



KENYA RURAL ROADS AUTHORITY

KAKAMEGA REGION

ROUTINE MAINTENANCE OF EMWIRU – MUSHIANZE ROAD
TENDER NO: KERRA/011/39/KAK/2/45/2018-19-391

FINANCIAL YEAR 2018/2019

KHWISERO CONSTITUENCY

10% RMLF FOR CRC

BID DOCUMENT FOR ROUTINE MAINTENANCE

- **INVITATION FOR TENDERS**
- **INSTRUCTIONS TO BIDDERS**
- **QUALIFICATION CRITERIA**
- **CONDITIONS OF CONTRACT**
- **APPENDIX TO FORM OF AGREEMENT**
- **STANDARD FORMS**
- **SPECIFICATIONS, DRAWINGS AND BILLS OF QUANTITIES**

JANUARY, 2019

**DIRECTOR GENERAL,
KENYA RURAL ROADS AUTHORITY,
P.O. BOX 48151-00100,
NAIROBI.**

**THE REGIONAL MANAGER
KENYA RURAL ROADS AUTHORITY,
P.O. BOX 477 - 50100,
KAKAMEGA.**

STANDARD TENDER DOCUMENT FOR PROCUREMENT OF WORKS

- ROUTINE MAINTENANCE WORKS

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SECTION I: INVITATION TO TENDERS

Tender reference No. **KERRA/011/39/KAK/2/45/2018-19-391**

Tender Name: **Spot improvement of EMWIRU - MUSHIANZE Road.**

KeRRA Kakamega invites sealed tenders for the spot improvement of **EMWIRU – MUSHIANZE Road**. Interested eligible candidates may obtain further information and inspect tender documents at Regional Manager's office- **Kakamega** during normal working hours.

- 1.1 A complete set of tender documents may be obtained by interested candidates by downloading from KeRRA web site at www.tenders.kerra.go.ke for free.
- 1.2 Prices quoted should be net inclusive of all taxes, must be in Kenya shillings and shall remain valid for **120** days from the closing date of tender.
- 1.3 Completed tender documents are to be enclosed in plain sealed envelopes marked with Tender name and reference number and deposited in the Tender Box at Regional Manager's office **Kakamega** or to be addressed to Regional Manager, P.O Box 477-**50100 Kakamega** so as to be received on or before (Check advert).
- 1.4 Tenders will be opened immediately thereafter in the presence of the Candidates or their representatives who choose to attend at KeRRA, **Kakamega** Region, P.O Box 477-**50100 Kakamega**.

For (Regional Manager- **Kakamega** Region)

SECTION II: INSTRUCTIONS TO TENDERERS

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INSTRUCTIONS TO TENDERERS.

1. General

- 1.1 The Employer as defined in the Appendix to Conditions of Contract invites tenders for Works Contract as described in the tender documents. The successful Tenderer will be expected to complete the Works by the Intended Completion Date specified in the said Appendix.
- 1.2 Tenderers shall include the following information and documents with their tenders, unless otherwise stated:
 - (a) Copies of certificates of registration, and principal place of business;
 - (b) Certified bank statements for the last 3-6 Months.
 - (c) Authority to seek references from the Tenderer's bankers.
 - (d) Registration with National Construction Authority for the applicable class valid at the date of tender of submission
 - (e) VAT Registration Certificate
 - (f) Valid current Tax compliance certificate
 - (g) PIN registration certificate
 - (h) current litigation information
 - (i) Certificate of Registration for the special group where applicable.
 - (j) Proof of Equipment Ownership
- 1.3 The Tenderer shall bear all costs associated with the preparation and submission of his tender, and the Employer will in no case be responsible or liable for those costs.
- 1.4 The Tenderer, at the Tenderer's own responsibility and risk, is encouraged to visit and examine the Site of the Works and its surroundings, and obtain all information that may be necessary for preparing the tender and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Tenderer's own expense.
- 1.5 The procurement entity's employees, committee members, board members and their relative (spouse and children) are not eligible to participate in the tender.
- 1.6 The price to be charged for the tender document shall not exceed **Kshs.1,000/=**. Tenders reserved for the special group shall not be charged.
- 1.7 The procuring entity shall allow the tenderer to review the tender document free of charge before purchase.

2. Tender Documents

- 2.1 The complete set of tender documents comprises the documents listed here below and any addenda issued in accordance with clause 2.4 herebelow:-
- (a) These instructions to Tenderers
 - (b) Form of Tender
 - (c) Conditions of Contract and Appendix to Form of Agreement
 - (d) Specifications
 - (e) Drawings
 - (f) Bills of Quantities
 - (g) Other materials required to be filled and submitted in accordance with these Instructions and Conditions
- 2.2 The Tenderer shall examine all instructions, forms and specifications in the tender documents. Failure to furnish all information required by the tender documents may result in rejection of his tender.
- 2.3 A prospective Tenderer making inquiries of the tendering documents may notify the Employer in writing or by cable, telex or facsimile at the address indicated in the letter of invitation to tender. The Employer will respond to any request for clarification received earlier than seven [7] days prior to the deadline for submission of tenders. Copies of the Employer's response will be forwarded to all persons issued with tendering documents, including a description of the inquiry, but without identifying its source.
- 2.4 Before the deadline for submission of tenders, the Employer may modify the tendering documents by issuing addenda. Any addendum thus issued shall be part of the tendering documents and shall be communicated in writing or by cable, telex or facsimile to all Tenderers. Prospective Tenderers shall acknowledge receipt of each addendum in writing to the Employer.
- 2.5 To give prospective Tenderers reasonable time in which to take an addendum into account in preparing their tenders, the Employer shall extend, as necessary, the deadline for submission of tenders in accordance with clause 4.2 herebelow.

3. Preparation of Tenders

- 3.1 All documents relating to the tender and any correspondence shall be in English Language.
- 3.2 The tender submitted by the Tenderer shall comprise the following:-

- (a) The Tender;
 - (b) Tender Security;
 - (c) Priced Bill of Quantities for lump-sum Contracts
 - (d) Any other materials required to be completed and submitted by Tenderers.
- 3.3 The Tenderer shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items for which no rate or price is entered by the Tenderer will not be paid for when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities. All duties, taxes and other levies payable by the Contractor under the Contract, as of 30 days prior to the deadline for submission of tenders, shall be included in the tender price submitted by the Tenderer.
- 3.4 The rates and prices quoted by the Tenderer shall not be subject to any adjustment during the performance of the Contract.
- 3.5 The unit rates and prices shall be in Kenya Shillings.
- 3.6 Tenders shall remain valid for a period of **One Twenty (120)** days from the date of submission. However in exceptional circumstances, the Employer may request that the Tenderers extend the period of validity for a specified additional period. The request and the Tenderers' responses shall be made in writing.
- 3.7 The Tenderer shall prepare one original of the documents comprising the tender documents as described in these Instructions to Tenderers.
- 3.8 The original shall be typed or written in indelible ink and shall be signed by a person or persons duly authorised to sign on behalf of the Tenderer. All pages of the tender where alterations or additions have been made shall be initialed by the person or persons signing the tender.
- 3.9 Clarification of tenders shall be requested by the tenderer to be received by the procuring entity not later than 7 days prior to the deadline for submission of tenders.
- 3.10 The procuring entity shall reply to any clarifications sought by the tenderer within **7 days** of receiving the request to enable the tenderer to make timely submission of its tender.

4. Submission of Tenders

- 4.1 The tender duly filled and sealed in an envelope shall;-
- (a) be addressed to the Employer at the address provided in the invitation to tender;
 - [b] bear the name and identification number of the Contract as defined in the invitation to tender; and
 - [c] provide a warning not to open before the specified time and date for tender opening.

4.2 Tenders shall be delivered to the Employer at the address specified above not later than the time and date specified in the invitation to tender.

4.3 The tenderer shall not submit any alternative offers unless they are specifically required in the tender documents.

Only one tender may be submitted by each tenderer. Any tenderer who fails to comply with this requirement will be disqualified.

4.4 Any tender received after the deadline for opening tenders will be returned to the tenderer un-opened.

4.5 The Employer may extend the deadline for submission of tenders by issuing an amendment in accordance with sub-clause 2.5 in which case all rights and obligations of the Employer and the Tenderers previously subject to the original deadline will then be subject to the new deadline.

5. Tender Opening and Evaluation

5.1 The tenders will be opened in the presence of the Tenderers' representatives who choose to attend at the time and in the place specified in the invitation to tender.

5.2 The Tenderers' names, the total amount of each tender and such other details as may be considered appropriate, will be announced at the opening by the Employer. Minutes of the tender opening, including the information disclosed to those present will also be prepared by the Employer.

5.3 Information relating to the examination, clarification, evaluation and comparison of tenders and recommendations for the award of the Contract shall not be disclosed to Tenderers or any other persons not officially concerned with such process until the award to the successful Tenderer has been announced. Any effort by a Tenderer to

influence the Employer's officials, processing of tenders or award decisions may result in the rejection of his tender.

5.4 Tenders determined to be substantially responsive will be checked for any arithmetic errors. Errors will be corrected as follows:

- (a) where there is a discrepancy between the amount in figures and the amount in words, the amount in words will prevail; and
- (b) where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will prevail, unless in the opinion of the Employer's representative, there is an obvious typographical error, in which case the adjustment will be made to the entry containing that error.
- (c) In the event of a discrepancy between the tender amount as stated in the Form of Tender and the corrected tender figure in the main summary of the Bill of Quantities/Quotation, the amount as stated in the Form of Tender shall prevail.
- (d) The Error Correction Factor shall be computed by expressing the difference between the tender amount and the corrected tender sum as a percentage of the Corrected Builder's Work (i.e. corrected tender sum less P.C. and Provisional Sums).
- (e) The Error Correction Factor shall be applied to all Builder's Work (as a rebate or addition as the case may be) for the purposes of valuations for Interim Certificates and valuation of variations.
- (f) The amount stated in the tender will be adjusted in accordance with the above procedure for the correction of errors and with concurrence of the Tenderer, shall be considered as binding upon the Tenderer. If the Tenderer does not accept the corrected amount, the tender may be rejected and the Tender Security forfeited.

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

5.6 Contract price variations shall not be allowed for contracts not exceeding one year (12 months)

5.7 Where contract price variation is allowed, the valuation shall not exceed 25% of the original contract price.

5.8 Price variation requests shall be processed by the procuring entity within 30 days of receiving the request.

- 5.9 To assist in the examination, evaluation, and comparison of tenders, the Employer at his discretion, may request [in writing] any Tenderer for clarification of the tender, including breakdowns of unit rates. The request for clarification and the response shall be in writing or by cable, telex or facsimile but no change in the tender price or substance of the tender shall be sought, offered or permitted.
- 5.10 The Tenderer shall not influence the Employer on any matter relating to his tender from the time of the tender opening to the time the Contract is awarded. Any effort by the Tenderer to influence the Employer or his employees in his decision on tender evaluation, tender comparison or Contract award may result in the rejection of the tender.

6. Award of Contract

- 6.1 The award of the Contract will be made to the Tenderer who has offered the lowest evaluated tender price.
- 6.2 Notwithstanding the provisions of clause 6.1 above, the Employer reserves the right to accept or reject any tender and to cancel the tendering process and reject all tenders at any time prior to the award of Contract without thereby incurring any liability to the affected Tenderer or Tenderers or any obligation to inform the affected Tenderer or Tenderers of the grounds for the action.
- 6.3 The Tenderer whose tender has been accepted will be notified of the award prior to expiration of the tender validity period in writing or by cable, telex or facsimile. This notification (hereinafter and in all Contract documents called the "Letter of Acceptance") will state the sum [hereinafter and in all Contract documents called the "Contract Price" which the Employer will pay the Contractor in consideration of the execution, completion, and maintenance of the Works by the Contractor as prescribed by the Contract. The contract shall be formed on the parties signing the contract. At the same time the other tenderers shall be informed that their tenders have not been successful.
- 6.4 The Contract Agreement will incorporate all agreements between the Employer and the successful Tenderer. It will be signed by the Employer and sent to the successful Tenderer, within 30 days following the notification of award. Within 21 days of receipt ,the successful Tenderer will sign the Agreement and return it to the Employer.
- 6.5 Within 21 days after receipt of the Letter of Acceptance, the successful Tenderer shall deliver to the Employer a Performance Security amount stipulated in the Appendix to Conditions of Contract.
- 6.6 The parties to the contract shall have it signed within 30 days from the date of notification of contract award unless there is an administrative review request.
- 6.7 The procuring entity may at any time terminate procurement proceedings before

contract award and shall not be liable to any person for the termination.

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

7. Corrupt and fraudulent practices

- 7.1 The procuring entity requires that the tenderer observes the highest standard of ethics during the procurement process and execution of the contract. A tenderer shall sign a declaration that he has not and will not be involved in corrupt and fraudulent practices.
- 7.2 The procuring entity will reject a tender if it determines that the tenderer recommended for award has engaged in corrupt and fraudulent practices in competing for the contract in question.
- 7.3 Further a tenderer who is found to have indulged in corrupt and fraudulent practices risks being debarred from participating in public procurement in Kenya.

