of Defects Liability Certificate, the Contractor shall prepare and submit to the Engineer (with a copy to the Employer), a Statement of Final Account showing in detail the total value of work done in accordance with the Contract together with all sums paid in previous payments. Within thirty (30) days after receipt of such further information as may be reasonably required from the Contractor for its verification, the Engineer shall check the said statement, prepare and submit a Final Payment Certificate to the Employer (with a copy to the Contractor).

The Final Payment Certificate shall state:

- (a) The (final) total value of all Work executed in accordance with the Contract
- (b) After giving credit to the Employer for all amounts previously paid to the Contractor, the balance, if any, due from the Employer to the Contractor or the Contractor to the Employer, as the case may be.

Unless the Contractor notifies the Engineer of his objection to the Final Payment Certificate within twenty eight [28] days of delivery thereof, he shall be deemed to have agreed that he accepts the total Contract Price as set out in the Final Payment Certificate as full settlement for all work executed under the Contract including any claims, variations and omissions thereof.

However, a Final Certificate of Payment shall not be conclusive:

- (i) To the extent that fraud or dishonesty relates to or affects any matter dealt with in the Certificate, or
- (ii) If any arbitration or court proceedings under the Contract have been commenced by either party before the expiry of 90 days after the issue of the Final Certificate of Payment.

#### **60.4 Payment of Certificates**

Payment upon each of the Engineer's Certificates for Interim Payments shall be made by the Employer within the time stated in the Appendix to Form of Bid from the date of the Engineer's signature and issue of each Certificate of Payment to the Employer.

Payment upon the Engineer's Final Payment Certificate shall be made by the Employer within the time stated in the Appendix to Form of Bid from the date of issue of the Final Certificate of Payment signed by the Engineer and countersigned by the Contractor or his authorised agent or representative.

Payments to the Contractor by the Employer shall be made in the currencies in which the Contract Price is payable into a bank account or accounts nominated by the Contractor.

Making of a payment by the Employer shall be considered to have been duly executed on the day that the Employer has issued a cheque.

#### **60.5 Retention Money**

One half of the retention money shall become due upon the issue of a Taking – Over Certificate and shall be paid to the Contractor when the Engineer shall certify in writing that the last section of the whole of the Works has been substantially completed and the other half shall be paid to the Contractor after the expiration of the Defects Liability Period and the issue of a Certificate under Clause 62. Provided always that if such time there shall remain to be executed by the Contractor any Works ordered during such period pursuant to Clauses 49 and 50 thereof, the Employer shall be entitled to withhold payment [until the completion of such Works] of so much of the second half of the Retention Money as shall in the opinion of the Engineer represent the Costs of the Works so remaining to be executed. Provided further that in the event of different Defects Liability Periods having become applicable to different parts of the Works pursuant to clause 48 hereof the expression “expiration of the Defect Liability Period” shall for the purpose of this subclause be deemed to mean the expiration of the latest of such periods.

#### **60.6 Currency of Payment**

The Contract price shall be stated in Kenya Shillings. All payments to the Contractor shall be made in Kenya shillings.

#### **60.7 Overdue Payments**

Unless otherwise stated in the Appendix to the Form of Bid interest shall be paid on the overdue amounts and the interest to be paid shall be based on the rates of the Central Bank of Kenya 28 days prior to the opening of the bids.

#### **60.8 Correcting and Withholding**

The Engineer may by any interim certificate or through the final account make any correction or modification to any previous certified sum and shall have authority, if any work or part thereof is not being carried out to his satisfaction, to omit or reduce the value of such work in any Interim Payment Certificate.

#### **60.9 Completion by Sections**

If a Taking-Over Certificate shall be issued for any section or part of the Works separately, the payments herein provided for on or after issue of such a Certificate shall be made in respect of such section or part and references to the Contract Price shall mean such part of the Contract Price as shall in the absence of agreement be apportioned thereto by the Engineer.

## 60.10 Statement at Completion

Not later than 14 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 and in a form approved by the Engineer:

- (a) The final value of all work executed in accordance with the Contract up to the date stated in such Taking-Over Certificate.
- (b) Any further sums which the Contractor considers to be due; and
- (c) An estimate of amounts, which the Contractor considers, will become due to him under the Contract.

Estimated amounts at Completion shall be shown separately in the Statement. The Contractor shall amend and correct the Statement as directed by the Engineer who shall issue a Certificate at Completion to be processed in accordance with Subclause 60.4.

## 60.11 Final Statement

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

- (a) The final value of all work executed in accordance with the Contract, and
- (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 reasonably require and shall make such changes in the draft as may be required.

## 60.12 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 Subclause 60.14 has been made and the Performance Security referred to in Subclause 10.1 has been returned to the Contractor.

## 60.13 Final Payment Certificate

Upon acceptance of the Final Statement as given in Subclause 60.12, 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 executed 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 as the case may be

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.

## 60.14 Cessation of Employer's Liability

Unless the Contractor notifies the Engineer of his objection to the Final Certificate within 14 (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 executed under the Contract including any variations and omissions thereof.

## 62.1 Defects Liability Certificate

Delete the last sentence of this subclause beginning "Provided that the issue.....in Sub-Clause 60.3".

## REMEDIES

### 63.1 Default of Contractor

Delete the last paragraph of this subclause and substitute with the following:

then the Employer may, after giving 14 days' notice to the Contractor, enter upon the Site and expel the Contractor therefrom without thereby avoiding the Contract, or releasing the Contractor from any of his obligations or liabilities under the Contract, or affecting the rights and powers conferred on the Employer or the Engineer by the Contract, and may himself complete the Works or may employ any other contractor to complete the Works. The Employer or such other contractor may use for such completion so much of the Contractor's Equipment, Plant, Temporary Works and materials, which have been deemed to be reserved exclusively for the execution of the Works, under the provisions of the Contract, as he or they may think proper, and the Employer may, at any time, sell any of the said Contractor's Equipment, Temporary Works and unused Plant and materials and apply the proceeds of sale in or towards the satisfaction of any sums due or that may become due to him from the Contractor under the Contract."

### 63.2 Valuation of Date of Expulsion

Modify the heading of Subclause 63.2 by substituting "Valuation at Date of Termination" for "Valuation at Date of Expulsion." In Subclause 63.2, delete the word "termination" on the second and fifth lines and substitute "expulsion".

### 63. Valuation of Date of Expulsion

Modify the heading of Subclause 63.3 by substituting "Payment after Expulsion" for "Payment after Termination." In Subclause 63.3, delete the words "terminates the Contractor's employment" on the first line and substitute "shall enter and expel the Contractor".

### 63.4 Assignment of Benefit of Agreement

In Subclause 63.4, delete the word "termination" on the second line, and substitute "expulsion".

Add the following at the end of this subclause:

But on the terms that a supplier or subcontractor shall be entitled to make any reasonable objection to any further assignment thereof by the Employer and the Employer may pay the supplier or subcontractor for any such materials supplied or Works executed under such agreement, whether the same be assigned as aforesaid or not, before or after the said determination, the amount due by such arrangement in so far as it has not already been paid by the Contractor.

Add the following subclause 63.5:

### 63.5 Corrupt or Fraudulent Practices

If in the judgment of the Employer the Contractor has engaged in corrupt or fraudulent practices, in competing for or in executing the Contract, then the Employer may, after having given 14 days notice to the Contractor, terminate the Contractor's employment under the Contract and expel him from the Site, and the provisions of Clause 63 shall apply as if such expulsion had been made under Subclause 63.1.

For the purpose of this Subclause:

"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 contract execution.

"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 Borrower, and includes collusive practice 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.

## SPECIAL RISKS

Subclause 65.2 is amended to read as follows:

## 65.2 Special Risks

The Special Risks are the risks defined under paragraph (a), subparagraphs. (i) to (v) of Subclause 20.4 of the Conditions of Contract”.

## 65.4 Projectile, Missile

Delete “whenever and wherever occurring” under line 2 and add “on or near the site” after “explosive of war” under line 3.

Add Subclause 65.9 as follows:

## 65.9 Special Risks

- (a) In the event of the Employer unilaterally ordering the final cessation of performance of the Contract for reasons not specified elsewhere in the Conditions of Contract the Contract shall be considered to be frustrated and the Contractor shall be indemnified as provided for under Clause 65.1.
- (b) In the event of the Employer ordering the adjournment of the Contract before or after commencement of the Works for reasons not specified elsewhere in the Conditions of Contract, the Contractor shall be entitled to indemnity for any injury which he may have suffered as a consequence of such adjournment.

The Engineer shall award the Contractor payment of such sum as in his opinion shall be reasonable giving regard to all material and relevant factors including the Contractor’s on costs and overheads, and the nature of the instruction to adjourn the Contract.

## SETTLEMENT OF DISPUTES

### 67.1 Dispute Review Expert

If any dispute arises between the Employer and the contractor in 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 the repudiation or other termination of the Contract, including any disagreement by either party with any action, inaction, opinion, instruction, determination, certificate, or valuation of the Engineer, the matter in dispute shall, in the first place, be referred to the Disputes Review Expert (‘DRE’). including any disagreement by either party with any action, inaction, opinion, instruction, determination, certificate, or valuation of the Engineer, the matter in dispute shall, in the first place, be referred to the Disputes Review Board (‘the Board’).

The DRE shall take up his functions after having signed a DRE’s Declaration of Acceptance as required by the DRE’s Rules and Procedures (which along with the Declaration of Acceptance, are attached to these Conditions of Particular application as Annex A).

The DRE shall be a person experienced with the type of construction involved in the works and with the interpretation of contractual documents and shall be selected by agreement between the Employer and the Contractor. If the DRE is not selected within 28 days of the date of the Letter of Acceptance, then upon the request of either or both parties the DRE shall be selected as soon as practicable by the Appointing Authority specified in the Appendix to Form of Bid.

In the event of death, disability, or resignation of the DRE, the latter shall be replaced by agreement between the Employer and the Contractor. Any replacement made by the parties shall be completed within 28 days after the event giving rise to the need for a replacement, failing which the replacement shall be made by the same international appointing authority as above.

Either the Employer or the Contractor may refer a dispute to the DRE in accordance with the provisions of the DRE’s Rules and Procedures, attached to these Conditions of Particular Application.

The Recommendation of the DRE shall be binding on both parties, who shall promptly give effect to it unless and until the same shall be revised, as hereinafter provided, in an arbitral award. Unless the Contract has already been repudiated or terminated, the Contractor shall continue to proceed with the Works in accordance with the Contract.

If either the Employer or the Contractor is dissatisfied with any Recommendation of the DRE, or if the DRE fails to issue his Recommendation within 56 days after he has received the written Request for Recommendation, then

either the Employer or the Contractor may, within 14 days after his receipt of the Request of Recommendation, or within 14 days after the expiry of the said 56-days period, as the case may be, give notice to the other party, with a copy for information to the Engineer, of his intention to commence arbitration, as hereinafter provided, as to the matter in dispute. Such notice shall establish the entitlement of the party giving the same to commence arbitration, as hereinafter provided, as to such dispute and, subject to Subclause 67.4, no arbitration in respect thereof may be commenced unless such notice is given.

If the DRE has issued a Recommendation to the Employer and the Contractor within the said 56 days and no notice of intention to commence arbitration as to such dispute has been given by either the Employer or the Contractor within 14 days after the parties received such Recommendation from the DRE, the Recommendation shall become final and binding upon the Employer and the Contractor.

Whether or not it has become final and binding upon the Employer and the Contractor, a Recommendation shall be admissible as evidence in any subsequent dispute resolution procedure, including any arbitration or litigation having any relation to the dispute to which the Recommendation relates.

All Recommendations that have become final and binding shall be implemented by the parties forthwith. Such implementation shall include any relevant action of the Engineer.

## **67.2 Amicable Settlement**

Subclause 67.2 is deleted without a change in the numbering of the other subclauses of Clause 67.

Subclause 67.3 is deleted and substituted with the following subclause:

## **67.3 Arbitration**

Any dispute, in respect of which the recommendation, if any, of the DRE has not become final and binding, shall be finally settled by arbitration under the UNCITRAL Arbitration Rules. For the purposes of this subclause, the Arbitrator shall be a person to be agreed between the parties or failing agreement, the Arbitrator shall be appointed by the appointing Authority designated in the Appendix to the Form of Bid.

Arbitration shall take place in NAIROBI, Kenya. The language of all arbitration proceedings shall be in English. The cost of arbitration shall be apportioned by the Arbitrator according to his findings.

“The Arbitrator shall be appointed by the Chairman, Chartered Institute of Arbitrators (Kenya Chapter) unless the appointment is agreed by the parties within 7 (seven) days of the notice to adjudication.

Neither party shall be limited in the proceedings before such tribunal to the evidence nor did arguments put before the DRE for the purpose of obtaining his recommendation pursuant to subclause 67.1. No Recommendation shall disqualify the DRE from being called as a witness and giving evidence before the arbitrator(s) on any matter whatsoever relevant to the dispute.

Arbitration may be commenced prior to or after completion of the Works, provided that the obligations of the Employer, the Engineer, the Contractor, and the DRE shall not be altered by reason of the arbitration being conducted during the progress of the Works.

Delete Subclause 67.4 and substitute with the following:

## **67.4 Failure to Comply with Recommendations**

Where neither the Employer nor the Contractor has given notice of intention to commence arbitration of a dispute within the period stated under Subclause 67.1 and the related Recommendation has become final and binding, either party may, if the other party fails to comply with such Recommendation and without prejudice to any other right it may have, refer the failure to arbitration in accordance with Subclause 67.3.

## **NOTICES**

### **68.1 Notices to Contractor**

Add the following at the end of this subclause:

Notwithstanding the foregoing, the Contractor shall either maintain an address close to the Works or appoint an agent residing close to the Works for the purpose of receiving notices to be given to the Contractor under the terms of the Contract. This obligation shall be terminated upon the issue of the Certificate of Completion.

## **68.2 Notices to Employer and Engineer**

Delete the words “nominated for that purpose in Part II of these Conditions” in this subclause and substitute with “given in the Appendix to Form of Bid”.

## **DEFAULT OF EMPLOYER**

Under Subclause 69.1, 69.4 and 69.5, substitute “Subclause 60.4 for “Subclause 60.10”.

### **69.1 Default of Employer**

In Subclause 69.1 (a), delete the words “28 days” in the second sentence and substitute with the words “60 days”.

Delete Subclause 69.1 (d).

### **69.3 Payment on Termination**

Delete from “, but in addition to the payments specified...” to the end of the Subclause.

### **69.4 Contractor’s Entitlement to Suspend Work**

Delete the words ‘28 days’ and substitute with ‘60 days’.

Delete sub-clause 69.4 (b) and substitute with the following:

the amount of such cost, which shall be added to the Contract Price. However, the costs due to idle time for plant, equipment and labour shall not be included in the said costs and shall be borne by the Contractor.

Add to Subclause 69.4 as follows:

Without prejudice to the Contractor’s entitlement to interest under Subclause 60.7 (of these Conditions of Particular application) and to terminate under Subclause 69.1, the Contractor may suspend work or reduce the rate of work within 56 days after notification by the Foreign Funding Agency to the Kenya Government that the Financier has suspended disbursements from its loan, which finances in whole or in part the execution of the Works.

Add Subclause 69.6 as follows:

### **69.6 Suspension of Funding Agency Loan**

In the event that the Foreign Funding Agency suspends the loan or credit to the Employer from which part of the payments to the Contractor are being made:

- (a) The Employer shall notify the Contractor, with a copy to the Engineer, of such suspension within 7 days of having received the suspension notice from the Funding Agency, provided that:
  - (i) The Employer shall state in such notification whether sufficient funds in the appropriate currencies are expected to be available to the Employer to continue making payments to the Contractor beyond a date 60 days after the date of the Funding Agency’s notification of the suspension, and
  - (ii) If such funds are not expected to be available, the Employer shall immediately inform the Engineer to instruct the Contractor to suspend progress of the Works pursuant to Subclause 40.1 of the General Conditions of Contract.
- (b) If the Contractor has not received sums due to him upon the expiration of the 14 days from the time when the Foreign Funding Agency’s loan or credit, from which part of the payments to the contractor is being made under Interim Certificates, is suspended, the Contractor may, without prejudice to the Contractor’s entitlement to interest under Subclause 60.7, immediately take one or both of the following actions:
  - (i) Suspend work or reduce the rate of work, and/or
  - (ii) Terminate his employment under the Contract by giving notice to the Engineer. Such termination shall take effect 14 days after giving of the notice.

## 70 CHANGES IN COST AND LEGISLATION

Delete Clause 70 in its entirety, and substitute by 70.1 – 70.8 (inclusive):

- 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 comparing the Basic Rates at tendering stage and the current prevailing market prices.
- 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.
- 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 which 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 been taken into account in any inputs to the Price Adjustment in accordance with the provisions of Sub-Clauses 70.1.

## CURRENCY AND RATES OF EXCHANGE

### 72.2 Currency Proportions

Delete the words from “prevailing, as determined by the Central Bank...” to the end of the subclause and substitute with “stated by the Contractor in the standard forms, included with his Original Bid.”

Add Subclause 72.4 as follows:

## ADDITIONAL CLAUSES

### 73.1 Foreign Taxation

The prices bid by the Contractor shall include all taxes, duties, and other charges imposed outside Kenya on the production, manufacture, sale, and transport of the Contractor’s Equipment, Plant, materials, and supplies to be used on or furnished under the Contract, and on the services performed under the Contract.

### 73.2 Local Taxation

The prices bid by the Contractor shall include all customs duties, import duties, business taxes, and income and other taxes that may be levied in accordance with the laws and regulations, being on the date 28 days prior to the latest date for submission of bids, in Kenya, on the Contractor’s Equipment, Plant, materials, and supplies (permanent, temporary and consumables) acquired for the purpose of the Contract and on the services performed under the Contract. Nothing in the Contract shall relieve the Contractor from his responsibility to pay any tax that may be levied in Kenya on profits made by him in respect of the Contract.



### **73.3 Income Tax on Staff**

The Contractor's staff and labour will be liable to pay personal income taxes in Kenya in respect of such of their salaries and wages as are chargeable under the laws and regulations for the time being in force, and the Contractor shall perform such duties in regard to such deductions thereof as may be imposed on him by such laws and regulations.

### **73.4 Duties on Contractor's Equipment**

Notwithstanding the provisions of Subclause 73.2, the Contractor's Equipment, including essential spare parts therefore, imported by the Contractor for the sole purpose of executing the Contract shall be temporarily exempt from the payment of import duties and taxes upon initial importation, provided the Contractor shall post with the customs authorities at the port of entry and approved export bond or bank guarantee, valid until the time of completion of the Contract plus six months, in an amount equal to the full import duties and taxes which would be payable on the assessed imported value of such Contractor's Equipment and spare parts, and callable in the event that the Contractor's Equipment is not exported from Kenya on completion of the Contract plus six months.

A copy of the bond or bank guarantee endorsed by the customs authorities shall be provided by the Contractor to the Employer upon the importation of individual items of Contractor's Equipment and spare parts. Upon export of individual items of Contractor's Equipment or spare parts, or upon completion of the Contract, the Contractor shall prepare, for approval by the customs authorities, an assessment of the residual value of the Contractor's equipment and spare parts to be exported, based on the depreciation scale(s) and other criteria used by the customs authorities for such purposes under the provisions of the applicable law. Import duties and taxes shall be due and payable to the customs authorities by the Contractor on:

- (a) The difference between the initial imported value and the residual value of the Contractor's Equipment and spare parts to be exported; and
- (b) The initial imported value of that Contractor's Equipment and spare parts remaining in Kenya after completion of the Contract.

Upon payment of such dues within 28 days of being invoiced, the bond or bank guarantee shall be reduced or released accordingly; otherwise the security shall be called in the full amount remaining.

For equipment imported by the Contractor for the sole use of the Engineer and which will revert to the ownership of the Employer, import duties and taxes shall be paid upon initial importation.

### **73.5 Declaration against Waiver**

The condoning by the Employer of any breach or breaches by the Contractor or any authorized subcontractor of any of the stipulations and Conditions contained in the Contract shall in no way prejudice or affect or be construed as a waiver of the Employer's rights, powers and remedies under the Contract in respect of any breach or breaches as aforesaid.

### **73.6 Employer's Officials**

No official of the Employer or the Engineer or the Engineer's Representative or anyone of their respective staffs or their employees shall be in any way personally bound or liable for the acts or obligations of the Employer under the Contract or answerable for default or omission in the observance or performance of any of the acts, matters or things which are herein contained.

### **74.1 Illegal Payments**

If the Contractor, or any of his Sub-Contractors, agents or servants gives or offers to give to any person any payment, gift, gratuity or commission as an inducement or reward for doing or forbearing to do any action in relation to the Contract or any other contract with the Employer, or for showing or forbearing to show favour or disfavour to any person in relation to the Contract or to any other contract with the Employer, then the Employer may enter upon the Site and the Works and expel the Contractor and the provisions of Clause 63 hereof shall apply as if such entry and expulsion had been made pursuant to that Clause.

### **75.1 Termination of Contract for Employer's Convenience**

The Employer shall be entitled to terminate this Contract at any time for the Employer's convenience after giving 56 days prior notice to the Contractor, with a copy to the Engineer. In the event of such termination, the Contractor:

- (a) Shall proceed as provided in Subclause 65.7, and

- (b) Shall be paid by the Employer as provided in Subclause 65.8.

#### **76.1 Restriction on Eligibility**

- (a) Any Plant, materials, or services which will be incorporated in or required for the Works, as well as the Contractor's Equipment and other supplies, shall have their origin in any of the countries and territories eligible under the Foreign Financier's Rules for Procurement.
- (b) For the purposes of this clause, 'origin' means the place where the materials and equipment were mined, grown, produced, or manufactured or from which the services are provided.
- (c) The origin of goods and services is distinct from the nationality of the supplier.

#### **77.1 Joint and Several Liability**

If the Contractor is a joint venture of two or more persons, all such persons shall be joint and severally bound to the Employer for the fulfilment of the terms of the Contract and shall designate one of such persons to act as a leader with authority to bind the joint venture. The composition or the constitution of the joint venture shall not be altered without the prior consent of the Employer.

#### **78.1 Details to be Confidential**

The Contractor shall treat the details of the Contract as private and confidential, save insofar as may be necessary for the purposes thereof, and shall not publish or disclose the same or any particulars thereof in any trade or technical paper or elsewhere without the previous consent in writing of the Employer or the Engineer. If any dispute arises as to the necessity of any publication or disclosure for the purpose of the Contract the same shall be referred to the Employer whose determination shall be final.

#### **78.2 Drawings and Photographs of the Works**

The Contractor shall not disclose details of drawings furnished to him and works on which he is engaged without the prior approval of the Engineer in writing. No photograph of the work or any part thereof or equipment employed thereon shall be taken or permitted by the Contractor to be taken by any of his employees or any employees of his Subcontractors without the prior approval of the Engineer in writing and no such photographs shall be published or otherwise circulated without the approval of the Engineer in writing.

#### **79.1 Official Visitors**

The Contractor shall at all times when authorized by the Engineer give free and undisputed access of all facilities to any authorized employee of the Kenya Government or other authorized person wishing to view or inspect any part of the Site or Works or the materials therein.

#### **80.1 Substantial Completion of the Works**

The Contractor shall note that the Engineer reserves the right to certify the Works to be "substantially completed" in accordance with the provisions of Clause 48 of the General Conditions of Contract, unless the following portions of the Works are completed according to the Specifications:

- (a) Works up to and including the bituminous wearing courses,
- (b) All drains and drainage structures including bridges,
- (c) Construction of the shoulders,
- (d) Finishing of medians and slopes of cuts and fills and
- (e) Reinstatement and environmental treatment of quarries and borrow pits.

#### **81.1 Monthly Site Meetings**

The Contractor or his authorised representative shall attend monthly meetings on the site with representatives of the Employer and the Engineer at dates and times to be determined by the Engineer. Such meetings will be held for evaluating the progress of the Contract and for discussion of matters pertaining to the Contract which any of the parties represented may wish to raise. Such meetings are not intended for discussing matters concerning the normal day-to-day running of the Contract.

The Contractor shall prepare and submit to the Resident Engineer one week before the meeting a monthly report in the format approved by the Engineer giving all the information and details regarding its accomplishment against the prevailing approved programme.

#### **81.2 Minutes of Site Meetings**

Agreements recorded in the Minutes of the Site Meetings are binding to all parties, if objections to the minutes have not been given in due time.

The Minutes of the Site Meetings shall be issued within 7 days and shall be numbered consecutively. Minutes shall be deemed to have been received by the Contractor unless the Contractor gives notice at the following meeting that the Minutes were not received.

Any objections to the Minutes of the Site Meetings shall at the latest be raised at the succeeding Site Meeting or presented to the Engineer in writing not later than 2 weeks after the meeting. If the Contractor at this time has not received the Minutes of the Site Meeting, the objection must be given in writing to the Engineer not later than 2 working days after the subsequent receipt of the said Minutes.

## **82.1 Legal Provisions**

The Contractor shall keep himself fully conversant with the latest enactment's, provisions and regulations of all legislative and statutory bodies, and, in all respects and at all times, shall comply with such enactment's, provisions and regulations in regard to executing the Contract.

## **83.1 Noise and Disturbance**

All works shall be carried out without unreasonable noise and disturbance. The Contractor shall indemnify and keep indemnified the Employer from and against any liability for damages on account of noise or other disturbances created while or in carrying out the work and from and against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in regard to or in relation to such liability.

