

**NORTHERN WATER WORKS DEVELOPMENT  
AGENCY**



**P.O BOX 495 GARISSA**

**TENDER DOCUMENT**

**FOR**

**CONSTRUCTION OF FOROLE – AL DERE  
EARTH DAM**

**TENDER NO: NWWDA/T/CW/007/2019 – 2020**

**JANUARY 2020**

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## **ABBREVIATIONS AND ACRONYMS**

<b>CDS</b>	Contract Data Sheet
<b>GCC</b>	General Conditions of Contract
<b>IFT</b>	Invitation for Tender
<b>ITT</b>	Instruction to Tenderers
<b>PE</b>	Procuring Entity
<b>PM</b>	Project Manager
<b>PPADA 2015</b>	Public Procurement and Asset Disposal Act, 2015
<b>PPDR 2006</b>	Public Procurement and Disposal Regulations, 2006
<b>PPOA</b>	Public Procurement Oversight Authority
<b>STD</b>	Standard Tender Documents
<b>SOR</b>	Statement of Requirements
<b>SP</b>	Service Provider
<b>TDS</b>	Tender Data Sheet
<b>VAT</b>	Value Added Tax

**NORTHERN WATER WORKS DEVELOPMENT AGENCY**  
**TENDER NOTICE**

**TENDER REF NO. NWWDA/CW/T/007/2019-2020**

**TENDER NAME: CONSTRUCTION OF FOROLE- AL DERE EARTH DAM**

**Northern Water Works Development Agency** a State Corporation under the Ministry of Water , Sanitation and Irrigation, has received funds from GOK under Water for Peace Programme for use during the financial year 2019 – 2020 and intends to use part of these funds to cover eligible payments under the Contract for Construction of Forole – Al dere Earth Dam

**Northern Water Works Development Agency** now invites sealed Tenders from eligible citizen contractors who should meet the following minimum conditions.

- i. Registered with NCA 3 Water Works and above
- ii. Registered with Ministry of Water in Class C and above as a qualified water resource contractor in the category of Dams
- iii. Evidence of past experience in similar works of same nature and complexity .
- iv. Proof of Legal existence.
- v. Copies of valid tax compliance, VAT and PIN certificates.
- vi. Adequate plant and equipment, professional and technical staff.

**Scope of the Works**

The works involves but is not limited to the following:-

- a) Al Dere Homogenous earthfill dam of capacity 647,664M<sup>3</sup>, depth 3.75m and Height 2.25m
- b) Intake Tower of height 5.0m
- c) Communal Water Point
- d) 2 Cattle Troughs
- e) 2 Shoat Troughs and
- f) Fencing the dam

Interested eligible candidates may obtain further information from and inspect the tender documents at **Northern Water Works Development Agency, P.O Box 495-70100, Kismayu Road, Maji House Garissa, Tel 046 210 3598, Fax : 046 210 3197** during normal working hours from the Procurement office.

A Complete set of tender documents can be obtained by interested candidates upon payment of non-refundable fees of **Kshs 1,000.00 per set of documents** in cash or banker's cheque payable to Northern Water Services Board or down load from our web free of charge [www.nwsb.go.ke](http://www.nwsb.go.ke) . All bidders who download the document should register with office to [info@nwsb.go.ke](mailto:info@nwsb.go.ke) for purposes of receiving any further clarifications or addendums.

The completed tender document in plain sealed envelope clearly marked "**Tender for Construction of Forole Al dere Earth Dam and accompanied by bid security ( Bank Guarentee only) of Kshs 1,500,000.00 ( One Million, Five Hundred Thousand only)**" should be addressed and sent to:

**The Chief Executive Officer  
Northern Water Works Development Agency  
P.O. Box 495-70100  
GARISSA**

Or may be deposited in tender box situated on the ground floor at Northern Water Works Development Agency office Garissa so as to be received on or before **23<sup>rd</sup> January 2020 at 11.00 am**. Prices quoted shall remain valid for 120 days from the closing date of the tender.

The tenders will be opened immediately thereafter in NWWDA conference room in presence of bidders or their representatives who may wish to attend. Late bid will not be accepted

**SECTION II: INSTRUCTIONS TO TENDERERS (ITT)**

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## A. Introduction

- 1. Scope of Tender**
  - 1.1** The Procuring Entity indicated in the **Tender Data Sheet** (TDS) invites Tenders for the construction of works as specified in the **Tender Data Sheet** and Sections VI (Technical Specifications) and VII (Drawings).
  - 1.2** The successful Tenderer will be expected to complete the works by the required completion date specified in the **Tender Data Sheet**.
  - 1.3** The objectives of the works are listed in the **Tender Data Sheet**. These are mandatory requirements. Any subsequent detail is offered to support these objectives and must not be used to dilute their importance.
  
- 2. Source of Funds**
  - 2.1** The Government of Kenya through Ministry of Water and irrigation received a funds from the **GOK** towards the cost of the Project named in the **Tender Data Sheet**.
  - 2.2** Payments will be made directly by the Procuring Entity (or by financing institution specified in the **Tender Data Sheet** upon request of the Procuring Entity to so pay) and will be subject in all respects to the terms and conditions of the resulting contract placed by the Procuring Entity.
  
- 3. Eligible Tenderers**
  - 3.1** A Tenderer may be a natural person, private or public company, government-owned institution, subject to sub-Clause 3.4 or any combination of them with a formal intent to enter into an agreement or under an existing agreement in the form of a joint venture, consortium, or association. In the case of a joint venture, consortium, or association, unless otherwise specified in the **Tender Data Sheet**, all parties shall be jointly and severally liable.
  - 3.2** The Invitation for Tenders is open to all suppliers as defined in the Public Procurement and Disposal Act, 2005 and the Public Procurement and Disposal Regulations, 2006 except as provided hereinafter.
  - 3.3** National Tenderers shall satisfy all relevant licensing and/or registration with the appropriate statutory bodies in Kenya, such as the Ministry of Public Works or the Energy Regulatory Commission.
  - 3.4** A Tenderer shall not have a conflict of interest. All Tenderers found to have a conflict of interest shall be disqualified. A Tenderer may be considered to have a conflict of interest with one or more parties in this Tendering process, if they:

- a) Are associated or have been associated in the past directly or indirectly with employees or agents of the Procuring Entity or a member of a board or committee of the Procuring Entity;
- b) Are associated or have been associated in the past, directly or indirectly with a firm or any of its affiliates which have been engaged by the Procuring Entity to provide consulting services for the preparation of the design, specifications and other documents to be used for the procurement of the works under this Invitation for Tenders;
- c) Have controlling shareholders in common; or
- d) Receive or have received any direct or indirect subsidy from any of them; or
- e) Have the same legal representative for purposes of this Tender; or
- f) Have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the Tender of another Tenderer, or influence the decisions of the Procuring Entity regarding this Tendering process; or
- g) Submit more than one Tender in this Tendering process, however, this does not limit the participation of subcontractors in more than one Tender, or as Tenderer and subcontractor simultaneously.

**3.5** A Tenderer will be considered to have a conflict of interest if they participated as a consultant in the preparation of the design or technical specification of the project and related services that are the subject of the Tender.

**3.6** Tenderers shall not be under a declaration of ineligibility for corrupt and fraudulent practices issued by the Government of Kenya in accordance with GCC sub-Clause 3.2.

**3.7** Government owned enterprises in Kenya may participate only if they are legally and financially autonomous, if they operate under commercial law, are registered by the relevant registration board or authorities and if they are not a dependent agency of the Government.

**3.7** Tenderers shall provide such evidence of their continued eligibility satisfactory to the Procuring Entity, as the Procuring Entity shall reasonably request.

#### **4. One Tender**

**4.1** A firm shall submit only one Tender, in the same Tendering

- per Tenderer** process, either individually as a Tenderer or as a partner in a joint venture pursuant to ITT Clause 5.
- 4.2** No firm can be a subcontractor while submitting a Tender individually or as a partner of a joint venture in the same Tendering process.
- 4.3** A firm, if acting in the capacity of subcontractor in any Tender, may participate in more than one Tender but only in that capacity.
- 4.4** A Tenderer who submits or participates in more than one Tender (other than as a subcontractor or in cases of alternatives that have been permitted or requested) will cause all the Tenders in which the Tenderer has participated to be disqualified.
- 5. Alternative Tenders by Tenderers**
- 5.1** Tenderers shall submit offers that comply with the requirements of the Tendering documents, including the basic Tenderer’s technical design as indicated in the specifications and Drawings and Bill of Quantities. Alternatives will not be considered, unless specifically allowed for in the **Tender Data Sheet**. If so allowed, sub-Clause 5.2 and 5.3 shall govern.
- 5.2** When alternative times for completion are explicitly invited, a statement to that effect will be included in the **Tender Data Sheet** as will the method of evaluating different times for completion.
- 5.3** If so allowed in the **Tender Data Sheet**, Tenderers wishing to offer technical alternatives to the requirements of the Tendering documents must also submit a Tender that complies with the requirements of the Tendering documents, including the basic technical design as indicated in the specifications. In addition to submitting the basic Tender, the Tenderer shall provide all information necessary for a complete evaluation of the alternative by the Procuring Entity, including technical specifications, breakdown of prices, and other relevant details. Only the technical alternatives, if any, of the lowest evaluated Tenderer conforming to the basic technical requirements shall be considered by the Procuring Entity.
- 6. Cost of Tendering**
- 6.1** The Tenderer shall bear all costs associated with the preparation and submission of its Tender, and the Procuring Entity shall in no case be responsible or liable for those costs, regardless of the conduct or outcome of the Tendering process.
- 7. Site Visit and Pre-Tender Meeting**
- 7.1** The Tenderer, at the Tenderer’s own responsibility and risk, is advised to visit and examine the Site of 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.

- 7.2 The Procuring Entity may conduct a site visit and a pre-Tender meeting. The purpose of the pre-Tender meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.
- 7.3 The Tenderer's designated representative is invited to attend a site visit and pre-Tender meeting which, if convened, will take place at the venue and time stipulated in the **Tender Data Sheet**.
- 7.4 The Tenderer is requested as far as possible, to submit any questions in writing or by electronic means to reach the procuring Entity before the pre-Tender meeting. It may not be practicable at the meeting to answer all questions, but questions and responses will be transmitted in accordance with sub-Clause 7.5.
- 7.5 Minutes of the pre-Tender meeting, including the text of the questions raised and the responses given together with any responses prepared after the pre-Tender meeting will be transmitted within the time stated in the **Tender Data Sheet** to all purchasers of the Tendering documents. Any modification of the Tendering documents listed in sub-Clause 8.1 that may become necessary as a result of the pre-Tender meeting shall be made by the Procuring Entity exclusively through the issue of an Addendum pursuant to ITT sub Clause 10.2 and not through the minutes of the pre-Tender meeting.
- 7.6 Non attendance during the site visit or pre-Tender meeting will not be a cause for disqualification of a Tenderer unless specified to the contrary in the **Tender Data Sheet**.

## **B. Tendering Documents**

### **8. Content of Tendering Documents**

- 8.1 The works required, Tendering procedures, and contract terms are prescribed in the Tendering Documents. In addition to the Section I Invitation for Tenders, Tendering documents which should be read in conjunction with any addenda issued in accordance with ITT sub Clause 10.2 include:

Section II	Instructions to Tenderers
Section III	Tender Data Sheet
Section IV	General Conditions of Contract
Section V	Contract Data Sheet
Section VI	Specifications
Section VII	Drawings
Section VIII	Bill of Quantities
Section IX	Forms of Tender
	<ul style="list-style-type: none"> <li>• Form of Tender</li> <li>• Appendix to Tender</li> </ul>

- Confidential Business Questionnaire
- Integrity Declaration
- Letter of Acceptance
- Form of Contract Agreement

Section X Forms of Security

- Tender Security Form
- Tender Securing Declaration
- Performance Bank or Insurance Guarantee
- Advance Payment Guarantee

Section XI Form RB 1 Application to Public Procurement Administrative Review Board

- 8.2** The number of copies to be completed and returned with the Tender is specified in the **Tender Data Sheet**.
- 8.3** The Invitation for Tenders (Section I) issued by the Procuring Entity is not part of the Tendering Documents and is included for reference purposes only. In case of discrepancies between the Invitation for Tenders and the Tendering Documents listed in sub-Clause 8.1 above, the said Tendering Documents will take precedence.
- 8.4** The Procuring Entity is not responsible for the completeness of the Tendering Documents and their addenda, if they were not obtained directly from the authorized staff of the Procuring Entity.
- 8.5** The Tenderer is expected to examine all instructions, forms, terms and specifications in the Tendering documents. Failure to furnish all information required by the Tendering Documents or to submit a Tender substantially responsive to the Tendering documents in every respect will be at the Tenderer's risk and may result in the rejection of its Tender.