SECTION III: QUALIFICATION CRITERIA

Qualification Criteria			Compliance Requirements	Documentation
No.	Subject	Requirement	Single Entity	Submission Requirements
1.1	Eligibility	Nationality in accordance with confidential business Questionnaire in the standard forms	Must meet requirement	Refer to standard form section 6
1.2	Incorporation & Registration	Pursuant to sub clause 1.2 the following shall be provided; - Certified Copy of Certificate of incorporation to show that the applicant is a registered company and legally authorised to do business in Kenya	Must meet requirement	Refer to standard form section 6
1.3	Bidding forms & other requirements	- Proof of registration with the National Construction Authority (NCA) category NCA 8 and below (Roads Works) - Proof of Prequalification for F/Y 2017/2019 with KeRRA in the respective Constituency & as per Category (specified in the Invitation to Tender) - Fully Filled Tender Securing Declaration Form in the Format given & Signed [For Tenders under Special Groups Category] - Form of Power of Attorney - Priced Bill of Quantities	- Must meet requirement - Must meet requirement - Must meet requirement - Must meet requirement - Must meet requirement	- Valid NCA Certificate - Signed Tender Securing Declaration - Properly Filled & Signed - Fill all Unit rates, prices and amounts. All alterations should be countersigned - Properly Filled & Signed - Fill in information and sign

Qualification Criteria			Compliance Requirements	Documentation
No.	Subject	Requirement	Single Entity	Submission Requirements
		-Litigation History -Schedule of Ongoing Projects -Schedule of other Supplementary Information / Financial Standings -Pre-Tender Site Visit Certificate	Must meet requirement Must meet requirement Must meet requirement Must meet requirement	-Fill information on non-completed works Properly Fill & Sign Properly Fill & Sign -Attach a signed pre-tender site visit certificate
2.1	History of Non-Performing Contracts	Non-performance of a contract did not occur within the last three (3) years prior to the deadline for application submission based on all information on fully settled disputes or litigation. A fully settled dispute or litigation is one that has been resolved in accordance with the Dispute Resolution Mechanism under the respective contract, and where all appeal instances available to the applicant have been exhausted.	Must meet requirement by itself or as party to past	Litigation History
2.2	Pending Litigation	All pending litigation shall in total not represent more than fifty percent (50%)] of the Applicant's net worth and shall be treated as resolved against the Applicant.	Must meet requirement by itself or as party to past	Refer to standard form section 6
3.1	Financial Performance	Submission of CERTIFIED Bank Statements for the last 3-6 Months	Must meet requirement (a) Must meet	Refer to standard form section 6

Qualification Criteria			Compliance Requirements	Documentation
No.	Subject	Requirement	Single Entity	Submission Requirements
			requirement (b) Must meet requirement	
3.2	Average Annual Construction Turnover			
4.1	General Construction Experience	Attach completion certificates to show at least works completed satisfactorily	Must meet requirement	Refer to standard form section 6
4.2(a)	Specific Construction Experience	Participation as contractor, management contractor or subcontractor, in at least two (2) contracts within the last two (2) years, each with a value of at least KShs. 1,000,000.00 (One Million), that have been successfully and substantially completed and that are similar to the proposed works. The similarity shall be based on the physical size, complexity, methods/technology or other characteristics as described in Scope of Works	Must meet requirement	Refer to standard form section 6

Qualification Criteria			Compliance Requirements	Documentation
No.	Subject	Requirement	Single Entity	Submission Requirements
4.2(b)		b) For the above or other contracts executed during the period stipulated in 4.2(a) above, a minimum construction experience in at least one (1) of: - Routine maintenance - Spot improvement & rehabilitation works.	Must meet requirements	Refer to standard form section 6
4.3	Work Methodology			
5. Equipment Holding				
5.1	Minimum number of Equipment	The bidder must indicate the minimum the core plant and equipment considered by the company to be necessary for undertaking the project together with proof of ownership	Must meet the requirement	Refer to standard form section 6
6. Current Commitment				
6.1	On-going contracts	The total value of current works on the on-going contracts must not exceed KShs. xxxxxxx	Must meet requirements	

SECTION IV: CONDITIONS OF CONTRACT

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CONDITIONS OF CONTRACT

1. Definitions

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

“Bills of Quantities” means the priced and completed Bill of Quantities forming part of the tender[where applicable].

“Schedule of Rates” means the priced Schedule of Rates forming part of the tender [where applicable].

“The Completion Date” means the date of completion of the Works as certified by the Employer’s Representative.

“The Contract” means the agreement entered into by the Employer and the Contractor as recorded in the Agreement Form and signed by the parties.

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

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

“The Contract Price” is the price stated in the Letter of Acceptance.

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

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

“The Defects Liability Certificate” is the certificate issued by Employer’s Representative upon correction of defects by the Contractor.

“The Defects Liability Period” is the period named in the Appendix to Conditions of Contract and calculated from the Completion Date.

“Drawings” include calculations and other information provided or approved by the Employer’s Representative for the execution of the Contract.

“Employer” Includes Central or Local Government administration, Universities, Public Institutions and Corporations and is the party who employs the Contractor to carry out the Works.

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

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

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

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

“Specification” means the Specification of the Works included in the Contract.

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

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

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

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

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

2. Contract Documents

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

- (1) Agreement,
- (2) Letter of Acceptance,
- (3) Contractor’s Tender,
- (4) Conditions of Contract,
- (5) Specifications,
- (6) Drawings,
- (7) Bills of Quantities

3. Employer’s Representative’s Decisions

3.1 Except where otherwise specifically stated, the Employer’s Representative will decide

contractual matters between the Employer and the Contractor in the role representing the Employer.

4. Works, Language and Law of Contract

- 4.1 The Contractor shall construct and install the Works in accordance with the Contract documents. The Works may commence on the Start Date and shall be carried out in accordance with the Program submitted by the Contractor, as updated with the approval of the Employer's Representative, and complete them by the Intended Completion Date.
- 4.2 The ruling language of the Contract shall be English language and the law governing the Contract shall be the law of the Republic of Kenya.

5. Safety, Temporary works and Discoveries

- 5.1 The Contractor shall be responsible for design of temporary works and shall obtain approval of third parties to the design of the temporary works where required.
- 5.2 The Contractor shall be responsible for the safety of all activities on the Site.
- 5.3 Anything of historical or other interest or significant value unexpectedly discovered on the Site shall be the property of the Employer. The Contractor shall notify the Employer's Representative of such discoveries and carry out the Employer's Representative's instructions for dealing with them.

6 Work Program and Sub-contracting

- 6.1 Within seven days after Site possession date, the Contractor shall submit to the Employer's Representative for approval a program showing the general methods, arrangements, order and timing for all the activities in the Works.
- 6.2 The Contractor may sub-contract the Works (but only to a maximum of 25 percent of the Contract Price) with the approval of the Employer's Representative. However, he shall not assign the Contract without the approval of the Employer in writing. Sub-contracting shall not alter the Contractor's obligations.

7 The site

- 7.1 The Employer shall give possession of all parts of the Site to the Contractor.
- 7.2 The Contractor shall allow the Employer's Representative and any other person authorised by the Employer's Representative, access to the Site and to any place where work in connection with the Contract is being carried out or is intended to be carried out.

8 Instructions

8.1 The Contractor shall carry out all instructions of the Employer's Representative which are in accordance with the Contract.

9 Extension of Completion Date

9.1 The Employer's Representative shall extend the Completion Date if an occurrence arises which makes it impossible for completion to be achieved by the Intended Completion Date. The Employer's Representative shall decide whether and by how much to extend the Completion Date.

9.2 For the purposes of this clause, the following occurrences shall be valid for consideration;

Delay by:-(a) force majeure, or

(b) reason of any exceptionally adverse weather conditions, or

(c) reason of civil commotion, strike or lockout affecting any of the trades employed upon the Works or any of the trades engaged in the preparation, manufacture or transportation of any of the goods or materials required for the Works, or

(d) reason of the Employer's Representative's instructions issued under these Conditions, or

(e) reason of the contractor not having received in due time necessary instructions, drawings, details or levels from the Employer's Representative for which he specifically applied in writing on a date which having regard to the date for Completion stated in the appendix to these Conditions or to any extension of time then fixed under this clause was neither unreasonably distant from nor unreasonably close to the date on which it was necessary for him to receive the same, or

(f) delay on the part of artists, tradesmen or others engaged by the Employer in executing work not forming part of this Contract, or

(g) reason of delay by statutory or other services providers or similar bodies engaged directly by the Employer, or

(h) reason of opening up for inspection of any Work covered up or of the testing or any of the Work, materials or goods in accordance with these conditions unless the inspection or test showed that the Work, materials or goods were not in accordance with this Contract, or

(i) reason of delay in appointing a replacement Employer's Representative, or

- (j) reason of delay caused by the late supply of goods or materials or in executing Work for which the Employer or his agents are contractually obliged to supply or to execute as the case may be, or
- (k) delay in receiving possession of or access to the Site.

10 Management Meetings

- 10.1 A Contract management meeting shall be held regularly and attended by the Employer's Representative and the Contractor. Its business shall be to review the plans for the remaining Work. The Employer's Representative shall record the business of management meetings and provide copies of the record to those attending the meeting and the Employer. The responsibility of the parties for actions to be taken shall be decided by the Employer's Representative either at the management meeting or after the management meeting and stated in writing to all who attend the meeting.
- 10.2 Communication between parties shall be effective only when in writing.

11 Defects

- 11.1 The Employer's Representative shall inspect the Contractor's work and notify the Contractor of any defects that are found. Such inspection shall not affect the Contractor's responsibilities. The Employer's Representative may instruct the Contractor to search for a defect and to uncover and test any Work that the Employer's Representative considers may have a defect. Should the defect be found, the cost of uncovering and making good shall be borne by the Contractor. However if there is no defect found, the cost of uncovering and making good shall be treated as a variation and added to the Contract Price.
- 11.2 The Employer's Representative shall give notice to the Contractor of any defects before the end of the Defects Liability Period, which begins at Completion, and is defined in the Appendix to Form of Agreement.
- 11.3 Every time notice of a defect is given, the Contractor shall correct the notified defect within the length of time specified by the Employer's Representative's notice. If the Contractor has not corrected a defect within the time specified in the Employer's Representative's notice, the Employer's Representative will assess the cost of having the defect corrected by other parties and such cost shall be treated as a variation and be deducted from the Contract Price.

12 Bills of Quantities

- 12.1 The Bills of Quantities shall contain items for the construction, installation, testing and commissioning of the Work to be done by the Contractor. The Contractor will be paid for the quantity of the Work done at the rates in the Bills of Quantities for

each item. Items against which no rate is entered by the Tenderer will not be paid for when executed and shall be deemed covered by the rates for other items in the Bills of Quantities.

- 12.2 Where Bills of Quantities do not form part of the Contract, the Contract Price shall be a lump sum (which shall be deemed to have been based on the rates in the Schedule of Rates forming part of the tender) and shall be subject to re-measurement after each stage.

13 Variations

- 13.1 The Contractor shall provide the Employer's Representative with a quotation for carrying out the variations when requested to do so. The Employer's Representative shall assess the quotation and shall obtain the necessary authority from the Employer before the variation is ordered.
- 13.2 If the Work in the variation corresponds with an item description in the Bill of Quantities, the rate in the Bill of Quantities shall be used to calculate the value of the variation. If the nature of the Work in the variation does not correspond with items in the Bill of Quantities, the quotation by the Contractor shall be in the form of new rates for the relevant items of Work.
- 13.3 If the Contractor's quotation is unreasonable, the Employer's Representative may order the variation and make a change to the Contract Price, which shall be based on the Employer's Representative's own forecast of the effects of the variation on the Contractor's costs.

14 Payment Certificates and Final Account

- 14.1 The Contractor shall be paid after each of the following stages of Work listed here below (subject to re-measurement by the Employer's Representative of the Work done in each stage before payment is made). In case of lump-sum Contracts, the valuation for each stage shall be based on the quantities so obtained in the re-measurement and the rates in the Bill of Quantities.

- (i) Advance payment _____ (percent of Contract Price,
[after Contract execution] _____ to be inserted by the Employer).
- (ii) First stage (define stage) _____
- (iii) Second stage (define stage) _____
- (iv) Third stage (define stage) _____
- (v) After defects liability period .

- 14.2 Upon deciding that Works included in a particular stage are complete, the Contractor shall submit to the Employer's Representative his application for payment. The Employer's Representative shall check, adjust if necessary and certify the amount to be paid to the Contractor within 21 days of receipt of the Contractor's application. The Employer shall pay the Contractor the amounts so certified within 30 days of the date of issue of each Interim Certificate.
- 14.3 The Contractor shall supply the Employer's Representative with a detailed final account of the total amount that the Contractor considers payable under the Contract before the end of the Defects Liability Period. The Employer's Representative shall issue a Defect Liability Certificate and certify any final payment that is due to the Contractor within 30 days of receiving the Contractor's account if it is correct and complete. If it is not, the Employer's Representative shall issue within 21 days a schedule that states the scope of the corrections or additions that are necessary. If the final account is still unsatisfactory after it has been resubmitted, the Employer's Representative shall decide on the amount payable to the Contractor and issue a Final Payment Certificate. The Employer shall pay the Contractor the amount so certified within 60 days of the issue of the Final Payment Certificate.
- 14.4 If the period laid down for payment to the Contractor upon each of the Employer's Representative's Certificate by the Employer has been exceeded, the Contractor shall be entitled to claim simple interest calculated pro-rata on the basis of the number of days delayed at the Central Bank of Kenya's average base lending rate prevailing on the first day the payment becomes overdue. The Contractor will be required to notify the Employer within 15 days of receipt of delayed payments of his intentions to claim interest.

15. Insurance

- 15.1 The Contractor shall be responsible for and shall take out appropriate cover against, among other risks, personal injury; loss of or damage to the Works, materials and plant; and loss of or damage to property.

16. Liquidated Damages

- 16.1 The Contractor shall pay liquidated damages to the Employer at the rate 0.001 per cent of the Contract price per day for each day that the actual Completion Date is later than the Intended Completion Date except in the case of any of the occurrences listed under clause 9.2. The Employer may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not affect the Contractor's liabilities.

17. Completion and Taking Over

- 17.1 Upon deciding that the Work is complete the Contractor shall request the Employer's Representative to issue a Certificate of Completion of the Works, upon deciding

that the Work is completed.

The Employer shall take over the Site and the Works within seven days of the Employer's Representative issuing a Certificate of Completion.

18. Termination

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

- (a) the Contractor stops Work for 30 days continuously without reasonable cause or authority from the Employer's Representative;
- (b) the Contractor is declared bankrupt or goes into liquidation other than for a reconstruction or amalgamation;
- (c) a payment certified by the Employer's Representative is not paid by the Employer to the Contractor within 30 days after the expiry of the payment periods stated in sub clauses 14.2 and 14.3 hereinabove.
- (d) the Employer's Representative gives notice that failure to correct a particular defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time.

18.2 If the Contract is terminated, the Contractor shall stop Work immediately, and leave the Site as soon as reasonably possible. The Employer's Representative shall immediately thereafter arrange for a meeting for the purpose of taking record of the Works executed and materials, goods, equipment and temporary buildings on Site.

19. Payment Upon Termination

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

19.2 The Contractor shall, during the execution or after the completion of the Works under this clause, remove from the Site as and when required within such reasonable time as the Employer's Representative may in writing specify, any temporary buildings, plant, machinery, appliances, goods or materials belonging to him, and in default thereof, the Employer may (without being responsible for any loss or damage) remove and sell any such property of the Contractor, holding the proceeds less all costs incurred to the credit of the Contractor.