## **83.2 Pollution**

Subject, and without prejudice, to any other provision of the Contract and the law of the land and its obligations as applicable, the Contractor shall take all reasonable precautions in connection with:

- (a) The rivers, streams, waterways, drains, water-course, lakes, reservoirs and the like to prevent:
  - (i) Silting
  - (ii) Erosion of their beds and banks, and
  - (iii) Pollution of the water so as to affect adversely the quality or appearance thereof or cause injury or death to animal and plant life.
- (b) The underground water resources including percolating water to prevent:
  - (i) Any interference with the supply to or obstruction from such sources, and
  - (ii) Pollution of the water which may adversely affect the quality thereof.

The Contractor shall further comply with any and all laws, rules and regulations of governmental agencies having jurisdiction which now exist or which may be promulgated during the course of the works contracted for herein, relating to the control, regulation and prevention of pollution. Not by way of limitation of the foregoing, but in furthermore thereof, the Contractor shall use the highest prevailing and approved standards of care and diligence to prevent and to take care of all waste, oil, water and other waste materials that may accumulate and be caused by the Contractor's operations and performance of this Contract so as to prevent pollution of any nature or kind resulting from the Works performed under this Contract.

## **ANNEX A**

### **DISPUTE REVIEW REGULATIONS AND PROCEDURES**

## ANNEX A: - DISPUTE REVIEW REGULATIONS AND PROCEDURES

### Disputes Settlement Procedures

(See Clause 67 of the Conditions of Particular Application)

1. Except for providing the services required hereunder, the DRE shall not give any advice to either party or to the Engineer concerning conduct of the Works. The DRE shall:
  - (a) Have no financial interest in any party to the Contract, or the Engineer, or a financial interest in the Contract, except for payment for his services.
  - (b) Have had no previous employment by, or financial ties to, any party to the Contract, or the Engineer, except for fee-based consulting services on other projects, all of which must be disclosed in writing to both parties prior to selection for the position of DRE.
  - (c) Have disclosed in writing to both parties prior to selection as DRE any and all recent or close professional or personal relationships with any director, officer, or employee of any party to the Contract, or the Engineer, and any and all prior involvement in the project to which the Contract relates.
  - (d) Not, while serving as DRE, be employed whether as a consultant or otherwise by either party to the Contract, or the Engineer, except as a DRE, without the prior consent of the parties.
  - (e) Not, while serving as DRE, engage in discussion or make any agreement with any party to the Contract, or with the Engineer, regarding employment whether as a consultant or otherwise either after the Contract is completed or after service as DRE is completed.
  - (f) Be and remain impartial and independent of the parties and shall disclose in writing to the Employer, the Contractor, and the Engineer, any fact or circumstance that might be such as to cause either the Employer or the Contractor to question the continued existence of the impartiality and independence required of a DRE; and
  - (g) Be fluent in the language of the Contract; English
2. Except for his participation in DRE's activities as provided in the Contract and in this Agreement, none of the Employer, the Contractor, or the Engineer shall solicit advice or consultation from the DRE on matters dealing with the conduct of the Works.
3. The Contractor shall:
  - (a) Furnish to the DRE a copy of all documents that the latter may request. These shall include Contract documents, progress reports, variation orders, and other documents pertinent to the performance of the Contract.
  - (b) In cooperation with the Employer, coordinate the Site visits of the DRE, including conference facilities, and secretarial and copying services.

4. The DRE shall begin his activities following the signing of a DRE's Declaration of Acceptance, and he shall terminate these activities as set forth below:
  - (a) The DRE shall terminate his regular activities when either:
    - (i) The Defects Liability Period referred to in Subclause 49.1 (or, if there are more than one, the Defects Liability Period expiring last) has expired, or
    - (ii) The Employer has expelled the Contractor from the Site pursuant to Subclause 63.1, and when, in either case, the DRE has communicated to the parties and the Engineer his Recommendations on all disputes previously referred to him.
  - (b) Once the DRE has terminated his regular activities as provided by the previous paragraph, the DRE shall remain available to process any dispute referred to him by either party. In case of such a referral, the DRE shall receive payments as provided in Paragraphs 7 (a) (ii), (iii) and (iv) below.
5. The DRE shall not assign or subcontract any of his work under these Rules and Procedures. However, the DRE may in his/her discretion decide to seek independent expert advice on a particular specialized issue to assist in reaching a Recommendation, and the cost of obtaining any such expert opinion(s) shall be shared equally by the Employer and the Contractor in accordance with the procedure specified in paragraph 7 (d) below.
6. The DRE is an independent contractor and not an employee or agent of either the Employer or the Contractor.
7. Payments to the DRE for his services shall be governed by the following provisions:
  - (a) The DRE will receive payments as follows:
    - (i) A retainer fee per calendar month equivalent to three times the daily fee established from time to time for arbitrators under the Administrative and Financial Regulations of the International Centre for Settlement of Investment Disputes (the ICSID Arbitrator's Daily Fee), or such other retainer as the Employer and Contractor may agree in writing. This retainer shall be considered as payment in full for:
      - (i.1) Being available, on seven days' notice, for Site visits requested by either party.
      - (i.2) Being conversant with all project developments and maintaining relevant files.
      - (i.3) All office and overhead expenses such as secretarial services, photocopying, and office supplies (but not including telephone calls, faxes, and telexes) incurred in connection with the duties as a DRE.
      - (i.4) All services performed hereunder except those performed during the days referred to in paragraph (ii) below.
    - (ii) A daily fee equivalent to the ICSID Arbitrator's Daily Fee or such other daily fee as the Employer and Contractor may agree in writing. This daily fee shall only be payable in respect of the following days and shall be considered as payment in full for:
      - (ii.1) Each day up to a maximum of two days of travel time in each direction for the journey between the DRE's home and the Site.
      - (ii.2) Each day on Site.
    - (iii) Expenses in addition to the above shall be all reasonable and necessary travel expenses (including less than first-class air fare, subsistence, and other direct travel expenses) as well as the cost of telephone calls, faxes, and telexes incurred in connection with the duties as DRE shall be reimbursed against invoices. Receipts for all expenses in excess of US\$ 25.00 (U.S. Dollars Twenty Five) shall be provided.
    - (iv) Reimbursement of any taxes that may be levied in Kenya on payments made to the DRE (other than a national or permanent resident of Kenya) pursuant to Paragraph 8.

- (b) Escalation. The retainer and fees shall remain fixed for the period of the DRE's term.
- (c) Phasing out of monthly retainer fee. Beginning with the next month after the Taking-Over Certificate referred to in Clause 48 (or, if there are more than one, the one issued last) has been issued, the DRE shall receive only one-third of the monthly retainer fee. Beginning with the next month after the Board has terminated its regular activities pursuant to paragraph 4 (a) above, the DRE shall no longer receive any monthly retainer fee.
- (d) Payments to the DRE shall be shared equally by the Employer and the Contractor. The Contractor shall pay the DRE's invoices within 30 calendar days after receipt of such invoices and shall invoice the Employer (through the monthly statements to be submitted in accordance with Subclause 60.2 of the Conditions of Contract) for one-half of the amounts of such invoices. The Employer shall pay such Contractor's invoices within the time period specified in the construction Contract for other payments to the Contractor by the Employer.
- (e) Failure of either the Employer or the Contractor to make payment in accordance with this Agreement shall constitute an event of default under the Contract, entitling the non-defaulting party to take the measures set forth, respectively, under Clause 63 or Clause 69.
- (f) Notwithstanding such event of default, and without waiver of rights therefrom, in the event that either the Employer or the Contractor fails to make payment in accordance with these Rules and Procedures, the other party may pay whatever amount may be required to finance the activities of the DRE. The party making such payments, in addition to all other rights arising from such default, shall be entitled to reimbursement of all sums paid in excess of one-half of the amount required to finance the activities of the DRE plus all costs of obtaining such sums.

#### 8. DRE Site Visits:

- (a) The DRE shall visit the Site and meet with representatives of the Employer and the Contractor and the Engineer at regular intervals, at times of critical construction events, at the written request of either party, and in any case not less than three times in any period of 12 months. The timing of Site visits shall be as agreed among the Employer, the Contractor, and the DRE, but failing agreement shall be fixed by the DRE.
- (b) Site visits shall include an informal discussion of the status of the construction of the Works, an inspection of the Works, and the review of any Requests for Recommendation made in accordance with Paragraph 10 below. Site visits shall be attended by personnel from the Employer, the Contractor, and the Engineer.
- (c) At the conclusion of each Site visit, the DRE shall prepare a report covering his activities during the visit and shall send copies to the parties and to the Engineer.

#### 9. Procedure for Dispute Referral to the DRE:

- (a) If either party objects to any action or inaction of the other party or the Engineer, the objecting party may file a written Notice of Dispute to the other party with a copy to the Engineer stating that it is given pursuant to Clause 67 and stating clearly and in detail the basis of the dispute.
- (b) The party receiving the Notice of Dispute will consider it and respond in writing within 14 days after receipt.
- (c) This response shall be final and conclusive on the subject, unless a written appeal to the response is filed with the responding party within seven days after receiving the response. Both parties are encouraged to pursue the matter further to attempt to amicably settle the dispute.
- (d) When it appears that the dispute cannot be resolved without the assistance of the DRE, or if the party receiving the Notice of Dispute fails to provide a written response within 14 days after receipt of such Notice, either party may refer the dispute to the DRE by written Request for Recommendation to the DRE. The Request shall be addressed to the DRE, with copies to the other party and the Engineer, and it shall state that it is made pursuant to Clause 67.
- (e) The Request for Recommendation shall state clearly and in full detail the specific issues of the dispute to be considered by the DRE.

- (f) When a dispute is referred to the DRE, and the DRE is satisfied that the dispute requires his assistance, the DRE shall decide when to conduct a hearing on the dispute. The DRE may request that written documentation and arguments from both parties be submitted to him before the hearing begins. The parties shall submit insofar as possible agreed statements of the relevant facts.
- (g) During the hearing, the Contractor, the Employer and the Engineer shall each have ample opportunity to be heard and to offer evidence. The DRE's Recommendations for resolution of the dispute will be given in writing to the Employer, the Contractor, and the Engineer as soon as possible and in any event not less than 56 days after receipt by the DRE of the written Request for Recommendation.

**10. Conduct of Hearings:**

- (a) Normally hearings will be conducted at the Site, but any location that would be more convenient and still provide all required facilities and access to necessary documentation may be utilized by the DRE.
  - (b) The Employer, the Engineer, and the Contractor shall be given the opportunity to have representatives at all hearings.
  - (c) During the hearings, the DRE shall not express any opinion concerning the merit of the respective arguments of the parties.
  - (d) After the hearings are concluded, the DRE shall formulate his Recommendations and shall submit them in writing, together with an explanation of his reasoning, to both parties and to the Engineer. The Recommendations shall be based on the pertinent Contract provisions, applicable laws and regulations, and the facts and circumstances involved in the dispute.
11. In all procedural matters, including the furnishing of written documents and arguments relating to disputes, Site visits and conduct of hearings, the DRE shall have full and final
12. After having been selected, the DRE shall sign two copies of the following declaration and make one copy available each to the Employer and to the Contractor:



## **SECTION VII: STANDARD SPECIFICATIONS**

**SECTION VII:**

**SPECIFICATIONS FOR ROUTINE MAINTENANCE, REHABILITATION AND SPOT  
IMPROVEMENT WORKS**

## Standard Specification

Where required, material to be incorporated in the works shall comply with the relevant section of the Standard Specification for Roads and Bridge Construction, 1986 Edition published by the Ministry of Transport and Communication.

The technical specifications shall be read in conjunction with all other documents forming the contract, the requirement of the specifications shall be complementary and additional to the requirements of all the other documents of the contract namely:

- i. Roads 2000 Operations Manual –March 2006
- ii. Roads 2000 Contractor’s Field handbook – May 2008
- iii. Emulsion Treated Base (ETB) / Cold Mix Asphalt Site Organization Guidelines-2012
- iv. Emulsion Stabilized Material (ESM) Guidelines from MTRD 2016
- v. Pavement Design Guideline for LOW VOLUME SEALED ROADS-2<sup>nd</sup> Edition

Whenever reference is made to “The Engineer” in the specification, it shall be construed to be synonymous with the term “Employer” or “Employer’s duly authorised Representative” respectively as referred to in the Conditions of Contract.

## **SECTION VIII: SPECIAL SPECIFICATIONS**

**SECTION VIII: SPECIAL SPECIFICATIONS****1.1.1.1 TABLE OF CONTENTS**

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## 100 GENERAL

In the absence of any definite provisions on any particular issue in this Technical Specifications, reference may be made to the latest codes and specifications of Kenya Bureau of Standards (KeBS), BS, ASTM, AASHTO. Where these are silent, the construction and completion of the works shall conform to sound engineering practice as approved by the Engineer and in case of any dispute arising out of the interpretation of the above, the decision of the Engineer shall be final and binding on the Contractor.

Where reference is made in the Contract to specific standards codes to be met by the materials, plant, and other supplies to be furnished, and work performed or tested, the provisions of the latest current edition or revision of the relevant standards as on the date of the bid and codes/design manual in effect shall apply, unless otherwise expressly stated in the contract. Where such standards and codes/design manual are national, or relate to a particular country or region, other internationally recognised standards which ensure a substantially equal or higher performance than the standards and codes/design manual specified will be accepted subject to the Engineer's prior review and written approval. The difference between the standards specified and the proposed alternative standards must be fully described in writing by the Contractor and submitted to the Engineer at least 28 days prior to the date when the Contractor desires the Engineer's approval. In the event that the Engineer determines that such proposed deviations do not ensure substantially equal performance, the Contractor shall comply with the standards specified in the documents.

## 101 Location and Extent of Site

The project is located in Nairobi National Park.

Drawings and all relevant details pertaining to the associated works shall be issued during construction of the main works; however drawings for tendering purposes and the quantities for these works are incorporated in the Tender Documents.

The site of the permanent works shall be within and around the Nairobi National Park.

## 102 Extent of Contract

The works under this contract comprise Rehabilitation of the existing Earth/Gravel roads totalling to 23Km within Nairobi National Park.

The roads comprise of the following tourism circuits under the Nairobi National Park Transformation program;

- I. JUNCT 7 -JUNCT 8-JUNCT 9-JUNCT 10A-HIPPO POOLS-JUNCT 11A-JUNCT 10B-JUNCT 10A

### 102.1 Scope of Work

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

- A) Site Clearance
- B) Earthworks
- C) Improvement of drainage and installation of culverts
- D) Construction of erosion protection works
- E) Maintenance of Passage of Traffic through the works
- F) Provision of 100mm Neat Gravel Sub-Base across the carriageway and shoulders
- G) Provision of 100mm Emulsion Treated Base across the carriageway
- H) Provision of MC 30 Cut back Bitumen as a Prime Coat
- I) Application of sand seal surfacing layer across the carriageway.
- J) Any other activity not listed above but deemed to be necessary by the Engineer shall be carried out subject to Engineer's formal instructions and within the mode of payment stipulated either by day works or on measured basis.

### **103 Drawings**

The drawings provided for bidding purpose shall be as contained in the Bid documents. The complete book of drawings shall be issued during the construction period. The Engineer may from time to time, in order to enable satisfactory completion of works, revise, amend, or supersede any of these drawings. It shall be the Contractor's responsibility to construct the works in conformity with the latest revision and amendment to the drawings provided that the Engineer has given the Contractor in writing such reasonable prior notices of intention to revise, amend, or supersede as the nature of the intended change required and relevant drawings have been issued to the Contractor.

### **104 Programme for Execution of the Works**

The Contractor shall provide the works programme, required under Clause 14.1 of the Conditions of Contract, within 28 days of receipt of the Engineer's Order to commence work.

The programme shall be coordinated 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 Works of 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.

The Contractor shall allow in his programme for construction of trial sections and carrying out tests upon them as directed by the Engineer in accordance with the provisions of Clause 129 of the Standard Specification. The time for completion of the Contract shall not be extended because of the time taken to carry out tests and evaluate trial sections.

### **105 Order of Execution of the Works**

Generally, the Contractor shall commence the works in a manner that will ensure orderly completion at each site.

### **106 Certificate of Completion**

Wherever the "Certificate of completion" and "Period of Maintenance" are stated in the specification, these shall be read respectively as the "Taking Over Certificate" and "Defects Liability Period".

The Taking-Over Certificate for these works shall be issued upon application by the Contractor under Clause 48.2 of the Conditions of Contract on substantial completion of the construction works. The Defect Liability Certificate will be issued after the end of the Defects Liability Period.

Release of Retention Money will be on issuance of the said certificates.

### **107 Method of construction**

The submission of the work programmes, Order of Work and the General Description of works shall be consistent in presentation and content when handed over for the Engineer's approval and in accordance with programmes and schedules as stated in Clause 14.1 of Conditions of Contract.

Notwithstanding any contrary provision contained in the last paragraph of Clause 108 of the Standard Specification, the Engineer's normal working hours shall be defined as 8:00 a.m. to 5:00 p.m. on weekdays, including lunch break from 1.00 p.m. to 2.00 p.m. and 8:00 a.m. to 1:00 p.m. on Saturdays, with Sunday being set aside as a day of rest. If the contractor wishes to execute permanent works outside these hours, he shall request for and obtain written permission from the Engineer at least one full working day in advance to enable the Engineer to make necessary provision for the supervision of such work. The contractor shall meet any costs arising thereof.

### **108 Notice of Operations**

It shall be the Contractor's responsibility to notify the Engineer when any items of the Works scheduled are completed and ready for approval, and the contractor shall give a notice of one full working day to allow control tests to be performed.

## 109 Health, Safety and Accidents

In accordance with the Laws of Kenya, the Contractor shall make all necessary arrangements for awareness programmes for public health education and particularly for HIV/AIDS as detailed under Section 26 of this specification.

In addition, the Contractor shall ensure that adequate security is provided by the KWS for all persons authorised to work on the works within the protected area.

## 110 Use of Explosives

The Contractor shall not use explosives without prior written consent of the Engineer. Where the use of explosives is so provided or ordered or authorised, the Contractor shall comply with the requirements of the following beside the law of the land as applicable:

- (a) The Contractor shall at all times make full liaison with and inform well in advance and obtain such permission as is required from all Government Authorities, public bodies and private parties whatsoever concerned or affected or likely to be concerned or affected by blasting operations.
- (b) The Contractor shall pay all license fees and charges, which may be, required for storage of explosives or in respect of any other matters whatsoever.
- (c) The contractor shall be solely responsible for provision, supply, handling, storage and transportation of all explosive ancillary materials and stores and all other things of every kind whatsoever required for blasting operations and shall not delegate or subcontract these activities without the approval of Engineer.
- (d) Before the beginning of the Defects Liability Period the Contractor shall remove all unused explosives from the site on completion of the Works or which are ordered by the Engineer, and submit to the Engineer written confirmation of compliance with the instruction.
- (e) The Contractor shall submit to the Engineer monthly returns detailing the quantity of explosives brought to the site together with the quantities used during the month and the location and quantity of rock blasted.

## 111 Protections of Existing Works and 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 tender rates by the Contractor.

Any damage to, or interference with, existing utilities, caused by the Contractor's operations during the progress of the Works, shall be deemed to be the responsibility of the Contractor who shall undertake to make good at his own expense any damage so caused to the existing underground utilities or other features. The Contractor shall be liable in respect of all claims arising from such damages or interference that may occur.

The Contractor shall be responsible for arranging in liaison with the relevant authorities as soon as the requirements are known for the moving of or alterations to services including power lines, telephone lines, data cables, water mains, sewers and surface water drains which are affected by the works. The arrangements for such moving or alteration shall be subject to the agreement of the Engineer and the relevant authorities.

## 112 Diversion of services

- (a) The Contractor shall acquaint himself with the position of all existing services including sewers, water pipes, underground drains, cable for electricity and telephone lines, telephone and lighting poles before commencing any excavation or other work likely to affect these existing services.
- (b) The Contractor shall pay any charges arising from the moving of such services for which Provisional Sums have been included in the Bill of Quantities. Subject to the agreement of the Engineer and upon production of receipts, the Contractor shall be reimbursed in Interim Certificates the net cost of such moving or alteration plus the percentage inserted in the Bill of Quantities for all costs and profits in making the payments.



- (c) The Contractor shall be entirely responsible for and shall repair at his own cost, any services that may be damaged by his plant, equipment or personnel for not following the laid down procedure of locating and shifting services or damage that may occur subsequent to alteration of such services. The Contractor shall indemnify the Employer against claims arising from damages to existing services or works.

### **113 Liaison with Government Officials and Police**

In addition to the requirements of maintaining liaison with County and National Government Officials, the Kenya Police Service and Kenya Wildlife Service, the Contractor shall be responsible for acquainting himself with all current and valid ordinances or regulations which may affect the work.

The Contractor's attention is also drawn to his obligations with regard to inspection and examination of the site as stipulated under Clause 11 of the Conditions of Contract.

### **114 Provision of land**

All requirements of land for deviations, quarries, stockpiles, spoil areas and borrow pits when not in the road reserve but required for the construction purposes shall be approved by the Engineer, but the Contractor will make necessary arrangements with the property owners concerned and pay all charges arising thereof on or before completion of the Contract. However, the Employer shall not provide any land for the Quarries, stockpiles, spoil areas and borrow pits and access roads there to.

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 is reasonable and practicable. No separate payment shall be made to the Contractor on account of these items and the contractor shall make due allowances for them in his rates elsewhere.

Any encroachment of the dam area, for example by kiosks, shall be brought to the Engineer's attention by the Contractor at the earliest opportunity.

### **115 Water Supply**

The Contractor at his own cost shall obtain necessary permissions from the relevant Government authorities and private parties to draw water from natural sources and private sources respectively.

### **116 Information from Exploratory Boring and Test Pits**

- (a) The Materials Report prepared by the Employer does not form part of the bid documents. However, the report will be made available for the Contractor's verification only and any conclusions in regard to suitability of material, location of borrow pits and material quantities made by the Contractor based on this information, will be his own responsibility.

### **117 Publicity Signboards**

At the commencement of works, the Contractor shall provide and erect publicity signboards at locations along the proposed Project Roads and enroute as instructed by the Engineer. The signboards shall comply with the requirements and detail shown in the Book of Drawings. Any amendments to the details in the Book of Drawings, prior to the signboards being erected, shall be with the approval of the Engineer.

### **118 Provision of vehicles**

The Contractor shall when instructed, provide and maintain in good working condition for the exclusive use of the Engineer and his staff throughout the Contract, the following types and numbers of brand new vehicles. The Engineer shall approve the type of vehicles and confirm the number of each type to be provided. The Contractor shall insure the vehicles comprehensively 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 roadworthy condition, the Contractor shall provide an acceptable equivalent replacement vehicle until such a time as the original vehicle is repaired to the satisfaction of the Engineer and returned for use.

Double Cabin pick up Vehicles should be Four Wheel Drive (4WD), with power assisted steering, Double wishbone independent suspension at front axle and rigid axle with leaf springs at rear and diesel propelled engine minimum capacity 2,500 cc. The vehicles should be fitted with other accessories below:

- i) Spare tyre and wheel jack;
- ii) FM radio and CD player;
- iii) Power Windows;
- iv) Full Air-conditioning;
- v) Immobilizer and antitheft security system;
- vi) Driver and passenger SRS Airbags;
- vii) Lockable fibreglass body at the back.

All vehicles to be supplied will be brand new or odometer reading 0 – 60,000km, right hand drive, with air-conditioner and power steering as described below.

Ownership of the vehicles supplied to the Engineer shall revert to the Contractor upon completion of construction.

## **119 Miscellaneous Accounts**

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

## **120 Payment of Overtime for Engineer's Junior Staff**

If the Contractor wishes to execute the works on regular basis outside the Engineer's normal working hours as given in Clause 108, over a prolonged period, the Engineer may if he deems it necessary, employ additional supervisory staff for which the required salaries shall be in full by the contractor through the Engineer's office. In addition, the Contractor shall provide the required accommodation for such staff at his own cost. The Contractor shall not be reimbursed any of this cost.

## **121 Liquidated Damages**

Liquidated Damages at the rate indicated in the Appendix to Form of Bid 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. The limit of liquidated damages shall be as indicated in the Appendix to Form of Bid.

## **122 Protection of the Environment**

Further to the requirements of Sub-clause 19.1 of the Conditions of Contract, the Contractor shall be responsible for the following measures to protect the environment.

- (a) Compliance with national and local statutes and regulations relating to protection of the environment. The Contractor will be responsible for familiarizing himself with all existing national and local legislation in this regard.
- (b) All construction activities shall be carried out using the best possible means to reduce environmental pollution such as noise, dust and smoke. All vehicles and plant shall be regularly serviced in accordance with the manufacturer's recommendations to ensure that they operate efficiently and without excessive noxious emissions. The Engineer will have the authority to instruct the Contractor to temporally cease operations and/or remove from the site vehicles or plant which do not comply with this requirements, until such time that he is satisfied that the best practicable means to reduce environmental pollution to a minimum are being used.
- (c) The Contractor shall at all times maintain all sites under his control in a clean and tidy condition and shall provide appropriate and adequate facilities for the temporary storage of all waste prior to disposal.