**9. Clarification of Tendering Documents**

- 9.1** A prospective Tenderer requiring any clarification of the Tendering documents may notify the Procuring Entity in writing, e-mail or facsimile at the Procuring Entity's address indicated in the **Tender Data Sheet**.
- 9.2** The Procuring Entity will within the period stated in the **Tender Data Sheet** respond in writing to any request for clarification provided that such request is received no later than the period indicated in the **Tender Data Sheet** prior to the deadline for the submission of Tenders prescribed in sub-Clause 22.1.
- 9.3** Copies of the procuring entity's response will be forwarded to all Purchasers of the Tendering documents, including a description of the inquiry, but without identifying its source.

9.4 Should the Procuring Entity deem it necessary to amend the Tendering documents as a result of a clarification, it shall do so following the procedure under ITT Clause 10.

**10. Amendments of the Tendering Documents**

10.1 Before the deadline for submission of Tenders, the Procuring Entity may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Tenderer, modify the Tendering documents by issuing addenda.

10.2 Any addendum issued shall be part of the Tender documents pursuant to sub-Clause 8.1 and shall be communicated in writing, by e-mail or facsimile to all who have obtained the Tendering documents directly from the Procuring Entity.

10.3 In order to allow prospective Tenderers reasonable time in which to take an addendum into account in preparing their Tenders, the Procuring Entity at its discretion shall extend, as necessary, the deadline for submission of Tenders, in accordance with sub-Clause 22.2

**C. Preparation of Tenders**

**11. Language of Tender**

11.1 The Tender, and all correspondence and documents related to the Tender exchanged by the Tenderer and the Procuring Entity shall be written in the Tender language stipulated in the **Tender Data Sheet**. Supporting documents and printed literature furnished by the Tenderer may be in another language provided they are accompanied by an accurate translation of the relevant passages in the above stated language, in which case, for purposes of interpretation of the Tender, the translation shall prevail.

**12. Documents Constituting the Tender**

12.1 The Tender submitted by the Tenderer shall consist of the following components:

- a) The Form of Tender (in the format indicated in Section IX) completed in accordance with ITT Clause 15, 16 and 17;
- b) Information requested by Instructions to Tenderers ITT sub-Clause 13.2; 13.3 and 13.4;
- c) Tender Security or Tender Securing Declaration in accordance with Instructions to Tenderers ITT Clause 19;
- d) Priced Bill of Quantities;
- e) Qualification Information Form and Documents;

- f) Alternative offers where invited in accordance with Instructions to Tenderers ITT Clause 5;
- g) Written confirmation authorizing the signatory of the Tender to commit the Tenderer in accordance with Instructions to Tenderers ITT sub Clause 19.2; and
- h) And any information or other materials required be completing and submitting by Tenderers, as specified in the **Tender Data Sheet**.

**13. Documents  
Establishing  
Eligibility and  
Qualifications of  
the Tenderer**

- 13.1** Pursuant to ITT Clause 13, the Tenderer shall furnish, as part of its Tender, documents establishing the Tenderer's eligibility to Tender and its qualifications to perform the contract if its Tender is accepted.
- 13.2** In the event that pre-qualification of potential Tenderers has been undertaken, only Tenders from pre-qualified Tenderers will be considered for award of contract. These qualified Tenderers should submit their Tenders with any information updating the original pre-qualification applications or, alternatively, confirm in their Tenders that the originally submitted pre-qualification information remains essentially correct as of the date of Tender submission. The update or confirmation should be provided in Section IX.
- 13.3** If the Procuring Entity has not undertaken pre-qualification of potential Tenderers, to qualify for award of the contract, Tenderers shall meet the minimum qualifying criteria specified in the **Tender Data Sheet**:
- 13.4** Tenders submitted by a joint venture of two or more firms as partners shall comply with the following requirements, unless otherwise stated in the **Tender Data Sheet**:
  - a) The Tender shall include all the information listed in the **Tender Data Sheet** pursuant to sub-Clause 13.3 above for each joint venture partner;
  - b) The Tender shall be signed so as to be legally binding on all partners;
  - c) One of the partners will be nominated as being in charge, and this authorization shall be evidenced by submitting a power of attorney signed by legally authorized signatories of all the partners;
  - d) The partner in charge shall be authorized to incur liabilities and receive instructions for and on behalf of any and all partners of a joint venture and the entire execution of the

Contract, including payment, shall be done exclusively with the partner in charge;

- e) All partners of the joint venture shall be liable jointly and severally for the execution of the contract in accordance with the contract terms and a statement to this effect shall be included in the authorization mentioned under (c) above as well as in the Tender and in the Agreement (in case of a successful Tender); and
- f) A copy of the joint venture agreement entered into by all partner shall be submitted with the Tender. Alternatively, a Letter of Intent to execute a joint venture agreement in the event of a successful Tender shall be signed by all partners and submitted with the Tender, together with a copy of the proposed Agreement.
- g) The Tender Security and Tender Securing Declaration as stated in accordance with ITT Clause 19, and in case of a successful Tender, the Agreement, shall be signed so as to be legally binding on all partners.

- 14. Lots Package**
  - 14.1** When Tendering for more than one contract under the lots arrangements, the Tenderer must provide evidence that it meets or exceeds the sum of all the individual requirements for the lots being tendered in regard to:
    - a) Average annual turnover;
    - b) Particular experience including key production rates;
    - c) Financial means, etc;
    - d) Personnel capabilities; and
    - e) Equipment capabilities.
  - 14.2** In case the Tenderer fail to fully meet any of these criteria, it may be qualified only for those lots for which the Tenderer meets the above requirement.
- 15. Form of Tender**
  - 15.1** The Tenderer shall fill the Form of Tender furnished in the Tendering Documents. The Form of Tender must be completed without any alterations to its format and no substitute shall be accepted.
- 16. Tender Prices**
  - 16.1** The Contract shall be for the whole Works, as described in sub-Clause 1.1, based on the priced Bill of Quantities submitted by the Tenderer.
  - 16.2** 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 by the Procuring Entity when executed and shall be deemed covered by the other rates and prices in the Bill of quantities.

- 16.3** All duties, taxes and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 15 days prior to the deadline for submission of Tenders, shall be included in the rates, prices and total Tender price submitted by the Tenderer.
- 16.4** The rates and prices quoted by the Tenderer shall be subject to adjustment during the performance of the Contract if provided for in the **Tender Data Sheet** and the provisions of the Conditions of Contract. The Tenderer shall submit with the Tender all the information required under the **Contract Data Sheet**.

## **17. Tender Currencies**

- 17.1** The unit rates and prices shall be quoted by the Tenderer in the currency as specified in the **Tender Data Sheet**.
- 17.2** Tenderers shall indicate details of their expected foreign currency requirements in the Tender, if any. The rates of exchange to be used by the Tenderers in arriving at the local currency equivalent shall be the selling rates for similar transactions established by the authority specified in the **Tender Data Sheet** prevailing on the date 28 days prior to the latest deadline for submission of Tenders. These exchange rates shall apply for all payments so that no exchange risk will be borne by the Tenderer. In any case, payments will be computed using the rates quoted in the Tender.
- 17.3** Tenderers may be required by the Procuring Entity to clarify their foreign currency requirements and to substantiate that the amounts included in the rates and prices and in the Contract Data Sheet are reasonable and responsive to sub-Clause 17.1.

## **18. Tender Validity Period**

- 18.1** Tenders shall remain valid for the period specified in the **Tender Data Sheet** after the Tender submission deadline prescribed by the Procuring Entity, pursuant to ITT Clause 22. A Tender valid for a shorter period shall be rejected by the Procuring Entity as non responsive.
- 18.2** In exceptional circumstances, prior to expiry of the original Tender validity period, the Procuring Entity 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 or by cable. A Tenderer may refuse the request without forfeiting its Tender Security or causing to be executed its Tender Securing declaration. A Tenderer agreeing to the request will not be required or permitted to

otherwise modify the Tender, but will be required to extend the validity of its Tender Security or Tender Securing declaration for the period of the extension, and in compliance with ITT Clause 19 in all respects.

**18.3** In the case of fixed price contracts, if the award is delayed by a period exceeding sixty (60) days beyond the expiry of the initial Tender validity period, the contract price will be increased by a factor specified in the request for extension. The Tender evaluation shall be based on the Tender price without taking into consideration on the above correction.

**19. Tender Security and Tender Securing Declaration**

**19.1** Pursuant to ITT Clause 12, where required in the **Tender Data Sheet**, the Tenderer shall furnish as part of its Tender, a Tender Security in original form and in the amount and currency specified in the **Tender Data Sheet** .  
A Tender Securing Declaration as specified in the **Tender Data Sheet** in the format provided in section X shall be provided as a mandatory requirement.

**19.2** The Tender Security or Tender Securing Declaration is required to protect the Procuring Entity against the risk of Tenderer's conduct which would warrant the security's forfeiture, pursuant to ITT sub-Clause 19.9.

**19.3** The Tender Security shall be denominated in the currency of the Tender and shall be in one of the following forms:

- a) A Bank Guarantee;
- b) An Insurance Bond issued by an insurance firm approved by the PPOA located in Kenya
- c) An irrevocable letter of credit issued by a reputable bank.

**19.4** The Tender Security shall be in accordance with the Form of the Tender Security included in Section X or another form approved by the Procuring Entity prior to the Tender submission.

**19.5** The Tender Security shall be payable promptly upon written demand by the Procuring Entity in case any of the conditions listed in sub-Clause 19.8 are invoked.

**19.6** Any Tender not accompanied by a Tender Security in accordance with sub-Clauses 19.1 or 19.3 shall be rejected by the Procuring Entity as non-responsive, pursuant to ITT Clause 28.

**19.7** The Procuring Entity shall immediately release any Tender Security if:

- a) The procuring proceedings are terminated;
- b) The Procuring Entity determines that none of the submitted Tenders is responsive;
- c) A contract for the procurement is entered into.

**19.8** The Tender Security shall be forfeited and the Tender Securing Declaration executed if the Tenderer:

- a) Withdraws its Tender after the deadline for submitting Tenders but before the expiry of the period during which Tenders must remain valid;
- b) Rejects a correction of an arithmetic error pursuant to sub-Clause 29.2;
- c) Refuse to enter into a written contract in accordance with ITT Clause 40;
- d) Fails to furnish the Performance Security in accordance with ITT Clause 41.

**19.9** The Tender Security and Tender Securing Declaration of a joint venture must be in the name of the joint venture submitting the Tender.

**19.10** A Tenderer shall be suspended from being eligible for Tendering in any contract with the Procuring Entity for the period of time indicated in the Tender Securing Declaration:

- a) If the Tenderer withdraws its Tender, except as provided in ITT sub-Clauses 18.2 and 29.2; or
- b) In the case of a successful Tenderer, if the Tenderer fails within the specified time limit to:
  - (i) Sign the contract; or
  - (ii) Furnish the required Performance Security.

**20. Format and Signing of Tender**

**20.1** The Tenderer shall prepare one original of the documents comprising the Tender as described in ITT Clause 12 of these Instructions to Tenderers, with the Form of Tender, and clearly marked “**ORIGINAL**”. In addition, the Tenderer shall submit

copies of the Tender, in the number specified in the **Tender Data Sheet**, and clearly marked as “**COPIES**”. In the event of discrepancy between them, the original shall prevail.