19.3 Until after completion of the Works under this clause, the Employer shall not be bound by any other provision of this Contract to make any payment to the Contractor, but upon such completion as aforesaid and the verification within a reasonable time of the accounts

therefore the Employer's Representative shall certify the amount of expenses properly incurred by the Employer and, if such amount added to the money paid to the Contractor before such determination exceeds the total amount which would have been payable on due completion in accordance with this Contract, the difference shall be a debt payable to the Employer by the Contractor; and if the said amount added to the said money be less than the said total amount, the difference shall be a debt payable by the Employer to the Contractor.

20. Corrupt Gifts and Payments of Commission

20.1 The Contractor shall not;

- (a) Offer or give or agree to give to any person in the service of the Employer any gifts or consideration of any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of this or any other contract with the Employer or for showing or forbearing to show favour or disfavour to any person in relation to this or any other contract with the Employer.
- (b) Any breach of this Condition by the Contractor or by anyone employed by him or acting on his behalf (whether with or without the knowledge of the Contractor) shall be an offence under the Laws of Kenya.

21 Settlement of Disputes

21.1 Any dispute arising out of the Contract which cannot be amicably settled between the parties shall be referred by either party to the arbitration and final decision of a person to be agreed between the parties. Failing agreement to concur in the appointment of an Arbitrator, the Arbitrator shall be appointed by the chairman of the Chartered Institute of Arbitrators, Kenya branch, on the request of the applying party.

SECTION V: APPENDIX TO FORM OF AGREEMENT

This Appendix to Form of Agreement forms part of the Agreement.

Item	Data
Time for Completion	3Months,
Priority of Documents	The documents forming the Contract shall be interpreted in the following order of priority: • the Contract Agreement and Appendix to form of agreement • the Letter of Acceptance • the Form of Tender • the Conditions of Contract, Part II - Conditions of Particular Application • the Conditions of Contract, Part I - General Conditions of Contract • the Specifications • the Drawings, • the Priced Bill of Quantities
Law of Contract	Laws of the Republic of Kenya
Language	English
Provision of Site	On Commencement Date
Name and Address of Employer	Director General Kenya Rural Roads Authority P.O. Box 48151-00100 Nairobi
Authorised Person	General Manager (Maintenance), Kenya Rural Roads Authority P.O. Box 48151-00100 NAIROBI
Name and Address of the Engineer	Regional Manager, Kenya Rural Roads Authority P. O. Box 477 KAKAMEGA
Name and Address of Engineer's Representative	Constituency Roads Officer (Insert Name of Constituency) (Insert Name of Region)
Penalty to the Contractor for Employer paying workers on his behalf	10% of the amount paid to the workers.

Item	Data
Performance Security	(Refer to guideline Notes)
Amount	N/A
Form	Bank Guarantee or Insurance Bond issued by PPOA approved insurance companies
Requirements of Contractors Design	Not applicable
Programme	
⇒ Time of Submission	Within 14 days of Commencement Date
⇒ Form of Programme	Bar Chart
⇒ Interval Updates	As requested by the RM
Liquidated Damages Amount payable due to failure to complete	0.01% of Contract Price per Day to a limit of 1% of Contract Price.
Defects Liability	Refer to guideline Notes
Period of notifying defects	90 days calculated from the date stated in the notice under sub clause 11.2
Percentage of Retention	Refer to guideline Notes
Maximum Amount of Advance Payment	Refer to guideline Notes
Form of Guarantee for Advance Payment	Bank Guarantee
Valuation of Works	Remeasurements with Bills of Quantities
Repayment Schedule for Advance Payment	33 % instalments from 1 st three certificates.
Minimum Amount of Interim Payment	Ksh.(RM to insert figure)
Currency of Payment	Kenya Shilling
Rate of Interest	Simple Interest at a rate of 2% above mean Base Lending Rate as issued by the Central Bank of Kenya.
Insurance	Required/ Not required
Insurance	Amount of Cover
⇒ The Works, materials plants & fees- Contractor's All risks	The Contract Price stated in the Agreement +15%+replacement cost of equipment on site.

Item	Data
⇒ Third party injury to persons and damage to property	Ksh.(RM to insert figure)
⇒ Workers compensation (WIBA- workers injury benefits policy)	As per work injury benefits act 2007 laws of Kenya
Arbitration	
⇒ Rules	CAP 49 of the Laws of Kenya
⇒ Appointing Authority	Chairman Chartered Institute of Arbitrators, Kenya Branch.
⇒ Place of Arbitration	Kenya Rural Roads Authority, Headquarters

SECTION VI: STANDARD FORMS

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FORM OF TENDER

TO: Regional Manager,
Kenya Rural Roads Authority
P. O. Box 477
KAKAMEGA

Date

Routine Maintenance of EMWIRU – MUSHIANZE Road.

Dear Sir,

1. In accordance with the Conditions of Contract, Specifications, Drawings and Bills of Quantities for the execution of the above Works, We, the undersigned offer to construct, install and complete such Works and remedy any defects therein for the sum of
Kshs. _____ [Amount in figures] Kenya
Shillings _____
_____ [Amount in words]
2. We undertake, if our Tender is accepted, to commence the Works 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.
4. 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 _____

FORM OF TENDER SECURITY

WHEREAS(hereinafter called "the Tenderer") has submitted a Tender dated for the Rehabilitation/Spot Improvement of
..... (Name of Contract)

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

THE CONDITIONS of this obligation are:

1. If after Tender opening the Tenderer withdraws his Tender during the period of Tender validity specified in the Instructions to Tenderers
Or
2. If the Tenderer, having been notified of the acceptance of his Tender by the Employer during the Period of Tender validity:
 - (a) fails or refuses to execute the Form of Agreement in accordance with the Instructions to Tenderers, if required; or
 - (b) fails or refuses to furnish the Performance Security, in accordance with the Instructions to Tenderers;

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

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

[Date]

[Signature of the Bank]

[Witness]

[Seal]

QUALIFICATION INFORMATION

TENDER QUESTIONNAIRE

Please fill in block letters.

1. Full name of Tenderer;
.....
2. Full address of Tenderer to which Tender correspondence is to be sent (unless an agent has been appointed below);
.....
3. Telephone number (s) of Tenderer;
.....
4. Facsimile of Tenderer;
.....
5. Name of Tenderer's representative to be contacted on matters of the Tender during the Tender period;
.....
6. Details of Tenderer's nominated agent (if any) to receive Tender notices (name, address, telephone, telefax);
.....
.....

Signature of Tenderer

Make copy and deliver to: _____ (Name of Employer) (The Tenderer shall leave one copy at the time of purchase of the Tender documents)

CONFIDENTIAL BUSINESS QUESTIONNAIRE

You are requested to give the particulars indicated in Part 1 and either Part 2 (a) or 2 (b) whichever applies to your type of business.

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

Part 1 – General

Business Name

Location of business premises; Country/Town.....

Plot No..... Street/Road

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

Nature of Business.....

Current Trade Licensee No..... Expiring date.....

Maximum value of business which you can handle at any time: Kshs

Name of your Bankers.....

Branch.....

Part 2 (b) – Partnership

Give details of partners as follows:

Name in full	Nationality	Citizenship Details	Shares
1.....			
2.....			
3.....			

Part 2(c) – Registered Company:

Private or public.....

State the nominal and issued capital of the Company-

Nominal Kshs.....

Issued Kshs.....

Give details of all directors as follows:

Name in full	Nationality	Citizenship Details*	Shares
1.....			
2.....			
3.....			
4.....			

Part 2(d) – Interest in the Firm:

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

I certify that the information given above is correct.

.....
(Title) (Signature) (Date)

* Attach proof of citizenship

SCHEDULE OF LABOUR: - BASIC RATES

(Reference: Clause 4 of Conditions of Particular Application)

LABOUR CATEGORY	UNIT (MONTH/SHIFT/HOUR)	RATES

Categories to be generally in accordance with those used by the Kenya Building Construction and Engineering and Allied Trades Workers' Union.

I certify that the above information is correct.

.....
(Title)

.....
(Signature)

.....
(Date)

CERTIFICATE OF TENDERER'S VISIT TO SITE

This is to certify that

[Name/s].....

.....

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

.....

.....

participated in the organized inspection visit of the site of the works for the (participated in the organised inspection visit of the site of the work on **EMWIRU – MUSHIANZE Road**.

held on day of.....20.....

Signed.....

(Employer's Representative)

.....

NOTE: This form is to be completed when the site visit is made

FORM OF WRITTEN POWER-OF-ATTORNEY

The Tenderer consisting of a joint venture shall state here below the name and address of his representative who is authorised to receive on his behalf correspondence in connection with the Tender.

.....

(Name of Tenderer's Representative in block letters)

.....

(Address of Tenderer's Representative)

.....

(Signature of Tenderer's Representative)

KEY PERSONNEL

DESIGNATION	NAME	NATIONALITY	SUMMARY OF QUALIFICATIONS AND EXPERIENCE
Headquarters: 1. Managing Director 2. 3. 4. 5. etc.			
Site Office: 1. Site Supervisor 2. 3. 4. 5. 6			

I certify that the above information is correct.

.....
(Title)

.....
(Signature)

.....
(Date)

SCHEDULE OF THE PROPOSED APPROPRIATE EQUIPMENT.

Mandatory minimum number of equipment required by the Employer for the execution of the project that the bidder must make available for the Contract

Item No.	Equipment Details	Minimum Number Required	No of Equipment Owned by the Bidder	No. of equipment to be hired
1	Pedestrian Roller – Man walk behind	1		
2	Double drum vibrating pedestrian roller(3Tons)	1	1	
3	Self-propelled single drum vibrating (10Tons)	1		
4	Mobile concrete mixers	1		
5	Excavator/loader	1		
6	Concrete vibrators	1		
7	Tippers payload 7 – 10 tonnes	2		
8	Flat bed lorries	1		
9	Water tankers (10,000 litres capacity)	1		

The Bidder must attach certified copies of log books or lease agreement of the following

I certify that the above information is correct.

.....
(Title)

.....
(Signature)

.....
(Date)

**SCHEDULE OF COMPLETED CIVIL WORKS CARRIED OUT IN THE
PREVIOUS YEARS**

DESCRIPTION OF WORKS AND CLIENT	TOTAL VALUE OF WORKS (KSHS)	CONTRACT PERIOD (YEARS)	YEAR COMPLETED

The Bidder must attach evidence of previous works carried out in the last five years.
I certify that the above Civil Works were successfully carried out and completed by ourselves.

.....
(Title)

.....
(Signature)

.....
(Date)

SCHEDULE OF ONGOING PROJECTS

DESCRIPTION OF WORK AND CLIENT	CONTRACT PERIOD	DATE OF COMMEN- CEMENT	DATE OF COMPLETION	TOTAL VALUE OF WORKS (KSHS.)	% COMPLETE D TODATE

I certify that the above Civil Works are being carried out by ourselves and that the above information is correct.

.....
(Title)

.....
(Signature)

.....
(Date)

OTHER SUPPLEMENTARY INFORMATION

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

.....

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

.....

3. Name, address , telephone, telex, fax numbers of the Tenderer's Bankers who may provide reference if contacted by the Employer.

.....

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

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

I certify that the above information is correct.

.....
 Title

.....
 Signature

.....
 Date

FRAUD & CORRUPTION

- 1 If the Employer determines that the Contractor has engaged in corrupt, fraudulent, collusive, coercive or obstructive practices, in competing for or in executing the Contract, then the Employer may, after giving 14 days notice to the Contractor, terminate the Contractor's employment under the Contract and expel him from the Site.
- 2 Should any employee of the Contractor be determined to have engaged in corrupt, fraudulent, collusive, coercive, or obstructive practice during the execution of the Works, then that employee shall be removed.
- 3 For the purposes of this Sub-Clause:
 - (i) "corrupt practice" is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;
 - (ii) "fraudulent practice" is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;
 - (iii) "collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;
 - (iv) "Coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party.
- 4 The Contractor declares that:
 - a) They did not engage in any action to influence the Project implementation process to the detriment of the Employer, in particular no collusive practice took place nor will take place, and The bidding proceedings, contract award, and execution have not and will not be subject to any corrupt practice as defined in the United Nations Convention to combat corruption dated 31 October 2003.

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]

_____ [Seal or Stamp of Tenderer]

ENVIRONMENTAL AND SOCIAL COMMITMENT

I have taken due note of the importance to comply with environmental and social standards and regulations.

I, the undersigned, [.....] acting as the duly authorized representative of [.....],

With respect to the submission of a bid for [.....] in accordance with the invitation to tender No [.....], I undertake to comply, and ensure that our subcontractors, if any, comply with international environmental and labour standards consistent with applicable law and regulations in the country of implementation of the Project, including the fundamental conventions of the International Labour Organisation (ILO) and international environmental treaties

In addition, I also undertake to adopt any environmental and social risk mitigation measures as defined in the environmental and social management plan or the notice of environmental and social impact issued by the Employer.

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]

_____[Seal or Stamp of Tenderer]

FORM OF TENDER SECURING DECLARATION
(To be filled only by Disadvantaged Groups)

(The Bidder shall complete this Form in accordance with the instructions indicated)

Date of Bid Submission.....

Tender No.....

To:
.....(Employer)

We, the undersigned, declare that:

1. We understand that, according to your conditions, Tenders must be supported by a Tender-Securing Declaration.
2. We accept that we will automatically be suspended from being eligible for tendering in any contract with the Procuring Entity for the period of time of.....starting on....., as determined by the Authority if we are in breach of our obligation(s) under the tender conditions, because we:
 - (a) have withdrawn our Tender during the period of Tender validity specified in the Form of Tender;
 - (b) do not accept the Procuring Entity's corrections of arithmetic errors in accordance with the Instructions to Tenderers; or
 - (c) having been notified of the acceptance of our bid by the Procuring Entity during the period of bid validity;
 - (i) fail or refuse to sign Contract Agreement, if required, or
 - (ii) fail or refuse to furnish the Performance Security, in accordance with the ITT.
3. We understand this Bid Securing Declaration shall expire if we are not the successful Tenderer, upon the earlier of
 - (i) our receipt of your notification to us of the name of the successful Tenderer; or
 - (ii) twenty-eight (28) days after the expiration of our bid validity period.
4. We understand that if we are a joint venture, the Tender Securing Declaration must be in the name of the Joint venture that submits the bid and if the Joint Venture has not been legally constituted at the time of bidding, the Tender Securing Declaration shall be in the names of all future partners as named in the letter of intent.

Signed:.....in the capacity

Of.....