- (d) The Contractor shall be responsible for the safe transportation and disposal of all waste generated as a result of his activities in such a manner as will not give rise to environmental pollution in any form or hazard to human or animal health. In the event of any third party being employed to dispose of waste, the Contractor shall be considered to have discharged his responsibilities under this Clause from the time at which waste leaves sites under his control, providing that he has satisfied himself that the proposed transportation and disposal arrangements are such as will not give rise to pollution or health hazard.
- (e) The Contractor shall be responsible for the provision of adequate sanitary facilities for his workforce, and that of his subcontractors at all construction and ancillary sites. The Contractor shall not allow the discharge of any untreated sanitary waste to ground water or any water of ground surface watercourse.
- (f) All concrete and asphalt plants shall be operated and maintained in accordance with the original manufacturer's specifications and manuals, and in such a manner as to minimize emissions of hydro-carbons and particulate if in the opinion of the Engineer the operation of such plant is causing or is likely to cause nuisance or health problems to the site staff or the general public. The Contractor shall carry out such work as is necessary to reduce emissions to an acceptable level within a time-scale agreed with the Engineer.
- (g) The Contractor shall regularly spray with water all exposed dirt surfaces to reduce dust levels.
- (h) The Contractor shall take all responsible measures, at all sites under his control to prevent spillage and leakage of material likely to cause pollution of water resources. Such measures shall include but not be limited to the provisions of bunds around fuel and oil storage facilities and provision of oil and grease traps for servicing and fuelling areas. Prior to construction of such facilities the Contractor shall submit details of pollution prevention measures to the Engineer for his approval.
- (i) The Contractor shall be responsible for ensuring that exposed surfaces are re-vegetated as construction progresses all to the satisfaction of the Engineer.
- (j) The removal of trees shall be kept to the minimum necessary to accommodate the permanent works. Prior to the removal of any trees the contractor shall inform the Engineer of the intended operation and obtain the permission of the Engineer for the removal of the trees. If any tree is removed without permission the Contractor shall replace it with an approved tree at no additional cost to the Employer.
- (k) The Contractor shall ensure that fires, except for controlled fires for burning rubbish, do not start within the Site or in the environs thereto as a result of the works or from the actions of his employees. The burning of waste, such as vehicle tyres causing noxious emissions is prohibited. The contractor shall have available at all times trained fire-fighting personnel provided with adequate fire-fighting equipment to deal with all fires. The contractor shall additionally at all times provide sufficient fire protection and fighting equipment locally to parts of the works which constitutes particular fire hazards.

No separate payment shall be made in respect of this Clause 142 and the Contractor shall be deemed to have allowed in his general rates and prices for the costs of complying with the requirements of this clause.

## **123 Off Site Environmental Measures**

The Employer and the National Environmental Management Authority (NEMA) may order certain environmental measures to be carried out which are off the road and not specifically covered under these provisions. The Contractor shall carry out such works with equipment, labour and plant provided under the Contract or shall make such arrangements for specialized works to be carried out by a specialized subcontractor.

The Contractor shall be paid for all direct expenses under a Provisional Sum in the Bill of Quantities and a percentage (%) for his handling costs and profits.

## **200 SITE CLEARANCE AND TOP SOIL STRIPPING**

### **201 Site Clearance**

Site clearance is not required over the paved width of the existing road and shoulders. No measurements and payment for site clearance will be made for this width. The remaining area within the road reserve including the sides of the existing embankments and cutting should be cleared as instructed by the Engineer. This operation shall also include the removal of selected trees as directed by the Engineer. The Contractor shall provide paint and all the assistance the Engineer may require to mark the trees which should not be removed during site clearance.

The Contractor shall take care not to uproot or damage trees which are within the road reserve but outside the construction width. After the contractor has staked out the extent of the road, the Engineer with assistance of the Contractor shall mark out the trees to be removed. After removal the trunk and branches of these trees shall be cut into pieces not more than 2.0 m in length, transported and neatly stored at the nearest Ministry of Roads camp at a position to be indicated by the Engineer. Payment for this work shall be as detailed in the Bill of Quantities. The rate inserted by the Contractor for this work shall include the cost of complying with all the requirements of this clause.

## **300 EARTHWORKS**

### **301 General**

Excavation shall be made to such lengths, depths and inclinations as may be necessary for the construction of the works or as shown on the drawings or as the Engineer may direct.

### **302 Classification of Excavation**

The Engineer or his Representative and the Contractor or his Representative shall be present during classification of materials.

Where the terms "rock excavation" and "common excavation" or "excavation" are used in these specifications, the following definitions shall apply.

Rock Excavation includes all solid rock in place which cannot be removed until loosened by blasting, barring, wedging, and all boulders or detached pieces of solid rock more than 0.25 cubic metres in volume. Solid rock under this class is defined as sound rock of such hardness and texture that it cannot be loosened or broken down by hand- drifting picks.

All materials containing more than 50% by volume of boulders exceeding 0.25 cubic metres in volume shall be classified as rock excavation.

Common Excavation includes all material other than rock excavation: including, but not restricted to earth, gravel, and also such hard and compact material as hardpan, cemented gravel, and soft or disintegrated rock together with all boulders or detached pieces of solid rock not exceeding 0.5 cubic metre in volume.

### **303 Stripping of Top Soil**

#### **303.1 Stripping**

Stripping shall consist of removing, transporting and disposing of topsoil, stumps, roots, buried logs, debris, humus and similar objectionable matter. Areas to be stripped are all areas required for the permanent constructional works, borrow-pits and embankment fills.

The limits of stripping shall extend 2 metres beyond the limits of excavation or toes of fills. The depth of stripping shall normally be 0.2m, but deeper stripping might be needed to remove stumps.

### 303.2 Disposal

Materials from stripping suitable as topsoil shall be spread in approved areas. All other non-combustible materials shall be buried in approved disposal area; covered with a minimum of 0.5m of excavation spoil. These disposal areas shall be left with neatly graded surfaces and stable slopes that assure drainage. Alternatively, the non-combustible material shall be removed from the area by the contractor.

## 304 Excavation

### 304.1 General

All open cut excavation shall be performed in accordance with this section to the lines, grades and dimensions shown on the drawings or as directed by the Engineer. The Engineer reserves his right to at any time during the progress of the work to vary the slopes or dimensions of the excavations from those previously specified.

Any damage to the works due to the contractor's operations, including shattering of the material beyond the required excavation lines, shall be repaired at the expense of and by the contractor. All excess excavations and over-excavation shall be filled with compacted concrete grade 10 furnished and placed at the expense of and by the contractor.

All excavation for structure foundations shall be performed in the dry.

If excavations are carried out in roads, footpaths, separators, or within 5m of buildings, the contractor is requested to execute the work in a way that will minimise damage and disturbances.

### 304.2 Mechanical Excavation

- a) A mechanical excavator shall be employed only if the sub-soil is suitable and will allow timbering of trenches or other excavations to be kept sufficiently closed up to ensure that no slips fall or disturbance of the ground takes place or there are no pipes, cables, mains or other services or property which may be disturbed or damaged by its use.
- b) When mechanical excavators are used, a sufficient depth of material shall be left over the bottom of the excavation to ensure that the ground at finished excavation level is not damaged or disturbed in any way. The excavations shall then be compacted by hand to the finished levels required.

### 304.3 Rock Excavation

The contractor shall trim all rock faces in cuttings according to the dimensions shown on the drawings and upon completion leave them safe from rock falls to the satisfaction of the Engineer.

## 305 Excavation for Foundations

- a) The bottom and side slopes of common material upon or against which concrete is to be placed shall be finished accurately to the established lines and grades, and loose materials on surfaces so prepared shall be moistened with water and tamped or rolled with suitable tools and equipment to form a firm foundation for the concrete structure. If, at any point, material is excavated beyond the established excavation lines, then the over-excavation resulting voids shall be filled with consolidated concrete grade 10 at the contractor's expense. If the excavation is carried out in advance, a protective layer of 150mm thickness shall be left above the foundation level until immediately before the contractor is ready to pour the blinding concrete.
- b) The bottom and side slopes of rock material upon or against which concrete is to be placed shall be excavated to the required dimensions as shown on the drawings or established by the Engineer. No material will be permitted to extend within the neat lines of the structure. If at any point in the rock material, material is excavated beyond the limits required to receive the structure, the additional excavation shall be filled solidly with concrete grade 10

### 306 Trench Excavation for Pipe Laying

All surface material including top soil which differs in any nature whatsoever from the sub-strata shall in every case be carefully set aside and stored separately from other excavated material. No extra claim will be allowed for setting aside surface matter or topsoil for later use.

Trench excavation shall be carried out with great care, true to line and gradient and as near as practicable to the size required for construction of the permanent work. Nowhere shall the external dimensions of the excavations be less than the dimensions of the permanent work shown on the drawings or as directed by the Engineer.

If the bottom of the excavation becomes weathered prior to pipe laying, due to fault of the contractor, the weathered soil shall be replaced with suitable compacted material to the original formation level at the contractor's expense. The pipe trench shall be excavated to a depth of 150mm below the invert level of the pipe and refilled with sand, gravel or other selected materials free from stones and well rammed in order to provide a smooth bed for the pipes.

Excavation for pipe trenches shall be of sufficient depth to give a minimum cover of 200mm over the top of the pipe. Where pipes/sewers cross under roads, minimum cover shall be 900mm, or such cover as may be directed by the Road Authority.

Where the pipeline is required to be laid at depth, which does not satisfy the minimum cover conditions set out above, the ground surfaces shall be brought up to the required level by banking the backfill or as directed by the Engineer.

No pipes shall be laid and no excavation filled in or covered with concrete until the formation has been inspected and permission to proceed with the work obtained.

Where P.V.C. are being laid, the bottom of the trench must be completely free from stones, and a smooth bed of fine material must be provided. Where the bed of the trench for pipes is excavated in rock, it must be excavated to a depth of not less than 100mm below the bottom of the pipe, and refilled with selected fine granular material to make a smooth bed for the pipe.

The width of the trench to be excavated will depend on the size and type of pipe being laid. Sufficient width must be excavated to allow the pipe to be correctly bedded and aligned, and to allow for the joints to be correctly made.

Any excavated material stored on site for backfilling or other purposes shall be deposited alongside the excavation at a minimum distance of 0.5m in such a manner that it will cause no damage and as little inconvenience as possible.

Any instruction given by the Engineer will be directed to the provision of stronger support than that proposed by the contractor, and will be given only when, in the opinion of the Engineer, the support proposed by the contractor is insufficient.

Where timber has been used in excavations any such timber left in position shall be at the expense of the contractor except where the Engineer has ordered the timber to be left in place or if any timber should be left in place with the prior approval of the Engineer. the timber approved or ordered to be left in place will be paid for at the rates entered in the Bills of Quantities.

For the purpose of this clause, the words "timber" and "timbering" shall be construed to include trench sheeting and steel or concrete sheet, piling or any other means adopted by the contractor for supporting excavations.

### 307 Backfilling of Excavations

The backfilling of excavations shall be commenced as soon as practicable after the permanent works have been tested where so required and inspected and approved by the Engineer. In particular, the back filling of trenches shall be carried out expeditiously to reduce lengths of trenches open at any one time.

Backfilling shall be executed with selected materials in 150mm layers (300mm layers of a mechanical hammer are used) each layer being well rammed and watered to obtain the maximum compaction. Care shall be taken to ensure that no stone or other material, which could damage pipes or other work, is placed within 300mm of such work.

As soon as P.V.C are laid and jointed in their final positions, they should be protected from possible damage by carefully backfilling of fine granular material brought up to about 150mm over the top of the pipe, for the full width of the trench, and well compacted.

Joints must be left open for inspection until the pressure test is completed.

Backfilling over steel pipes shall be generally as described above, except that the initial protective filling around the pipe is not necessary.

### **308    Hardcore Filling**

Hardcore fill shall consist of clean hard broken stone or rubble with measurements not below 200mm and not exceeding 500mm in any one direction with sufficient murrum added to fill the interstices. The hardcore shall be well packed, rammed and where possible rolled with a 5 ton roller. Where rolling is impossible, compaction shall be by hand or by mechanical tampers. Before any concrete is laid on hardcore, the hardcore shall be levelled and blinded with fine stone chipping, rolled and watered as necessary. Hardcore filling is measured after compaction.

### **309    Borrow Pits**

Fill material which is required in addition to that provided by excavation shall be obtained from borrow pits to be located by the contractor and provided by the Contractor but subject to the approval of the Engineer.

### **310    Reinstatement of Surfaces**

Generally, all trenches and backfilled excavations shall be reinstated to equal surfaces as before excavation.

Trenches in any existing road shall be refilled to the level of natural soil below the road with sub-soil in 75mm layers, each layer being carefully tamped with rammers. The remaining top layer shall be filled to the road surface with materials equal in type, quantity and compaction to materials used for the existing road.

The trench shall then be left to settle for 30 days. At the expiration of this period, the surface shall be made up to level and tamped or rolled to the approval of the Engineer, who will decide on the particular surfacing employed in accordance with the existing surface of the road.

Before expiration of the maintenance period, the contractor shall make good any defaults in reinstatements.

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**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 and shall be removed only in areas instructed by the Supervisor. Topsoil shall be removed to a depth as directed by the Supervisor and evenly spread within the road reserve, or stockpiled for top soiling of side slopes as directed by, and to the satisfaction of the Supervisor.

**403 REMOVAL OF STRUCTURES, FENCES AND OBSTRUCTIONS**

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



## SECTION 5 - EARTHWORKS

### 504 PREPARATION PRIOR TO FORMING EMBANKMENT

Where benching is required for existing pavement to accommodate earthworks sub-grade or sub-base 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 in embankments. Fill material shall comply with the following requirements:

- Organic matter less than 5% by weight
- Swell less than 3%
- Plasticity Index less than 50%

Subgrade is defined on the Drawings, and subgrade material shall comply with the requirements of Clause 505 except that the CBR shall have a value of not less than 10% measured after a four (4) days soak on a laboratory mix compacted to a dry density of 100% MDD (AASHTO T99).

Improved subgrade is defined on the Drawings or as shall be specified by the Engineer and shall comply requirements:

- CBR of not less than 14% measured after 4 days soak on a laboratory mix compacted to a dry density of 95% (AASHTO T99)
- Plasticity Index less than 30%
- Swell less than 1% on the laboratory mix sample.
- Placed in layers not exceeding 175mm thick.

The improved subgrade thickness shall be as follows:

- Class S1 Native Subgrade (CBR 2-5%) : 325mm
- Class S2 Native Subgrade (CBR 5-10%) : 200mm

Improved subgrade shall not be required where the average bearing strength of the in-situ soil exceeds 10%.

**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 sub-grade 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 wing walls.

Notwithstanding the provision of clause 503 of the Standard Specification, compaction of sub-grade 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 standards and tolerances as those required for normal sub-grade and clauses in the specifications applying to normal sub-grade 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**

Before commencing excavation for the foundation of any structure, the Contractor shall open up one or more trial pits within the areas of the foundation as directed by the Engineer's representative before excavating for the foundation. Where a trial pit is excavated to a level below the founding level of the structure, it shall be backfilled to that level with approved material or concrete as directed by the Engineer's representative.

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 BACK-FILLING 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 water-courses 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 will be undertaken as a soil conservation measure, with soil erosion minimised by ensuring that proper protection works are 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.

Stone pitching to drains, inlets and outlets of culverts to embankments and around structures shall consist of sound unweathered rock, which when soaked will withstand a crushing stress of 20N/mm<sup>2</sup>, and 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.

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 re-construction 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 KWS Yard.

## **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 or 900mm 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 15/20 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 as shown in the drawings provided 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 linear 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 sub-drains 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 sub-drain 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 De-silting of Pipe Culverts**

Where instructed, the Contractor shall de-silt 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.

**821 CONCRETE GUTTERS AT BUS-BAYS**

Where raised Kerbs are provided at bus-bays, openings shall be provided through the raised Kerbs to facilitate drainage as shown on the drawings or directed by the Engineer.

The opening shall be constructed through the bus-bay berm and embankment backslope behind the berm into the adjoining roadside ditch.

The opening shall be of 200 mm width other dimensions being left as they are shown on the drawings, or as instructed by the Engineer.

Measurements and payment for gutters at bus-bays shall be per linear metre, the rate being inclusive of the costs for setting out, excavation to line and level, trimming, compacting the invert trench, disposal of excavated surplus material, providing, transporting and laying, of concrete and the necessary formwork, backfilling, watering and compacting of the concrete as required.

## 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.

### 904 CONSTRUCTION OF DEVIATIONS

#### a) General

The existing level of public traffic is light and the contractor is expected to generally pass the public traffic through the works along lengths of the project road. But in circumstances where this is not practically feasible, the contractor will bring this to the attention of the Engineer, and if directed by the Engineer, the contractor will construct and maintain deviations in accordance with Section 9 of the Standard Specifications.

In addition to requirement of this clause, the maximum length of deviation road shall be restricted to 5kms 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 the first one and he will not be allowed to open any further 5 km section 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/m<sup>2</sup>/day at 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. The cost of doing so shall be deemed to have been included elsewhere in his rates and no separate payment shall be made for this. To this end, the Contractor shall be deemed to have inspected the site for himself and noted any locations where this may apply.

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 to a width 1.5m, or as directed by the Engineer.

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

The shoulders shall be constructed as directed by the Engineer, in accordance with sections 11, 12, 14 and 15 of the Standard Specification. The material for shoulders shall be the same as that of base and sub-base layers in the carriageway.

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

The shoulders to the whole stretch of the road shall have a double surface dressing of 6/10 and 14/20mm class 3 pre-coated chippings in accordance with Section 15 of the Standard Specifications.

### **1106 MEASUREMENT AND PAYMENT**

Payment for shoulder construction shall be in accordance with the relevant clauses in sections 11, 12, 14, and 15 of the relevant Specifications. Payment for fill material on shoulder shall be in accordance with Section 5 of this specification.

## SECTION 12 - NATURAL MATERIAL SUB-BASE AND BASE

### 1201 GENERAL

#### (a) Definitions

The term “natural material” includes lateritic gravel, quartzitic gravel, calcareous gravel, soft stone, coral rag, conglomerate, sand or clayey sand, a combination of any of these materials or a mixture of natural gravel and upto 30% of stone (crushed or not). A natural material is also referred to as “gravel”.

#### (b) Sources of materials

Natural material for subbase and base may be obtained from any of the following sources: -

- (i) Borrow pits
- (ii) Spoil areas
- (iii) Excavation in cuttings, widened if necessary.

In all cases the Engineer will instruct the Contractor as to the source of material to be used and the location in which it is to be placed.

#### (c) Inspection of site

Where a source of material is available for inspection during the Tender Period the Contractor shall satisfy himself as to the nature and amount of work involved particularly in respect of the volume of overburden, the quality and hardness of material, the degree of selection necessary, the method of extraction, and access to the source.

#### (d) Borrow pits

The Contractor shall comply with all the requirements of Section 6 of this Specification in respect of borrow pits.

### 1202 CLASSIFICATION OF MATERIAL

Natural material shall be material which can be extracted from a borrow area or a road cutting by ripping to a depth of 300 mm with a single tine hydraulic ripper acceptable to the Engineer drawn by a track type crawler tractor in good order complete with all equipment and accessories as supplied and rated at 300 BHP flywheel power and over with an operating weight of not less than 37.2 tonne and being operated in accordance with the manufacturer’s recommendations. The material may require the use of either a grid or sheep foot roller with more than 8000 kg mass per metre width of roll to break it down and/or screening to achieve the specified grading.

### 1203 MATERIAL REQUIREMENTS

#### (a) Gravel with Minimum Soaked CBR Value of 25% (G25)

Material for G25 subbase shall include natural gravel or a mixture of natural gravel and up to 30% of sand or crushed stone aggregates and shall conform to the following requirements:

- Maximum size : 63mm
- Passing 0.075mm sieve : Maximum 35%
- Plasticity Index : Maximum 15%
- CBR (4 days soak) : Minimum 25%

**(b) Gravel with Minimum Soaked CBR Value of 30% (G30)**

Material for G30 subbase shall include natural gravel or a mixture of natural gravel and up to 30 percent of sand or crushed stone aggregates and shall conform to the specifications given in Section 1203(a) of the Standard Specifications for Road and Bridge Construction but with maximum PI of 12%.

The material shall comply to the following grading envelope after compaction:

| <b>BS Sieve size (mm)</b> | <b>Percentage by weight passing</b> |
|---------------------------|-------------------------------------|
| 63                        | 100                                 |
| 37.5                      | 80-100                              |
| 20                        | 60-100                              |
| 5                         | 30-100                              |
| 1.18                      | 17-75                               |
| 0.3                       | 9-50                                |
| 0.075                     | 5-25                                |
|                           |                                     |

**(c) Gravel with Minimum Soaked CBR Value of 50% (G50)**

Material for G50 base shall include natural gravel or a mixture of natural gravel and up to 30% of sand or crushed stone aggregates and shall conform to the following requirements:

- Maximum size : 50mm
- Passing 0.075mm sieve : 4 - 20%
- Plasticity Index : Maximum 12%
- Plasticity Modulus : Maximum 250
- LAA : Maximum 70%
- CBR (4 days soak) : Minimum 50%

The material shall conform to the following grading envelope after compaction:

| <b>BS Sieve size (mm)</b> | <b>Percentage by weight passing</b> |
|---------------------------|-------------------------------------|
| 50                        | 100                                 |
| 37.5                      | 95 - 100                            |
| 28                        | 80-100                              |
| 20                        | 60 - 100                            |
| 10                        | 35-90                               |
| 5                         | 20-75                               |
| 2                         | 12-50                               |
| 1                         | 10-40                               |
| 0.425                     | 7-33                                |
| 0.075                     | 4-20                                |

**(d) Gravel with Minimum Soaked CBR Value of 60% (G60)**



Material for G80 base shall include natural gravel or a mixture of natural gravel and up to 80% of sand or crushed stone aggregates and shall conform to the following requirements:

- Maximum size : 50mm
- Passing 0.075mm sieve : 4 - 20%
- Plasticity Index : Maximum 10%
- Plasticity Modulus : Maximum 250
- LAA : Maximum 70%
- CBR (4 days soak) : Minimum 60%

The material shall conform to the following grading envelope after compaction:

| BS Sieve size (mm) | Percentage by weight passing |
|--------------------|------------------------------|
| 50                 | 100                          |
| 37.5               | 95 - 100                     |
| 28                 | 80-100                       |
| 20                 | 60 - 100                     |
| 10                 | 35-90                        |
| 5                  | 20-75                        |
| 2                  | 12-50                        |
| 1                  | 10-40                        |
| 0.425              | 7-33                         |
| 0.075              | 4-20                         |

**(e) Gravel with Minimum Soaked CBR Value of 80% (G80)**

Material for G80 base shall include natural gravel or a mixture of natural gravel and up to 80% of sand or crushed stone aggregates and shall conform to the following requirements:

- Maximum size : 50mm
- Passing 0.075mm sieve : 4 - 20%
- Plasticity Index : Maximum 10%
- Plasticity Modulus : Maximum 250
- LAA : Maximum 50%
- CBR (4 days soak) : Minimum 80%

The material shall conform to the following grading envelope after compaction:

| BS Sieve size (mm) | Percentage by weight passing |
|--------------------|------------------------------|
| 50                 | 100                          |
| 37.5               | 95 - 100                     |
| 28                 | 80-100                       |
| 20                 | 60 - 100                     |
| 10                 | 35-90                        |

|       |       |
|-------|-------|
| 5     | 20-75 |
| 2     | 12-50 |
| 1     | 10-40 |
| 0.425 | 7-33  |
| 0.075 | 4-20  |

**(f) Material for Cement/Lime Improved Gravel of CBR 60% (CIG 60)**

Material for CIG 60 base shall include natural gravel or a mixture of natural gravel and up to 30 percent of sand or crushed stone aggregates and shall conform to the following requirements:

- Maximum size : 50mm
- Passing 0.075mm sieve : 5-35%
- Plasticity Index : Maximum 20%
- CBR (4 days soak) : Minimum 25%

After treatment the material shall have a CBR of at least 60% measured after 7 day cure and 7 day soak on the site mix compacted to at least 95% MDD AASHTO T180 and the treated material shall have a plasticity index less than 8% and a plasticity modulus less than 250.

**(g) Material for Cement/Lime Improved Gravel of CBR 100% (CIG 100)**

Material for CIG 100 base shall include natural gravel or a mixture of natural gravel and up to 30 percent of sand or crushed stone aggregates and shall conform to the following requirements:

- Maximum size : 50mm
- Passing 0.075mm sieve : 5-35%
- Plasticity Index : Maximum 20%
- CBR (4 days soak) : Minimum 25%

After treatment the material shall have a CBR of at least 100% measured after 7 day cure and 7 day soak on the site mix compacted to at least 95% MDD AASHTO T180 and the treated material shall have a plasticity index less than 6% and a plasticity modulus less than 250.

**(h) Material for Cement/Lime Improved Gravel of CBR 160% (CIG 160)**

Material for CIG 160 base shall include natural gravel or a mixture of natural gravel and up to 30 percent of sand or crushed stone aggregates and shall conform to the requirements given in Section 1203(d) of the Standard Specifications for Road and Bridge Construction but shall have Plasticity Index not exceeding 20% and 4 day soak CBR of at least 25%.

## SECTION 14: CEMENT, LIME AND EMULSION TREATED SUB- BASE / BASE

### 14-50-001 -005 BITUMEN EMULSION STABILISED MATERIALS (ESM)

**Scope:** This section covers the materials specification, work method, measurement and payment for the Bitumen Emulsion Stabilized Materials (ESM) for Low Volume traffic.