- 20.2** The original and all copies of the Tenders shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the Tenderer. This authorization shall consist of a written confirmation as specified in the **Tender Data Sheet** and shall be attached to the Tender. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the Tender, except for un-amended printed literature, shall be initialled by the person or persons signing the Tender.
- 20.3** Any interlineations, erasures, or overwriting shall be valid only if they are initialled by the person or persons signing the Tender.
- 20.4** The Tenderer shall furnish information as described in the Form of Tender on commissions or gratuities, if any, paid or to be paid to agents relating to this Tender and to contract execution if the Tenderer is awarded the contract

#### **D. Submission of Tenders**

#### **21. Sealing and Marking of Tenders**

- 21.1** The Tenderer shall seal the original and each copy of the Tender in separate envelopes, duly marking the envelopes as “**ORIGINAL**” and “**COPY**”. The envelopes shall then be sealed in an outer envelope securely sealed in such a manner that opening and resealing cannot be achieved undetected.
- 21.2** The inner and outer envelopes shall:
  - a) Be addressed to the Procuring Entity at the address given in the **Tender Data Sheet**; and
  - b) Bear the Project name indicated in the **Tender Data Sheet**, the Invitation for Tenders (IFB) title and number indicated in the **Tender Data Sheet**, and a statement: “**DO NOT OPEN BEFORE,**” to be completed with the time and the date specified in the **Tender Data Sheet**, pursuant to ITT sub-Clause 22.1.
- 21.3** In addition to the identification required in sub-Clause 21.2, the inner envelopes shall also indicate the name and address of the Tenderer to enable the Tender be

returned unopened in case it is declared late, pursuant to sub-Clause 22.1 and for matching purpose under ITT Clause 23

**21.4** If the outer envelope is not sealed and marked as required by ITT sub clause 21.2, the Procuring Entity shall assume no responsibility for misplacement or premature opening of the Tender.

**22. Deadline for Submission of Tenders**

**22.1** Tenders shall be received by the Procuring Entity at the address specified under ITT sub-Clause 21.2 no later than the date and time specified in the **Tender Data Sheet**.

**22.2** The Procuring Entity may, in exceptional circumstances and at its discretion, extend the deadline for the submission of Tenders by amending the Tendering documents in accordance with ITT Clause 9, in which case all rights and obligations of the Procuring Entity and Tenderers previously subject to the deadline will thereafter be subject to the new deadline.

**22.3** The extension of the deadline for submission of Tenders shall not be made later than the period specified in the **Tender Data Sheet** before the expiry of the original deadline.

**23. Late Tenders**

**23.1** The Procuring Entity shall not consider for evaluation any Tender that arrives after the deadline for submission of Tenders, in accordance with ITT Clause 22.

**23.2** Any Tender received by the Procuring Entity after the deadline for submission of Tenders shall be declared late, rejected and returned unopened to the Tenderer

**24. Modification, Substitution and Withdrawal of Tenders**

**24.1** A Tenderer may modify or substitute or withdraw its Tender after it has been submitted, provided that written notice of the modification, including substitution or withdrawal of the Tender, is received by the Procuring Entity prior to the deadline prescribed for submission of Tenders prescribed under ITT sub-Clause 22.1.

**24.2** The Tenderer's modification or substitution or withdrawal notice shall be prepared, sealed, marked, and dispatched in accordance with the provisions of ITT Clauses 20 and 21 with the outer and inner envelopes additionally marked "**MODIFICATION**"

or **SUBSTITUTION** or “**WITHDRAWAL**” as appropriate. The notice may also be sent by electronic mail and facsimile, but followed by a signed confirmation copy, postmarked not later than the deadline for submission of Tenders.

- 24.3** No Tender may be withdrawn, replaced or modified in the interval between the deadline for submission of Tenders and the expiration of the period of Tender validity specified by the Tenderer on the Tender Form. Withdrawal of a Tender during this interval shall result in the Tenderer’s forfeiture of its Tender Security or execution of Tender Securing Declaration, pursuant to the ITT sub-Clause 19.9.
- 24.4** Withdrawal of a Tender between the deadline for submission of Tenders and the expiration of the period of Tender validity specified in the **Tender Data Sheet** or as extended pursuant to sub-Clause 22.2 shall result in the forfeiture of the Tender Security and execution of Tender Securing Declaration pursuant to ITT sub-Clause 19.9.
- 24.5** Tenderers may only offer discounts to, or otherwise modify the prices of their Tenders by submitting Tender modifications in accordance with this Clause, or included in the original Tender submission.

#### **E. Opening and Evaluation of Tenders**

##### **25. Opening of Tenders**

- 25.1** The Procuring Entity will open all Tenders including modifications, substitution or withdraw notices made pursuant to ITT Clause 24, in public, in the presence of Tenderers or their representatives who choose to attend and other parties with legitimate interest and Tender proceedings, at the place on the date and at time specified in the **Tender Data Sheet**. The Tenderers’ representatives who are present shall sign a register as proof of their attendance.
- 25.2** Envelopes marked “**WITHDRAWAL**” shall be opened and read out first. Tenders for which an acceptable notice of withdrawal has been submitted pursuant to ITT Clause 24 shall not be opened but returned to the Tenderer. If the withdrawal envelope does not contain a copy of the “Power of Attorney” confirming the signature as a person duly authorized to sign on behalf of the Tenderer, the corresponding Tender will be opened. Subsequently, all envelopes marked "**MODIFICATION**" shall be opened and

the submissions therein read out in appropriate detail. Thereafter all envelopes marked or "**SUBSTITUTION**" opened and the submissions therein read out in appropriate detail.

- 25.3** All other envelopes shall be opened one at a time. The Tenderers' names, the Tender prices, the total amount of each Tender and of any alternative Tender (if alternatives have been requested or permitted), any discounts, the presence or absence of Tender security, and such other details as the appropriate tender opening committee may consider appropriate, will be announced by the Secretary of the Tender Opening Committee at the opening.
- 25.4** Tenders or modifications that are not opened and not read out at Tender opening shall not be considered further for evaluation, irrespective of the circumstances. In particular, any discount offered by a Tenderer which is not read out at Tender opening shall not be considered further.
- 25.5** Tenderers are advised to send in a representative with the knowledge of the content of the Tender who shall verify the information read out from the submitted documents. Failure to send a representative or to point out any un-read information by the sent Tenderer's representative shall indemnify the Procuring Entity against any claim or failure to read out the correct information contained in the Tenderer's Tender.
- 25.6** No Tender will be rejected at Tender opening except for late Tenders which will be returned unopened to the Tenderer, pursuant to ITT Clause 23.
- 25.7** The Secretary of the appropriate tender opening committee shall prepare minutes of the Tender opening. The record of the Tender opening shall include, as a minimum: the name of the Tenderers and whether or not there is a withdrawal, substitution or modification, the Tender price per Lot if applicable, including any discounts and alternative offers and the presence or absence of a Tender Security or Tender Securing Declaration.
- 25.8** The Tenderers' representatives who are present shall be requested to sign the record. The omission of a Tenderer's signature on the record shall not invalidate the contents and affect the record.

- 25.9** A copy of the minutes of the Tender opening shall be furnished to individual Tenderers upon request.
- 26. Confidentiality**
- 26.1** Information relating to the examination, clarification, evaluation, and comparison of Tenders and recommendations for the award of a 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.
- 26.2** Any effort by a Tenderer to influence the Procuring Entity's processing of Tenders or award decisions may result in the rejection of his Tender.
- 26.3** Notwithstanding sub-Clause 26.2, from the time of Tender opening to the time of Contract award, if any Tenderer wishes to contact the Procuring Entity on any matter related to the Tendering process, it should do so in writing.
- 27. Clarification of Tenders**
- 27.1** To assist in the examination, evaluation, comparison of Tenders and post-qualification of the Tenderer, the Procuring Entity may, at its discretion, ask a Tenderer for clarification of its Tender including breakdown of prices. Any clarification submitted by a Tenderer that is not in response to a request by the Procuring Entity shall not be considered.
- 27.2** The request for clarification and the response shall be in writing. No change in the prices or substance of the Tender shall be sought, offered, or permitted except to confirm the correction of arithmetic errors discovered by the Procuring Entity in the evaluation of Tenders in accordance with ITT Clause 29.
- 27.3** From the time of Tender opening to the time of Contract award if any Tenderer wishes to contact the Procuring Entity on any matter related to the Tender it should do so in writing.
- 28. Preliminary Examination of Tenders**
- 28.1** Prior to the detailed evaluation of Tenders, the Procuring Entity will determine whether:
- a) The Tender has been submitted in the required format;
  - b) Any Tender Security submitted is in the required form, amount and validity period;



- c) The Tender has been signed by the person lawfully authorized to do so;
- d) The required number of copies of the Tender have been submitted;
- e) The Tender is valid for the period required;
- f) All required documents and information have been submitted; and
- g) Any required samples have been submitted.

**28.2** The Procuring Entity will confirm that the documents and information specified under ITT Clause 12 and ITT Clause 13 have been provided in the Tender. If any of these documents or information is missing, or is not provided in accordance with the Instructions to Tenderers, the Tender shall be rejected.

**28.3** The Procuring Entity may waive any minor informality, nonconformity, or irregularity in a Tender which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any Tenderer

**28.4** A substantially responsive Tender is one which conforms to all the terms, conditions, and specifications of the Tendering documents, without material deviation or reservation. A material deviation or reservation is one that:

- a) Affects in any substantial way the scope, quality, or execution of the Works;
- b) Limits in any substantial way, inconsistent with the Tendering documents, the Procuring Entity's rights or the Tenderer's obligations under the Contract; or
- c) If rectified, would affect unfairly the competitive position of other Tenderers presenting substantially responsive Tenders.

**28.5** If a Tender is not substantially responsive, it will be rejected by the Procuring Entity, and may not subsequently be made responsive by correction or withdrawal of the non-conforming deviation or reservation.

## **29. Correction of Errors**

**29.1** Tenders determined to be substantially responsive will be checked by the Procuring Entity for any arithmetic errors. Errors will be corrected by the Procuring Entity as follows:

- a) If there is a discrepancy between unit prices and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail, and the total price shall be corrected, unless in the opinion of the Procuring Entity there is an obvious misplacement of the decimal point in the unit price, in which the total price as quoted shall govern and the unit price shall be corrected;
- b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and
- c) Where there is a discrepancy between the amounts in figures and in words, the amount in words will govern.

**29.2** The amount stated in the Tender will, be adjusted by the Procuring Entity in accordance with the above procedure for the correction of errors and, with, the concurrence of the Tenderer, shall be considered as binding upon the Tenderer. If the Tenderer does not accept the corrected amount, its Tender will then be rejected, and the Tender Security may be forfeited and the Tender Securing Declaration may be executed in accordance with sub-Clause 19.9.

## **30. Conversion to Single Currency**

**30.1** To facilitate the evaluation and comparison, the Procuring Entity will convert all Tender prices expressed in the amounts in various currencies in which the Tender prices are payable to Kenya Shillings at the selling exchange rate established for similar transactions by the Central Bank of Kenya ruling on the date specified in the **Tender Data Sheet**.

## **31. Comparison of Tenders**

**31.1** The Procuring Entity shall evaluate and compare only the Tenders determined to be substantially responsive in accordance with ITT Clause 28.

**31.2** In evaluating the Tenders, the Procuring Entity will determine for each Tender the evaluated Tender price by adjusting the Tender price as follows:  
Making any correction for errors pursuant to ITT Clause 29;

Excluding provisional sums and the provision, if any for contingencies in the Bill of Quantities, but including Day work , where priced competitively ; and

Making appropriate adjustments to reflect discounts or other price modifications offered in accordance with sub-Clause 24.5.

**31.3** The Procuring Entity may waive any minor informality or non-conformity, which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative standing of any Tenderer. Variations, deviations, and alternative offers and other factors, which are in excess of the requirements of the Tendering documents or otherwise result in unsolicited benefits for the Procuring Entity will not be taken into account in Tender evaluation.

**32. National Preference**

**32.1** In the evaluation of Tenders the Procuring Entity shall apply exclusive preference to citizens of Kenya where:

- a) The funding is 100% from the Government of Kenya or a Kenyan body;
- b) The amounts are below the prescribed threshold of KShs.200 million;

**32.2** To qualify for the preference the candidate shall provide evidence of eligibility by:

- a) Proving Kenyan citizenship by production of a Kenyan Identity Card; or
- b) Providing proof of being a “citizen contractor” in terms of section 3(1) of the Act, i.e. being a natural person or an incorporated company wholly owned and controlled by persons who are citizens of Kenya.

**32.3** The Minister of Finance may prescribe additional preference and/or reservation schemes, for example for procurements above these thresholds. If such additional preference schemes apply, details will be given in the **Tender Data Sheet**.