Name:(complete name of person signing this form)

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

.....(complete name of Tenderer)

Dated on _____ day of _____, _____

FORM OF AGREEMENT

THIS AGREEMENT is made on theday of 2017 between the **Kenya Rural Roads Authority, of P.O. BOX 48151 - 00100, Nairobi, Kenya** hereinafter called the “**Employer**” of the one part and -----hereinafter called the “**Contractor**” of the other part.

WHEREAS the Employer is desirous that certain works should be executed, viz: -----

And has accepted a Bid by the Contractor to execute, complete and maintain such works **NOW THIS AGREEMENT WITNESSETH as follows:**

In this agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.

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

The said BID dated -----

- Conditions of Contract; Parts I and II
- The Standard and Special Specifications;
- Priced Bill of Quantities;
- Letter of Acceptance;
- Form of Tender
- Drawings;
- Appendix to the Form of Agreement
- Schedule Of Supplementary Information
- Other Documents/Materials/Conditions agreed and documented.

All aforesaid documents are hereinafter referred to as “**The Contract**”.

In consideration of the payment to be made by the **Employer** to the **Contractor**, the Contractor covenants with the Employer to execute and complete the Works in conformity with the provisions of the Contract.

The Employer hereby covenants to pay the Contractor in consideration of the execution, completion and maintenance of the Works at the Contract Price or such other sum as may become payable under the Contract at the times and in the manner prescribed by the Contract.

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

SIGNED AND DELIVERED

By the said Employer:.....

Signature:

Region: **Kakamega**

(Regional Manager, Kenya Rural Roads Authority)
(For and on behalf of the said Employer.)

In the presence of:.....

SECTION VII: SPECIFICATIONS, DRAWINGS AND BILLS OF QUANTITIES

ROUTINE MAINTENANCE - SPECIFICATIONS

SPECIFICATIONS FOR ROUTINE MAINTENANCE WORKS

Standard Specification

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

SECTION 01: PRELIMINARY AND GENERAL ITEMS

Scope:

This section refers to those items that are needed at the start and end of the Works or are provisional items applicable for the duration of the Works.

01-40- 001: Mobilisation and Establishment of Site

The Contractor shall provide all equipment, tools, material and temporary stores required to carry out the required Works.

The Contractor shall ensure that all possible means of protection are given to the staff at all times. Such protection shall include provision of high visibility clothing or vests for the workforce, in potentially dangerous locations. The Contractor shall also maintain first aid kits with items included on the advice of the local Medical Officer, or as directed by the Engineer.

Measurement and Payment

No separate payment shall be made for this item. The Contractor shall include the costs in the other rates for other measured items.

01-40-002 Clearance on Completion

On Completion of the Works, all temporary stores, equipment, signs and tools shall be removed from the site, and the Site left in good order to the satisfaction of the Engineer.

Measurement and Payment

The Lump Sum payment shall be made upon the approval of the Engineer that the Clearance has been satisfactorily carried out.

01-40-006 Traffic Control

The Contractor shall provide warning signs, fences, barriers, detours, which shall be properly positioned well in advance so that all traffic is well and safely accommodated for the duration of the Works.

Traffic signs and other traffic control facilities shall be kept in good condition and located in positions where they are visible to road users.

Work Method

The Contractor shall use **Labour** to carry out this item of work

Quality Control

The Engineer shall check regularly that traffic control measures are satisfactory.

Measurement and Payment

A Lump Sum shall be paid on a Monthly basis upon the approval of the Engineer that adequate Traffic Control is in place

01-40-007 Drinking Water

The Contractor shall provide safe drinking water on site for workers at a reasonable distance from all work locations, for the duration of the Works.

Quality Control

The Engineer shall check regularly that adequate supplies of water are available throughout the Site.

Measurement and Payment

A Lump Sum shall be paid on a Monthly basis upon the approval of the Engineer that adequate supplies have been provided.

SECTION 04: ROADSIDE CLEARANCE

Scope

This section covers all routine maintenance works within the road reserve and includes items such as bush clearing, pruning of tree branches, grass cutting, and removal of litter and any other debris.

04-50-002: Grass Cutting (Manual)

Grass shall be defined as any form of plant growth including small shrubs having a girth of not more than 100mm measured at height of 200mm above ground level.

The grass shall be cut to height of not more than 50 mm above the ground. The width limits shall be as instructed by the Engineer. All cut grass shall be removed from the carriageway, side drains, mitre drains and inlets and outlet drains of structures/culverts and deposited in approved spoil dumps

EA Burning of the grass shall not be allowed and care shall be taken not to damage roadside fixtures such as signs and marker posts.

This activity shall be carried out twice, each time before the rainy season or as shall be instructed by the Engineer.

Work Method

The Contractor shall use **Labour** to carry out this item of work.

Quality Control

The road width for grass cutting shall be measured at 50-m intervals and shall be free of grass after the operation.

Measurement: m^2

The measurement shall be area of grass cut, based on the standard width and measured length of clearing.

Payment

The unit rate shall be full compensation, for labour, materials, tools, and incidental costs required to carry out the work.

- 04-50-003 Bush Clearing - heavy**
- 04-50-004 Bush Clearing - light**
- 04-50-005 Pruning Tree Branches**

This activity involves the removal of small trees, shrubs and bushes all including their root systems, In addition, the Engineer may order the trimming of branches of large trees to improve visibility. The width limits shall be as instructed by the Engineer.

The cut material shall be collected into heaps away from the side drains and where it shall not block or interfere with visibility.

The burning of cut bush and removed trees or branches shall not be allowed.

Work Method

The Contractor shall use **Labour** to carry out this item of work

Quality Control

The width for bush clearing shall be measured at 50-m intervals and shall be free of trees or bushes.

Measurement Unit: m^2

The measurement shall be the area cleared according to the specified widths and measured length of clearance.

Payment

The unit rate shall be the full compensation, for labour, materials, tools, and incidental costs required to carry out the work.

04-50-008: Clearing of Obstructions

This activity shall involve the following tasks:-

- Inspection of the road section(s) regularly
- Removal of all obstructions such as fallen trees/ branches, rock fall, landslides and broken signs away from the road, side drains, mitre drains and other drains, inlets and outlets of drifts, culverts and other structures and the safe disposal thereof outside the road formation width.
- Removal of dead animals' carcasses away from the carriageway and disposing of them as directed by the Engineer. Liaison with the Police may be necessary.

Work Method

The Contractor shall use **Labour** to carry out this item of work

Quality Control

The road section shall be free of any obstruction.

Measurement Unit: Provisional Sum

The measurement for this item shall be a Provisional Sum paid as necessary on a Dayworks basis.

Payment

The unit rate shall be the full compensation for the provision of labour, tools and incidental costs necessary to carry out the tasks.

SECTION 05: EARTHWORKS

05-70- 001: Grassing

This activity involves the protection / repair of erosion on embankment slopes, cut faces, shoulders, and side slopes by filling with suitable soils and compacting using appropriate tamping tools as instructed by the Engineer.

The Contractor shall plant sprigs of approved indigenous 'runner' type grass. The Contractor shall care for and water the grass until it is firmly established.

Work Method

The Contractor shall use **Labour** to carry out this item of work.

Quality Control

- The width of the slope shall be measured at 50m intervals and shall have maximum tolerances of + / - 100mm.
- The quality of grass and spacing of the sprigs shall be as directed by the Engineer

Measurement Unit m^2

The unit of measurement shall be area calculated as the net area, measured on the slope.

Payment

The unit rate shall be full compensation, for labour, materials, tools, and incidental costs required to carry out the work.

SECTION 08: CULVERT AND DRAINAGE WORKS

Scope:

This section covers all routine maintenance of the drainage system including the cleaning or desilting of the side drains, mitre drains, catch water drains, culverts, inlets and outlets, and scour checks.

08-50-002 Ditch Cleaning (Manual) - Partially Silted
08-50-003 - Fully Silted

i. Partially silted

Partially silted drains are those that are less than half silted and require only cleaning.

All deposited material, debris, and vegetation shall be removed and the drain shaped to the original cross-section and left in a free-draining condition. Suitable material may be used to fill depressions and potholes on the carriageway. All debris and other unsuitable material removed from the side drains shall be disposed of well clear of the drainage system in approved spoil dumps where it will not cause any obstruction or be washed back.

The side drains, mitre drains and catchwater drains shall be cleaned before the onset of the rains or as directed by the Engineer.

Work Method

The Contractor shall use **Labour** to carry out this item of work

Quality Control

- Appropriate drain templates shall be used to check and control the dimensions of the drains.
- The longitudinal profile of the drains shall be checked using boning rods, to ensure free flow.

Measurement Unit: m

The measurement shall be the length of drain desilted or cleaned to the specified cross-section.

Payment

The unit rate shall be full compensation, for labour, tools, and incidental costs required to carry out the work.

ii. Fully silted

Fully silted drains shall be those that are greater than half-silted and require re-excavation or reshaping.

All deposited material, debris, and vegetation shall be removed and the drain shaped to the original cross-section and left in a free-draining condition. Suitable material may be used to fill depressions and potholes on the carriageway. All debris and other unsuitable material removed from the side drains shall be disposed of well clear of the drainage system in approved spoil dumps where it will not cause any obstruction or be washed back.

The side drains shall be desilted or re-excavated before the onset of the rains, or as directed by the Engineer.

Work Method

The Contractor shall use **Labour** to carry out this item of work

Quality Control

- Appropriate drain templates shall be used to check and control the dimensions of the drains.
- The longitudinal profile of the drains shall be checked using boning rods, to ensure free flow.

Measurement Unit: m³

The measurement shall be the volume of drain re-excavated or re-shaped to the specified cross-section.

Payment

The unit rate shall be full compensation for labour, tools, and incidental costs required to carry out the work.

08- 60 - 001/2/3/4/5: Culverts Cleaning (Partially blocked)

08 - 60 - 001 300mm dia;
08 - 60 - 002 450mm dia;
08 - 60 - 003 600mm dia;
08 - 60 - 004 900mm dia;
08 - 60 - 005 1200mm dia

This activity involves the cleaning of culverts of specified sizes including pipe barrels, the outlet/inlet structures, and the outlet drains, keeping them free of all debris, weed, silt and any obstruction to ensure free passage of water at all times. The debris shall be deposited in approved spoil dumps as directed by the Engineer

Partially blocked culverts shall be those with less than half of the barrel blocked.

Correct widths and slopes of the outlet drains shall be maintained. The gradient of the outlet drain shall be not less than 2 %.

All broken culvert barrels discovered in the course carrying out this activity shall be reported to the Engineer.

This activity shall be carried out before the rains, or as directed by the Engineer.

Work Method

The Contractor shall use **Labour** to carry out this item of work

Quality Control

The culverts shall be checked as free of debris to the satisfaction of the Engineer.

Measurement Unit: **m**

The measurement shall be the length of culvert, including the outlet drain, cleaned

Payment

The unit rate shall be full compensation for labour, tools and incidental costs required to carry out the work.

08- 60 - 006/7/8/9/10 :

Culvert Cleaning (Fully blocked):

08 - 60 - 006 300mm dia;
08 - 60 - 007 450mm dia;
08 - 60 - 008 600mm dia;
08 - 60 - 009 900mm dia;
08 - 60 - 010 1200mm dia

This activity involves the cleaning of culverts of specified sizes including pipe barrels, the outlet/inlet structures, and the outlet drains, keeping them free of all debris, weed, silt and any obstruction to ensure free passage of water at all times. The debris shall be deposited in approved spoil dumps as directed by the Engineer

Fully blocked culvert shall be those with greater than half of the barrel blocked.

Correct widths and slopes of the outlet drains shall be maintained. The gradient of the outlet drain shall be not less than 2 %.

All broken culvert barrels discovered in the course of carrying out this activity shall be reported to the Engineer.

This activity should be carried out before the onset of the rains, or as directed by the Engineer.

Work Method

The Contractor shall use **Labour** to carry out this item of work.

Quality Control

The culverts shall be checked as free from debris, to the satisfaction of the Engineer.

Measurement Unit: m

The measurement shall be the length of culvert, including the outlet drain cleaned.

Payment

The unit rate shall be full compensation for labour, tools and incidental costs required to carry out the work.

08- 70- 001: Head Wall Repair - Masonry

This activity involves the repairs to damaged head walls and wing walls built in masonry.

Where directed by the Engineer, the masonry walls shall be inspected and loose or missing stone re-secured or replaced. Damaged pointing shall be repaired with cement

mortar 1:4 and finished flush with the stonework.

Work Method

The Contractor shall use **Labour** to carry out this item of work

Quality Control

- The stability of the walls and the pointing shall be to the satisfaction of the Engineer.

Measurement Unit: No

The measurement shall be the number of walls repaired as directed by the Engineer.

Payment

The unit rate shall be full compensation for labour, materials, tools, and incidental costs required to carry out the work.

08-70-002 Headwall Repair - Concrete

The activity involves the repairs to damaged concrete headwalls and wingwalls, and to inlet/outlet concrete aprons. Concrete walls shall be inspected and repair works carried out as instructed by the Engineer to include breaking out and replacement of damaged concrete with similar material, and the rendering of open texture areas with cement mortar 1:4. Broken wall sections shall be re-built in 20/20 (1:2:4) concrete within formwork erected on the correct lines and levels in accordance with the Standard Drawings. Areas of new concrete and mortar shall be protected from direct sunlight and kept moist for 3 days.

Quality Control

The work shall be carried out to the satisfaction of the Engineer.

Measurement Unit: No

The measurement shall be the number of walls/aprons repaired.

Payment

The unit shall be full compensation for labour, materials, tools, and incidental costs required to carry out the work.

08 - 70 - 008:	Scour Check Repair - masonry
08 - 70 - 009:	Scour Check Repair - wooden
08 - 70 - 010:	Scour Check Repair - concrete

This activity involves the repair of Scour Checks using stones or wooden stakes or concrete. The construction details shall be shown in the Drawings or as instructed by the Engineer.

Scour checks shall be inspected and the repairs carried out as directed by the Engineer, which shall include replacement of missing or broken stonework and stakes; and the repair of damaged concrete, to the original lines, levels, and Specifications.

Work Method

The Contractor shall use **Labour** to carry out this item work.

Quality Control

EB

The sizes of the stakes and stones used shall be as the original construction. The shape of the scour check shall be checked using the scour check template.

Measurement: No.

The unit rate of measurement shall be the number of scour checks repaired.