#### 1. Materials

Materials required for emulsion stabilized base are:

- i. Natural gravel, crushed stone gravel, a mixture of natural gravel and sand or up to 30% of crushed stone, or granular recycled pavement material;
- ii. Cationic or Anionic bitumen emulsion manufactured using base bitumen of 80/100 penetration grade;
- iii. Active filler of lime; and,
- iv. Active filler of cement.

#### a. Gravel

The gravel shall be material which can be extracted from a borrow pit area, a road cutting, a mixture of natural material and crushed stone, or granular recycled material.

The grading of the material before stabilization shall conform to the following envelope:

| ESM ENVELOPE    |           |     |
|-----------------|-----------|-----|
| Sieve size (mm) | % Passing |     |
| 50              | 100       | 100 |
| 37.5            | 90        | 100 |
| 28              | 80        | 100 |
| 20              | 60        | 100 |
| 10              | 35        | 90  |
| 5               | 20        | 75  |
| 2               | 12        | 50  |
| 1               | 10        | 40  |
| 0.425           | 7         | 33  |
| 0.075           | 4         | 20  |

The materials shall meet the following minimum specifications:

- i) CBR at 95% MDD (AASHTO T180) and 4 day soak: minimum 30%;
- ii) Plasticity Index: 7% to 12%;
- iii) Organic matter: maximum 1%; and,

iv) Grading Modulus: 1.2 to 2.7.

*Where  $GM = \{300 - (P2 + P0.425 + P0.075)\} / 100$  and  $P = \text{percent passing}$   
.....Formula. 1*

## **b. Bitumen Emulsion**

The bitumen emulsion shall be slow setting stable grade anionic emulsion such as A3 and A4 to allow for long workability times and ensure good dispersion. However, where the gravel is quartzitic, granite or sandstone, slow setting cationic K3 emulsion shall be used. The emulsion to be used must be anionic stable grade 60% emulsion (Colas A4-60 vinzyl resin emulsifier) decanted from 210 litre drums.

## **c. Lime**

Lime shall be normal hydrated lime supplied in 25kg bags.

## **d. Cement**

Cement shall be pozzolanic Portland cement (32.5N/mm<sup>2</sup> mortar strength) supplied in 50kg bags.

## **2. Construction Plant and Tools**

The following specialized plant and equipment are recommended to promote the construction of the base. by equipment :

- i. Bitumen distributor
- ii. Self-propelled vibratory roller (10ton roller is preferable)
- iii. Sheep's foot roller.
- iv. motor grader
- v. Soil stabilizer
- vi. Water bowser

## **3. Handling of emulsion**

The emulsion drums shall be stored flat and shall be rolled back and forth every second day to prevent settling and coagulation of the bitumen in the drums.

When diluting a bitumen emulsion, it is important to add the emulsion to the water, and not the water to the emulsion. This will prevent the emulsion from breaking.

Accurately measured containers (galvanized steel or plastic) shall be used to measure the correct amount of emulsion to be added to the mix. The containers must be regularly cleaned or replaced with new ones to ensure that the measured volume remains constant.

## **4. Mix Design**

The Engineer shall ensure that laboratory and site trials are carried out to:

- i. Ensure that the untreated materials complies with the CBR, grading, and PI

- requirements before pre-treatment or stabilization;
- ii. Determine the moisture and density relationship using AASHTO T180 compaction for the untreated material to obtain OMC and MDD;
- iii. Determine the amount of Lime required to reduce the PI of the untreated material to 7% or less; and,
- iv. Determine the optimum moisture and bitumen emulsion amounts.

Pre-treatment of the material shall be carried out using lime to a maximum of 2% and curing for at least 12 hours to reduce the PI to at most 7% before treatment with emulsion and cement.

Treatment with cement and emulsion shall be carried out at the same time. However, the use of cement shall be dependent on the properties of the material and if required the amount shall not exceed 1 %. The proportions of the cement and the binder shall generally be as follows:

- o Cement: maximum 1%
- o Emulsion : 2.0-7.0% (1.5 - 4.0% residual binder content)

For example: using the mixing ratios of Emulsion A4-60 -2%, Lime -2%. Cement -1%, allow the MDD for the gravel 2000 Kg/m<sup>3</sup>, all the mix proportions are by weight.

The quantities prepare 1 m<sup>3</sup> of ESM will be as follows:

- o Emulsion A4-60 =  $1 \times 2000 \times 2 / 100 = 40$  litres
- o Lime =  $1 \times 2000 \times 2 / 100 = 40$  Kg
- o Cement =  $1 \times 2000 \times 1 / 100 = 20$  kg

The laboratory mix design shall involve:

- i. Estimation of minimum and maximum binder content from aggregate grading using the following formula:

$$P_b = 0.075 * P_{75} + 1.7 \dots \dots \dots \text{Formula 2}$$

Where,

$P_b$  = Residual binder content in weight percent  
(residual) ( $2 \leq P_b < 3.2\%$ )

$P_{75}$  = percentage of aggregate material less than  
75 $\mu$ m

- ii. Determination of OMC by AASHTO T1 80 and vibrating hammer method  
Emulsion content to be used shall be computed from the determined BC in Formula 2

$$\text{Emulsion Content (\%)} = (BC \text{ determined above} / PBE / 100) \dots \dots \dots \text{Formula 3}$$

The Total Fluid Contents (TFC) = Moisture in Material + Water in emulsion + Water added + Residual Binder (BC)

Water to add to material = TFC - Predetermined Emulsion content ( $M_{emul}$ ) in formula 2

The emulsion added is kept at constant while varying the water content.

- iii. Determine the Optimum Fluid Content (OFC) by the following:

$$OFC = OMC + 0.5BC \dots\dots\dots, \text{Formula 4}$$

Where:

BC = The Residual Binder Content determined in Formular2

- iv. Determination of Optimum Moisture content (OMC) using the following:

$$OMC = OFC - \text{Emulsion content determined in Formula 3} \dots\dots \text{Formula 5}$$

- v. Manufacture of 100mm diameter by 63.5mm +/- 1.5mm high specimens for Indirect Tensile Strength Test applying 75 blows of Marshall Compaction. The (OFC) Optimum fluid content determined in formula 4 with determinations as follows:

a) Mass of emulsion to add to the mix sample determined

b) Mass of water to add to the mix sample determined

$$(a) + (b) = \text{Constant of OFC} \dots\dots\dots \text{Formula 6}$$

The binder will be varying at increments of 0.5% or 1% while keeping the total fluids at constant at OFC

After moulding and extruding the compacted specimens, cure the specimens in the oven at 40 degrees for 72 hours to gain strength

After oven curing the specimens shall cool to ambient temperature and then determine Bulk Density by the following formula.

$$BD = (4XM_{briq}) / (\pi d^2 x h) \times 1,000 \dots\dots\dots \text{Formula 7}$$

Where:

BD = Bulk Density

(kg/m<sup>3</sup>) M<sub>briq</sub> = Mass of specimen

(g)

h = Average Height of specimen (cm)

d = Diameter of specimen (cm)

## vi. Determination of the strength of 100mm Diameter Specimens

After density determination one set shall be crushed for Dry ITS and the other set shall be tested after soaking for 24hrs at 25°C for wet ITS .Computations are done for the Strength values and averaged as follows:

$$1. \text{ Dry ITS} = (2 \times P) / (\pi \times H \times d) \times 10,000 \dots \dots \dots \text{Formula 8}$$

$$2. \text{ Soaked ITS} = \text{as formula 8}$$

$$3. \text{ Tensile strength Ratio (which is computed as (Soaked ITS/Dry ITS) } \times 100 \dots \text{ Formula 8}$$

$$4. \text{ Bulk density as Formula}$$

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Where:

ITS = Indirect Tensile Strength (kPa)

P = maximum applied load (KN)

H = average height of the specimen (cm)

D =Diameter of the specimen (cm)

## vii. Plotting of the design graphs of the above parameters against residual binder content;

## viii. Selection of the amount of bitumen to be added for ESM

The added bitumen content that best meets the desired ESM classification is selected as the amount of bitumen to be added.

The mix shall comply with the following specifications:

- ITS<sub>dry</sub>: 125 - 175kPa
- ITS<sub>soaked</sub> : 50 - 75kPa
- Tensile Strength Ratio, (ITS<sub>soaked</sub>/ ITS<sub>dry</sub>)\* 100 ≥ 50

## ix. criteria for determination of the Design Binder content

The design binder content was determined based on the binder content complying with the minimum specifications for the following test criteria:

1. Tensile Strength Ratio (TSR) min 50%;
2. Dry Indirect Tensile Strength : 125- 175KPa,
3. Wet Indirect Tensile Strength: 50 - 75KPa.

The design binder content shall be the value that meets the three criteria i.e. the maximum value of residual binder content for conversion to emulsion content which should not exceed 3% and also the ratio of residual binder content to cement content should not be less than I.

If none of the above criteria's is compliant, then another trial mix design has to be done where reasons for non-compliance could be:

- a) TSR being less than the minimum 50%, then it indicates need for active filler to be used where :
  - i. The active filler shall be cement and quantity not exceeding 1%
  - ii. The active filler can also be Hydrated lime
  - iii. The active filler shall not exceed the Design Binder content.
- b) Dry ITS exceeding 400KPa shall indicate problematic material
- c) Excessive active filler rendering the bitumen being ineffective

Additional tests without active filler and /or crusher dust shall be carried out as part of the mix design process where the results of these tests shall allow a decision to be made as whether the addition of an active filler and/ or crusher dust is warranted.

## 5. Construction Procedure

### General

Before decanting the emulsion for use the drums should be rolled backwards and forwards to ensure that the emulsion is properly mixed, as when stockpiled for any length of time the bitumen in the emulsion tends to settle. (Drums containing emulsion should be stored horizontally).

### Work Method

The mixing and laying of the ESM shall be done by Bitumen distributor and mixing with a soil stabilizer to required thickness. Compaction shall be done by a heavy vibrating roller with a minimum operating weight of 10.0 tonnes.

### Supplying Base Material

Sufficient quantities of base material to be used should be stockpiled as closely as possible to the work area. In order to give enough space for storing the base material without disturbing the construction and the passing of traffic, a staggered construction approach is recommended

### Preparing for construction of the base

Before the construction starts, the subgrade must be checked for correct camber/crossfall and be corrected, if required, to ensure a uniform thickness of the base. All deleterious material, organic matter, animal droppings etc. must be removed.

## 6. Mixing And Placing The Base Material

Base material placed on the underlying layer should be spread balanced to achieve the required levels and premixed to before adding in Lime to reduce the Plasticity Index (PI) for those materials whose PI is greater than 7. Mixing should be done by equipment and preferably a pulvimixer to achieve uniformity of the mix.

The mixing and placing process shall be as follows:

- Moisture content during field mixing shall be determined by the following formula:

$$\text{FMC} = 90\% \text{ of OMC} - 50\% \text{ of Design Emulsion Content}$$

The actual water content to be added = FMC - Water content in the Design Emulsion Content

- The emulsion shall be added to two thirds (2/3) of the determined Actual amount of water required to achieve the determined OMC based on the present MC at the time of treatment and the remaining one third (1/3) shall be mixed into the base material.



- The amount of water to be added must be approximately 1% to 1.5% over the Optimum Moisture Content required for the AASHTO T180 density. The batching is by volume.

## 7. Compaction

Compaction shall be done on 10-12m sections at a time, starting at the shoulder and working towards the centre of the road.

Compaction shall initially be done only by rolling without vibration until the whole area has been covered. This shall be followed by vibration with only the front wheel in light vibration mode over the whole surface. Before the full vibration by both wheels can commence corrections both longitudinally and laterally shall be made using the squeegees and additions of fine materials where needed to ensure a smooth uniform finish is achieved.

Compaction shall be done parallel to the shutter lines, moving from both sides inward towards the middle of the layer in increments of s l i g h t l y less than half the width of the roller, after each pass of the roller. This process shall continue until the roller does not make any more imprints on the material (i.e. compaction to refusal).

Once compaction is completed, the base shall be left to dry out. Covering up is no longer necessary and the base will not suffer any damage from rain.

The final compacted ESM will appear as shown in ETB guidelines 2012 when the shutters are removed.

## 8. Quality Control

The work method has been developed to make it easy as possible for the contractor to achieve consistent results conforming to the specifications for the ESM.

The Engineer shall ensure that:

- a. The sub-base is shaped and compacted to correct levels and cross-falls;
- b. The surface of the sub-base shall be dampened if it is dry before laying the base material;
- c. The PI of the lime pre-treated material does not exceed 7%;
- d. The correct amount of lime is added during pre-treatment of the material and shall stock piled and covered to retain moisture.
- e. The correct amounts of cement, water and emulsion shall be added to the mix material and mixed thoroughly immediately before the emulsion breaks for homogeneity;
- f. The mixing is done in the correct sequence and that the emulsion is added to 2/3 of the water required to obtain OMC while the other 1/3 of the water is added to the mix before placing on the road;
- g. Sufficient time is allowed for the emulsion to fully break before commencing the construction of the surface layer and

The compacted layer shall comply with the following specifications:

- i) Layer thickness: 100mm +/- 6mm measured with a 3m straight edge parallel to the centre line;
- ii) Relative, compaction: at least 98% T180 Modified AASHTO will be measured from ESM cores;
- iii) Insitu  $ITS_{dry}$  < Shall be 75% of Design Dry ITS (125 - 175kPa);

- iv) Insitu ITS<sub>soaked</sub> shall be 75% of Design Soaked ITS (50 - 75kPa); and,
- v) Insitu TSR: > 50%.
- vi) The OMC/MDD shall be reviewed periodically depending on the material properties

## 10. Measurement and payment

All the components will be paid separately; the unit rate shall include the following costs:

- o 14-50-001 Supply of cement, unit of measurement is tonne
- o 14-50-002 Supply of Lime, unit of measurement is tonne
- o 14-50-003 Supply of Emulsion A4-60, unit of measurement is litres
- o 14-50-004 Allow for mixing in cement, lime & Emulsion stabilizer into natural gravel/ quarry dust mix,
  - ✓ Cleaning and correcting the subgrade
  - ✓ Setting out shutters and checking for correct camber/cross fall
  - ✓ Removal and/or breaking down oversize material
  - ✓ Mixing, spreading, screening and compaction of the ESM
  - ✓ Personal protective equipment (overalls, boots, gloves etc.) for the work force
  - ✓ Supply of water
  - ✓ Good quality hand tools (spades, shovels, spreader, screeds, brooms; watering cans etc.), mixing trays, shutters, steel pegs, string line
  - ✓ The contractor's own quality control procedures

The unit of measurement shall be m<sup>3</sup> compacted base 75/100mm thick.

- o **14-50-005 Allow for curing and protection of the treated layer**
    - ✓ Supply of water
    - ✓ Supply tarpaulin for covering the base to prevent moisture loss
- The unit of measurement is m<sup>2</sup> of the compacted material

Note: Supply of gravel including Excavation and Haul within shall be paid under Bill No.12

## SECTION 15: BITUMINOUS SURFACE TREATMENTS

Scope: This section covers the application of prime coat to the base and surface dressing

### 15-93-005 Prime Coat- A4 Anionic Stable Grade 60% Emulsion diluted 1:6 with water

#### Work Method:

Before applying the prime, the base must be cleaned of all deleterious material, dust, organic matter, animal droppings etc., and any defects in the surface of the base, must be repaired and approved by the Engineer.

The prime shall be applied by bitumen distributor at a rate of 0.8-1.0 litre/m<sup>2</sup>

#### Measurement:

Unit of measurement: Litre of 1:6 diluted emulsion (by volume)

#### Payment:

The unit rate shall include full compensation for supplying, spraying the prime coat at the specified spray rate including labour, tools materials and equipment and incidental costs required for carrying out the work

### 15-92-001 Prime Coat-MC 30 Cut back Bitumen

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 dilutants, Prime coat shall be applied by a bitumen distributor at a rate of 1.0-1.2 litre/m<sup>2</sup> to base material that are to receive bituminous mixes..

#### Measurement:

Unit of measurement: Litre

#### Payment:

The unit rate shall include full compensation for supplying, spraying the prime coat at the specified spray rate including labour, tools materials and equipment and incidental costs required for carrying out the work

### 15- 92-002-3 80/100 - Binder Coats

The binder shall be straight run 80/100 penetration grade bitumen cutback with diesel or kerosene fuel, the diesel or kerosene fuel and bitumen mixture shall then be circulated in the distributor until thoroughly mixed. The rate of spray of binder shall range from 0.8 to 1.2litres per m<sup>2</sup>, A trial section will be done to determine the rates of spray for the binder depending on the surface temperatures etc. Refer clauses 1501-1510C of the *Standard Specifications for Roads and Bridge Construction* for details on construction plant used etc.

**Measurement:**

Unit of measurement: Litre

**Payment:**

The unit rate shall include full compensation for supplying, spraying the binder coat at the specified spray rate including labour, tools materials and equipment and incidental costs required for carrying out the work

**15-60-005      14/20 mm Pre-coated Chippings -1st Seal**

The 1<sup>st</sup> seal coat shall be 14/20 mm precoated chippings spread rate of 70-90 m<sup>2</sup>/m<sup>3</sup> on carriageway and shoulders. A trial section will be done to determine the rates of spray for the binder and surface dressing depending on the nature of the chippings, surface temperatures etc . The chippings shall be precoated using A4 Emulsion, the percentage of the binder used will vary from 0.4% to 1% by weight. Refer to clauses 1501-1510C of the *Standard Specifications for Roads and Bridge Construction* for details on the material used, percolating and construction plant used etc.

**Measurement:**

Unit of measurement: m<sup>3</sup>

**Payment:**

The unit rate shall include full compensation for supplying, spread at the specified rate including labour, tools materials and equipment and incidental costs required for carrying out the work

**15-60-004      6/10 mm Pre-coated Chippings -2nd Seal**

The 2<sup>nd</sup> seal coat shall be 6/10 mm precoated chippings at a spread rate of 110-130 m<sup>2</sup>/m<sup>3</sup> on carriageway and shoulders. A trial section will be done to determine the rates of spray for the 2<sup>nd</sup> binder and surface dressing depending on the nature of the chippings, surface temperatures etc . The chippings shall be precoated using A4 Emulsion; the percentage of the binder used will vary from 0.4% to 1% by weight. Refer to clauses 1501-1510C of *the Standard Specifications for Roads and Bridge Construction* for details on the material used, precoating and construction plant used etc.

**Measurement:**

Unit of measurement: m<sup>3</sup>

**Payment:**

The unit rate shall include full compensation for supplying, spraying the seal at the specified spread rate including labour, tools materials and equipment and incidental costs required for carrying out the work

**15-93-003 Cracks Sealing:**

The entire cracked area shall be cleaned by brooming and the cracks sealed with A4-60 Emulsion using a pouring pot or pressure and hand squeegee. The surface shall then be dusted with quarry waste (0/3mm). *This activity will be done during the routine maintenance period.*

**Measurement:**

Unit of measurement: m

**Payment:**

The unit rate shall include full compensation for supplying, spraying the seal coat and quarry dust including labour, tools materials and equipment and incidental costs required for carrying out the work.

**15-93-004 Sand Seal:**

Sand seal is constructed by the application of a binder on a primed road base, followed by the application of sand on the binder and rolling with a pneumatic-tyred roller. The sand should be clean coarse sand, with a maximum size of 6mm, containing no more than 15 per cent of material finer than 0.3 mm and a maximum of 2 per cent of material finer than 0.15 mm. Sand seal application is usually limited to roads carrying light traffic of less than 100 vehicles per day if it is applied as a first seal or less than 500 vehicles per day if it is applied as a second seal on Surface Dressing, Otta Seal or Cold Mix Asphalt. Sand seals should not be used on steep grades greater than 6%. In addition, the use of single sand seal directly applied on the base layer is strongly discouraged. It should always be constructed as a double seal, unless it is applied as a second seal on another type of surfacing. Sand seal is not designed in the same sense that a surface dressing can be designed. The design is in fact a recipe design. The sand should be applied at a rate of 6 to 7 x 10<sup>-3</sup> m<sup>3</sup> /m<sup>2</sup>. The binder, which may be a cutback or an emulsion, should be spread at a rate of approximately 1.0 to 1.2 kg/m<sup>2</sup>.

**Measurement:**

Unit of measurement: m<sup>3</sup>

**Payment:**

The unit rate shall include full compensation for supplying sand , spreading at the specified rate including labour, tools materials and equipment and incidental costs required for carrying out the work.

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**SECTION 17 - CONCRETE WORKS****1703 MATERIALS FOR CONCRETE**

This work shall consist of placing selected approved material of 250mm minimum diameter on the foundation put after excavation to receive levelling concrete in accordance with these specifications and in conformity with the lines, grades and cross sections shown on the Drawings as directed by the Engineer.

**(a) Materials**

Selected rock: The selected rock boulders to be placed for this work shall be hard, sound, durable quarry stones as approved by the Engineer. Samples of the stone to be used shall be submitted to and approved by the Engineer before any stone is placed.

The maximum size of the stone boulders shall be 300mm.

**(b) Construction Method**

After completion of the structural excavation the surface of the loose soil shall be levelled and compacted. Then the stone of the above sizes shall be placed in one layer of 250mm over the compacted bed where the bottom slab will rest. Coarse sand shall be spread to fill up the voids in the stone boulders, and compaction with vibratory compactors should be performed to make this layer dense whereon a concrete of levelling course shall be placed.

**(c) Measurement and payment**

Measurement for the bedding materials shall be made in cubic metres for the completed and accepted work, measured from the dimension shown on the Drawings, unless otherwise directed by the Engineer.

Payment for the bedding Materials for Levelling Concrete Works shall be full compensation for furnishing and placing all materials, all labour equipment, tools and all other items necessary for proper completion of the work in accordance with the Drawings and specifications and as directed by the Engineer.

**1703(A) LEVELLING CONCRETE (CLASS 15/20) FOR BOTTOM SLAB INCLUSIVE OF COST OF FORM WORKS**

This work shall consist of placing and levelling lean concrete class 15/20 over the prepared bed of stone boulders in the foundation for bottom slab and wing walls in accordance with these specifications and which conformity with the lines, grades,

thickness and typical cross-sections shown on the drawings unless otherwise directed by the Engineer.

**(a) Materials for Levelling Concrete**

Requirement for the concrete class 15/20 is specified as follows:-

|  |   |                         |
|--|---|-------------------------|
| Design compressive strength (28) days                  | : | 15N/mm <sup>2</sup>     |
| Maximum size of coarse aggregate                       | : | 20mm                    |
| Maximum cement content                                 | : | 300 kg/m <sup>3</sup> . |
| Maximum water/cement ration of 50% with slump of 80mm. |   |                         |

**(b) Construction Method**

The bed of stone boulders upon which the levelling concrete will be placed shall be smooth, compacted and true to the grades and cross-section shall be set to the required lines and grades.

**(c) Measurement and payment**

Measurement for levelling concrete (class 15/20) shall be made in cubic metres completed and accepted levelling concrete work measured in place which is done in accordance with the Drawings and the Specifications.

Payment for this work shall be the full compensation for furnishing and placing all materials, labour, equipment and tools, and other incidentals to Specifications and as directed by the Engineer.

Pay item No. 17/02 Levelling Concrete Works (Class 15/20) for Box Culvert and wing walls inclusive of Cost of Form works.

**1703(B) REINFORCING BARS OF WALLS AND SLABS**

This work shall consist of furnishing, fabricating and placing in the concrete of the bottom slab, top slab, median wall, sidewalls, wing walls and aprons, reinforcing bars of the quality, type and size in accordance with these specifications in conformity with the requirements shown on the Drawings.

**(a) Material:**

Reinforcing bars shall be deformed and shall meet the requirements of British standard BS4461, unless otherwise called for the drawings or approved by the Engineer.

No reinforcing bar shall be delivered without a certificate guaranteeing the yield stress. The reinforcing bars shall be kept off the ground, free from

dirt, oil, grease, or avoidable rust and stored within a building or provided with suitable covers.

If it is necessary for the Engineer to ascertain the quality of the reinforcing bars, the Contractor shall test the reinforcing bars, at his own expense, by means as directed by the Engineer.

**(b) Construction Method**

**(i) Bar Bending Schedule:**

The Engineer shall provide the Contractor with bending schedule showing the location types, sizes, bending dimensions and cut lengths of the reinforcing bar required to be fixed in the works.

**(ii) Cutting and Bending:**

Qualified personnel shall be employed for the cutting and bending, and proper application shall be provided for such work.

Bars shall be cut and bent cold to the dimensions indicated and with equipment and methods approved by the Engineer.

Stirrups and tie bars shall be bent around a pin having a diameter not less than 15 times the minimum diameter of the bar. Bends of other bars, where full tension in the bar may occur, shall be made around a pin having a diameter not less than 7.5 times the bar diameter as shown on the Drawings.

Reinforcing bars shall be accurately formed to the shapes and dimensions indicated on the Drawings, and shall be fabricated in a manner that will not injure the materials.

**(c) Placing**

Reinforcing bars shall be accurately placed in proper position, and so that they be firmly held during placing of concrete.

Bars shall be tied at all intersections by using annealed iron wire 0.9mm or larger diameter, or suitable clips.

Distances from the forms shall be maintained, corrected by means of metal hangers, metal blocks, metal supports or other supports approved by the Engineer.