**33. Determination of the Lowest Evaluated Tender**

**33.1** The Tender with the lowest evaluated price from among those which are eligible, compliant and substantially responsive shall be the lowest evaluated

- Tender.
- 34. Post-qualification of Tenderer**
- 34.1** If specified in the **Tender Data Sheet**, post-qualification shall be undertaken.
- 34.2** The Procuring Entity will determine to its satisfaction whether the Tenderer that is selected as having submitted the lowest evaluated responsive Tender is qualified to perform the contract satisfactorily, in accordance with the criteria listed in sub-Clause 13.3.
- 34.3** The determination will take into account the Tenderer's financial, technical, and production capabilities. It will be based upon an examination of the documentary evidence of the Tenderer's qualifications submitted by the Tenderer, pursuant to sub-Clause 13.3, as well as such other information as the Procuring Entity deems necessary and appropriate. Factors not included in these Tendering documents shall not be used in the evaluation of the Tenderer's qualifications.
- 34.4** An affirmative determination will be a prerequisite for award of the contract to the Tenderer. A negative determination will result in rejection of the Tenderer's Tender, in which event the Procuring Entity will proceed to the next lowest evaluated Tender to make a similar determination of that Tenderer's capabilities to perform satisfactorily.

#### **F. Award of Contract**

- 35. Criteria of Award**
- 35.1** Subject to ITT Clause 35 and 36, the Procuring Entity will award the Contract to the Tenderer whose Tender has been determined to be substantially responsive to the Tendering documents and who has offered the lowest Evaluated Tender Price, provided that such Tenderer has been determined to be:
- a) Eligible in accordance with the provisions of ITT Clause 3;
  - b) Is determined to be qualified to perform the Contract satisfactorily;
  - c) Successful negotiations have been concluded.
- 35.2** If, pursuant to sub-Clause 14.1, this Contract

is being awarded on a “lot and package” basis, the lowest evaluated Tender price will be determined when evaluating this Contract in conjunction with other Contracts to be awarded concurrently, taking into account any discounts offered by the Tenderer for award of more than one Contract.

## **36. Clarifications**

**36.1** Clarifications may be undertaken with the lowest evaluated Tenderer relating to the following areas:

- a) A minor alteration to the technical details of the statement of requirements;
- b) Reduction of quantities for budgetary reasons, where the reduction is in excess of any provided for in the Tendering documents;
- c) A minor amendment to the Contract Data Sheet;
- d) Finalizing payment arrangements;
- e) Mobilization arrangements;
- f) Agreeing final delivery or work schedule to accommodate any changes required by the Procuring Entity;
- g) The methodology or staffing; or
- h) Clarifying details that were not apparent or could not be finalized at the time of Tendering.

**36.2** Clarifications shall not change the substance of the tender.

## **37. Procuring Entity’s Right to Accept any Tender and to Reject any or all Tenders**

**37.1** Notwithstanding ITT Clause 35, the Procuring Entity 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.

**37.2** Notice of the rejection of all Tenders shall be given promptly within 14 days to all

Contractors that have submitted Tenders.

**37.3** The Procuring Entity shall upon request communicate to any Tenderer the grounds for its rejection of its Tenders, but is not required to justify those grounds.

**38. Procuring Entities Right to Vary Quantities at the Time of Award**

**38.1** The Procuring Entity reserves the right at the time of contract award to increase or decrease the quantity of goods or related services originally specified in these Tendering documents (schedule of requirements) provided this does not exceed by the percentage indicated in the **Tender Data Sheet**, without any change in unit price or other terms and conditions of the Tender and Tendering documents.

**39. Notification of Award**

**39.1** The Tenderer whose Tender has been accepted will be notified of the award by the Procuring Entity prior to expiration of the Tender validity period by e-mail or facsimile confirmed by registered letter. This letter (hereinafter and in the Conditions of Contract called the "Letter of Acceptance") will state the sum that the Procuring Entity will pay the Contractor in consideration of the provision and maintenance of the Work(s) as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price").

**39.2** The notification of award will constitute the formation of the Contract, subject to the Tenderer furnishing the Performance Security in accordance with ITT Clause 41 and signing the Contract in accordance with sub-Clause 40.2

**39.3** At the same time as the person submitting the successful Tender is notified, the Procuring Entity will notify each unsuccessful Tenderer, the name of the successful Tenderer and the Contract amount and will discharge the Tender Security and Tender Securing Declaration of the Tenderer pursuant to ITT sub Clause 19.7.

**39.4** If, after notification of award, a Tenderer wishes to ascertain the grounds on which its Tender or application for pre-qualification was unsuccessful, it should address its request to

the secretary of the Tender Committee that authorized the award of contract. The secretary of the Tender Committee shall, within fourteen days after a request, provide written reasons as to why the Tender, proposal or application to be pre-qualified was unsuccessful. However, failure to take this opportunity to clarify the grounds for rejection does not affect the Tenderer's right to seek immediate review by the Public Procurement Administrative Review Board under Clause 45.

#### **40. Signing of Contract**

**40.1** Promptly, and in no case later than 14 days, after notification, Procuring Entity shall send the successful Tenderer the Agreement and Contract Data Sheet, incorporating all agreements between the parties obtained as a result of Contract negotiations.

**40.2** Within the period specified in the notification or Tender Data Sheet but not earlier than fourteen (14) days since notification of award of contract, the successful Tenderer shall sign and date the contract and return it to the Procuring Entity.

#### **41. Performance Security**

**41.1** Within thirty (30) days but after 14 days after receipt of the Letter of Acceptance, the successful Tenderer shall deliver to the Procuring Entity a Performance Security in the amount and in the form stipulated in the Tender Data Sheet and the Contract Data Sheet, denominated in the type and proportions of currencies in the Letter of Acceptance and in accordance with the Conditions of Contract.

**41.2** If the Performance Security is provided by the successful Tenderer in the form of a Bank Guarantee or Insurance Bond, it shall be issued either:

a) At the Tenderer's option, by a bank or insurance firm located in Kenya, or a foreign bank or insurance firm through a correspondent bank or insurance firm located in Kenya;

b) With the consent of the Procuring entity, directly by a foreign bank acceptable to the

Procuring entity.

**41.3** Failure of the successful Tenderer to comply with the requirement of sub-Clause 41.1 shall constitute sufficient grounds for the annulment of the award and forfeiture of the Tender Security, in which event the Procuring Entity may make the award to the next lowest evaluated Tenderer or call for new Tenders.

#### **42. Advance Payment**

**42.1** The Procuring Entity will provide an Advance Payment as stipulated in the Conditions of Contract, subject to a maximum amount, as stated in the Tender Data Sheet.

**42.2** The Advance Payment request shall be accompanied by an Advance Payment Security (Guarantee) in the form provided in Section X. For the purpose of receiving the Advance Payment, the Tenderer shall make an estimate of, and include in its Tender, the expenses that will be incurred in order to commence work. These expenses will relate to the purchase of equipment, machinery, materials, and on the engagement of labour during the first month beginning with the date of the Procuring Entity's "Notice to Commence" as specified in the Contract Data Sheet.

#### **43. Adjudicator**

**43.1** The Procuring Entity proposes the person named in the Tender Data Sheet to be appointed as Adjudicator under the Contract, at an hourly fee specified in the Tender Data Sheet, plus reimbursable expenses. If the Tenderer disagrees with this proposal, the Tenderer should so state in the Tender. If, in the Letter of Acceptance, the Procuring Entity has not agreed on the appointment of the Adjudicator, the Adjudicator shall be appointed by the Appointing Authority designated in the Contract Data Sheet at the request of either party.

### **G. Review of Procurement Decisions**



#### **44. Right to Review**

**44.1** A Tenderer who claims to have suffered or risk suffering, loss or damage or injury as a result of breach of a duty imposed on a Procuring Entity or an Approving Authority by the Public Procurement and Disposal Act, 2005 and the Public Procurement and Disposal Regulations 2006, the procurement proceedings or processes, may seek administrative review as prescribed by the Act. The following matters, however, shall not be subject to the administrative review:

- a) The choice of procurement method;
- b) a decision by the Procuring Entity to reject all Tenders, proposals or quotations;
- c) Where a contract is signed in accordance to Section 68 of the Public Procurement and Disposal Act,2005;
- d) Where an appeal is frivolous.

#### **45. Time Limit on Review**

**45.1** The Tenderer shall submit an application for review in the number of copies and pay fees as prescribed by the Public Procurement and Disposal Regulations 2006 within fourteen (14) days of the time the Tenderer became or should have become aware of the circumstances giving rise to the complaint or dispute.

#### **46. Submission of Applications for Review by the Public Procurement Administrative Review Board**

**46.1** Any application for administrative review shall be submitted in writing to the Secretary, Public Procurement Administrative Review Board on Form RB 1 at the address shown in the Tender Data Sheet. The secretary to the review board shall immediately after filing of the request, serve a copy thereof on the Procuring Entity or Director-General as the case may be.

**46.2** The application for administrative review shall be in accordance with the requirements of Regulation 73 of the Public Procurement and Disposals Regulations,2006, including:

- a) Reasons for the complaint ,including any alleged breach of the Act or Regulations;
- b) An explanation of how the provisions of the Act and or Regulation has been breached or omitted, including the dates and name of the responsible public officer, where known;

- c) Statements or other evidence supporting the complaint where available as the applicant considers necessary in support of its request;
- d) Remedies sought;
- e) Any other information relevant to the complaint.

**47. Decision by the Public Procurement Administrative Review Board**

- 47.1** The Administrative Review Board shall within thirty days after receipt of an application for administrative review deliver a written decision which shall indicate:
- a) Annulling anything the Procuring Entity has done in the procurement proceedings, including annulling the procurement proceedings in their entirety;
  - b) Giving directions to the Procuring Entity with respect to anything to be done or redone in the procurement proceedings;
  - c) Substituting the decision of the Review Board for any decision of the Procuring Entity in the procurement proceedings;
  - d) Order the payment of costs as between parties to the review.

**47.2** The decision made by the Review Board shall, be final and binding on the parties unless judicial review thereof commences within fourteen (14) days from the date of the Review Board's decision.

**48. Appeal on the decision of the Review Board**

**48.1** Any party to the review aggrieved by the decision of the Review Board may appeal to the High Court and the decision of the High Court shall be final.

**SECTION III: TENDER DATA SHEET**

## Tender Data Sheet (TDS)

### Instructions to Tenderers Clause Reference

TDS Reference Number	ITT Clause Number	Amendments of, and Supplements to, Clauses in the Instruction to Tenderers
<b>A. Introduction</b>		
<b>1.</b>	<b>1.1</b>	The Procuring Entity is <b>Northern Water Works Development Agency</b>
<b>2.</b>	<b>1.1</b>	Name of Project is <b>Construction of Forole Aldere Earth Dam under the Water for peace programme.</b>
<b>3.</b>	<b>1.2</b>	The expected completion date of the works is <b>6 months after signing the contract</b>
<b>4.</b>	<b>1.3</b>	The Objectives of the Project is to <b>increase access of water to the communities in Forole Aldere in North Horr, Marsabit County</b>
<b>5.</b>	<b>2.1</b>	Name of financing institution is <b>GOK</b>  Name of the Procuring entity is <b>Northern Water Works Development Agency.</b> Financial Year is <b>2019/2020</b> Describe works under the contracts The works involves but is not limited to the following:- <ul style="list-style-type: none"> <li>a) Al Dere Homogenous earthfill dam of capacity 647,664M<sup>3</sup>, depth 3.75m and Height 2.25m</li> <li>b) Intake Tower of height 5.0m</li> <li>c) Communal Water Point</li> <li>d) 2 Cattle Troughs</li> <li>e) 2 Shoat Troughs and</li> <li>f) Fencing the dam</li> </ul>
<b>6.</b>	<b>2.2</b>	The loan/ credit number is ..... <b>N/A.</b>
<b>7.</b>	<b>5.1</b>	Alternative Tenders are <b><i>Not Allowed</i></b>
<b>8.</b>	<b>5.2</b>	Alternative time for completion <b>Not applicable</b>
<b>9.</b>	<b>3.1</b>	Only Tenderers registered with the - <ul style="list-style-type: none"> <li>- <b>NCA 3- Water works and Above</b></li> <li>-<b>Ministry of Water Class C Dam Contractors and above</b></li> </ul>

10.	7.3	Pre-Tender meeting shall be held on 14 <sup>th</sup> January 2020 at the dam site, the visit will be at the contractors cost.
11.	7.5	N/A
	7.6	N/A

<b>B. Tendering Documents</b>		
12.	8.2	The number of copies to be completed and returned with the Tender is <b>Two</b> .
13.	8.1	Address for clarification of Tendering Document is <b>Chief Executive Officer, Northern Water Works Development Agency P.O Box 495 Garissa</b>
14.	8.2	Period to Respond to request for clarification by the Procuring Entity <i>7 days</i>  Period Prior to deadline for submission of Tenders for Tenderers to request clarification <i>7 days</i>