Payment

The unit rate shall be full compensation, for labour, tools, materials, and incidental costs required for carrying out the work.

08- 70- 011 Stone Pitching Repair

This activity involves the repair of stone pitching on slopes, in inlet/outlet aprons and access drifts. The stone pitching shall be inspected and repairs carried out as directed by the Engineer, including the replacement and re-bedding of missing or loose stones; the repair of mortar jointing; and the cleaning out of weepholes, as required. All work shall be to the lines and levels of the original construction with new stonework and mortar being flush with the adjacent materials.

Work Method

The Contractor shall use **Labour** to carry out this work

Quality Control

The work shall be carried out to the satisfaction of the Engineer.

Measurement Unit: m^2

The measurement shall be the net surface area of the repairs.

Payment

The unit rate shall be full compensation, for labour, tools, materials, and incidental costs required to carry out the work.

08- 80- 004 Drift Maintenance – desilting

This activity involves the removal of debris, silt and any vegetation from drifts and causeways. The debris shall be deposited away from the drift in approved spoil dumps.

This activity shall be carried before the rains, or as directed by the Engineer.

Work Method

The Contractor shall use **Labour** to carry out this item of work

Quality Control

The work shall be carried out to the satisfaction of the Engineer.

Measurement Unit: m^3

The measurement shall be the volume of debris or silt removed calculated as the product of length , width and measured depth of the affected section of drift.

Payment

The unit rate shall be full compensation for labour, tools, and incidental costs required to carry out the work.

08-80-005 Drift Repairs – Concrete

This activity involves the repair of concrete drifts, including the removal of loose or broken concrete, cutting back damaged areas to sound surfaces and repairing with concrete of similar Class to the original.

The drift shall be inspected and necessary repairs shall be instructed by the Engineer. Holes and voids shall be cleared of debris, loose material and dust, and shall be well watered before the new concrete is placed. The new concrete shall be firmly rammed against the existing surfaces and finished flush with the surrounding materials. The surface of the repair shall be protected from direct sunlight and kept moist for 3 days. Concrete shall be Class 20/20 unless otherwise directed by the Engineer.

Quality Control

The work shall be carried out to the satisfaction of the Engineer.

Measurement Unit: m³

The measurement shall be the volume of concrete used for the repair.

Payment:

The unit rate shall be the full compensation for labour, tools, materials and incidental costs required to carry out the work.

SECTION 10: CARRIAGEWAY REPAIR WORKS (GRAVEL)

Scope:

This section covers all routine maintenance works on the gravel carriageway and includes items such as pothole patching, and reshaping of the carriageway, using labour.

10- 50- 006 Light Manual Reshaping (Potholes, Ruts and Gullies)

Description:

This activity involves the removal of all unsuitable/degraded material from the pothole, rut or gully until firm ground is reached, and filling with approved material and ensuring that the area is free draining.

For earth roads material from the side drains may be used.

For gravel roads the gravel shall be obtained from the stacks placed at intervals along the road for this purpose.

The fill material shall be watered, mixed and compacted using suitable tampers to a finished level 25mm above the surrounding road surface.

This activity shall be carried out before and after the rains, or as directed by the Engineer.

Work Method

The Contractor shall use **Labour** to carry out this work

Quality Control

- The quality of fill material shall be approved by the Engineer
- The minimum compaction to be applied shall be such that no rammer imprint on the surface shall be seen.

Measurement Unit: m³

The measurement shall be total volume of materials used for the repairs.

Payment

The unit rate shall include full compensation for labour, tools, materials, and incidental costs necessary to carry out the work.

10- 50- 009: Light Manual Reshaping (Grub edge and Reshape Carriageway)

Description:

This activity involves trimming the edge of the carriageway, grubbing grass from the carriageway and reshaping of the camber of the road to the original standard and shape. No grass shall be grubbed from the shoulders, but it shall be cut to a maximum height of 50mm.

For earth roads materials from the side drains may be used to reshape the carriageway. Where additional suitable material is required to reinstate the camber to the required shape, this material shall be obtained from approved sources nearest to the final deposition area.

Work Method

The Contractor shall apply **Labour** methods to carry out this item.

Quality Control

- The width of the carriageway including the shoulders shall be checked at 100m intervals with tolerance of +50mm or -20mm
- The camber shall be checked using camber board at 50m intervals and shall have a tolerance of +/- 1%

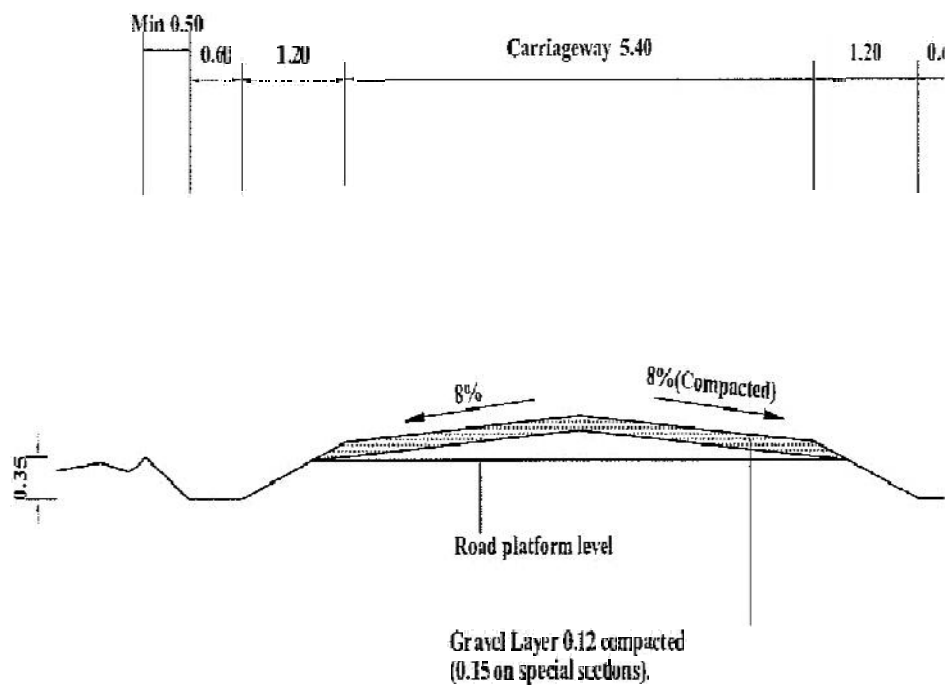
Measurement Unit: m^2

The measurement shall be the area of carriageway shaped.

Payment

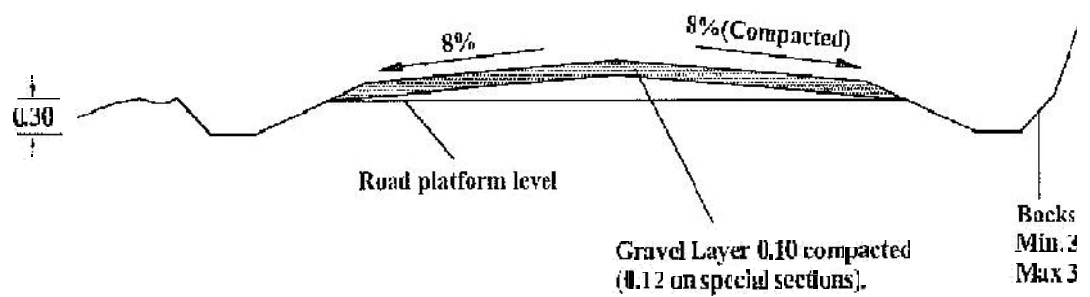
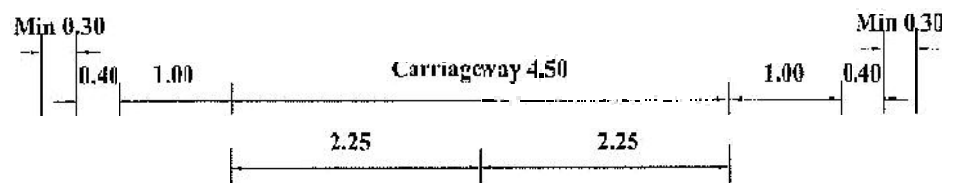
The unit rate shall be the full compensation for labour, tools and incidental costs required for carrying out the work.

DRAWINGS



Notes:

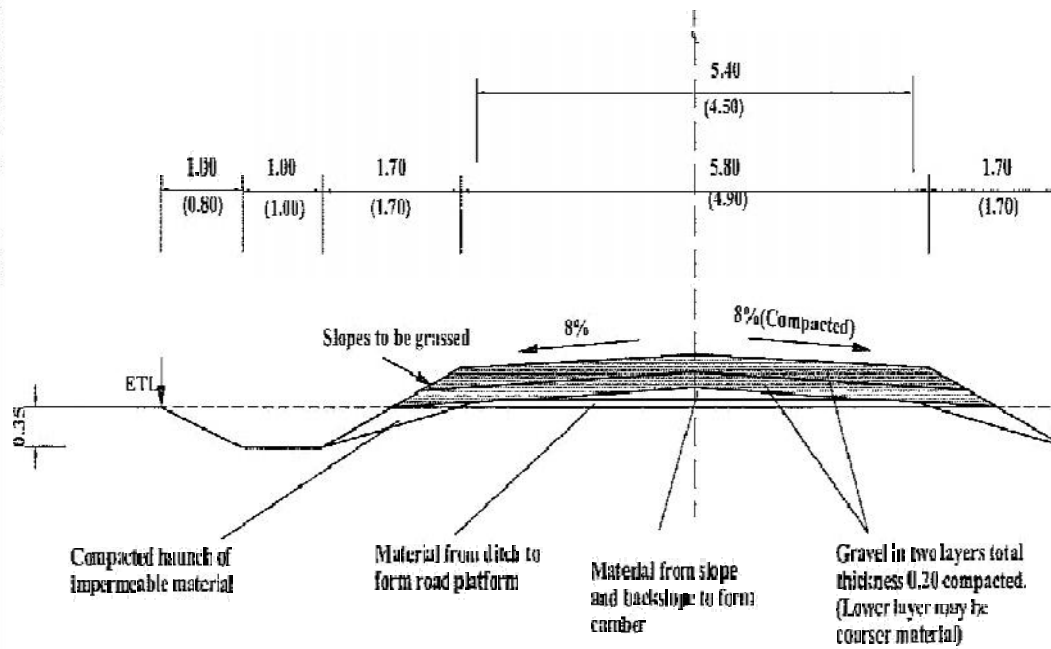
1. All dimensions in metres
2. Traffic levels of > 200vpd may justify a carriageway width of 6.0m
3. Gravel thickness may be increased as directed by the Engineer

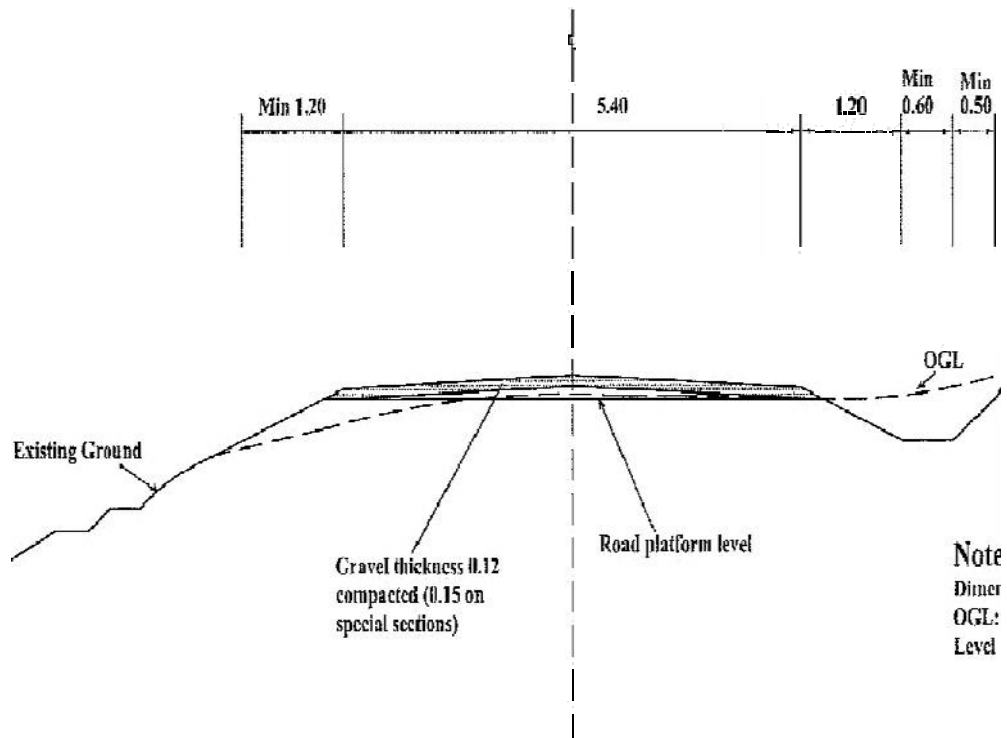


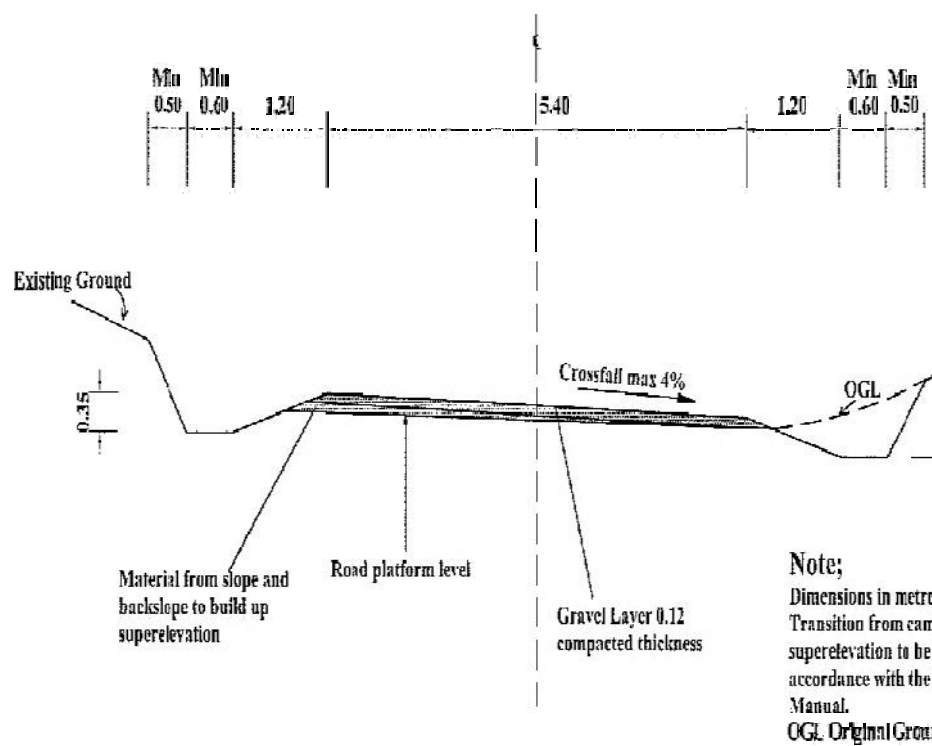
Notes:

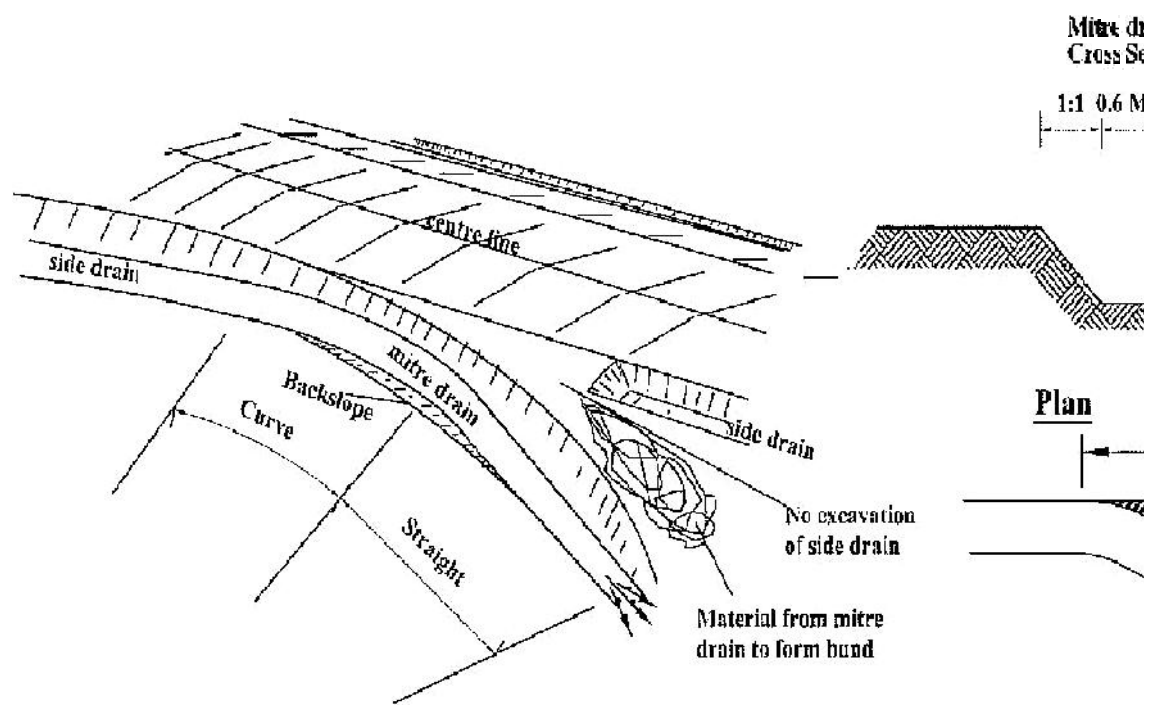
1. All dimensions in metres

2. Gravel thickness may be increased as directed by the Engineer





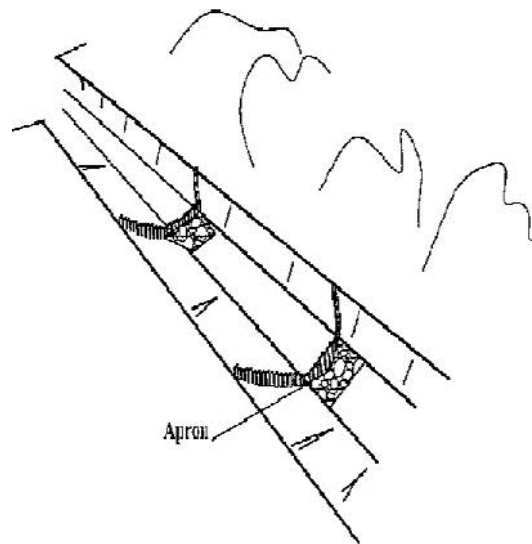




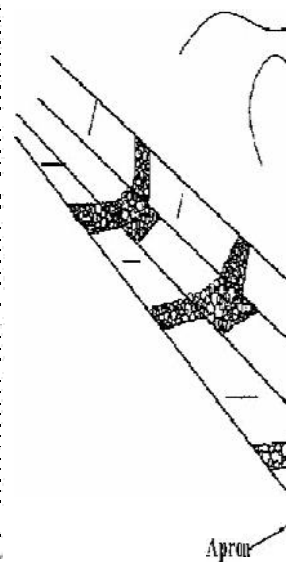
Notes

Location, direction and length of the
by the Engineer

Scour checks made of wooden stakes

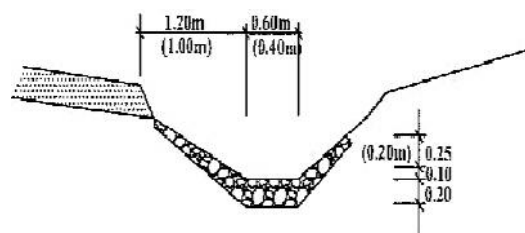


Scour checks made of stones

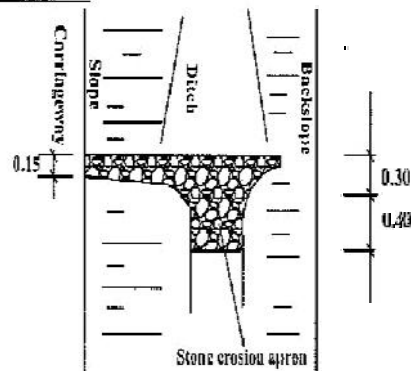


Scour checks made of stones

Cross section



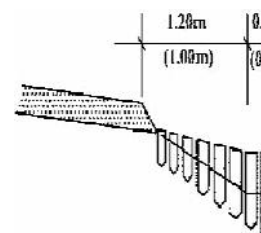
Ground plan



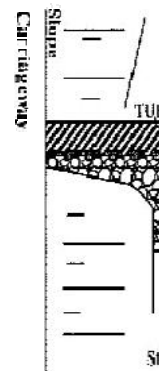
NOTE
1. Dimensions in metres

Scour checks made of stakes

Cross section



Ground plan

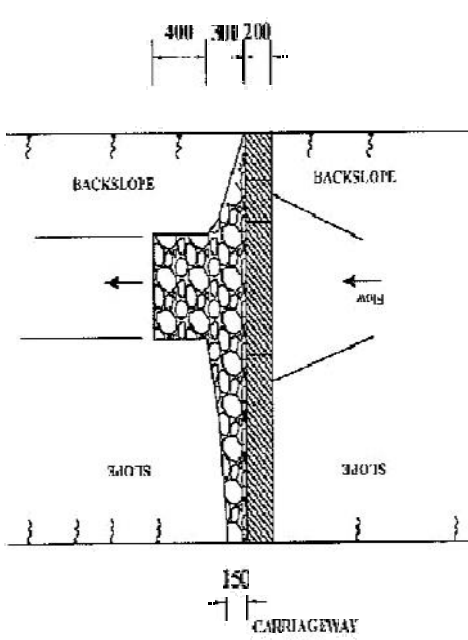


STONE WEIGHT: MIN 10KG
STAKE DIAMETER: MIN. 0.10



Note
[Dimensions in mm]

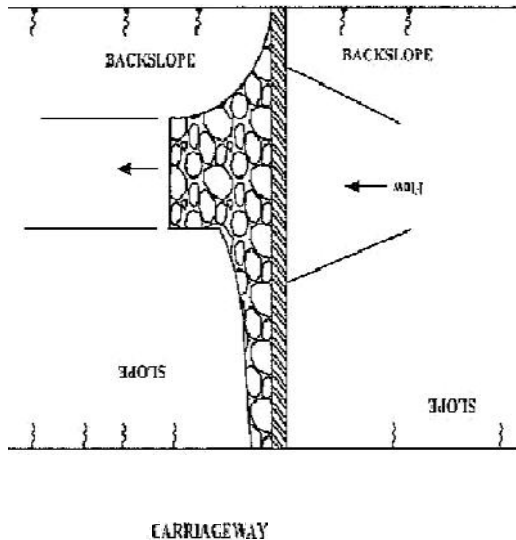
SECTION OF MASONRY SCOUR CHECK



PLAN OF DRAIN WITH SCOUR CHECK

Cross-Section	Size in mm			Base (m ³)	Length of (m)	Area stone pitching (m ²)
	Length	Width	Depth			
A	2400	300	550	0.22	0.28	0.18
B	2000	200	500	0.18	0.2	0.14

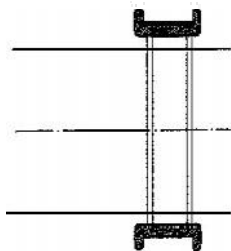
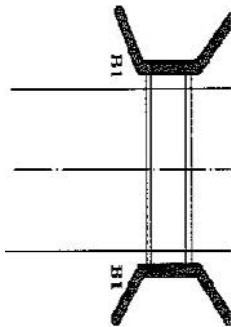
SECTION OF CONCRETE SCOUR CHECK



NOTE
1. Dimensions in mm

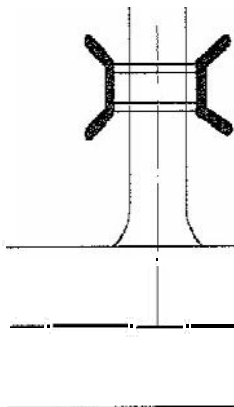
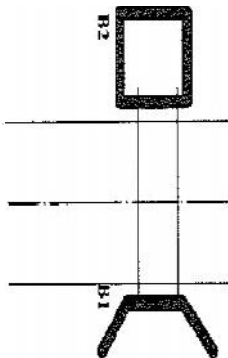
PLAN OF DRAIN WITH SCOUR CHECK

Cross-Section	Sizes in mm			Excav (m ³)	Concrete (m ³)	Apron stone pitching (m ³)
	Length	Width	Depth			
A	2400	100	550	0.13	0.15	0.18
B	2000	100	500	0.10	0.09	0.14



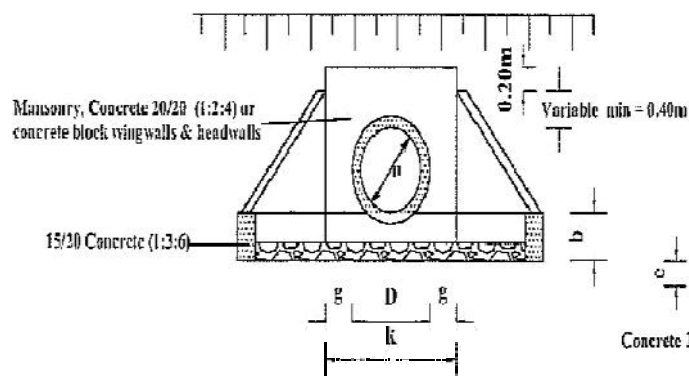
TYPE 2(ENTRY ONLY)

TYPE 4(ENTRY AND EXIT ON ACCESS)

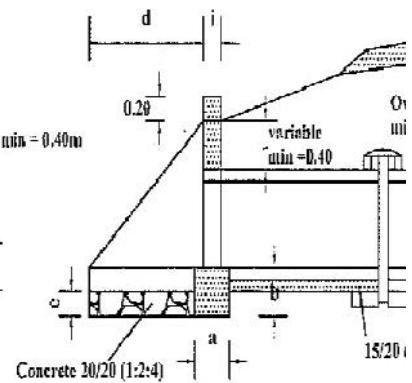


NOTE
1. The code numbers specify the shape and function and the code letter denotes the material:
A = Concrete block
B = Stone masonry
C = Concrete

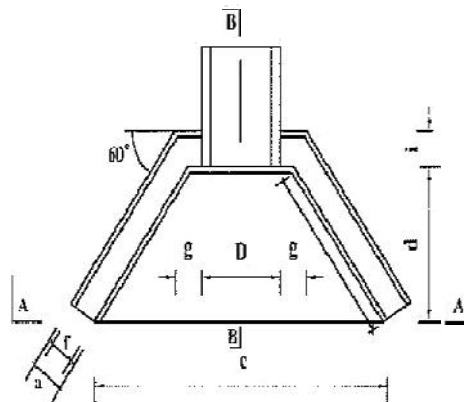
SECTION A-A



SECTION B-B



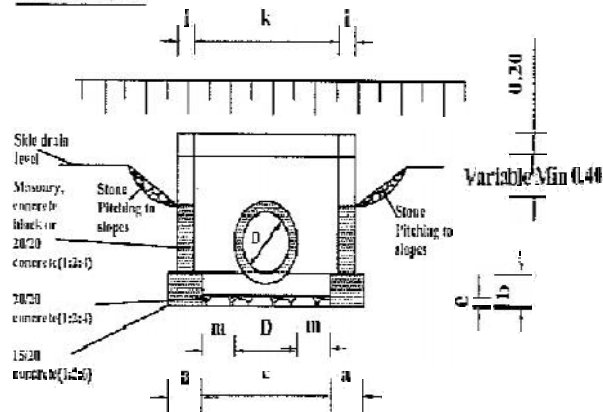
PLAN



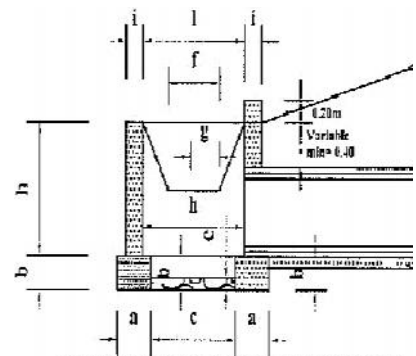
CULVERT TYPES	
X-SECTION WIDTH m	No. of pipes
4.50	6
5.50	7
6.50	8