The Engineer shall inspect reinforcing bars after placing. When a long time has elapsed after placing reinforcing bars, they shall be cleaned and inspected again by the Engineer before placing concrete.

**(d) Splicing and Joint**



When it is necessary to splice reinforcing bars at points, position and methods of splicing shall be determined based on strength calculations and approved by the Engineer.

In lapped splices, the bars shall be lapped by the required length, and wired together at several points by using annealed iron wire larger than 0.9mm.

Exposed reinforcing bars intended for bonding with future extensions shall be effectively protected from injury and corrosion.

Oxyacetylene welding joint of reinforcing steel shall be done only if authorised by the Engineer in writing.

**(e) Measurement and Payment**

Bending and installation of reinforcing bar of piers and abutments shall be measured in terms of tons. The length of steel bar of each size will be shown on the drawings in which the bar length for splicing is excluded. In computing the weight to be measured, the theoretical weights of bars of the cross-section shown on the Drawings or authorised shall be used.

These weights are given in the following table: -

| Bar type and the Cross-section in millimetres | Weight of Bar in Kilogramme—per 12m length of bar |
|---|---|
| Y10   | 7.40  |
| Y12   | 10.66   |
| Y16   | 18.95   |
| Y20   | 29.60   |
| Y25   | 46.30   |

**1703 (C) FORMWORK FOR CULVERT WALLS AND SLABS**

This work shall consist of all temporary moulds for forming the concrete for culvert walls and slabs together with all temporary construction required for their support. Unless otherwise directed by the Engineer all formworks shall be removed on completion of the walls and slabs.

**(a) Materials**

Forms shall be made of wood or metal and shall conform to the shape, lines and dimensions shown on the Drawings.

All timber shall be free from holes, loose material, knots, cracks, splits and warps or other defects affecting the strength or appearance of the finished structure.

Release Agents – Release agents shall be either neat oils containing a surface activating agent, cream emulsions, or chemical agents to be approved by the Engineer.

**(b) Construction Method**

**i. Formworks**

Formworks shall be designed to carry the maximum loads which may be imposed, and so be rigidly constructed as to prevent deformation due to load, drying and wetting, vibration and other causes. After forms have been set in correct location, they shall be inspected and approved by the Engineer before the concrete is placed.

If requested, the Contractor shall submit to the Engineer working drawings of the forms and also, if requested, calculations to certify the rigidity of the forms.

Unless otherwise described in the Contract, all form joints for exposed surfaces of concrete shall form a regular pattern with horizontal and vertical lines continuous throughout each structure and all construction joints shall coincide with these horizontal and vertical lines. PVC pipes of 50mm diameter for weep holes shall be arranged as shown on the Drawings.

Unless otherwise specified, formwork shall be designed to form chamfers at all external corners whether or not such chamfers are shown on the Drawings to prevent cracks and other damage from arising.

The inside surface of forms shall be cleaned and coated with a releasing agent to prevent adhesion of the concrete. Release agents shall be applied strictly in accordance with the manufacturer's detailed instructions. The release agent shall be applied to the formwork prior to erection. Release agent must not come into contact with reinforcement. Immediately before concrete is placed, the forms shall be thoroughly cleaned and freed from sawdust, shavings, dust, mud or other debris by hosing with water. Temporary openings shall be provided in the forms to drain away the water and rubbish.

**ii. Scaffolding**

All scaffolding required to support the forms shall be designed and constructed to provide necessary rigidity and support the loads without appreciable deflection or deformation.

Details, plans and structural and flexural calculations for scaffolding shall be submitted to the Engineer for approval, but in no case shall the Contractor be relieved of his responsibility for the results obtained by use of these plans, etc.

**iii. Removal of formwork**

The time at which the formwork is truck shall be the Contractor's responsibility and the forms shall not be removed until the concrete strength has reached 20 N/mm<sup>2</sup>.

**iv. Measurement and Payment**

Formwork shall be measured as the net area, in square metres, in contact with the finished concrete surface of the walls and slabs. No measurement shall be allowed for formwork of temporary construction joints.

Payment for the Formworks shall be full compensation for furnishing, erecting, jointing all the forms for the concrete including furnishing and applying release agent, and construction of the required scaffolding to support the forms, all conforming to the shape, lines, grade and dimensions of the structure as shown on the Drawings, all in accordance with the Drawings and as directed by the Engineer.

**1703(D) CONCRETE WORKS (CLASS 25/20)**

This work shall consist of furnishing, mixing, delivering and placing of the concrete for the construction of culvert walls and slabs, in accordance with these Specifications and in conformity with the requirements shown on the Drawings.

Concrete class 25/20 shall be used for culvert wingwalls and slabs. The requirements of Concrete class 25/20 are provided as follows unless otherwise the Engineer will designate any alteration.

|  |                       |
|--|-----------------------|
| Design compressive strength (28 days)                | : 25N/mm <sup>2</sup> |
| Maximum size of coarse aggregates                    | : 20mm                |
| Maximum water/cement ratio of 45% with slump of 80mm |                       |

## a) Concrete Materials

### 1. Cement:

Cement shall be of Ordinary Portland type and shall conform to the requirements of BS 12 or equivalent.

The Contractor shall select only one type or brand of cement or others. Changing of type or brand of cement will not be permitted without a new mix design approved by the Engineer. All cement is subject to the Engineer's approval, however, approval of cement by the Engineer shall not relieve the Contractor of the responsibility to furnish concrete of the specified compressive strength.

Conveyance of cement by jute bags shall not be permitted. Storage in the Contractor's silo or storehouse shall not exceed more than two (2) months, and age of cement after manufacture at mill shall not exceed more than four (4) months. The Contractor shall submit to the Engineer for his approval the result of quality certificate done prepared by the manufacturer.

Whenever it is found out that cement has been stored too long, moist, or caked, the cement shall be rejected and removed from the project.

### 2. Aggregates

Fine and coarse aggregates must be clean, hard, strong and durable, and free from absorbed chemicals, clay coating, or materials in amounts that could affect hydration, bonding, strength and durability of concrete.

Grading of aggregates shall conform to the following requirements:

#### a) Grading of Fine Aggregates

| Sieve Size | Percentage by Weight Passing |
|------------|------------------------------|
| 10 mm      | 100                          |
| 6.3mm      | 89-100                       |
| 2.5 mm     | 60-100                       |
| 1.2 mm     | 30-100                       |
| 0.6 mm     | 15- 54                       |
| 0.3 mm     | 5- 40                        |
| 0.15 mm    | 0 - 15                       |

### Grading of Coarse Aggregates

| Size of Coarse Aggregate                                    | 40  | 30 | 25 | 20     | 15 | 10    | 5    | 2.5 |
|---|-----|----|----|--------|----|-------|------|-----|
| Amounts finer than each standard sieve percentage by weight | 100 | -  | -  | 90-100 | -  | 30-69 | 0-10 | -   |

**c) Other requirements for aggregates are as follows:**

**i. Fine Aggregates**

|   |                    |
|---|--------------------|
| Fitness Modulus, AASHTO M-6             | : 2.3 – 3.1        |
| Sodium Sulphate Soundness, AASHTO T104  | : Max. 10% loss    |
| Content of Friable Particles AASHTO 112 | : Max 1% by weight |
| Sand Equivalent, AASHTO T176            | : Min. 75          |

**ii. Coarse Aggregate**

|                                       |                     |
|---------------------------------------|---------------------|
| Abrasion, AASGTO T96                  | : Max. 405 loss     |
| Soft Fragment and shale, AASHTO M80   | : Max. 5% by weight |
| Thin and elongated Pieces, AASHTO M80 | : Max. 15%          |

### 3. Water

All sources of water to be used with cement shall be approved by the Engineer. Water shall be free from injurious quantities of oil, alkali, vegetable matter and salt as determined by the Engineer.

### 4. Admixture

Only admixture, which have been tested and approved in the site laboratory through trial mixing for design proportion shall be used.

Before selection of admixture, the Contractor shall submit to the Engineer the specific information or guarantees prepared by the admixture supplier.

The Contractor shall not exclude the admixture from concrete proportions.

### b) Proportioning Concrete

The Contractor shall consult with the Engineer as to mix proportions at least thirty (30) days prior to beginning the concrete work. The actual mix proportions of cement, aggregates, water and admixture shall be determined by the Contractor under supervision of the Engineer in the site laboratory.

The Contractor shall prepare the design proportions which has 120% of the strength requirement specified for the designated class of concrete.

No class of concrete shall be prepared or placed until its job-mix proportions have been approved by the Engineer.

### c) Concrete Work

- (i) Batching shall be done by weight with accuracy of:

|                     |              |
|---------------------|--------------|
| Cement              | : ½ percent  |
| Aggregate           | : ½ percent  |
| Water and Admixture | : 1 percent. |

- (ii) Equipment should be capable of measuring quantities within these tolerances for the smartest batch regularly used, as well as for larger batches.

The accuracy of batching equipment should be checked every month in the presence of the Engineer and adjusted when necessary.

- (iii) Mixing and delivery

Slump of mixed concrete shall be checked and approved at an accuracy of +25mm against designated slump in these specifications.

- (iv) Concrete in hot weather

No concrete shall be placed when the ambient air temperature is expected to exceed thirty three degrees celsius (33<sup>0</sup>c) during placement operations.

- (v) Concreting at night

No concrete shall be mixed, placed or finished when natural light is insufficient, unless an adequate approved artificial lighting system is operated, such night work is subject to approval by the engineer.

- (vi) Placing

In preparation of the placing of concrete, the interior space of forms shall be cleaned and approved by the Engineer prior to placing concrete. All temporary members except tie bars to support forms shall be removed

entirely from the forms and not buried in the concrete. The use of open and vertical chute shall not be permitted unless otherwise directed by the engineer.

The Contractor shall provide a sufficient number of vibrators to properly compact each batch immediately after it is placed in the forms.

**d) Measurement and Payment**

Measurements for the Concrete Works Class 25/20 of culvert walls and slabs shall be made in cubic metres for the walls and slabs actually constructed, measured from their dimensions shown on the Drawings. Payment for the Concrete Works (Class 25/20) of culvert walls and slabs shall be the full compensation for furnishing all materials of the concrete mixing, delivering, placing and curing the concrete, equipment and tools, labour and other incidental necessary for the completion of the work in accordance with the Drawings and these Specifications and as directed by the Engineer.

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**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.

**2005 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.

**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.



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Beams for guardrails shall be "Armco Flex-beam" 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 have 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.

**2009B 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.

**SECTION 22-DAY-WORKS****2202 MEASUREMENTS AND PAYMENT****(a) Plant**

Where items of major plant listed in the schedule of Day-works 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 Day-works that has a power rating lower than specified above shall be paid for at rates lower than those in the schedule of Day-works. 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. The Contractor shall institute an HIV/AIDS awareness campaign amongst his workers for the duration of the Contract.

- **Scope of Activities**

Activities for HIV/AIDS awareness campaigns 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.

- **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.

## 2502 GENERAL REQUIREMENTS

### (a) Publicity

#### (i) Posters

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 to be proposed by the contractor shall be approved by the Engineer before the posters are printed.

The contractor shall be responsible for the maintenance and replacement of such posters during the contract period.

#### (ii) T-shirts and Caps

Contractor shall provide to be used by selected staff members continually during the contract period T-shirts and caps bearing messages approved by the Engineer.

#### (iii) Videos Shows

Contractor shall make arrangements for educative video shows at least every two (2) months during the contract implementation. The videos shall be those approved by the Ministry of Health for use in public awareness.

#### (iv) HIV/AIDS Awareness Road Signs

Contractor shall provide and erect HIV/AIDS awareness permanent road signs of surface area not less than 4m<sup>2</sup> and not more than 5m<sup>2</sup>.

The specifications and payments for such signs shall be in accordance with Section 20 of both Standard and Special Specifications.

**(b) Condoms**

As part of the campaign the Contractor will be required to make condoms available to workers. The condoms shall be from those approved by the Ministry of Health (Kenya). The Contractor shall make available at least 2,000 male and 200 female condoms every month, through dispensing machines or other approved method of distribution. The Contractor shall at all times keep the site adequately supplied with such condoms during the contract period.

**(c) Training**

HIV/AIDS activities are co-ordinated nationally by the National Aids Control Council (NACC). The Contractor, in consultation with NACC and the Ministry of Health (MOH), will co-ordinate with the provincial, district and local representatives. In carrying out training of all staff involved in the construction activities. The trainers consisting of persons of different disciplines and being experts in AIDS and HIV issues shall include of at least 1 counsellor.

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.

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.

The training sessions shall cover among others the following:

- (i) Preventive behaviours including partner reduction, condom use, awareness and appreciation of the importance of treatment of sexually transmitted incidences (STIs);
- (ii) Skills including negotiating safer sex, correct condom use, purchase of condoms without embarrassment; and referral to local health centres and available services.
- (iii) 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.
- (iv) Carrying out a brief review of regional activities combining road construction with HIV/AIDS campaigns to determine options, best practice key issues, constraints etc.

- (v) Reviewing of Information, Education and Communication (IEC) materials available and their relevance to road construction, making recommendations for future development of IEC materials.
- (vi) Providing education and training for site personnel, supervisors and peer educators for the scope of activities as above.
- (vii) 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.
- (viii) Providing mechanism for the social marketing of condoms and distribution of materials.
- (ix) 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.

The training sessions shall be conducted once every two months during the contract implementation.

**(d) Timing**

Activities shall commence at the start of the construction period and continue throughout the contract period to ensure a sustained impact.

## **2503 MEASUREMENT AND PAYMENTS**

**(i) Posters**

Unit: Number (No.)

Payment: Payment rate for posters shall be by the Number (No.) placed or replaced upon the instructions of the Engineer.

**(ii) T-Shirts and Caps**

Unit: A complete Set of T-Shirt and Caps (Set)

Payment: Payment rate for T-shirts and Caps shall be by the set of T-Shirts and Caps instructed by the Engineer.

(iii) Video Shows

Unit Number (No.)

Payment: Payment rate for video shows shall be the number (No.) of shows carried out. The rates shall include all the arrangements necessary to achieve the same.

(iv) Condoms

Unit: Number (No.)

Payment: Payment rates shall by the number of condoms provided by the Contractor. The rate shall include the provisions and maintenance of appropriate and approved dispensers.

(v) Training

Unit: Session

**Payment: Payment rate shall be by the number of sessions conducted. The rate shall include allowance payable, lunches, transport, tent hires, any public address system etc necessary for conducting an effective public training**



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## **2504 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:

- o It protects the road, thereby cutting maintenance costs, and
- o 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:**

- o 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
- o Protective goggles for stone cutting, chiselling, grinding, and welding.
- o Face masks when working in dust and smouldering waste.
- o 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.
- o The Site Supervisor should also know where the nearest hospital / clinic is and where an ambulance or quick transport can be found.
- o 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.
- o 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.

## Disputes Review Expert's Declaration of Acceptance

### WHEREAS

- (a) A construction Contract (the Contract) for the ..... project has been signed on .....[fill in date] between the KENYA WILDLIFE SERVICE (the Employer) and .....[name of Contractor] (the Contractor);
- (b) Clause 67 of the Conditions of Particular Application of the construction Contract provides for the selection of a Disputes Review Expert (DRE);
- (c) The undersigned has been selected to serve as the DRE;

NOW THEREFORE, the undersigned DRE hereby declares as follows:

- 1. I accept the selection as a DRE and agree to serve in this capacity and to be bound by the provisions of Clause 67 of the Conditions of Contract and the Disputes Review Expert's Rules and Procedures attached to these Conditions of Contract.
- 2. With respect to paragraph 1 of said Disputes Review Expert's Rules and Procedures, I declare that I have:
  - (a) No financial interest of the kind referred to in Subparagraph (a);
  - (b) Had no previous employment nor financial ties of the kind referred to in Subparagraph (b); and
  - (c) Made to both parties any disclosures that may be required by Subparagraphs (b) and (c).

### DISPUTES REVIEW EXPERT

Signature: .....

Name: .....(print name of DRE)

Date: .....

**SECTION IX:**

**MINISTRY OF ROADS SUPERVISION CHECKLIST**

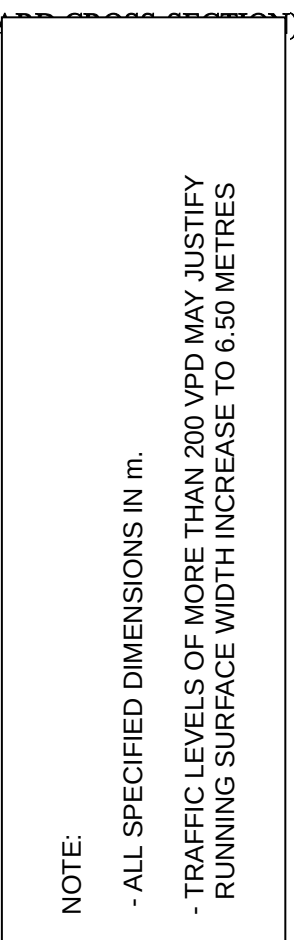
The manual refers to Supervision Check List for road maintenance and evaluation of contractor's performance, 2011 November.

**SECTION X:**

**MINISTRY OF ROAD MAINTENANCE MANUAL, 2010**

**SECTION XI:**  
**CONTRACT DRAWINGS**

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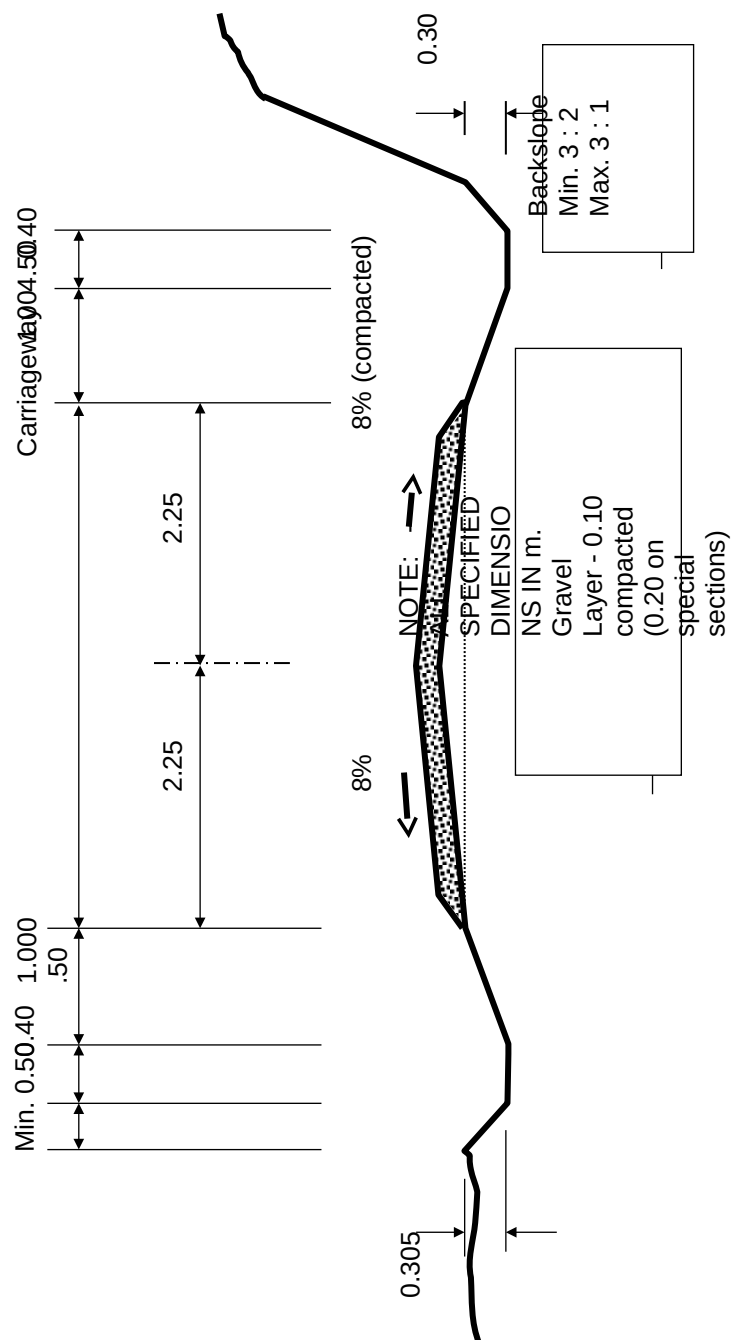
**FIGURE C.2 - CROSS SECTION B (REDUCED CROSS-SECTION)**