<b>C. Preparation of Tenders</b>																	
15.	11.1	Language of Tender and all correspondence shall be <b>English</b>															
16.	13.3	<p>Other information or materials required to be completed and submitted by Tenderers and of which will form the <b>EVALUATION CRITERIA</b></p> <p>The following requirements must be met by the tenderer notwithstanding other requirements in the tender documents, bidder <b>Must serialize all the pages of each bid submitted</b></p> <p><b>Mandatory Requirements (MR)</b></p> <table border="1"> <thead> <tr> <th>No.</th> <th>Requirement</th> <th>Responsive or No Responsive</th> </tr> </thead> <tbody> <tr> <td>MR 1</td> <td>Must submit a copy of certificate of registration/Incorporation</td> <td></td> </tr> <tr> <td>MR 2</td> <td>Must submit a copy of valid tax compliance certificate</td> <td></td> </tr> <tr> <td>MR 3</td> <td>Must fill the bill of quantities in the format provided</td> <td></td> </tr> <tr> <td>MR 4</td> <td>Must fill the form of tender in the format provided and signed by the authorized person in line with CR 12</td> <td></td> </tr> </tbody> </table>	No.	Requirement	Responsive or No Responsive	MR 1	Must submit a copy of certificate of registration/Incorporation		MR 2	Must submit a copy of valid tax compliance certificate		MR 3	Must fill the bill of quantities in the format provided		MR 4	Must fill the form of tender in the format provided and signed by the authorized person in line with CR 12	
No.	Requirement	Responsive or No Responsive															
MR 1	Must submit a copy of certificate of registration/Incorporation																
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MR 3	Must fill the bill of quantities in the format provided																
MR 4	Must fill the form of tender in the format provided and signed by the authorized person in line with CR 12																

<b>MR 5</b>	Provide a tender security of Kshs 1,500,000.00 ( bank guarantee) valid for 150 days		
<b>MR 6</b>	Power of attorney proof authorizing the signatory of the tender to commit the tenderer (Must attach CR12) if the person signing the bid is not the director		
<b>MR 7</b>	Must submit a copy of valid registration from NCA 3 Water Works and above		
<b>MR 8</b>	Must submit a copy of valid registration from Ministry of Water as a qualified water resource contractor Class C and above in the category of Dams contractors		

**At this stage, the tenderer's submission will either be responsive in the entire mandatory requirement (MR) above or non – responsive. The non- responsive submission will be eliminated from the entire evaluation process and will not be considered further.**

**Technical Evaluation.**

No.	PARAMETER	MAXIMUM SCORE	
<b>1</b>	<b>Relevant Experience</b>		
	<b>Specific Experience</b> Experience as prime contractor in the construction of projects ( Construction of Earth Dams) of a similar nature and complexity equivalent to the Works	<b>20</b>	
	<b>General Experience</b> Experience as prime contractor in construction of other projects	<b>10</b>	
<b>2</b>	<b>Equipment</b>		
	Lorry 3-7 tonnes – 6 No. 5m3 Concrete mixer -1 No. Poker Vibrator – 2No. Pick up – 1No. Bulldozer (D8) – 2No. Backhoe – 1No. Compressor – 1No. Roller – 1No. Shovel 1No.	Owned( Max 25 marks) <b>0 - 30</b> 50% owned 50% leased <b>0 - 25</b> 100% leased( Max 15 marks) <b>0 - 15</b>	
<b>3</b>	<b>Key Personnel</b>		
	Site Agent Max(8 marks )	Qualification –Civil Engineering	Degree <b>5</b> HND <b>4</b> Diploma <b>3</b>
		Relevant experience –	5 – 10 years <b>4</b>

		(10 years)	0-5	<b>4</b>
	Plant Operator	Qualification -	Grade I	<b>3</b>
	Plant Mechanic	Qualification	Grade I	<b>3</b>
	Foreman	Qualification	Certificate	<b>2</b>
<b>4</b>	<b>Financial Capacity</b>			
	Audited Accounts- financial capability of the firm based on information provided in the last 3 years audited account ( 2015 – 2018) Current Ratio = $\frac{\text{Current asset}}{\text{Current Liabilities}}$			<b>5</b>
	Line of credit of over 100 million			<b>2</b>
	Annual volume (turn over) of construction work for the successful Tenderer in any of the last 2 years shall be: over <b>Ksh 300 million. others</b>			<b>5</b>
	Bank statements ( last six months to date of tender)			<b>5</b>
	Proposed program ( Work methodology and schedule)			<b>6</b>
	Total			<b>100%</b>
	<p><b>Only bidders who score 70% and above will be subject to financial evaluation. Those who score below 70% will be eliminated at this stage from the entire evaluation process and will not be considered further</b></p> <p><b>If a bidder applies for more than one tender the aggregate capacity to undertake the works will be taken in to consideration during evaluation</b></p> <p><b>The authority will verify information submitted. Any form of forgery or misinformation will lead to disqualification of the bid in the technical evaluation.</b></p> <p><b>If a bidder applies for more than one tender the aggregate capacity to undertake the works will be taken in to consideration during evaluation</b></p>			
<b>17.</b>	<b>13.4</b>	<p>In the case of joint venture each partner shall submit information required under Clause ITT Clause 13.4. In addition the Tenderer shall furnish the following ,</p> <p><b>a) The Power of the Attorney to be provided if the person signing is not the Director</b></p> <p><b>b) Audited books of account with a turnover of at least Ksh 300 Million for the last three years.</b></p>		
<b>18.</b>	<b>16.4</b>	The price shall be <i>fixed</i>		

		Information to be submitted with the Tender are:  <b>i) The basic rates of materials and services</b>
<b>19.</b>	<b>17.1</b>	The currency in which the prices shall be quoted shall be: <b><i>Kenyan Shilling</i></b>
<b>20.</b>	<b>17.2 30.2</b>	The authority for establishing the rates of exchange shall be <b>Central Bank of Kenya</b>  The applicable date for exchange rates for tendering and evaluation purposes date of tender opening
<b>21.</b>	<b>18.1</b>	The Tender validity period shall be <b>120 days</b> .
<b>22.</b>	<b>19.1</b>	<b>The amount of Tender Security Kshs 1,500,000.00 (Bank Guarantee only)</b>
<b>23.</b>	<b>20.1</b>	In addition to the original of the Tender, the Tenderer <b>should submit</b> <b>2 copies of the Tender</b> – original + 2 copies
<b>24.</b>	<b>20.2</b>	Written confirmation of authorization are <b><i>Power of attorney – copies of original documents to be provided as proof authorizing the signatory of the tender to commit the tenderer.</i></b> <b><i>The form of tender must be fully filled and signed by the authorized person</i></b>

<b>D. Submission of Tenders</b>		
<b>25.</b>	<b>21.2 a)</b>	Tenders shall be submitted to <b>Chief Executive Officer, Northern Water Works Development Agency P.O Box 495 Garissa</b>
<b>26.</b>	<b>21.2 b)</b>	Project Name..... <b>Construction of Forole – Al dere Earth Dam</b> Tender number... <b>NWWDA/T/CW/007/2019 – 2020</b>
<b>27.</b>	<b>22.1</b>	The deadline for Tender submission is <b>a) Day</b> <b>b) Date...23<sup>rd</sup> January 2020</b> <b>c) Time ...11.00 am.....</b>
<b>28.</b>	<b>22.3</b>	The extension of the deadline for submission of Tenders shall be made not later than <b>N/A</b> .
<b>29</b>	<b>24.4</b>	Expiry of Tender validity is <b>120 days</b>



<b>E. Opening and Evaluation of Tenders</b>		
<b>29.</b>	<b>25.1</b>	The Tender opening shall take place at: <b>Chief Executive Officer, Northern Water Works Development Agency P.O Box 495 Garissa</b>  Date... <b>23<sup>rd</sup> January 2020.</b> Time <b>11.30 am</b>
<b>30.</b>	<b>32.3</b>	Additional Preference <i>Not applicable</i>
<b>31.</b>	<b>34.1</b>	Post- qualification <b>will be undertaken</b>
<b>32.</b>	<b>38.1</b>	Percentage for quantities increase or decrease is <b>15%</b>

<b>F. Award of Contract</b>		
<b>33.</b>	<b>41.1</b>	The amount of Performance Security shall be <b>10% of the contract price</b>
<b>34.</b>	<b>42.1</b>	The Advance Payment shall be ... <b>N/A</b>
<b>35.</b>	<b>43.1</b>	The proposed adjudicator for the project is: <b>The Institution of Engineers of Kenya...</b> <i>[insert name of the proposed adjudicator]</i> whose hourly rate shall <b>be determined by the Institution</b>
<b>G. Review of Procurement Decisions</b>		
<b>37.</b>	<b>46.1</b>	The address for submitting appeals to Administrative Review Board : The Secretary, Public Procurement Administrative Review Board , The Public Procurement Oversight Authority, 10 <sup>th</sup> Floor ,National Bank House, P.O. Box 58583-00200, NAIROBI, Kenya. Tel: +254 (0) 20 3244000

**SECTION IV: GENERAL CONDITIONS OF CONTRACT**

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## A. General

### 1. Definitions

1.1 Boldface type is used to identify defined terms.

The **Adjudicator** is the person appointed jointly by the Procuring Entity and the Contractor to resolve disputes in the first instance, as provided for in Clauses 27 and 28 hereunder.

**Bill of Quantities** means the priced and completed Bill of Quantities forming part of the Tender.

**Compensation Events** are those defined in Clause 47 hereunder.

The **Completion Date** is the date of completion of the Works as certified by the Project Manager, in accordance with Sub-Clause 58.1.

The **Contract** is the Contract between the Procuring Entity and the Contractor to execute, complete, and maintain the Works. It consists of the documents listed in Clause 2.3 below.

The **Contractor** is a person or corporate body whose Tender to carry out the Works has been accepted by the Procuring Entity.

The **Contractor's Tender** is the completed Tendering document submitted by the Contractor to the Procuring Entity.

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

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

**Dayworks** are varied work inputs subject to payment on a time basis for the Contractor's employees and Equipment, in addition to payments for associated Materials and Plant.

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

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

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

**Drawings** include calculations and other information provided or approved by the Project Manager for the

execution of the Contract.

The **Procuring Entity** 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 to construct the Works.

The **Initial Contract Price** is the Contract Price listed in the Procuring Entity's Letter of Acceptance.

The **Intended Completion Date** is the date on which it is intended that the Contractor shall complete the Works. The Intended Completion Date is specified in the **Contract Data Sheet**. The Intended Completion Date may be revised only by the Project Manager by issuing an extension of time or an acceleration order.

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

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

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

The **Site** is the area defined as such in the **Contract Data Sheet**.

**Site Investigation Reports** are those that were included in the Tendering documents and are factual and interpretative reports about the surface and subsurface conditions at the Site.

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

The **Start Date** is given in the **Contract Data Sheet**. It is the latest date when the Contractor shall commence execution of the Works. It does not necessarily coincide with any of the Site Possession Dates.

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 that are needed for construction or installation of the Works.

A **Variation** is an instruction given by the Project Manager that varies the Works.

The **Works** are what the Contract requires the Contractor to construct, install, and turn over to the Procuring Entity, as defined in the **Contract Data Sheet**.

“**Force Majeure**” means an event which is beyond the reasonable control of a Party and which makes a Party’s performance of its obligations under the Contract impossible or so impractical as to be considered impossible under the circumstances.

## 2. Interpretation

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

2.2 If sectional completion is specified in the **Contract Data Sheet**, references in the Conditions of Contract to the Works, the Completion Date, and the Intended Completion Date apply to any Section of the Works (other than references to the Completion Date and Intended Completion Date for the whole of the Works).

2.3 The documents forming the Contract shall be interpreted in the order of priority given in the **Contract Data Sheet**:

- (1) Agreement;
- (2) Letter of Acceptance;
- (3) Contract Data Sheet;
- (4) Conditions of Contract;
- (5) Technical Specifications;
- (6) Contractor’s Tender;
- (7) Drawings;
- (8) Bill of Quantities; and
- (9) Any other document listed in the **Contract Data Sheet** as forming part of the Contract.