PIPE DIAMETER IN M	UNIT	TYPE A and C CONCRETE BL	
		450	600
DIMENSION			
a FOUNDATION	m	0.30	0.30
b FOUNDATION	m	0.30	0.30
c FOUNDATION	m	2.20	2.35
d APRON	m	1.00	1.00
e APRON	m	0.20	0.20
f WALL	m	0.20	0.20
g WALL	m	0.30	0.30
h WALL	m	1.15	1.15
i WALL	m	0.20	0.20
k APRON	m	1.05	1.20
MATERIAL REQUIREMENT			
FOUNDATION			
(concrete)	m ³	0.30	0.32
HEAD/WINGWALLS			
(Concrete/Masonry)	m ³	0.42	0.49
APRON			
(concrete)	m ³	0.33	0.36

SECTION A-A



SECTION B-B



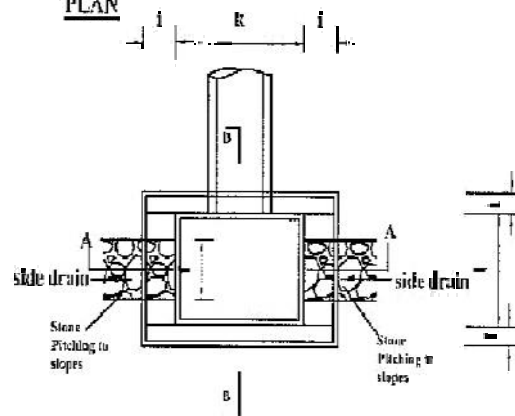
DIMENSIONS AND MATERIAL REQUIREMENTS

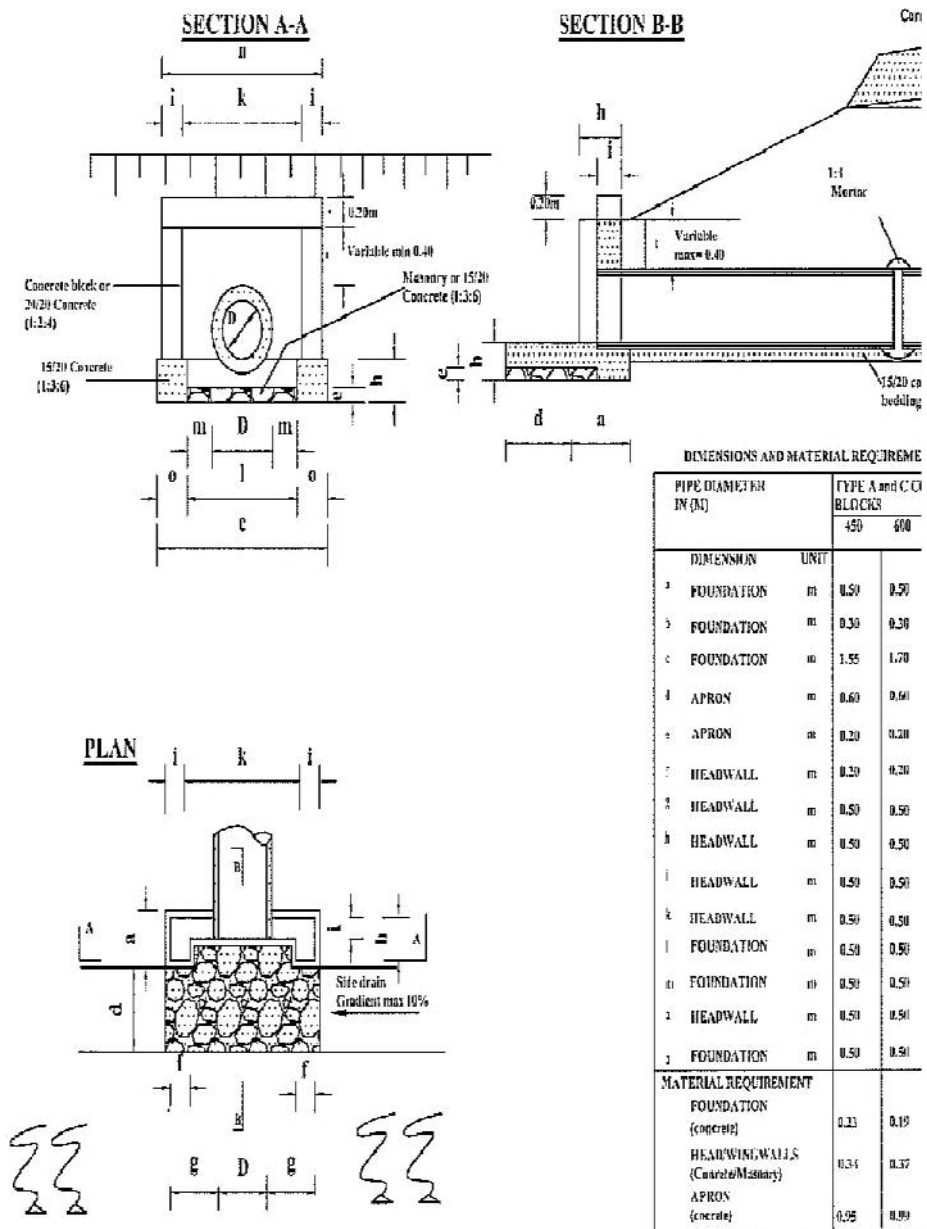
PIPE DIAMETER IN (M)	TYPE A CONCRETE BLOCKS	TV M'			
		450	600	900	45
DIMENSION	UNIT				
a FOUNDATION	m	0.30	0.30	0.30	0.4
b FOUNDATION	m	0.30	0.30	0.30	0.3
c FOUNDATION	m	1.10	1.10	1.40	1.2
d APRON	m	0.90	0.90	0.90	1.0
e APRON	m	0.20	0.20	0.20	0.2
f DROP INLET	m	0.60	0.60	0.60	0.6
g DROP INLET	m	0.30	0.40	0.60	0.3
h DROP INLET	m	0.60	0.80	1.20	0.6
i DROP INLET	m	0.20	0.20	0.20	0.4
k DROP INLET	m	1.20	1.20	1.50	1.2
l DROP INLET	m	1.00	1.00	1.00	1.0
m DROP INLET	m	0.28	0.30	0.30	0.3

MATERIAL REQUIREMENT

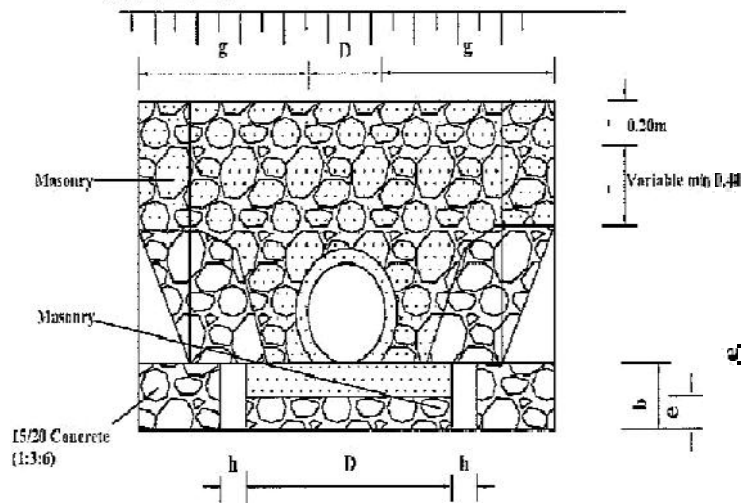
FOUNDATION					
(concrete)	m ³	0.47	0.47	0.51	0.7
HEAD/WINGWALLS					
(Concrete/Masonry)	m ³	0.56	0.72	1.15	1.2
APRON (concrete)	m ³	0.24	0.24	0.20	0.2

PLAN

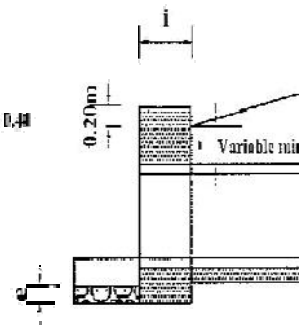




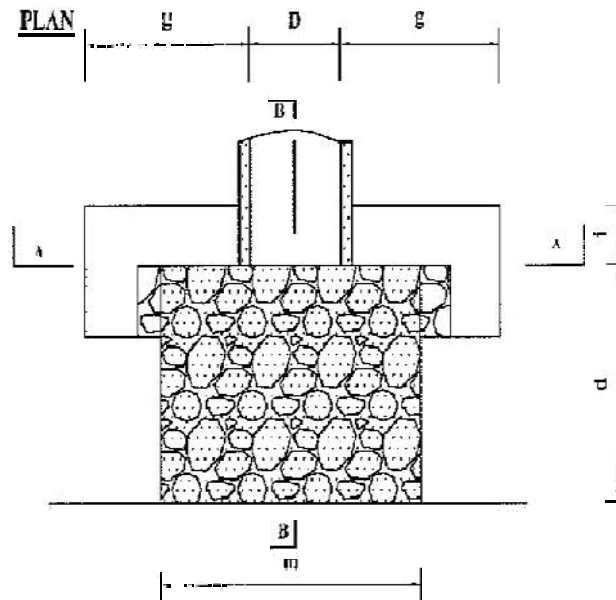
SECTION A-A



SECTION B-B



PLAN



DIMENSIONS AND

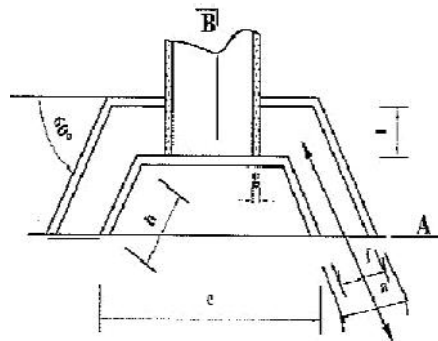
PIPE DIAMETER (M)	
DIMENSION	
a	FOUNDATION
b	FOUNDATION
c	FOUNDATION
d	APRON
e	APRON
f	HEADWALL
g	HEADWALL
h	HEADWALL
i	HEADWALL
m	FOUNDATION
MATERIAL REQ'D	
FOUNDATION (concrete)	
HEAD/WING (Concrete/Masonry)	
APRON (concrete)	

[illegible]

Variable min 0.40

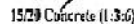
g. D. g.

B



B

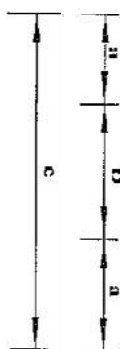
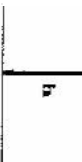
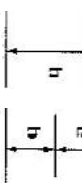
 d i



	TYPE A
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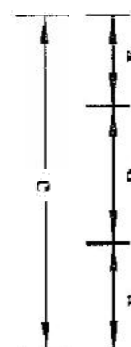
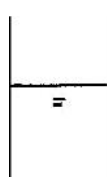
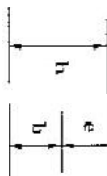
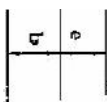
PIPE DIAMETER IN (IN)		TYPE A (CONCRETE BLOCKS)		
		450	600	900
DIMENSION	UNIT			
a FOUNDATION	m	0.10	0.36	
b FOUNDATION	m	0.10	0.36	
c APRON	m	1.34	1.49	
d APRON	m	0.40	0.60	
e APRON	m	0.26	0.20	
f WINGWALLS	m	0.20	0.20	
g WINGWALLS	m	0.10	0.10	
h HEADWALLS	m	0.69	0.69	
i HEADWALLS	m	0.20	0.10	
k HEADWALLS	m	0.65	0.80	
l HEADWALLS	m	0.40	0.40	
MATERIAL REQUIREMENT				
FOUNDATION (concrete blocks)		0.18	0.20	
HEAD/WINGWALLS (Concrete/Masonry)		0.28	0.32	
APRON (concrete)		0.12	0.14	

c
b



Diameter (D)	450 (mm)	600 (mm)	900 (mm)
a	0.15	0.20	0.20
b	0.10	0.15	0.15
c	0.86	1.12	1.48
d	0.56	0.72	1.08
e	0.14	0.18	0.27
f (min)	0.34	0.45	0.68
g	-	-	-
h	0.24	0.33	0.42
i	-	-	-
Concrete Class 15/20	0.24	0.24	0.24
Application	- Fair subgrade condition - Overfill > 75% of the pipe diameter - Seasonal water flow only		
Remarks	Material for back/overfill shall be approved by the Engineer		

450 (mm)	600 (mm)	900 (mm)
0.15	0.20	0.20
0.10	0.15	0.15
0.86	1.12	1.48
0.56	0.72	1.08
0.28	0.36	0.54
0.34	0.45	0.68
-	-	-
0.38	0.51	0.69
-	-	-
Volume in (m3/m)		
0.20	0.37	0.56
-Fair to poor subgrade condition -Overfill > 75% of the pipe diameter -Seasonal water flow only		
Material for back/overfill shall be approved by the Engineer		

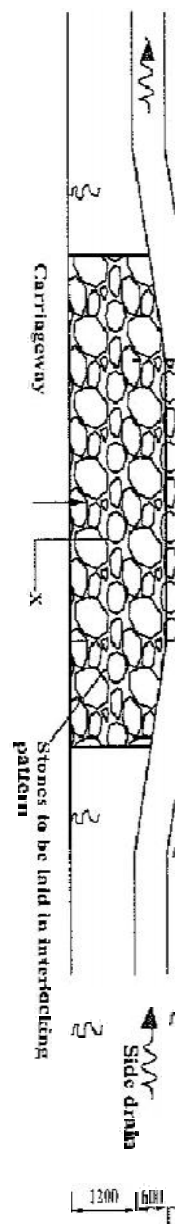


Diameter (D)	450 (mm)	600 (mm)	900 (mm)
a	0.15	0.20	0.20
b	0.10	0.15	0.15
c	0.86	1.12	1.48
d	0.56	0.72	1.08
e	0.42	0.54	0.81
f(min)	0.23	0.3	0.45
h	-	-	-
i	0.52	0.69	0.96