FIGURE C.3 - MITRE DRAINS

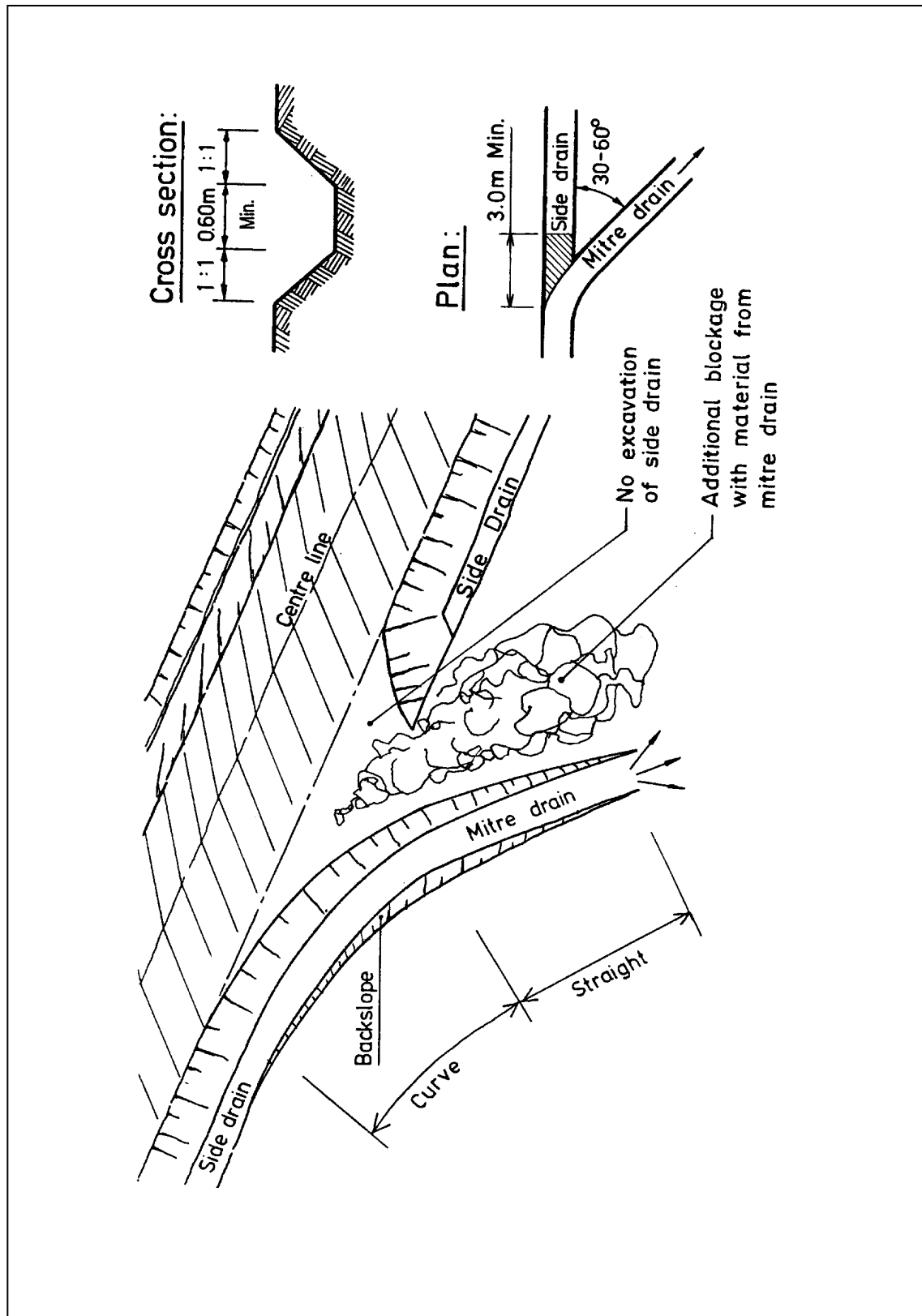




FIGURE C.4 - SCOUR CHECKS

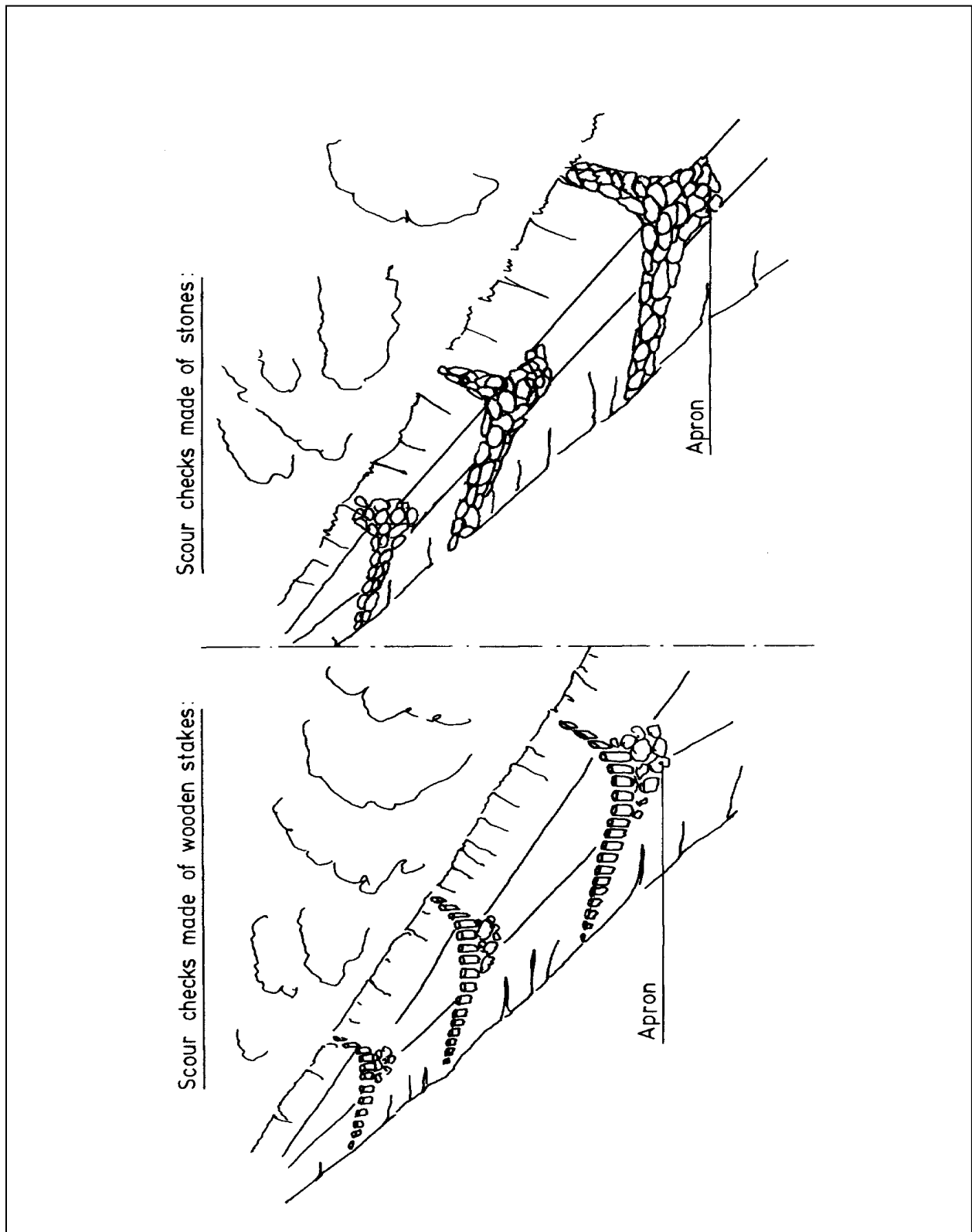
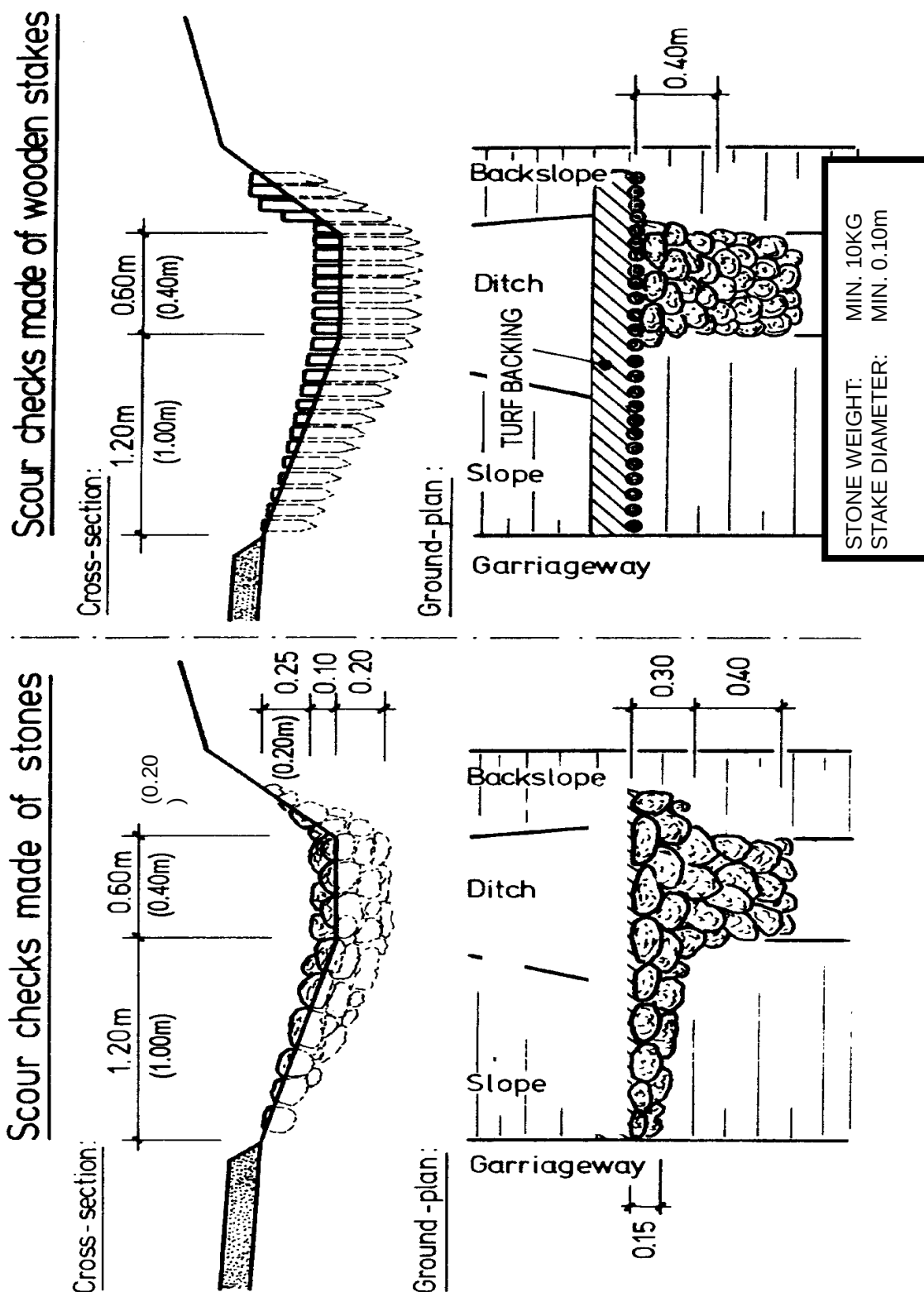
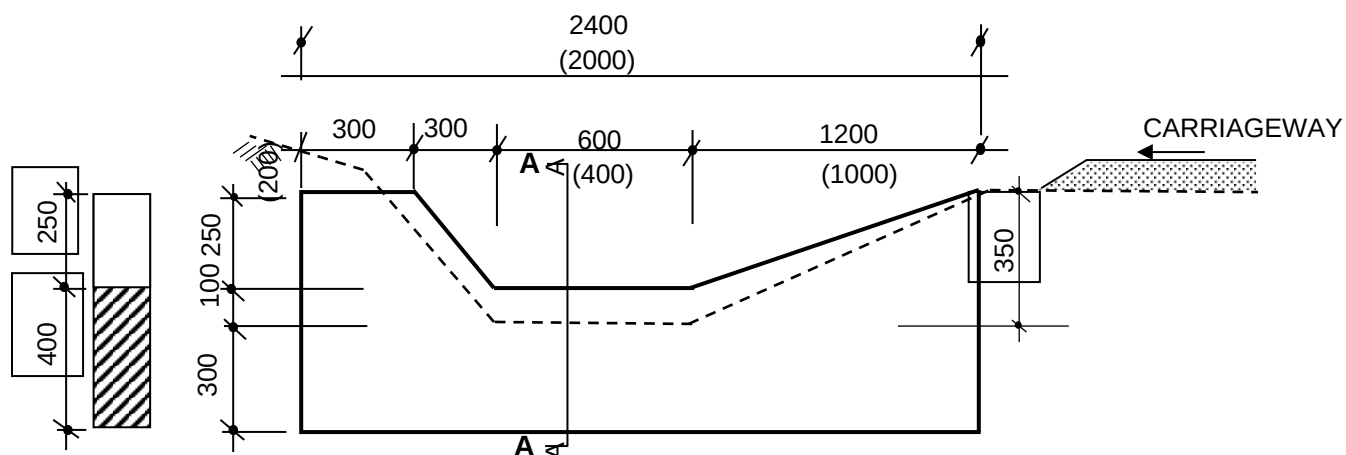
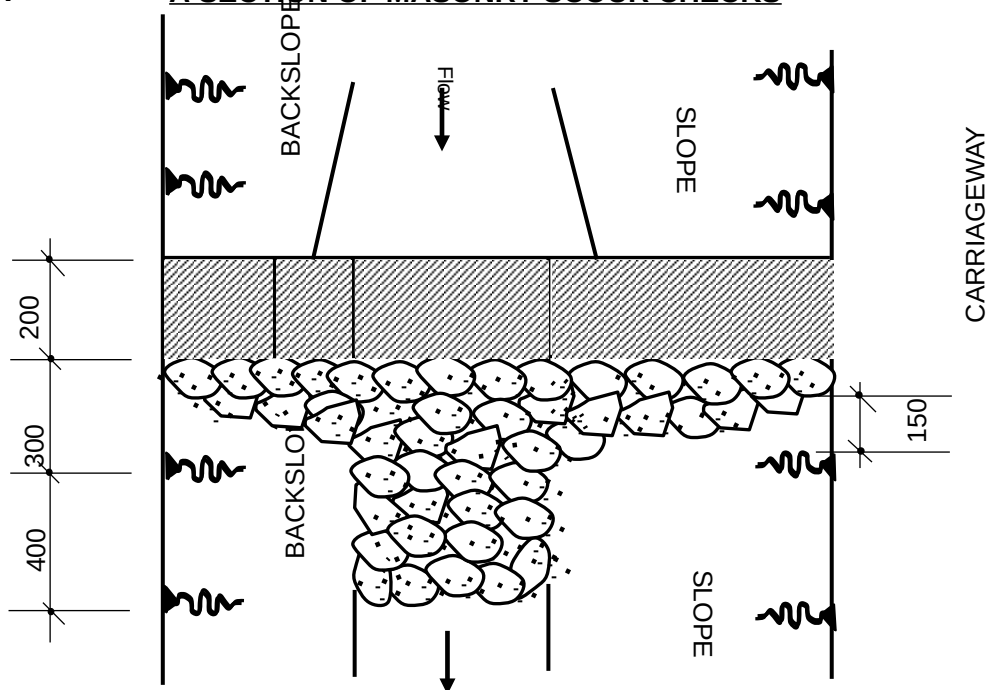
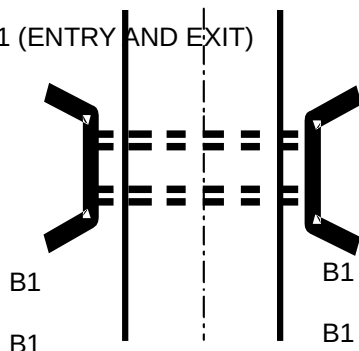
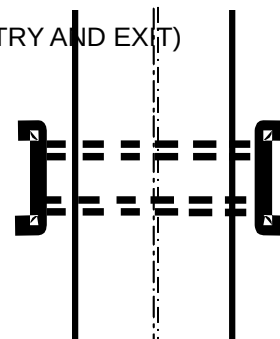
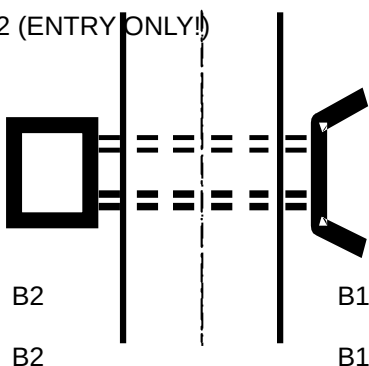
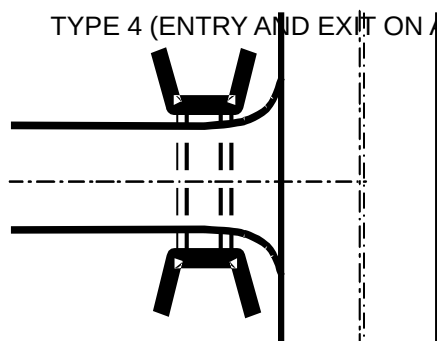


FIGURE C.5 - DIMENSIONS OF SCOUR CHECKS FOR STANDARD DRAIN



**FIGURE C.6 - MASONRY SCOUR CHECKS****A - A****A SECTION OF MASONRY SCOUR CHECKS****PLAN OF DRAIN WITH EROSION CHECKS****QUANTITIES TABLE**

| Cross-Section | Sizes in mm |       |       | Excav. (m <sup>3</sup> ) | Stone masonry (m <sup>3</sup> ) | Apron stone pitching (m <sup>3</sup> ) |
|---------------|-------------|-------|-------|--------------------------|---------------------------------|--|
|               | Length      | Width | Depth |                          |                                 |  |
| A             | 2400        | 200   | 550   | 0.22                     | 0.25                            | 0.18                                   |
| B             | 2000        | 200   | 500   | 0.18                     | 0.2                             | 0.14                                   |

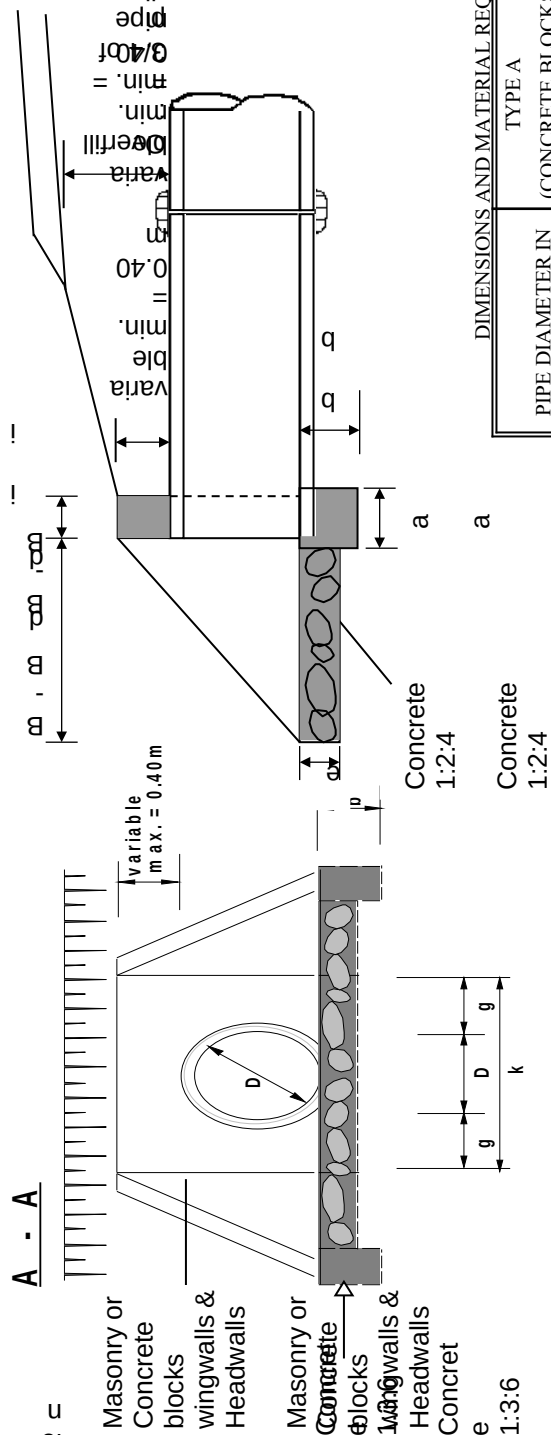
**FIGURE C.7 - CULVERT ENTRY / EXIT STRUCTURE TYPES****TYPE 1 (ENTRY AND EXIT)****TYPE 1 (ENTRY AND EXIT)****TYPE 3 (ENTRY AND EXIT)****TYPE 3 (ENTRY AND EXIT)****TYPE 2 (ENTRY ONLY!)****TYPE 2 (ENTRY ONLY!)****TYPE 4 (ENTRY AND EXIT ON ACCESS)****TYPE 4 (ENTRY AND EXIT ON ACCESS)****NOTE:**

Coding system has been used in describing the standardised designs of the various culvert entry and exit structures. The code names consist of a number to specify shape and function as elaborated in above while the used construction materials are identified through an alphabetic symbol as follows:

- A** = Concrete block
- B** = Stone masonry
- C** = Dressed stones

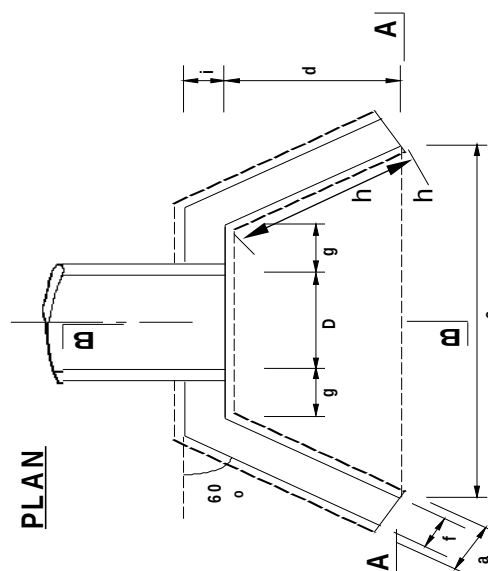
An example code of “B2” would therefore stand for a drop inlet type structure to be built in stone masonry.

**FIGURE C.8 -  
HEADWALL TYPE 1  
(HEAD AND  
WINGWALLS)**



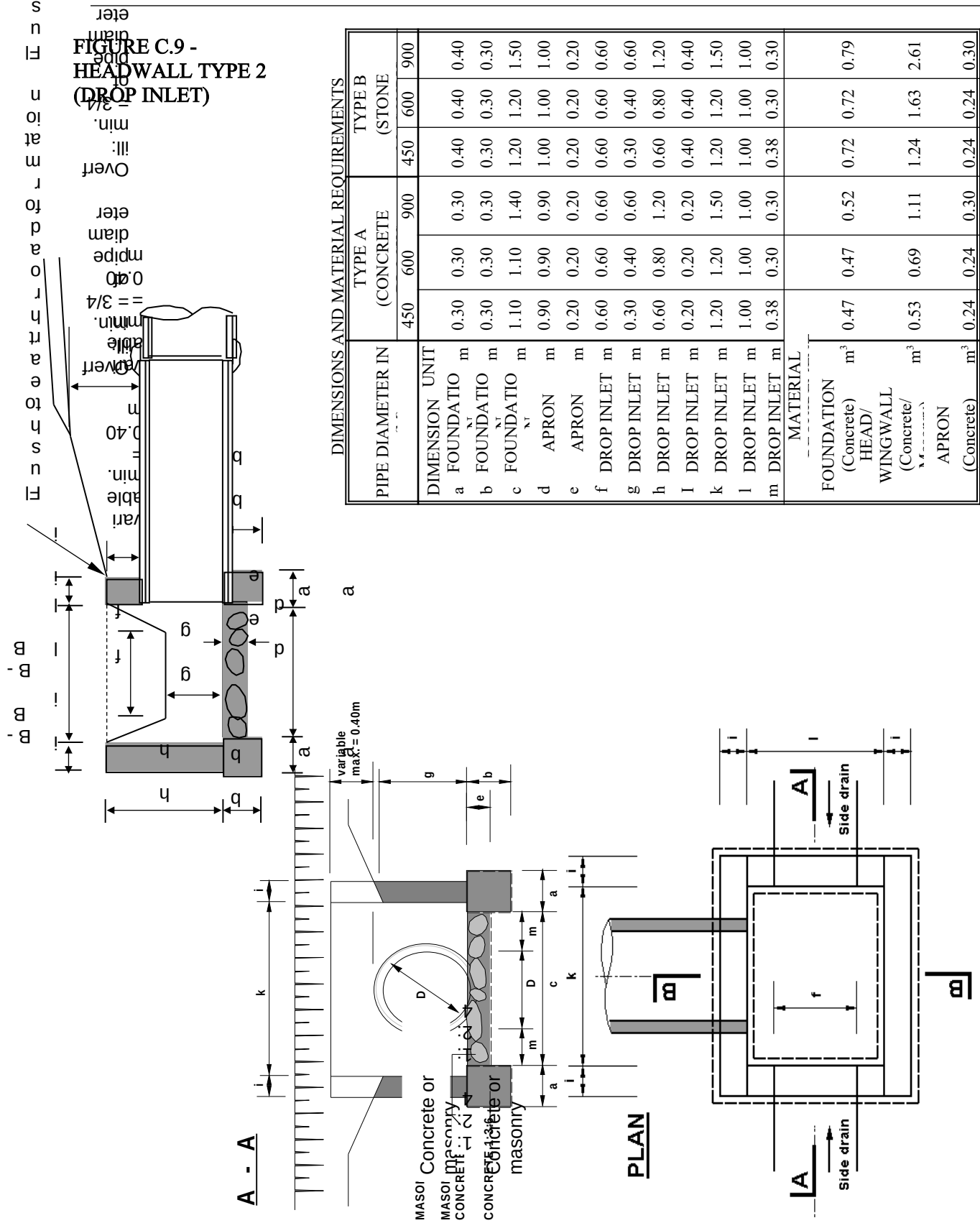
| DIMENSIONS AND MATERIAL REQUIREMENTS    |            |                             |      |      |                           |      |      |
|---|------------|-----------------------------|------|------|---------------------------|------|------|
| PIPE DIAMETER IN mm                     | DIMENSION  | TYPE A<br>(CONCRETE BLOCKS) |      |      | TYPE B<br>(STONE MASONRY) |      |      |
|   |            | 450                         | 600  | 900  | 450                       | 600  | 900  |
|   |            | UNIT                        |      |      |                           |      |      |
| a                                       | FOUNDATION | m                           | 0.30 | 0.30 | 0.30                      | 0.40 | 0.60 |
| b                                       | FOUNDATION | m                           | 0.30 | 0.30 | 0.40                      | 0.30 | 0.40 |
| c                                       | FOUNDATION |                             | 2.20 | 2.35 | 2.89                      | 2.20 | 2.89 |
| d                                       | APRON      | m                           | 1.00 | 1.00 | 1.20                      | 1.00 | 1.20 |
| e                                       | APRON      | m                           | 0.20 | 0.20 | 0.20                      | 0.20 | 0.20 |
| f                                       | WALL       | m                           | 0.20 | 0.20 | 0.20                      | 0.40 | 0.40 |
| g                                       | WALL       | m                           | 0.30 | 0.30 | 0.30                      | 0.30 | 0.30 |
| h                                       | WALL       | m                           | 1.15 | 1.15 | 1.39                      | 1.15 | 1.39 |
| I                                       | WALL       | m                           | 0.20 | 0.20 | 0.20                      | 0.40 | 0.40 |
| k                                       | APRON      | m                           | 1.05 | 1.20 | 1.50                      | 1.05 | 1.50 |
| MATERIAL REQUIREMENT                    |            |                             |      |      |                           |      |      |
| FOUNDATION<br>(Concrete)                |            | m <sup>3</sup>              | 0.3  | 0.32 | 0.51                      | 0.4  | 1.03 |
| HEAD/<br>WINGWALL<br>(Concrete/Masonry) |            | m <sup>3</sup>              | 0.4  | 0.47 | 0.67                      | 0.8  | 1.35 |
| APRON<br>(Concrete)                     |            | m <sup>3</sup>              | 0.33 | 0.36 | 0.53                      | 0.33 | 0.53 |

| CULVERT PIPES   |              |
|-----------------|--------------|
| X-SECTION WIDTH | No. of Pipes |
| 4.50            | 6.00         |
| 5.50            | 7.00         |
| 6.50            | 8.00         |



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FIGURE C.9 -  
HEADWALL TYPE 2  
(DROP INLET)



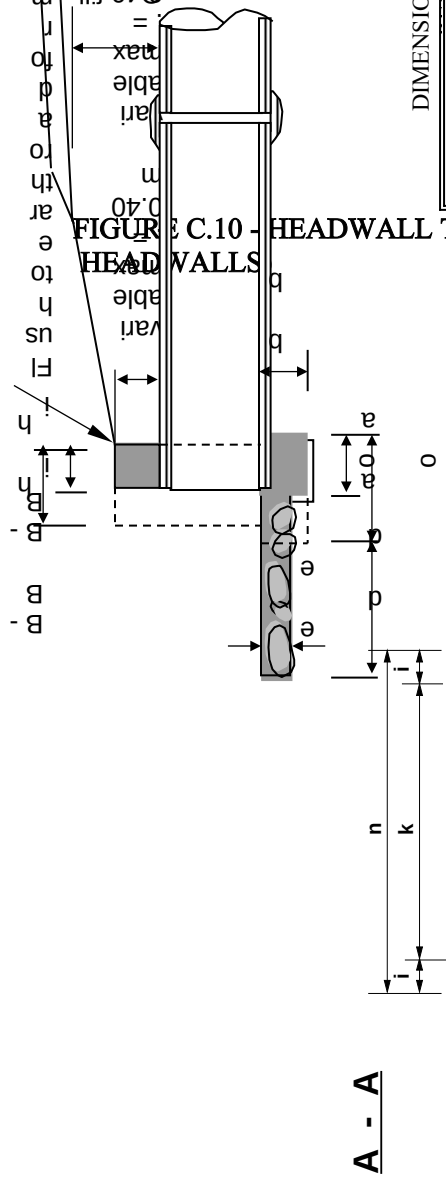
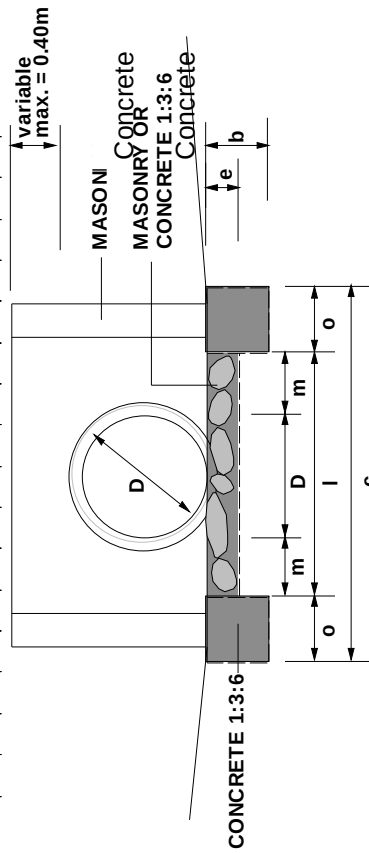