## 3. Language, Law, Fraud and Corruption

3.1 The language of the Contract and the law governing the Contract are stated in the **Contract Data Sheet**.

3.2 The Government requires that Procuring Entities (including beneficiaries of Government funded projects)

as well as Tenderers/Suppliers/Contractors under Government financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts. It is the responsibility of the Procuring Entity to ensure that Tenderers, suppliers, and contractors and their subcontractors observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy:

For the purpose of this provision, the following definitions are provided:

- (i). **“Corruption”** has the meaning assigned to it in the Anti Corruption and Economic Crime Act 2003 and includes the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement or disposal process or in contract execution;
- (ii). **“Fraudulent Practice”** includes a misrepresentation of fact in order to influence a procurement or disposal process or the execution of a contract to the detriment of the Procuring Entity and includes collusive practices amongst Tenderers prior to or after Tender submission designed to establish Tender prices at artificial non competitive levels and deprive the Procuring Entity of the benefits of free and open competition;
- (iii). **“Collusive Practice”** means an arrangement between two or more suppliers, contractors and subcontractors designed to achieve an improper purpose, including to influence improperly the actions of the Procuring Entity prior to or after Tender submission , designed to establish Tender prices at artificial non competitive levels and to deprive the Procuring Entity of the benefit of free and open competition;
- (iv). **“Coercive Practice”** means impairing or harming, or threatening to impair or harm, directly or indirectly a supplier, contractor or subcontractor or the property of any of them to influence improperly the actions of a Procuring Entity;
- (v). **“Obstructive Practice”** means deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede an investigation into



allegations of a corrupt, fraudulent, coercive or collusive practice; and /or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation.

A Procuring Entity has the right to require that Tenderers, suppliers, and contractors and their subcontractors permit persons duly appointed by KACC/PPOA/KNAO to inspect their accounts and records and other documents relating to the Tender submission and contract performance;

The Procuring Entity will reject a proposal for award if it determines that the Tenderer recommended for award has engaged in corrupt, fraudulent practices or others stated under Clause 44.1.a in competing for the contract;

In pursuit of the policy defined in sub-Clause 44.1 the Procuring Entity will cancel the portion of the funds allocated to a contract for goods, works, or services if it at any time determines that corrupt or fraudulent practices were engaged in by representatives of the Procuring Entity or Approving Authority or of a beneficiary of the funds during the procurement or the execution of that contract;

In the event that the Procuring Entity or Approving Authority does not take timely and appropriate action satisfactory to the Government of Kenya to remedy the situation, then the Director-General may order an investigation of procurement proceedings for the purpose of determining whether there has been a breach of the Public Procurement and Disposal Act, 2005.

3.3 The Director-General may, on the advice of the Advisory Board, debar a person from participating in procurement proceedings on the ground that the person has committed an offence under the Public Procurement and Disposal Act, 2005. A debarment shall be for a period of time of not less than five years. Before a person is so debarred, he/she will be given an opportunity to make representations to the Director-General and may request the Review Board to review the debarment.

3.4 Any communication between the Tenderers and the Procuring Entity related to matters of alleged fraud or corruption must be made in writing.

#### **4. Confidentiality**

4.1 The Service Providers, their Subcontractors, and the

Personnel of either of them shall not disclose any proprietary or confidential information relating to the Project, the Services, this Contract, or the Procuring Entity's business or operations without the prior written consent of the Procuring Entity.

- 5. Project Manager's Decisions**      5.1 Except where otherwise specifically stated, the Project Manager will decide contractual matters between the Procuring Entity and the Contractor in the role representing the Procuring Entity.
- 6. Delegation**      6.1 The Project Manager may delegate any of his duties and responsibilities to other people except to the Adjudicator, after notifying the Contractor, and may cancel any delegation after notifying the Contractor.
- 7. Communications**      7.1 Communications between parties that are referred to in the Conditions shall be effective only when in writing. A notice shall be effective only when it is delivered.
- 8. Subcontracting**      8.1 The Contractor may subcontract with the approval of the Project Manager, but may not assign the Contract without the approval of the Procuring Entity in writing. Subcontracting shall not alter the Contractor's obligations.
- 9. Other Contractors**      9.1 The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities, and the Procuring Entity between the dates given in the Schedule of Other Contractors, as referred to in the **Contract Data Sheet**. The Contractor shall also provide facilities and services for them as described in the Schedule. The Procuring Entity may modify the Schedule of Other Contractors, and shall notify the Contractor of any such modification
- 10. Personnel**      10.1 The Contractor shall employ the key personnel named in the Schedule of Key Personnel, as referred to in the **Contract Data Sheet**, who shall be appropriately qualified and registered with the appropriate bodies to carry out the functions stated in the Schedule or other personnel approved by the Project Manager. The Project Manager will approve any proposed replacement of key personnel only if their relevant qualifications and abilities are substantially equal to or better than those of the personnel listed in the Schedule.

10.2 If the Project Manager asks the Contractor to remove a person who is a member of the Contractor's staff or work force, stating the reasons, the Contractor shall ensure that the person leaves the Site within seven days and has no further connection with the work in the Contract.

- 11. Procuring Entity's and Contractor's Risks**
- 11.1 The Procuring Entity carries the risks which this Contract states are Procuring Entity's risks, and the Contractor carries the risks which this Contract states are Contractor's risks.
- 12. Procuring Entity's Risks**
- 12.1 From the Start Date until the Defects Correction Certificate has been issued, the following are Procuring Entity's risks:
- a) The risk of personal injury, death, or loss of or damage to property (excluding the Works, Plant, Materials, and Equipment), which are due to:
    - (i) Use or occupation of the Site by the Works or for the purpose of the Works, which is the unavoidable result of the Works; or
    - (ii) Negligence, breach of statutory duty, or interference with any legal right by the Procuring Entity or by any person employed by or contracted to him except the Contractor.
  - b) The risk of damage to the Works, Plant, Materials, and Equipment to the extent that it is due to a fault of the Procuring Entity or in the Procuring Entity's design, or due to war or radioactive contamination directly affecting the country where the Works are to be executed.
- 12.2 From the Completion Date until the Defects Correction Certificate has been issued, the risk of loss of or damage to the Works, Plant, and Materials is an Procuring Entity's risk except loss or damage due to:
- (a) A Defect which existed on the Completion Date;
  - (b) An event occurring before the Completion Date, which was not itself an Procuring Entity's risk; or
  - (c) The activities of the Contractor on the Site after the Completion Date.
- 13. Contractor's Risks**
- 13.1 From the Starting Date until the Defects Correction Certificate has been issued, the risks of personal injury, death, and loss of or damage to property (including, without limitation, the Works, Plant, Materials, and Equipment) which are not Procuring Entity's risks are Contractor's risks.
- 14. Insurance**
- 14.1 The Contractor shall provide, in the joint names of the Procuring Entity and the Contractor, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts and deductibles stated in the **Contract Data Sheet** for the following events which are due to the

Contractor's risks:

- (a) Loss of or damage to the Works, Plant, and Materials;
- (b) Loss of or damage to Equipment;
- (c) Loss of or damage to property (except the Works, Plant, Materials, and Equipment) in connection with the Contract; and
- (d) Personal injury or death.

14.2 Policies and certificates for insurance shall be delivered by the Contractor to the Project Manager for the Project Manager's approval before the Start Date. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.

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

14.4 Alterations to the terms of insurance shall not be made without the approval of the Project Manager.

14.5 Both parties shall comply with any conditions of the insurance policies.

**15. Site Investigation Reports**

15.1 The Contractor, in preparing the Tender, shall rely on any Site Investigation Reports referred to in the **Contract Data Sheet**, supplemented by any information available to the Tenderers.

**16. Queries about the Contract Data Sheet**

16.1 The Project Manager will clarify queries on the **Contract Data Sheet**.

**17. Contractor to Construct the Works**

17.1 The Contractor shall construct and install the Works in accordance with the Specifications and Drawings.

**18. Commencement and Completion**

18.1 The Contractor may commence execution of the Works on the Start Date and shall carry out the Works in accordance with the Programme submitted by the Contractor, as updated with the approval of the Project Manager, and complete them by the Intended Completion Date.

**19. Approval by the Project**

19.1 The Contractor shall submit Specifications and Drawings showing the proposed Temporary Works to the Project

- Manager** Manager, who is to approve them if they comply with the Specifications and Drawings.
- 19.2 The Contractor shall be responsible for the design of Temporary Works.
- 19.3 The Project Manager's approval shall not alter the Contractor's responsibility for design of the Temporary Works.
- 19.4 The Contractor shall obtain approval of third parties to the design of the Temporary Works, where required.
- 19.5 All Drawings prepared by the Contractor for the execution of the temporary or permanent Works, are subject to prior approval by the Project Manager before their use.
- 20. Protection of the Environment**
- 20.1 The Contractors shall take all reasonable steps to protect the environment and to limit damage and nuisance to people and property resulting from pollution, noise and other results of his operations.
- 20.2 The Contractors shall ensure that emissions, surface discharges and effluent from his activities shall not exceed prescribed values in the environmental laws.
- 21. Labour Laws**
- 21.2 The Contractor shall comply with all the relevant labour laws applicable in the Country, including laws relating to workers employment, working hours, health, safety, welfare, and immigration, and shall allow them all their legal rights.
- 21.2 The Contractor shall require his employees to obey all applicable laws, including those concerning safety at work.
- 22. Health and Safety**
- 22.1 The Contractor shall at all times take all reasonable precautions to maintain the health and safety of his personnel.
- 22.2 The Contractor shall ensure that first aid facilities are available at all times at the site and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics.
- 22.3 The Contractor shall notify the Procuring Entity details of any accident as soon as practicable after its occurrence. The Contractor shall maintain records and make reports concerning health, safety, and welfare of persons, and damage to the property, as the Procuring Entity may reasonably require.
- 22.4 The Contractor shall conduct an HIV-Aids awareness

programme, and shall take other such measures as specified in the **Contract Data Sheet** to reduce the risk of transfer of HIV virus between and among Contractor personnel, the Procuring Entity's Staff and the surrounding community.

- 23. Discoveries**
- 23.1 Anything of historical or other interest or of significant value unexpectedly discovered on the Site shall be the property of the Procuring Entity. The Contractor shall notify the Project Manager of such discoveries and carry out the Project Manager's instructions for dealing with them.
- 24. Possession of the Site**
- 24.1 The Procuring Entity shall give possession of all parts of the Site to the Contractor. If possession of a part is not given by the date stated in the **Contract Data Sheet**, the Procuring Entity will be deemed to have Warangara duoyed the start of the relevant activities, and this will be a Compensation Event.
- 25. Access to the Site**
- 25.1 The Contractor shall allow the Project Manager and any person authorized by the Project Manager access to the Site and to any place where work in connection with the Contract is being carried out or is intended to be carried out.
- 26. Instructions, Inspections and Audits**
- 26.1 The Contractor shall carry out all instructions of the Project Manager which comply with the applicable laws where the Site is located.
- 26.2 The Contractor shall permit the Kenya Government to inspect the Contractor's accounts and records relating to the performance of the Contractor and to have them audited by auditors appointed by the Kenya Government, if so required by the Kenya Government
- 27. Disputes**
- 27.1 If the Contractor believes that a decision taken by the Project Manager was either outside the authority given to the Project Manager by the Contract or that the decision was wrongly taken, the decision shall be referred to the Adjudicator within 14 days of the notification of the Project Manager's decision.
- 28. Procedure for Disputes**
- 28.1 The Adjudicator shall give a decision in writing within 28 days of receipt of a notification of a dispute.
- 28.2 The Adjudicator shall be paid by the hour at the rate specified in the **Tender Data Sheet** and **Contract Data Sheet**, together with reimbursable expenses of the types specified in the **Contract Data Sheet**, and the cost shall be divided equally between the Procuring Entity and the

Contractor, whatever decision is reached by the Adjudicator. Either party may refer a decision of the Adjudicator to an Arbitrator within 28 days of the Adjudicator's written decision. If neither party refers the dispute to arbitration within the above 28 days, the Adjudicator's decision will be final and binding.

28.3 The arbitration shall be conducted in accordance with the arbitration procedure published by the institution named and in the place shown in the **Contract Data Sheet**.

**29. Replacement of Adjudicator**

29.1 Should the Adjudicator resign or die, or should the Procuring Entity and the Contractor agree that the Adjudicator is not functioning in accordance with the provisions of the Contract, a new Adjudicator will be jointly appointed by the Procuring Entity and the Contractor. In case of disagreement between the Procuring Entity and the Contractor, within 30 days, the Adjudicator shall be designated by the Appointing Authority designated in the **Contract Data Sheet** at the request of either party, within 14 days of receipt of such request.