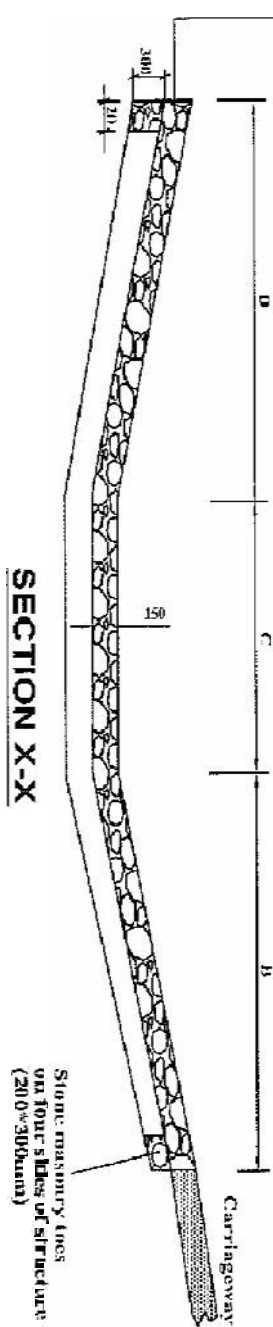
450 (mm)	600 (mm)	900 (mm)
0.15	0.20	0.20
0.10	0.15	0.15
0.86	1.12	1.48
0.56	0.72	1.08
0.46	0.52	0.78
0.15	0.15	0.15
0.15	0.15	0.15
0.81	1.02	1.38
0.28	0.35	0.45

Concrete Class 15/20	Volume in (m ³ /m)	0.26	0.47	0.71
Application	-Fair subgrade condition -Overfill > 75% of the pipe diameter -Seasonal water flow only			
Remarks	Material for back/overfill shall be approved by the Engineer			

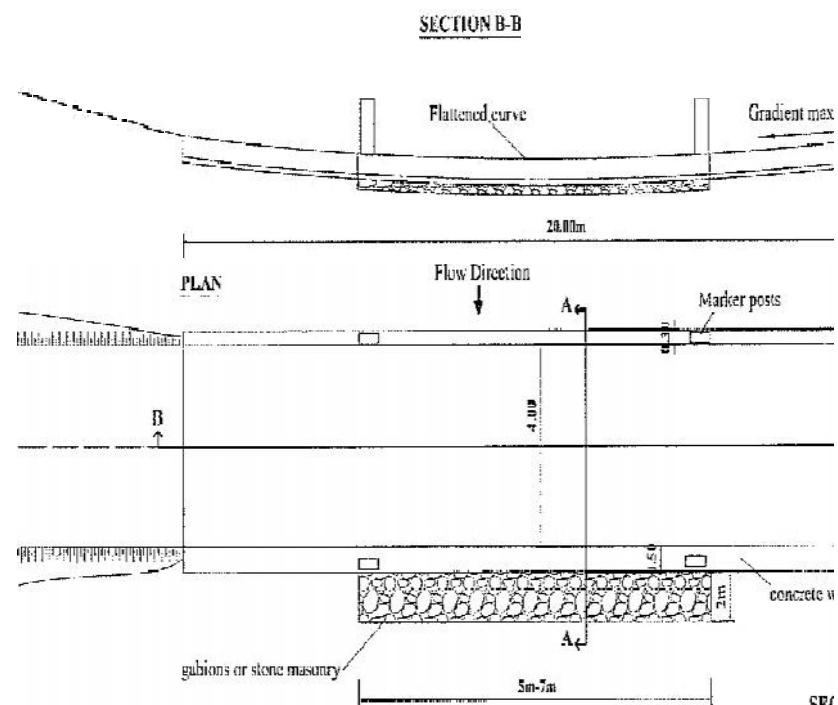
Volume in (m ³ /m)	0.37	0.61	0.92
-Fair to poor subgrade condition -Overfill > 75% of the pipe diameter -Seasonal water flow only			
Material for back/overfill shall be approved by the Engineer			



150mm Grouted Stone Misting
(Cement mortar 1:4)

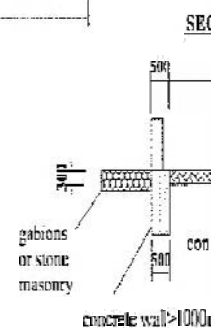


QUANTITIES TABLE						
Cross section	DIMENSIONS					Excavation(m ³)
	A	B	C	D	E	
A	4000	1800	600	1800	4200	7.5
	6000	1800	600	1800	4200	10.00
	4000	1400	400	1800	3600	7.00
B	6000	1400	400	1800	3600	9.00
	6000	1400	400	1800	3600	1.50
						25.50



Material : All concrete Class 30/20 (1:2:4)

- 1 Concrete wall : 10m³
- 2 Concrete slab : 24m³ or stone masonry
- 3 Concrete toe : 8m³ or stone masonry
- 4 Gabions/ mattress rock fill: 4.3m³ or stone masonry
- 5 Gabions/mattress: 36m³
- 6 Marker posts - precast concrete: 4 no.
- 7 Excavation (slab + toes + gabions) 34.2m³



Not
Some
Pip
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All

A cross-sectional diagram of a concrete apron structure. The top part shows a sloped roof-like structure labeled "Concrete apron". Below it is a horizontal section containing several vertical panels or bays. A dimension line indicates a width of "4.0m" for one of these sections. To the right, there are "marker posts (precast concrete) 1m*0.4*0.3m". Above the main structure, a label points to a layer: "200 * 400 deep concrete tge". An arrow labeled "Flow direction" points from left to right. The bottom of the structure consists of two layers: "Apron of a concrete slab & large rocks" and "Stone masonry(300mm)". On the far right, there is a vertical scale with markings at "1.00", "5.00", and "2.00". Section lines "A-A" are indicated on both ends of the structure.

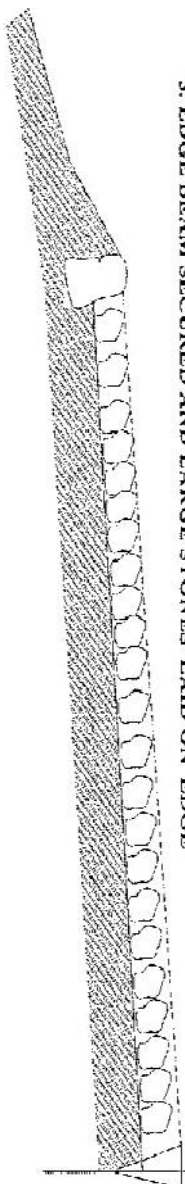


d

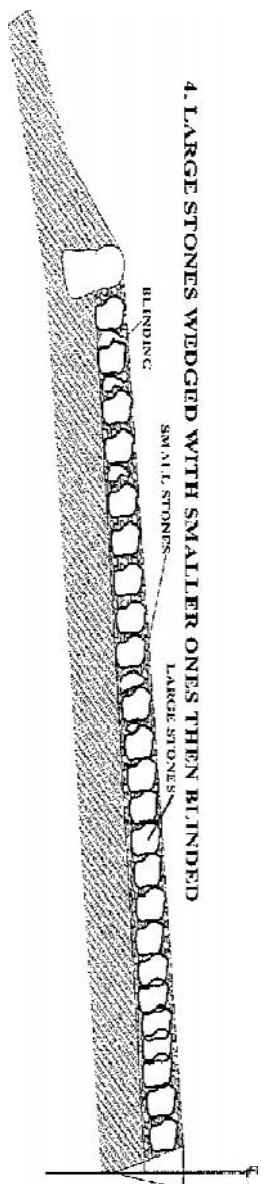
2. EDGE BEAM OF LARGE STONES

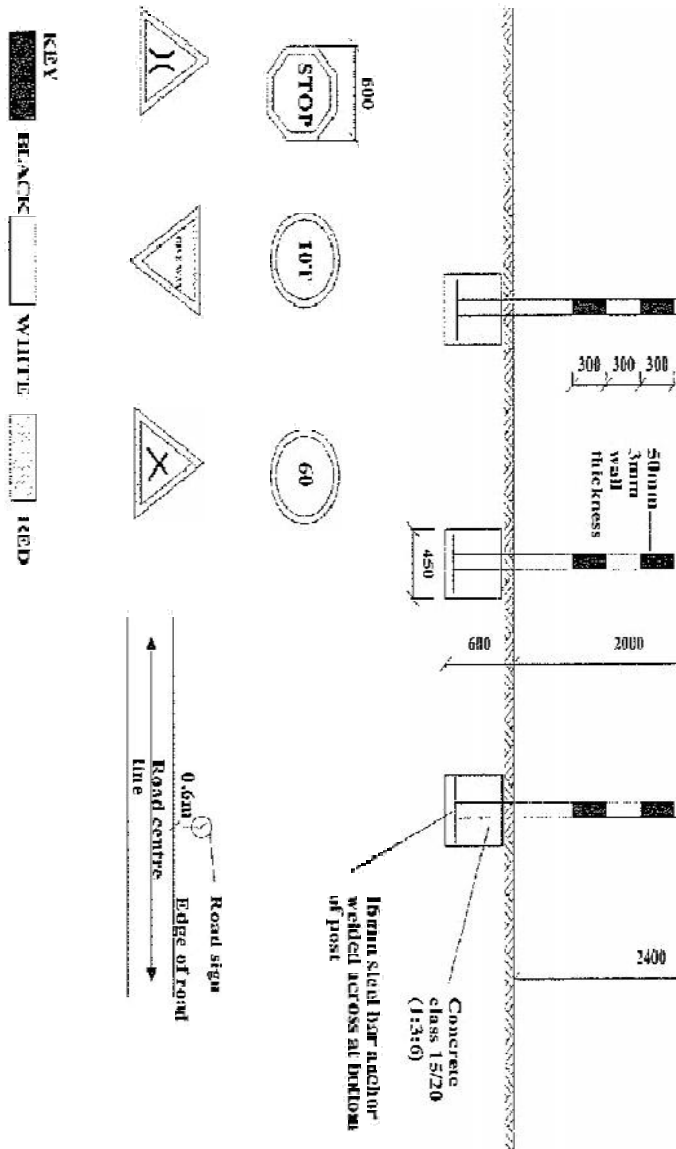


3. EDGE BEAM SECURED AND LARGE STONES LAID ON EDGE

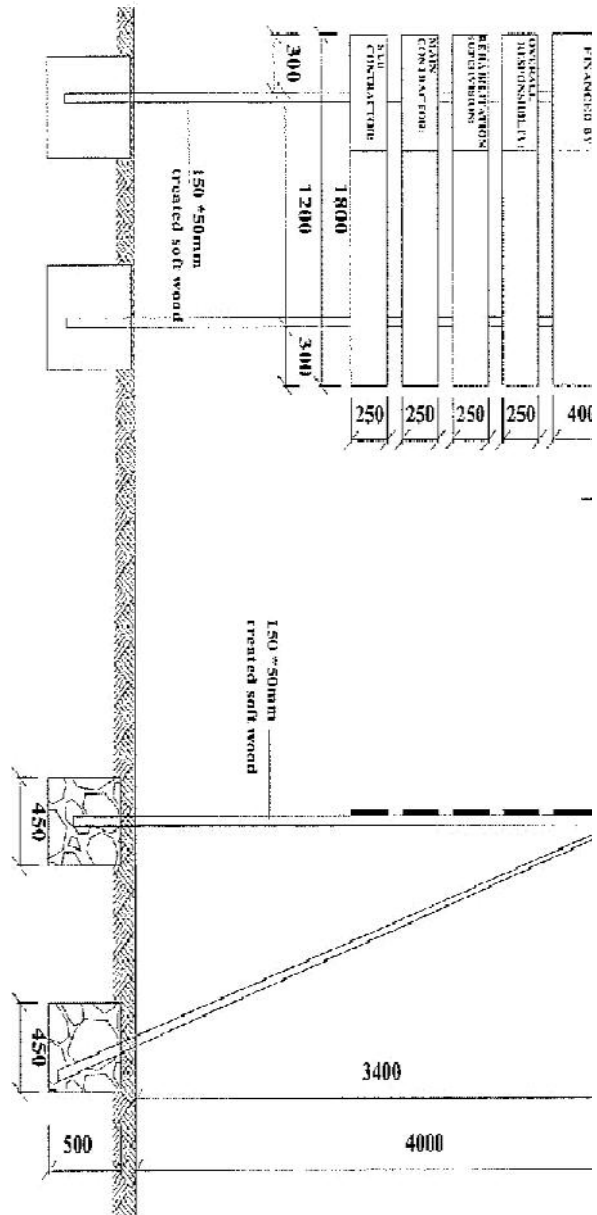


4. LARGE STONES WEDGED WITH SMALLER ONES THEN BLINDED





1. The type of sign required and their location shall be as shown on the Fixed Plan or as directed by the Engineer.
2. Sign plate to be 2mm thick mild steel plate.
3. Sign post to be 50mm fixing clamps/bushes.
4. Sign plate to be fixed to steel tube by 8 Nos M10 bolts and 50mm fixing clamps/bushes.
5. Sign posts shall be reflective.
6. The sign plate and post shall be treated by applying two coats of heat red oxide paint before applying a priming and two finish coats of approved paints. Paints used shall have a hard, durable and glossy finish.



NOTES

1. The working of the project sign board and the location to be as directed by the Engineer.
2. Materials to be used for fabrication of signboard shall be pressure impregnated treated softwood timber
3. Varning board posts to be attached to the posts with galvanised nails
4. Project board posts and struts to be embedded in concrete class 20/20 (1:2:4)

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 Instructions to Tenderers and these Documents.
2. The prices and rates to be inserted in the Bills of Quantities are to be the full, inclusive value of the work described under the several items including all costs and expenses which may be required in and for the execution of the work described and for the Contractor's overheads and profits. The rates shall be VAT exclusive but include all other taxes, levies and fees applicable. The rates shall be based on the Works being carried out in accordance with the R2000 Strategy of using optimum labour resources.
3. Each item in the Bills of Quantities contains only a brief description of the required work. Fuller details and descriptions of the work to be done, the materials to be used, the standards of workmanship, methods of measurement and payment are to be found in the various sections of the Specifications and on the Drawings.
4. The Quantities set out in the Bills of Quantities are estimated and represent substantially the work to be carried out. There is no guarantee that the Contractor will be required to carry out all the quantity of work indicated under any one particular item or group of items in the Bills of Quantities. The basis of payment shall be the Contractor's rates and the quantities of measured work done in fulfilment of the obligations under the Contract.
5. Work shall be carried out under Dayworks items only at the direction, and with the approval, of the Engineer. The Contractor shall enter rates in the Dayworks Schedule of Rates, which shall reflect the realistic costs, including overheads and profit, of each item. If, in the opinion of the Engineer, a rate is unreasonably high or low, the Contractor may be required to amend the rate to the satisfaction of the Engineer.

BILLS OF QUANTITIES

(AS GENERATED FROM RMS)

Contractor

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