FIGURE C.10 - HEADWALL TYPE 3A (CONCRETE BLOCK HEAD WALLS)

DIMENSIONS AND MATERIAL

| PIPE DIAMETER IN                     | TYPE A<br>(CONCRETE) |      |
|--------------------------------------|----------------------|------|
|                                      | 450                  | 600  |
| DIMENSION UNIT                       |                      |      |
| a FOUNDATION m                       | 0.50                 | 0.50 |
| b FOUNDATION m                       | 0.30                 | 0.30 |
| c FOUNDATION m                       | 1.55                 | 1.70 |
| d APRON m                            | 0.60                 | 0.60 |
| e APRON m                            | 0.20                 | 0.20 |
| f HEADWALL m                         | 0.20                 | 0.20 |
| g HEADWALL m                         | 0.50                 | 0.50 |
| h HEADWALL m                         | 0.40                 | 0.40 |
| i HEADWALL m                         | 0.20                 | 0.20 |
| k HEADWALL m                         | 1.05                 | 1.20 |
| l FOUNDATION m                       | 0.95                 | 1.10 |
| m FOUNDATION m                       | 0.25                 | 0.25 |
| n HEADWALL m                         | 1.45                 | 1.60 |
| o FOUNDATION m                       | 0.30                 | 0.30 |
| MATERIAL                             |                      |      |
| FOUNDATION (Concrete) m <sup>3</sup> | 0.23                 | 0.19 |
| (Concrete/ Masonry) m <sup>3</sup>   | 0.31                 | 0.34 |
| APRON (Concrete) m <sup>3</sup>      | 0.95                 | 0.99 |



PLAN

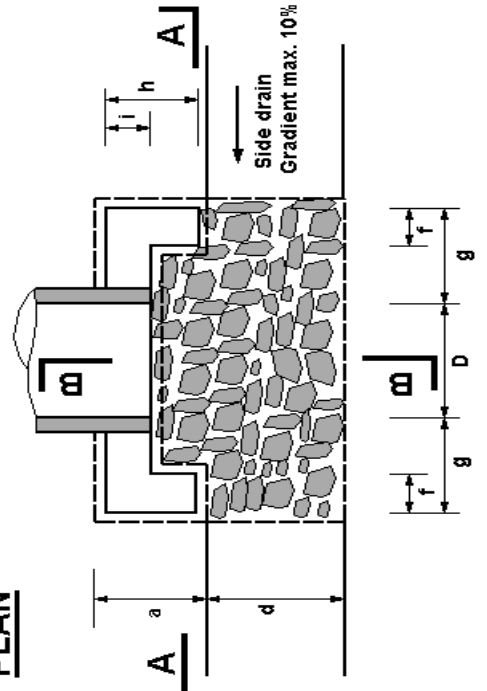
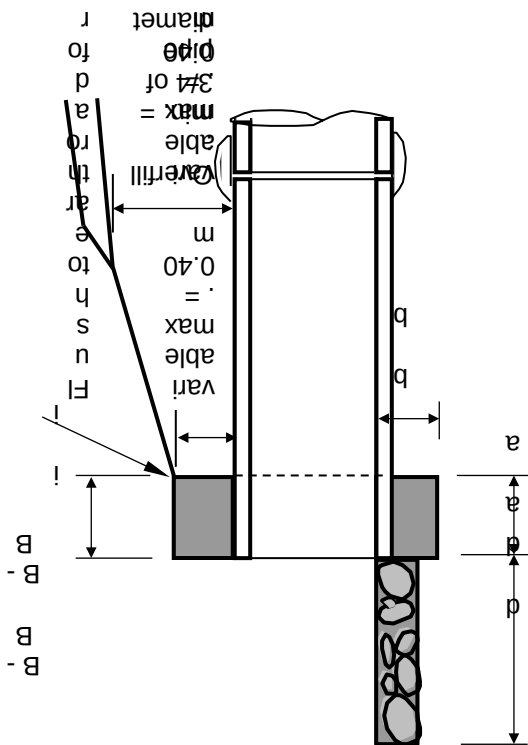
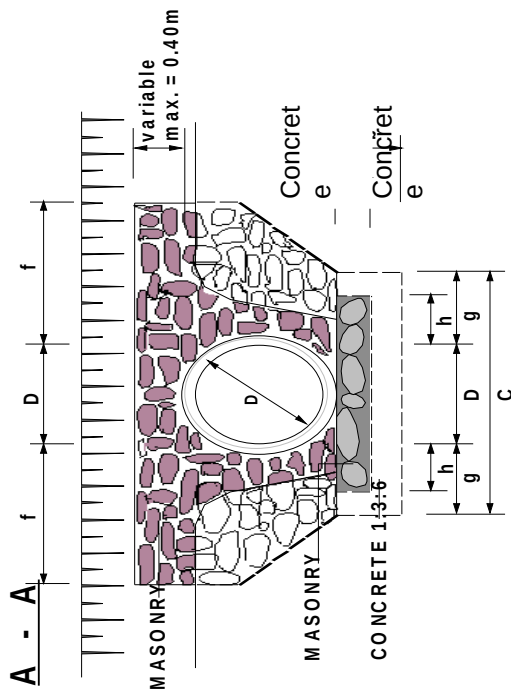


FIGURE C.11 - HEADWALL TYPE 3B (STONE MASONRY HEADWALLS)



| PIPE DIAMETER IN     | TYPE B (CONC.) |      |
|----------------------|----------------|------|
|                      | 450            | 600  |
| DIMENSION            | UNIT           |      |
| a                    | FOUNDATION     | m    |
| b                    | FOUNDATION     | m    |
| c                    | FOUNDATION     | m    |
| d                    | APRON          | m    |
| e                    | APRON          | m    |
| f                    | HEADWALL       | m    |
| g                    | HEADWALL       | m    |
| h                    | HEADWALL       | m    |
| I                    | HEADWALL       | m    |
| m                    | FOUNDATION     | m    |
| MATERIAL REQUIREMENT |                |      |
| FOUNDATION           |                |      |
| (Concrete 1:3:6)     | m <sup>3</sup> | 0.19 |
| HEADWALL             |                |      |
| (Concrete/Masonry)   | m <sup>3</sup> | 0.62 |
| APRON                |                |      |
| (Concrete 1:2:4)     | m <sup>3</sup> | 0.19 |
|                      |                | 0.22 |



PLAN

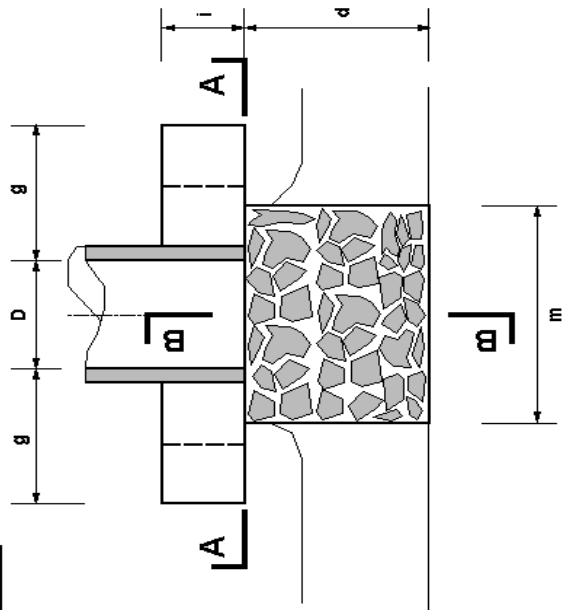
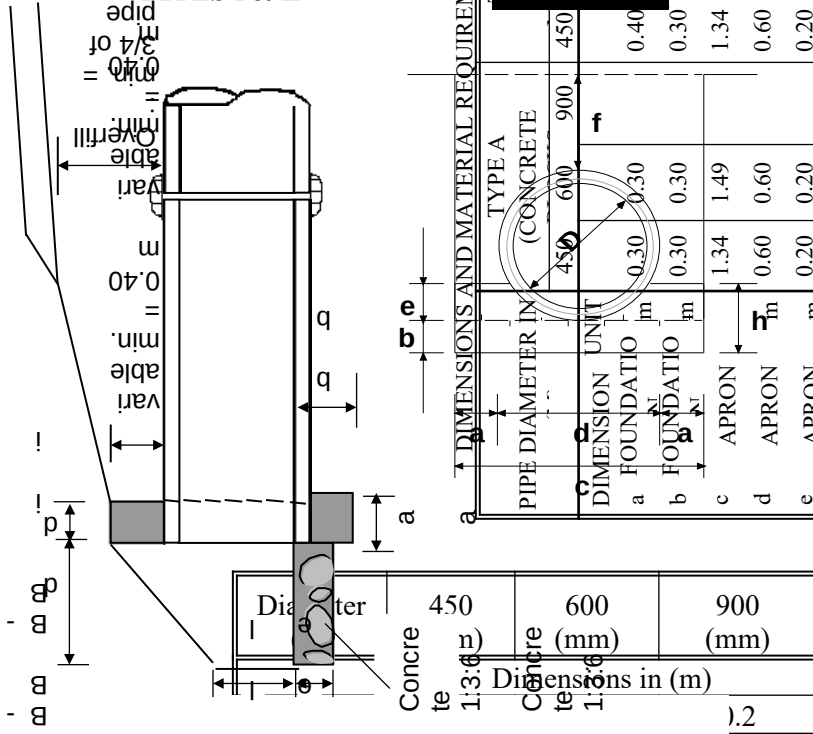




FIGURE C.12 - HEADWALL TYPE 4 ( FOR ACCESS CULVERTS)

Overfill

FIGURE C.13-  
BEDDING AND  
LAUNCH PROFILES  
TYPES I & II



| DIMENSIONS AND MATERIAL REQUIREMENTS |                         | TYPE A   |          | TYPE B   |          |
|--------------------------------------|-------------------------|----------|----------|----------|----------|
| PIPE DIAMETER IN                     | UNIT                    | CONCRETE | CONCRETE | CONCRETE | CONCRETE |
| 450                                  | mm                      | 0.30     | 0.30     | 0.40     | 0.40     |
| 600                                  | mm                      | 0.30     | 0.30     | 0.30     | 0.30     |
| 900                                  | mm                      | 0.30     | 0.30     | 0.30     | 0.30     |
| a                                    | FOUNDATION              | 1.34     | 1.49     | 1.34     | 1.49     |
| b                                    | FOUNDATION              | 0.60     | 0.60     | 0.60     | 0.60     |
| c                                    | APRON                   | 0.20     | 0.20     | 0.20     | 0.20     |
| d                                    | APRON                   | 0.20     | 0.20     | 0.20     | 0.20     |
| e                                    | APRON                   | 0.20     | 0.20     | 0.20     | 0.20     |
| f                                    | WINGWALL                | 0.20     | 0.20     | 0.20     | 0.20     |
| g                                    | WINGWALL                | 0.10     | 0.10     | 0.10     | 0.10     |
| h                                    | WINGWALL                | 0.69     | 0.69     | 0.69     | 0.69     |
| i                                    | HEADWALL                | 0.20     | 0.20     | 0.20     | 0.20     |
| j                                    | HEADWALL                | 0.80     | 0.80     | 0.80     | 0.80     |
| k                                    | HEADWALL                | 0.40     | 0.40     | 0.40     | 0.40     |
| l                                    | HEADWALL                | 0.40     | 0.40     | 0.40     | 0.40     |
| m                                    | HEADWALL                | 0.40     | 0.40     | 0.40     | 0.40     |
| n                                    | HEADWALL                | 0.40     | 0.40     | 0.40     | 0.40     |
| o                                    | HEADWALL                | 0.40     | 0.40     | 0.40     | 0.40     |
| p                                    | HEADWALL                | 0.40     | 0.40     | 0.40     | 0.40     |
| q                                    | HEADWALL                | 0.40     | 0.40     | 0.40     | 0.40     |
| r                                    | HEADWALL                | 0.40     | 0.40     | 0.40     | 0.40     |
| s                                    | HEADWALL                | 0.40     | 0.40     | 0.40     | 0.40     |
| t                                    | HEADWALL                | 0.40     | 0.40     | 0.40     | 0.40     |
| u                                    | HEADWALL                | 0.40     | 0.40     | 0.40     | 0.40     |
| v                                    | HEADWALL                | 0.40     | 0.40     | 0.40     | 0.40     |
| w                                    | HEADWALL                | 0.40     | 0.40     | 0.40     | 0.40     |
| x                                    | HEADWALL                | 0.40     | 0.40     | 0.40     | 0.40     |
| y                                    | HEADWALL                | 0.40     | 0.40     | 0.40     | 0.40     |
| z                                    | HEADWALL                | 0.40     | 0.40     | 0.40     | 0.40     |
| FOUNDATION                           | (Concrete 1:2:4, 1:3:6) | 0.18     | 0.18     | 0.26     | 0.26     |
| HEAD/                                | (Concrete/Masonry)      | 0.25     | 0.25     | 0.50     | 0.50     |
| APRON                                | (Concrete)              | 0.12     | 0.12     | 0.12     | 0.12     |
| APRON                                | (Concrete)              | 0.14     | 0.14     | 0.14     | 0.14     |

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**FIGURE C.14 - BEDDING AND HAUNCH PROFILES TYPES III & IV**

FIGURE C.15 ACCESS DRIFT

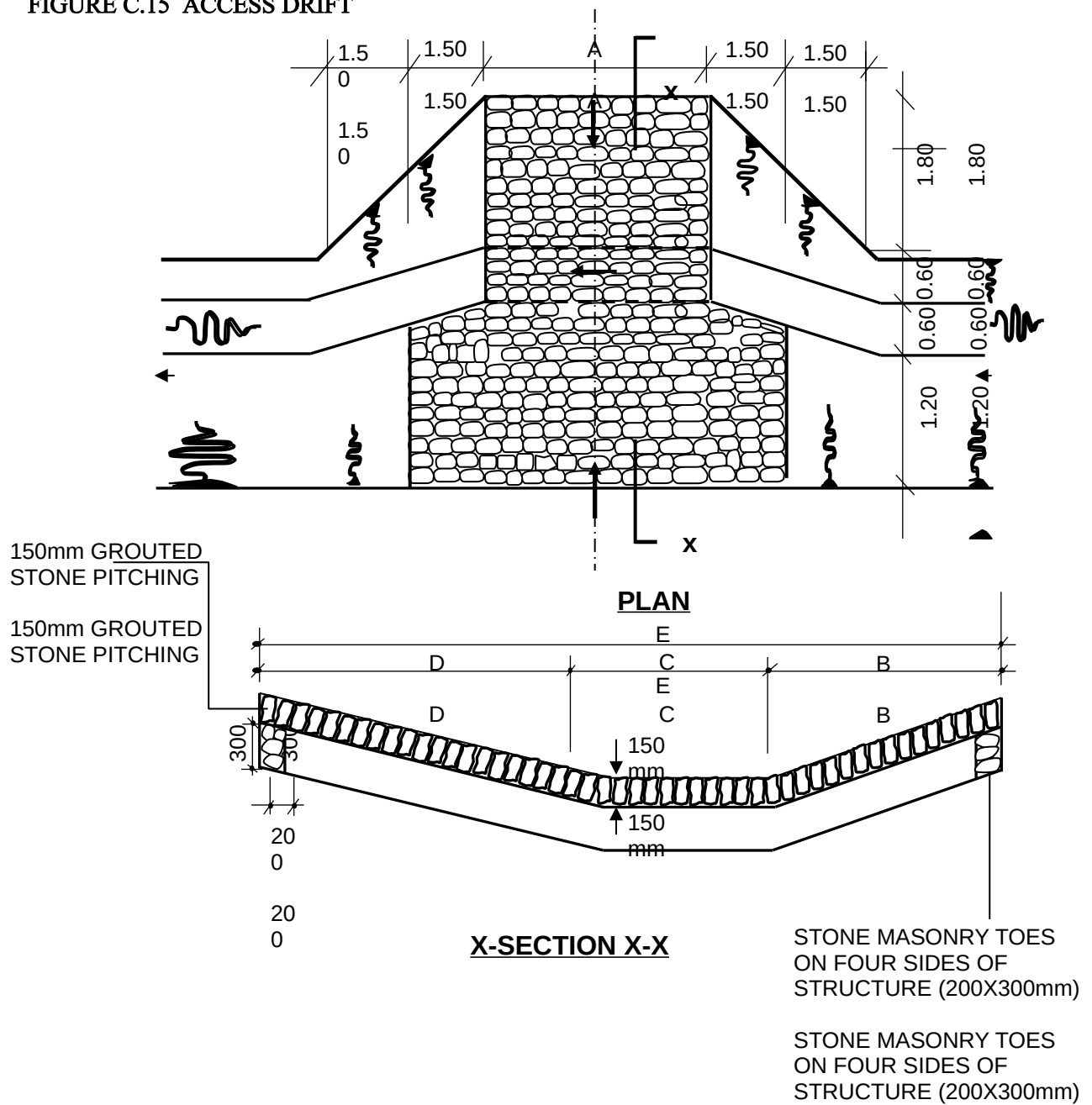
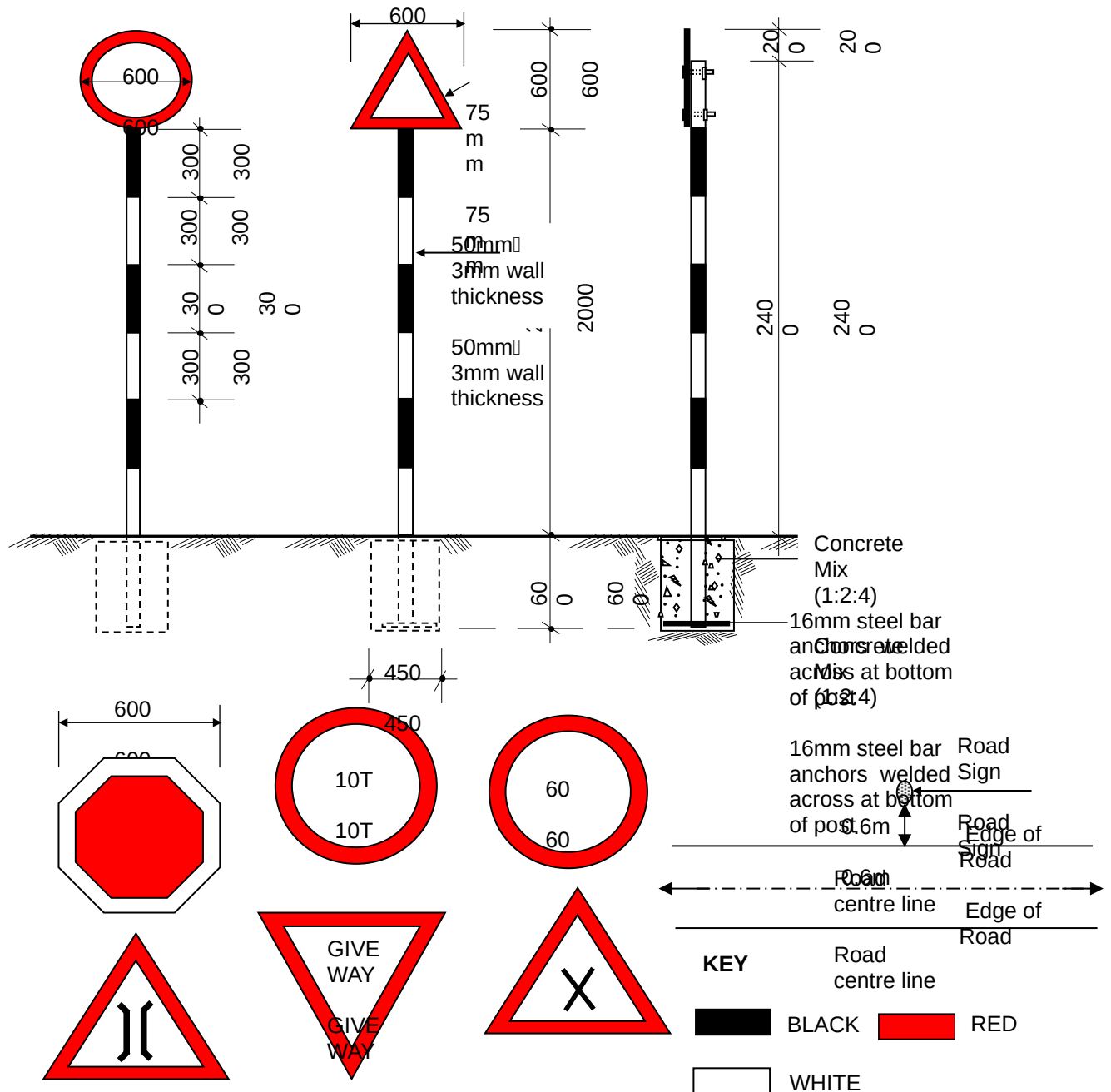


FIGURE C.16 - TRAFFIC SIGNS



1. The type of sign required and their location shall be as shown on the improvement plan and as directed by the Engineer
2. Sign plate to be 2 mm thick mild steel plate
3. Sign post to be 50 mm internal diameter steel pipe with wall thickness of 3 mm.
4. Sign plate to fixed to steel tube by 4 Nos M10 bolts and 2 Nos 50 mm f fixing clamps/brackets.
5. Sign paints shall be reflective.
6. The sign plate and post shall be treated by applying two coats of lead red oxide paint before applying priming and two finish coats of approved paints . Paints used shall have a hard, durable and glossy finish.

The drawing illustrates the construction of a sign panel. The front elevation shows a panel with a total width of 1800 mm and a height of 4600 mm. It features six horizontal sections, each 250 mm high, separated by 10 mm gaps. The sections are labeled: EMPLOYER: KENYA WILDLIFE SERVICE, PROJECT TITLE: REHABILITATION OF....., FINANCED BY:, OVERALL RESPONSIBILITY:, REHABILITATION SUPERVISION:, and MAIN CONTRACTOR:. The bottom section is labeled SUB CONTRACTOR:. The panel is supported by two vertical posts, each 1500 mm high and 150 mm wide, made of 50x150 mm treated softwood. The panel is made of 50x150 mm treated softwood. The side elevation shows the panel's thickness of 25 mm and the posts' width of 450 mm. The panel is supported by two concrete foundations, each 450 mm wide and 600 mm high. The foundations are made of concrete and contain reinforcement bars. The panel is supported by two vertical posts, each 1500 mm high and 150 mm wide, made of 50x150 mm treated softwood. The panel is made of 50x150 mm treated softwood.

**NOTES**

- WHITE
- BLACK

1. The wording of the project signboard and the location to be installed to be as directed by the Engineer
2. Materials to be used for fabrication of signboard shall be pressure impregnated treated softwood timber sizes as indicated in the drawing
3. Wording boards to be nailed to the posts using nails.
4. Project board posts and struts to be embedded in concrete ratio 1:2:4

## **SECTION XII**

### **BILLS OF QUANTITIES**

(These are attached separately)

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### **PREAMBLE TO BILLS OF QUANTITIES**

1. The Bills of Quantities form part of the Contract Documents and are to be read in conjunction with the Conditions of Contract, Specifications and the Drawings.
2. The rates and prices inserted in the Bills of Quantities are to be the full inclusive costs of the works, described under the items, complete in place and in accordance with the specifications, including costs, expenses and profits which may be required in and for the construction of the works described, together with any temporary works and installations which may be necessary and all general risks, liabilities and obligations set forth or implied in the documents on which the contract
3. The quantities set forth in the Bills of Quantities are believed to represent the works to be carried out. There is no guarantee to the Contractor that he will be required to carry out the quantities of work indicated under any one particular item or groups of items in the Bills 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 brief descriptions of items given in the Bills of Quantities are purely for the purpose of identification and in no way modify or supersede the detailed descriptions given in the Conditions of Contract, Standard or Special Specifications.
5. A price or rate shall be entered in ink against every item in the Bill of Quantities with the exception of items, which already have provisional sums, affixed thereto. The Tenderers 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. Tenderers who fail to comply will be disqualified.
6. Please note that all prices quoted should be inclusive of all Government taxes, duties and VAT.