**B. Time Control**

**30. Programme**

30.1 Within the time stated in the **Contract Data Sheet**, the Contractor shall submit to the Project Manager for approval a Programme showing the general methods, arrangements, order, and timing for all the activities in the Works.

30.2 An update of the Programme shall be a programme showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work, including any changes to the sequence of the activities.

30.3 The Contractor shall submit to the Project Manager for approval an updated Programme at intervals no longer than the period stated in the **Contract Data Sheet**. If the Contractor does not submit an updated Programme within this period, the Project Manager may withhold the amount stated in the **Contract Data Sheet** from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Programme has been submitted.

30.4 The Project Manager's approval of the Programme shall not alter the Contractor's obligations. The Contractor may revise the Programme and submit it to the Project Manager again at any time. A revised Programme shall show the effect of Variations and Compensation Events

- 31. Extension of the Intended Completion Date**
- 31.1 The Project Manager shall extend the Intended Completion Date if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining work, which would cause the Contractor to incur additional cost.
- 31.2 When the Procuring Entity wants the Contractor to finish before the Intended Completion Date, the Project Manager will obtain priced proposals for achieving the necessary acceleration from the Contractor. If the Procuring Entity accepts these proposals, the Intended Completion Date will be adjusted accordingly and confirmed by both the Procuring Entity and the Contractor.
- 32. Acceleration**
- 32.1 When the Procuring Entity wants the Contractor to finish before the Intended Completion Date, the Project Manager will obtain priced proposals for achieving the necessary acceleration from the Contractor. If the Procuring Entity accepts these proposals, the Intended Completion Date will be adjusted accordingly and confirmed by both the Procuring Entity and the Contractor.
- 32.2 If the Contractor's priced proposals for acceleration are accepted by the Procuring Entity, they shall be incorporated in the Contract Price and treated as a Variation.
- 33. Delays Ordered by the Project Manager**
- 33.1 The Project Manager may instruct the Contractor to delay the start or progress of any activity within the Works.
- 34. Management Meetings**
- 34.1 Either the Project Manager or the Contractor may require the other to attend a management meeting. The business of a management meeting shall be to review the plans for remaining work and to deal with matters raised in accordance with the early warning procedure.
- 34.2 The Project Manager shall record the business of management meetings and provide copies of the record to those attending the meeting and to the Procuring Entity. The responsibility of the parties for actions to be taken shall be decided by the Project Manager either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.
- 35. Early Warning**
- 35.1 The Contractor shall warn the Project Manager at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work, increase the Contract Price or delay the execution of the Works. The Project Manager may require the Contractor to provide an estimate of the expected effect of



the future event or circumstance on the Contract Price and Completion Date. The estimate shall be provided by the Contractor as soon as reasonably possible.

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

### **C. Quality Control**

- 36. Identifying Defects** 36.1 The Project Manager shall check the Contractor's work and notify the Contractor of any Defects that are found. Such checking shall not affect the Contractor's responsibilities. The Project Manager may instruct the Contractor to search for a Defect and to uncover and test any work that the Project Manager considers may have a Defect.
- 37. Tests** 37.1 If the Project Manager instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a Defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no Defect, the test shall be a Compensation Event.
- 38. Correction of Defects** 38.1 The Project Manager shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at Completion, and is defined in the **Contract Data Sheet**. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.
- 38.2 Every time notice of a Defect is given, the Contractor shall correct the notified Defect within the length of time specified by the Project Manager's notice.
- 38.3 If the Contractor has not corrected a defect within the time specified in the Procuring Entity's notice, a penalty for lack of performance will be paid by the Contractor. The amount to be paid will be calculated as a percentage of the cost of having the defect correct, assessed as described in Clause 39.
- 39. Uncorrected Defects** 39.1 If the Contractor has not corrected a Defect within the time specified in the Project Manager's notice, the Project Manager will assess the cost of having the Defect corrected, and the Contractor will pay this amount.

### **D. Cost Control**

- 40. Bill of** 40.1 The Bill of Quantities shall contain items for the

- Quantities** construction, installation, testing, and commissioning work to be done by the Contractor.
- 40.2 The Bill of Quantities is used to calculate the Contract Price. The Contractor shall be paid for the quantity of the work done at the rate in the Bill of Quantities for each item.
- 41. Changes in the Quantities**
- 41.1 If the final quantity of the work done differs from the quantity in the Bill of Quantities for the particular item by more than 25 percent, provided the change exceeds 1 percent of the Initial Contract Price, the Project Manager shall adjust the rate to allow for the change.
- 41.2 The Project Manager shall not adjust rates from changes in quantities if thereby the Initial Contract Price is exceeded by more than 15 percent, except with the prior approval of the Procuring Entity.
- 41.3 If requested by the Project Manager, the Contractor shall provide the Project Manager with a detailed cost breakdown of any rate in the Bill of Quantities.
- 42. Variations**
- 42.1 All Variations shall be included in the updated Programmes produced by the Contractor.
- 43. Payments for Variations**
- 43.1 The Contractor shall provide the Project Manager with a quotation for carrying out the Variation when requested to do so by the Project Manager. The Project Manager shall assess the quotation, which shall be given within seven days of the request or within any longer period stated by the Project Manager and before the Variation is ordered.
- 43.2 If the work in the Variation corresponds with an item description in the Bill of Quantities and if, in the opinion of the Project Manager, the quantity of work is above the limit stated in Sub-Clause 41.1 or the timing of its execution do not cause the cost per unit of quantity to change, the rate in the Bill of Quantities shall be used to calculate the value of the Variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the Variation does not correspond with items in the Bill of Quantities, the quotation by the Contractor shall be in the form of new rates for the relevant items of work.
- 43.3 If the Contractor's quotation is unreasonable, the Project Manager may order the Variation and make a change to the Contract Price, which shall be based on the Project Manager's own forecast of the effects of the Variation on the Contractor's costs.
- 43.4 If the Project Manager decides that the urgency of varying the work would prevent a quotation being given and

considered without Warangara duoying the work, no quotation shall be given and the Variation shall be treated as a Compensation Event.

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

#### **44. Cash Flow Forecasts**

44.1 When the Programme is updated, the Contractor shall provide the Project Manager with an updated cash flow forecast. The cash flow forecast shall include different currencies, as defined in the Contract, converted as necessary using the Contract exchange rates.

#### **45. Payment Certificates**

45.1 The Contractor shall submit to the Project Manager monthly statements of the estimated value of the work executed less the cumulative amount certified previously.

45.2 The Project Manager shall check the Contractor's monthly statement and certify the amount to be paid to the Contractor within twenty eight 28 days of receipt of the certificate from the contractor.

45.3 The value of work executed shall be determined by the Project Manager.

45.4 The value of work executed shall comprise the value of the quantities of the items in the Bill of Quantities completed.

45.5 The value of work executed shall include the valuation of Variations and Compensation Events.

45.6 The Project Manager may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.

45.7 The Project Manager shall not be bound to certify any payment, if the net amount, after all retentions and deductions would be less than minimum amount of Interim Payment Certificate stated in the **Contract Data Sheet**.

#### **46. Payments**

46.1 Payments shall be adjusted for deductions for advance payments and retention. The Procuring Entity shall pay the Contractor the amounts certified by the Project Manager within 28 days of the date of each certificate. If the Procuring Entity makes a late payment, the Contractor shall be paid interest on the late payment in the next payment Interest shall be calculated from the date by which the payment should have been made up to the date when the late payment is made at the prevailing rate of interest for commercial borrowing for each of the currencies in which payments are made as indicated in the

### **Contract Data Sheet.**

- 46.2 If an amount certified is increased in a later certificate or as a result of an award by the Adjudicator or an Arbitrator, the Contractor shall be paid interest upon the delayed payment as set out in this clause. Interest shall be calculated from the date upon which the increased amount would have been certified in the absence of dispute.
- 46.3 Unless otherwise stated, all payments and deductions will be paid or charged in the proportions of currencies comprising the Contract Price.
- 46.4 Items of the Works for which no rate or price has been entered in will not be paid for by the Procuring Entity and shall be deemed covered by other rates and prices in the Contract.

### **47. Compensation Events**

- 47.1 The following shall be Compensation Events:
- (a) The Procuring Entity does not give access to a part of the Site by the Site Possession Date stated in the **Contract Data Sheet**.
  - (b) The Procuring Entity modifies the Schedule of Other Contractors in a way that affects the work of the Contractor under the Contract.
  - (c) The Project Manager orders a delay or does not issue Drawings, Specifications, or instructions required for execution of the Works on time.
  - (d) The Project Manager instructs the Contractor to uncover or to carry out additional tests upon work, which is then found to have no Defects.
  - (e) The Project Manager unreasonably does not approve a subcontract to be let.
  - (f) Ground conditions are substantially more adverse than could reasonably have been assumed before issuance of the Letter of Acceptance from the information issued to Tenderers (including the Site Investigation Reports), from information available publicly and from a visual inspection of the Site.
  - (g) The Project Manager gives an instruction for dealing with an unforeseen condition, caused by the Procuring Entity, or additional work required for safety or other reasons.
  - (h) Other contractors, public authorities, utilities, or the Procuring Entity does not work within the dates and other constraints stated in the Contract, and they

cause delay or extra cost to the Contractor.

- (i) The advance payment is delayed.
- (j) The effects on the Contractor of any of the Procuring Entity's Risks.
- (k) The Project Manager unreasonably delays issuing a Certificate of Completion.
- (l) Other Compensation Events described in the Contract or determined by the Project Manager shall apply.

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

47.3 As soon as information demonstrating the effect of each Compensation Event upon the Contractor's forecast cost has been provided by the Contractor, it shall be assessed by the Project Manager, and the Contract Price shall be adjusted accordingly. If the Contractor's forecast is deemed unreasonable, the Project Manager shall adjust the Contract Price based on the Project Manager's own forecast. The Project Manager will assume that the Contractor will react competently and promptly to the event.

47.4 The Contractor shall not be entitled to compensation to the extent that the Procuring Entity's interests are adversely affected by the Contractor's not having given early warning or not having cooperated with the Project Manager.

#### **48. Taxes**

48.1 The Project Manager shall adjust the Contract Price if taxes, duties, and other levies are changed between the date 28 days before the submission of Tenders for the Contract and the date of the last Completion certificate. The adjustment shall be the change in the amount of tax payable by the Contractor, provided such changes are not already reflected in the Contract Price or are a result of Clause 50.

#### **49. Currencies**

49.1 Where payments are made in currencies other than the Kenya Shillings, the exchange rates used for calculating the amounts to be paid shall be the exchange rates stated in

the Contractor's Tender.

**50. Price Adjustment**

50.1 The amounts payable to the Contractor, in various currencies pursuant to Sub-Clause 45.1, shall be adjusted in respect of the rise or fall in the cost of labour, Contractor's Equipment, Plant, materials, and other inputs to the Works, by applying to such amounts the formulae prescribed in this clause based on the prevailing consumer price index obtained from the Central Bureau of Statistics or the monthly inflation rate issued by the Central Bank of Kenya.

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

50.3 The adjustment to be applied to amount payable to the Contractor as certified in Payment Certificates shall be determined formulae for each of the currencies in which the Contract Price is payable. No adjustment is to be applied to work valued on the basis of Cost or current prices. The formulae shall be as follows;

$$P_n = a + b \frac{L_n - L_o}{L_o} + c \frac{M_n - M_o}{M_o} + d \frac{E_n - E_o}{E_o} + etc.$$

where;

**P<sub>n</sub>** is a price adjustment factor to be applied to the amount in each specific currency for the payment of the work carried out in the subject month, where such variations and daywork are not otherwise subject to adjustment;

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

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

**L<sub>n</sub>, M<sub>n</sub>, E<sub>n</sub>, etc.**, are the current cost indices or reference prices of the cost elements in the specific currency of origin for month "**n**," determined pursuant to Sub-Clause 50.5, applicable to each cost element; and

**Lo, Mo, Eo**, etc., are the base cost indices or reference prices corresponding to the above cost elements at the date specified in Sub-Clause 50.5

The value of net work done, certified by the Project Manager, in any monthly Interim or Final Certificate as payable by the Procuring Entity to the Contractor before deduction of any retention money shall be increased or decreased by an amount of 'F'.

$$F = PnXPc$$

where;

The effective value **Pc** of work done which is to be subjected to increase or decrease shall be the difference between:

- (i) the amount which, in the opinion of the Project Manager, is due to the Contractor under Clause 45 (before deduction of retention money and before deducting sums previously paid on account) less:
  - any amount for payment or repayment of any advance payment;
  - any amount for materials on site (if any);
  - any amounts for nominated sub-contractors (if any)
  - any amounts for any other items based on actual cost or current prices; or
  - any sums for increase or decreases in the Contract Price paid under this Sub-Clauseand
- (ii) the amount calculated in accordance with (i) above of this Sub-clause and included in the last preceding statement.