**REHABILITATION OF JUNCT 7 -JUNCT 8-JUNCT 9-JUNCT 10A-HIPPO POOLS-  
JUNCT 11A-JUNCT 10B-JUNCT 10A (23KM )****BILL NO. 1 : Preliminaries and General Items**

| ITEM | DESCRIPTION   | UNIT              | QTY          | RATE       | AMOUNT       |
|------|---|-------------------|--------------|------------|--------------|
| 1.01 | Provide and maintain survey equipment as priced in Appendix C for the duration of the contract, ownership to revert to the Employer at the End of the Contract.   | LS                | 1            |            |              |
| 1.02 | Provide with Driver a serviceable 4WD standard double cabin pick-ups of minimum diesel engine capacity 3000cc approved by the Engineer for the exclusive use of the Resident Engineer inclusive of the first 5000km per vehicle month. Vehicle to revert to the Employer at the end of the project. | Vehicle<br>Months | 6            |            |              |
| 1.03 | E.O item 1.03 for total aggregated mileage in excess of 4000 km per vehicle per month.  | Km                | 2,000        |            |              |
| 1.04 | Allow a Prime Cost Sum of KES. 300,000 for the RE's miscellaneous account to be spent in whole or part as directed by the RE against receipts.  | PC<br>Sum         | 1            | 300,000.00 | 300,000.00   |
| 1.05 | E.O. item 1.05 for Contractor's overheads and profits.  | %                 | 300,000      |            |              |
| 1.06 | Allow a Prime Cost Sum of KES.1,800,000 for attendance upon the Resident Engineer' staff.   | PC<br>Sum         | 1            | 1,800,000  | 1,800,000.00 |
| 1.07 | E.O. item 1.07 for Contractor's overheads and profits.  | %                 | 1,800,000.00 |            |              |
| 1.08 | Provide, erect and maintain publicity signs as directed by the Engineer.  | No                | 2            |            |              |
| 1.09 | Allow a Prime Cost Sum of KES. 700,000 for material   | No                | 1            | 700,000.00 | 700,000.00   |



**REHABILITATION OF JUNCT 7 -JUNCT 8-JUNCT 9-JUNCT 10A-HIPPO POOLS-  
JUNCT 11A-JUNCT 10B-JUNCT 10A (23KM )**

## BILL NO. 1 : Preliminaries and General Items

[illegible]

| <b>REHABILITATION OF JUNCT 7 -JUNCT 8-JUNCT 9-JUNCT 10A-HIPPO POOLS-JUNCT 11A-JUNCT 10B-JUNCT 10A (23KM )</b> |   |             |            |             |               |
|---|---|-------------|------------|-------------|---------------|
| <b>BILL NO. 1 : Preliminaries and General Items</b>   |   |             |            |             |               |
| <b>ITEM</b>   | <b>DESCRIPTION</b>  | <b>UNIT</b> | <b>QTY</b> | <b>RATE</b> | <b>AMOUNT</b> |
|   |   |             |            |             |               |
|   | <b>Bill No. 1 Total Carried Forward to Grand Summary Page</b> |             |            |             |               |

**REHABILITATION OF JUNCT 7 -JUNCT 8-JUNCT 9-JUNCT 10A-HIPPO POOLS-  
JUNCT 11A-JUNCT 10B-JUNCT 10A (23KM )**
**BILL NO. 4 : SITE CLEARANCE AND TOP SOIL STRIPPING**

| ITEM  | DESCRIPTION  | UNIT           | QTY      | RATE | AMOUNT |
|---|--|----------------|----------|------|--------|
| 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. | m <sup>2</sup> | 6,000.00 |      |        |
| 4.02  | Strip top soil up to 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> | 3,200    |      |        |
|   |  |                |          |      |        |
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| <b>Bill No. 4 Total Carried Forward to Grand Summary Page</b> |  |                |          |      |        |



**REHABILITATION OF JUNCT 7 -JUNCT 8-JUNCT 9-JUNCT 10A-HIPPO POOLS-  
JUNCT 11A-JUNCT 10B-JUNCT 10A (23KM )**

| BILL NO. 5 : EARTHWORKS                                       |  |                |        |      |        |
|---|--|----------------|--------|------|--------|
| ITEM  | DESCRIPTION  | UNIT           | QTY    | RATE | AMOUNT |
|   | <b>Note:</b> No separate payments shall be made for haulage of materials including spoiling unsuitable excavation materials and the cost of such shall be included in the rates and prices |                |        |      |        |
| 5.01  | Fill in soft material and compaction to 95% MDD (AASHTO T99) in layers not exceeding 150mm   | m <sup>3</sup> | 22,770 |      |        |
| 5.02  | Cut to spoil in soft material  | m <sup>3</sup> | 1,500  |      |        |
| 5.03  | Provide and place rock fill to swamps  | m <sup>3</sup> | 3,540  |      |        |
|   |  |                |        |      |        |
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| <b>Bill No. 5 Total Carried Forward to Grand Summary Page</b> |  |                |        |      |        |

**REHABILITATION OF JUNCT 7 -JUNCT 8-JUNCT 9-JUNCT 10A-HIPPO POOLS-JUNCT 11A-JUNCT 10B-JUNCT 10A (23KM )**

## BILL NO. 7 : EXCAVATION AND FILLING OF STRUCTURES

[illegible]

**Bill No. 7 Total Carried Forward to Grand Summary Page**

**REHABILITATION OF JUNCT 7 -JUNCT 8-JUNCT 9-JUNCT 10A-HIPPO POOLS-  
JUNCT 11A-JUNCT 10B-JUNCT 10A (23KM )**

| <b>BILL NO. 8. CULVERTS AND DRAINAGE WORKS</b>                |   |                |            |             |               |
|---|---|----------------|------------|-------------|---------------|
| <b>ITEM</b>   | <b>DESCRIPTION</b>  | <b>UNIT</b>    | <b>QTY</b> | <b>RATE</b> | <b>AMOUNT</b> |
| 8.01  | Excavate for inlet, outfall, mitre and catch water drains in soft material  | m <sup>3</sup> | 4,692.00   |             |               |
| 8.02  | As per item 8.01, but for hard material   | m <sup>3</sup> | 938.40     |             |               |
| 8.03  | Provide, lay and joint 600mm dia. concrete pipe culverts complete with surround as per drawings and specifications or as instructed | m              | 72.00      |             |               |
| 8.04  | Provide, lay and joint 900mm dia. concrete pipe culverts complete with surround as per drawings and specifications or as instructed | m              | 12.00      |             |               |
| 8.05  | Clean existing culverts of any diameter, including inlets and outlets, to free flowing conditions                                   | m              | 232.00     |             |               |
|   |   |                |            |             |               |
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| <b>Bill No. 8 Total Carried Forward to Grand Summary Page</b> |   |                |            |             |               |

| <b>REHABILITATION OF JUNCT 7 -JUNCT 8-JUNCT 9-JUNCT 10A-HIPPO POOLS-<br/>JUNCT 11A-JUNCT 10B-JUNCT 10A (23KM )</b> |  |                |            |             |               |
|--|--|----------------|------------|-------------|---------------|
| <b>BILL NO. 12 : NATURAL MATERIAL FOR SUBBASE AND BASE</b>   |  |                |            |             |               |
| <b>ITEM</b>  | <b>DESCRIPTION</b>   | <b>UNIT</b>    | <b>QTY</b> | <b>RATE</b> | <b>AMOUNT</b> |
|  | <b>Note:</b> No overhaul will be paid for separately under these items as it shall be deemed to have been included in the Contractor's rates           |                |            |             |               |
| 12.0<br>1  | Provide gravel for sub-base material, 100mm thick (Neat) haul, spread, compact to at least 100% M.D.D (AASHTO T-180) and shape to level and tolerance. | m <sup>3</sup> | 12,420     |             |               |
| 12.0<br>2  | Provide gravel Base material, 75mm thick haul, spread, compact to at least 100% M.D.D (AASHTO T-180) and shape to level and tolerance.                 | m <sup>3</sup> | 8,970      |             |               |
|  |  |                |            |             |               |
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| <b>Bill No. 12 Total Carried Forward to Grand Summary</b>  |  |                |            |             |               |
| <b>Page</b>  |  |                |            |             |               |



**REHABILITATION OF JUNCT 7 -JUNCT 8-JUNCT 9-JUNCT 10A-HIPPO POOLS-JUNCT 11A-JUNCT 10B-JUNCT 10A (23KM )**

### BILL NO. 14 : CEMENT OR LIME TREATED BASE

[illegible]

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|  | <b>Bill No. 14 Total Carried Forward to Grand Summary Page</b> |  |
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**REHABILITATION OF JUNCT 7 -JUNCT 8-JUNCT 9-JUNCT 10A-HIPPO POOLS-  
JUNCT 11A-JUNCT 10B-JUNCT 10A (23KM )**

## BILL NO. 15: BITUMINOUS SURFACE TREATMENT & SURFACE DRESSING

[illegible]

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| <b>Bill No. 15 Total Carried Forward to Grand Summary<br/>Page</b> |
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| <b>REHABILITATION OF JUNCT 7 -JUNCT 8-JUNCT 9-JUNCT 10A-HIPPO POOLS-JUNCT 11A-JUNCT 10B-JUNCT 10A (23KM )</b> |  |                |            |             |               |
|---|--|----------------|------------|-------------|---------------|
| <b>BILL NO. 17. CONCRETE WORKS</b>  |  |                |            |             |               |
| <b>ITEM</b>   | <b>DESCRIPTION</b>   | <b>UNIT</b>    | <b>QTY</b> | <b>RATE</b> | <b>AMOUNT</b> |
|   | <b><u>Reinforced Concrete Signage structures ( as per the drawings )</u></b>   |                |            |             |               |
| 17.01   | Demolition of the existing Signage and Carting away from site  | No.            | 9          |             |               |
| 17.02   | Excavate for structure in soft material.   | m <sup>3</sup> | 11         |             |               |
| 17.03   | Provide, place and compact Class 15(20) concrete blinding as instructed by the Engineer  | m <sup>3</sup> | 1.00       |             |               |
| 17.04   | Provide, place and compact concrete class 25(20) to aprons, wing walls, abutments and piers, walls and slabs for the Box culverts and bridges as shown in drawings.  | m <sup>3</sup> | 5.00       |             |               |
| 17.05   | <u>Reinforcement</u> : Provide, cut, bend & fix into position steel reinforcement as shown in the drawings or as instructed by the Engineer-High yield reinforcement steel bars to BS 4461 equal to or less than 16mm diameter bar size              | Tonne<br>s     | 0.50       |             |               |
| 17.06   | <u>Formwork</u> : Provide, erect and afterwards dismantle and remove all the formwork as specified by the Engineer-Provide & fix in place vertical formwork to achieve class F1 finish   | m <sup>2</sup> | 45.0<br>0  |             |               |
| 17.07   | <u>Formwork</u> : Vertical formwork to achieve class F3 finish   | m <sup>2</sup> | 12.3<br>2  |             |               |
| 17.08   | <u>Cladding</u> : Plaster and clad with Mazera stones to give natural finish as shown in the drawings or as instructed by the Engineer-Place 15mm thick plaster with cement ,sand motor 1:3 on reinforced concrete wall to receive Mazeras cladding. | m <sup>2</sup> | 62         |             |               |
| 17.10   | <u>Engraving</u> : Engrave provided write up on suitable(natural material) as instructed by Engineer-Engraved plaques(kisii soap stone, natural stone or wood) as directed by engineer   | pcs            | 12         |             |               |

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|  | <b>Bill No. 17 Total Carried Forward to Grand Summary Page</b> |  |
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| <b>REHABILITATION OF JUNCT 7 -JUNCT 8-JUNCT 9-JUNCT 10A-HIPPO POOLS-<br/>JUNCT 11A-JUNCT 10B-JUNCT 10A (23KM )</b>  |  |             |            |             |               |
|---|--|-------------|------------|-------------|---------------|
| <b>BILL NO. 22: SCHEDULE OF DAYWORKS</b>  |  |             |            |             |               |
| <b>ITEM</b>   | <b>DESCRIPTION</b>   | <b>UNIT</b> | <b>QTY</b> | <b>RATE</b> | <b>AMOUNT</b> |
| <b>PLANT :</b> The rates inserted herein are to include all operational and Maintenance costs, fuel, oil, grease, drivers/operators wages, supervision, overheads and profit. Only time actually employed upon the work will be paid for and the rates should include for idle time, travelling time and overtime, In accordance with clause 2202 (a) of the specifications. Note: All items of plant must be priced. |  |             |            |             |               |
| 22.0<br>1   | Crawler dozers with hydraulic attachments to include ripper a) Up to 135 kw rated flywheel power | hrs         | 38.10      |             |               |
| 22.0<br>2   | Motor Grader a) Up to 110kw rated flywheel power   | hrs         | 8.00       |             |               |
| 22.0<br>3   | Vibratory Roller a) 6.5 - 8.81 tonne un-ballasted weight   | hr          | 5.00       |             |               |
| 22.0<br>4   | Hand propelled vibrating roller 650 - 1300kg   | hrs         | 8.00       |             |               |
| 22.0<br>5   | Cat 950G wheel loader or equivalent  | hrs         | 8.00       |             |               |
| 22.0<br>6   | 10 Tonne tipper lorry  | hrs         | 24.00      |             |               |
| 22.0<br>7   | Small dumpers, 750-1000kg rated payload  | hrs         | 20.00      |             |               |
| 22.0<br>8   | Dual purpose hydraulic excavator with backhoe/loader and a rated bucket capacity of upto 1m3.    | hrs         | 24.00      |             |               |
| 22.0<br>9   | Articulated wheel loader with 1.5-2.0m <sup>3</sup> SAE rated bucket capacity                    | hrs         | 5.00       |             |               |
| 22.1<br>0   | 50mm delivery water pump and motor   | hrs         | 24.00      |             |               |
| 22.1<br>1   | Self propelled water tanker 4,500ls min. capacity with pick-up pump                              | hrs         | 5.00       |             |               |
| 22.1<br>2   | Concrete Mixer of 100 - 150litres  | hrs         | 10.00      |             |               |
| 22.1<br>3   | Concrete poker vibrator  | hrs         | 10.00      |             |               |
| <b>LABOUR :</b> The rates inserted herein are to include all costs of labour such as insurance, accommodation, 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, overheads and Profit.   |  |             |            |             |               |
| 22.1<br>4   | Unskilled Labour   | hrs         | 48.00      |             |               |
| 22.1<br>5   | Artisans   | hrs         | 48.00      |             |               |
| 22.1  | Office attendants and chainmen   | hrs         | 48.00      |             |               |

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|           |   |     |      |  |  |
|-----------|---|-----|------|--|--|
| 6         |   |     |      |  |  |
| 22.1<br>7 | Watchmen (all round surveillance)             | hrs | 5.00 |  |  |
|           | <b>TOTAL CARRIED FORWARD TO THE NEXT PAGE</b> |     |      |  |  |

|   |                                      |                |        |  |  |
|---|--------------------------------------|----------------|--------|--|--|
| <b>TOTAL BROUGHT FORWARD</b>  |                                      |                |        |  |  |
| <b>MATERIALS</b> :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. |                                      |                |        |  |  |
| 22.1<br>8   | Ordinary Portland Cement             | Ton            | 14.00  |  |  |
| 22.1<br>9   | Hydrated Lime                        | Ton            | 12.00  |  |  |
| 22.2<br>0   | Mild Steel( any diameter)            | Ton            | 3.00   |  |  |
| 22.2<br>1   | High Yield Steel ( any diameter)     | Ton            | 3.00   |  |  |
| 22.2<br>2   | Fine Aggregate for Concrete          | m <sup>3</sup> | 40.00  |  |  |
| 22.2<br>3   | Coarse Aggregate for Concrete        | m <sup>3</sup> | 40.00  |  |  |
| 22.2<br>4   | Wrot Shuttering Timber               | m <sup>2</sup> | 10.00  |  |  |
| 22.2<br>5   | Rough shuttering timber.             | m <sup>2</sup> | 12.00  |  |  |
| 22.2<br>6   | Bitumen Emulsion KI-60.              | Litre          | 140.00 |  |  |
| 22.2<br>7   | Straight run bitumen Grade 80/100.   | Litre          | 140.00 |  |  |
| 22.2<br>8   | 6/10mm nominal size surface chipings | m <sup>3</sup> | 6.00   |  |  |
|   |                                      |                |        |  |  |
|   |                                      |                |        |  |  |
|   |                                      |                |        |  |  |
|   |                                      |                |        |  |  |
|   |                                      |                |        |  |  |
|   |                                      |                |        |  |  |
|   |                                      |                |        |  |  |
|   |                                      |                |        |  |  |
|   |                                      |                |        |  |  |
| <b>Bill No. 22 Total Carried Forward to Grand Summary Page</b>  |                                      |                |        |  |  |



| <b>APPENDIX C</b>  |  |             |            |             |                     |
|--|--|-------------|------------|-------------|---------------------|
| <b>APPENDIX TO BILL ITEM 1.01 ENGINEERS'S SURVEY EQUIPMENT</b> |  |             |            |             |                     |
| <b>ITEM</b>  | <b>Description</b>   | <b>UNIT</b> | <b>QTY</b> | <b>RATE</b> | <b>AMOUNT (KES)</b> |
| 1.01   | Real Time Kinematic Survey Machine Type Foif A90 GNSS Receiver Set with the following facilities:- | No.         | 1          |             |                     |
|  | 1. Base and Rover  |             |            |             |                     |
|  | 2. Uploading/downloading software  |             |            |             |                     |
|  | 3. Data transfer cable   |             |            |             |                     |
|  | 4. Battery (2No.)  |             |            |             |                     |
|  | 5. Battery charger   |             |            |             |                     |
|  | 6. Tool kit  |             |            |             |                     |
|  | 7. Wooden Tripod.  |             |            |             |                     |
|  | 8. User manual   |             |            |             |                     |
| 1.02   | Garmin Hand held GPS with accuracy of 1 Metre  | No.         | 1          |             |                     |
| 1.03   | Set of two way radio communication with a range of 1 kilometer                                     | Set.        | 1          |             |                     |
| 1.04   | 5 M Leveling staff with leveling bubble  | No.         | 4          |             |                     |
| 1.05   | 3 M Ranging Rods   | No.         | 10         |             |                     |
| 1.06   | Scientific Calculators FX 912ms or equivalent  | No.         | 3          |             |                     |
| 1.07   | 100m. Fiber Glass Measuring Tape   | No.         | 3          |             |                     |
| 1.08   | 10 M stainless steel straight edge   | No.         | 1          |             |                     |
| 1.09   | 3 m tape measure   | No.         | 7          |             |                     |
| 1.10   | Sledge hammer 2kg weight   | No.         | 2          |             |                     |
| 1.11   | Mattock  | No.         | 2          |             |                     |
| 1.12   | Pangas (16'')  | No.         | 5          |             |                     |
| 1.13   | Marker Pens  | No.         | 20         |             |                     |
| 1.14   | Reflector Jackets  | No.         | 30         |             |                     |
| 1.15   | Levelling Survey Books(Rise and Fall survey books)   | No.         | 100        |             |                     |
|  | <b>Total carried to Bill Item 1.01</b>   |             |            |             |                     |



| REHABILITATION OF JUNCT 7 -JUNCT 8-JUNCT 9-JUNCT 10A-<br>HIPPO POOLS-JUNCT 11A-JUNCT 10B-JUNCT 10A (23KM ) |  |             |
|--|--|-------------|
| GRAND SUMMARY OF BILL OF QUANTITIES  |  |             |
| BILL<br>ITEM   | DESCRIPTION  | AMOUNT(KES) |
| 1  | Preliminaries and General Items                      |             |
| 4  | Site Clearance and Top Soil Stripping                |             |
| 5  | Earth Works  |             |
| 7  | Excavation and Filling of Structures                 |             |
| 8  | Culverts and Drainage Works                          |             |
| 12   | Natural Gravel Base and Sub base                     |             |
| 14   | Cement Improved gravel Base                          |             |
| 15   | Bituminous Surface Treatment and<br>Surface Dressing |             |
| 17   | Concrete Works                                       |             |
| 22   | Schedule of Day works.                               |             |
| ( A )  | <b>SUB-TOTAL ( 1 )</b>                               |             |
| ( B )  | Add 2.5% CONTIGENCIES of sub total<br>( 1 )          |             |
| ( C )  | <b>SUB-TOTAL ( 2 ) = ( A + B )</b>                   |             |
| ( D )  | Add 16% VAT of sub-total ( 2 )                       |             |
| <b>GRAND TOTAL CARRIED FORWARD TO<br/>FORM OF TENDER ( C+ D )</b>  |  |             |

**SECTION XIII:**  
**SECTION XIII – STANDARD FORMS**

## 1. FORM OF AGREEMENT

THIS AGREEMENT is made on the.....day of .....between the **Kenya Wildlife Service** of P. O. Box 40241-00100, Nairobi, Kenya hereinafter called "the Procurement Entity" of the one part And

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

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

.....National Park.  
 to.....

and has accepted a BID by the Contractor for the execution completion and maintenance of such works on the road sections as defined hereafter.

### NOW THIS AGREEMENT WITNESSETHES 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 documents shall be deemed to form and be read and construed as part of this Agreement, viz.:

- ❖ The Contract Agreement;
- ❖ The Letter of award by the Procurement Entity
- ❖ The Letter of Acceptance by the Contractor;
- ❖ The Form of Contract and Appendix to the Form of Contract;
- ❖ The Conditions of Contract Part I;
- ❖ The Conditions of Contract Part II;
- ❖ The Standard Specification for Road and Bridge Construction, 1986;
- ❖ The Special Specifications;
- ❖ The Drawings;
- ❖ The priced Bill of quantities;
- ❖ Conditions to the Contract and instructions to the Contractor;

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

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

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

IN WITNESS HEREOF the parties that have caused this Agreement to be executed this .....day of .....

*SEALED with the Common Seal of **Kenya Wildlife Services (KWS)**.*

By the said Employer: .....  
(Director, Kenya Wildlife Service)  
For and on behalf of the said Employer

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

SEALED with the Common Seal of .....  
.....  
(**Insert** the Name of Tender)

By the said Contractor: .....  
(Managing Director)

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

## Adjudicator's Agreement

Identification of Project:

.....  
(the "Project")

Name and address of the Employer:

.....  
(the "Employer")

Name and address of the Contractor:

.....  
(the "Contractor")

Name and address of the Adjudicator:

.....  
(the "Adjudicator")

**Whereas** the Employer and the Contractor have entered into a contract ("the Contract") for the execution of the Project and wish to appoint the Adjudicator to act as adjudicator in accordance with the Rules for Adjudication ["the Rules"].

**The Employer, Contractor and Adjudicator agree as follows:**

1. The Rules and dispute provisions of the Contract shall form part of this Agreement.
2. The Adjudicator shall be paid:

A retainer fee of .....per calendar month  
(where applicable)

A daily fee of .....

Expenses (including the cost of telephone calls, courier charges, faxes and telexes incurred in connection with his duties; all reasonable and necessary travel expenses, hotel accommodation and subsistence and other direct travel expenses).  
Receipts will be required for all expenses.

3. The Adjudicator agrees to act as adjudicator in accordance with the Rules and has disclosed to the Parties any previous or existing relationship with the Parties or others concerned with the Project.
4. This Agreement shall be governed by the law of .....
5. The Language of this Agreement shall be .....

SIGNED BY .....

For and on behalf of the Employer in the presence of

Witness .....  
Name .....  
Address .....  
Date .....

SIGNED BY .....

For and on behalf of the Contractor in the presence of

Witness .....  
Name .....  
Address .....  
Date .....

SIGNED BY .....

For and on behalf of the Adjudicator in the presence of

Witness .....  
Name .....  
Address .....  
Date .....



## 2. FORM OF PERFORMANCE BANK GUARANTEE (UNCONDITIONAL)

To:

**Kenya Wildlife Service (KWS)**

P. O. Box 40241-00100,

Nairobi,

Kenya

1. WHEREAS .....  
(Hereinafter called the Contractor) has undertaken in pursuance of contract No.: .....  
.....dated.....to execute the  
.....(hereinafter called the “Contract”)
- 2 AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified in the Appendix to Form of Tender as security for compliance with his obligations in accordance with the Contract;
3. AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee.

1. NOW THEREFORE we (name of  
Bank) .....  
.....  
(hereinafter called “the Bank”) hereby affirm that we are the Guarantor and responsible to you on behalf of the Contractor up to a total of KES.....  
Amount in words.....and  
we undertake to pay 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 there under 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 Defects Liability Certificate.

AUTHORISED SIGNATORY FOR THE BANK.....

Name of bank.....

---

Address.....

Date .....

**LETTER OF CREDIT**

To

**The Director General,  
Kenya Wildlife Service,  
P.O. Box 40241 - 00100  
NAIROBI**

**RE: LINE OF CREDIT FOR (CONTRACT DETAILS)**

Reference is made to inquiry from our Customer ..... of P.O. Box ..... in regard to line of Credit for financing above tender. We wish to state as following.

1. M/S .....(name of tender) has satisfactorily conducted an account dominated in Kenya Shillings with us for a period of more than one year.
2. Currently the above named Customer enjoys
  - a) A Bank Over draft facility of KES .....
  - b) A bank loan of KES .....
3. As per the prudential norms for Financing which MUST be fulfilled by our customer, we are in a position to provide a line of credit to M/s ..... (tenderer name) for KES .....

This information is given in strict confidence, and without any guarantee or liability on the part of the bank or any of its officers.

Yours Faithfully

Bank Authorised Signatory