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

50.5 The base cost indices or prices shall be those prevailing on the day 28 days prior to the latest date for submission of Tenders. Current indices or prices shall be those prevailing on the day 28 days prior to the last day of the period to

which a particular Interim Payment Certificate is related. If at any time the current indices are not available, provisional indices as determined by the Engineer will be used, subject to subsequent correction of the amounts paid to the Contractor when the current indices become available.

50.6 If the Contractor fails to complete the Works within the time for completion prescribed under Clause 58 adjustment of prices thereafter until the date of completion of the Works shall be made using either the indices or prices relating to the prescribed time for completion, or the current indices or prices, whichever is more favourable to the Procuring Entity, provided that if an extension of time is granted pursuant to Clause 28, the above provision shall apply only to adjustments made after the expiry of such extension of time.

50.7 The weightings for each of the factors of cost given in the **Appendix to Tender** shall be adjusted if, in the opinion of the Engineer, they have been rendered unreasonable, unbalanced, or inapplicable as a result of varied or additional work already executed or instructed under Clause 43 or for any other reason.

## **51. Retention**

51.1 The Procuring Entity shall retain from each payment due to the Contractor the proportion stated in the **Contract Data Sheet** until Completion of the whole of the Works.

51.2 On completion of the whole of the Works, half the total amount retained shall be repaid to the Contractor and the other half when the Defects Liability Period has passed and the Project Manager has certified that all Defects notified by the Project Manager to the Contractor before the end of this period have been corrected.

51.3 On completion of the whole Works, the Contractor may substitute retention money with an “on demand” Bank guarantee.

## **52. Liquidated Damages**

52.1 The Contractor shall pay liquidated damages to the Procuring Entity at the rate per day stated in the **Contract Data Sheet** for each day that the Completion Date is later than the Intended Completion Date. The total amount of liquidated damages shall not exceed the amount defined in the **Contract Data Sheet**. The Procuring Entity may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not affect the Contractor’s liabilities.

52.2 If the Intended Completion Date is extended after liquidated damages have been paid, the Project Manager



shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate. The Contractor shall be paid interest on the overpayment, calculated from the date of payment to the date of repayment, at the rates specified in Sub-Clause 46.1.

52.3 If the Contractor has not corrected a defects within the time specified in the Procuring Entity's notice, the Procuring Entity will assess the cost of having the defect corrected, the Contractor will pay this amount, and a penalty for lack of performance calculated as described in Clause 38.

### **53. Bonus**

53.1 The Contractor shall be paid a Bonus calculated at the rate per calendar day stated in the **Contract Data Sheet** for each day (less any days for which the Contractor is paid for acceleration) that the Completion is earlier than the Intended Completion Date. The Project Manager shall certify that the Works are complete, although they may not be due to be complete.

### **54. Advance Payment**

54.1 The Procuring Entity shall make advance payment to the Contractor of the amounts stated in the **Contract Data Sheet** by the date stated in the **Contract Data Sheet**, against provision by the Contractor of an Unconditional Bank Guarantee in a form and by a bank acceptable to the Procuring Entity in amounts and currencies equal to the advance payment. The Guarantee shall remain effective until the advance payment has been repaid, but the amount of the Guarantee shall be progressively reduced by the amounts repaid by the Contractor. Interest will not be charged on the advance payment.

54.2 The Contractor is to use the advance payment only to pay for Equipment, Plant, Materials, and mobilization expenses required specifically for execution of the Contract. The Contractor shall demonstrate that advance payment has been used in this way by supplying copies of invoices or other documents to the Project Manager.

54.3 The advance payment shall be repaid by deducting proportionate amounts from payments otherwise due to the Contractor, following the schedule of completed percentages of the Works on a payment basis. No account shall be taken of the advance payment or its repayment in assessing valuations of work done, Variations, price adjustments, Compensation Events, Bonuses, or Liquidated Damages.

### **55. Performance Securities**

55.1 The Performance Security shall be provided to the Procuring Entity no later than the date specified in the Letter of Acceptance and shall be issued in an amount and

form and by a bank or surety acceptable to the Procuring Entity, and denominated in the types and proportions of the currencies in which the Contract Price is payable. The Performance Security shall be valid until a date 28 days from the date of issue of the Certificate of Completion in the case of a Bank Guarantee, and until one year from the date of issue of the Completion Certificate in the case of a Performance Bond.

**56. Dayworks**

- 56.1 If applicable, the Dayworks rates in the Contractor's Tender shall be used for small additional amounts of work only when the Project Manager has given written instructions in advance for additional work to be paid for in that way.
- 56.2 All work to be paid for as Dayworks shall be recorded by the Contractor on forms approved by the Project Manager. Each completed form shall be verified and signed by the Project Manager within two days of the work being done.
- 56.3 The Contractor shall be paid for Dayworks subject to obtaining signed Dayworks forms.

**57. Cost of Repairs**

- 57.1 Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Correction periods shall be remedied by the Contractor at the Contractor's cost if the loss or damage arises from the Contractor's acts or omissions.

**E. Finishing the Contract**

**58. Completion Certificate**

- 58.1 The Contractor shall request the Project Manager to issue a certificate of Completion of the Works, and the Project Manager will do so upon deciding that the work is completed.

**59. Taking Over**

- 59.1 The Procuring Entity shall take over the Site and the Works within seven days of the Project Manager's issuing a certificate of Completion.

**60. Final Account**

- 60.1 The Contractor shall supply the Project Manager with a detailed account of the total amount that the Contractor considers payable under the Contract before the end of the Defects Liability Period. The Project Manager shall issue a Defects Liability Certificate and certify any final payment that is due to the Contractor within 56 days of receiving the Contractor's account if it is correct and complete. If it is not, the Project Manager shall issue within 56 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Project

Manager shall decide on the amount payable to the Contractor and issue a payment certificate.

**61. Operating and Maintenance Manuals**

61.1 If “as built” Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the **Contract Data Sheet**.

61.2 If the Contractor does not supply the Drawings and/or manuals by the dates stated in the **Contract Data Sheet**, or they do not receive the Project Manager’s approval, the Project Manager shall withhold the amount stated in the **Contract Data Sheet** from payments due to the Contractor.

**62. Termination**

62.1 The Procuring Entity or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.

62.2 Fundamental breaches of Contract shall include, but shall not be limited to, the following:

- (a) The Contractor stops work for 28 days when no stoppage of work is shown on the current Programme and the stoppage has not been authorized by the Project Manager;
- (b) The Project Manager instructs the Contractor to delays the progress of the Works, and the instruction is not withdrawn within 28 days;
- (c) The Procuring Entity or the Contractor is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation;
- (d) A payment certified by the Project Manager is not paid by the Procuring Entity to the Contractor within 84 days of the date of the Project Manager’s certificate;
- (e) The Project Manager gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Project Manager;
- (f) The Contractor does not maintain a Security, which is required; and
- (g) The Contractor has delayed the completion of the Works by the number of days for which the maximum amount of liquidated damages can be paid, as defined in the **Contract Data Sheet**.
- (h) If the Contractor, in the judgment of the Procuring Entity has engaged in corrupt or fraudulent practices

in competing for or in executing the Contract.

For the purpose of this paragraph:

“corrupt practice” means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution and includes inter alia, bribery and extortion or coercion which involves threats of injury to person ,property or reputation, and.

“fraudulent practice” means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Procuring Entity, and includes collusive practice among Tenderers (prior to or after Tender submission) designed to establish Tender prices at artificial non-competitive levels and to deprive the Procuring Entity of the benefits of free and open competition.

62.3 When either party to the Contract gives notice of a breach of Contract to the Project Manager for a cause other than those listed under Sub-Clause 62.2 above, the Project Manager shall decide whether the breach is fundamental or not.

62.4 Notwithstanding the above, the Procuring Entity may terminate the Contract for convenience.

62.5 If the Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site as soon as reasonably possible.

### **63. Payment upon Termination**

63.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Project Manager shall issue a certificate for the value of the work done and Materials ordered less advance payments received up to the date of the issue of the certificate and less the percentage to apply to the value of the work not completed, as indicated in the **Contract Data Sheet**. Additional Liquidated Damages shall not apply. If the total amount due to the Procuring Entity exceeds any payment due to the Contractor, the difference shall be a debt payable to the Procuring Entity.

63.2 If the Contract is terminated for the Procuring Entity’s convenience or because of a fundamental breach of Contract by the Procuring Entity, the Project Manager shall issue a certificate for the value of the work done, Materials ordered, the reasonable cost of removal of Equipment, repatriation of the Contractor’s personnel employed solely

on the Works, and the Contractor's costs of protecting and securing the Works, and less advance payments received up to the date of the certificate.

- 64. Property**            64.1 All Materials on the Site, Plant, Equipment, Temporary Works, and Works shall be deemed to be the property of the Procuring Entity if the Contract is terminated because of the Contractor's default.
- 65. Release from Performance**    65.1 If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Procuring Entity or the Contractor, the Project Manager shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which a commitment was made.
- 66. Suspension of Financing**    66.1 In the event that the source of financing is suspended to the Procuring Entity, from which part of the payments to the Contractor are being made:
- (a) The Procuring Entity is obligated to notify the Contractor of such suspension within 7 days of having received the financing agency's suspension notice.
  - (b) If the Contractor has not received sums due it within the 28 days for payment provided for in Sub-Clause 46.1, the Contractor may immediately issue a 14-day termination notice.



**SECTION V: CONTRACT DATA SHEET (CDS)**

## Contract Data Sheet

### Instructions for completing the Contract Data Sheet

CDS Clause	GCC Clause	Description
1	1.1	<p style="text-align: center;"><b>A. General</b></p> <p><b>(Itemise Definitions to take the same numbering as per the General Conditions)</b></p> <p>The Procuring Entity is Ministry of <i>Northern Water Works Development Agency</i>  The Adjudicator is <i>The Institution of Engineers of Kenya (IEK)</i></p> <p>The Defects Liability Period is <b>365 days</b>.</p> <p>The Project Manager is <i>The Technical Services Manager Northern Water Work Development Agency</i></p> <p>The name and identification number of the Contract is <b>Tender No NWWDA/T/CW/007/2019 – 2020 for Construction of Forole Al dere Earth Dam</b></p> <ul style="list-style-type: none"> <li>• The Works consist of :-</li> </ul> <p>The works involves but is not limited to the following:-</p> <ul style="list-style-type: none"> <li>• Al Dere Homogenous earth fill dam of capacity 647,664M<sup>3</sup>, depth 3.75m and Height 2.25m</li> <li>• Intake Tower of height 5.0m</li> <li>• Communal Water Point</li> <li>• 2 Cattle Troughs</li> <li>• 2 Shoat Troughs and</li> <li>• Fencing the dam</li> </ul> <p>The objectives of the contract are <i>to increase access to water to the communities Forole – Al dere , North Horr Marsabit County</i></p> <p>The Start Date shall be <i>14 days after contract signature</i>.</p> <p>The Intended Completion Date for the whole of the Works shall be <i>End of 6 months after signing the contract</i></p> <p>The following documents also form part of the Contract:</p> <ol style="list-style-type: none"> <li>1. Feasibility and Detailed Design Report</li> <li>2. The Specifications</li> <li>3. Drawings</li> </ol>



		The Site is located <i>North Horr, Marsabit County</i>
2.	2.2	Indicate whether there is sectional completion [ <i>specified/not specified</i> ]. <b>Not applicable</b>
3.	2.3(9)	List other documents that form part of the contract if any: <b>a) Minutes of Negotiation</b>
4.	3.1	The language of the Contract documents is <b>English</b> . The law that applies to the Contract is the Kenyan Law.
5.	9.1	Include the Schedule of Other Contractors, if any. <b>Not Applicable</b>
6.	10.1	Include the Schedule of Key Personnel. <b>1. Site Manager with at least 5 years experience on works of a similar nature.</b> <b>2. Foreman with at least 5 years experience in construction of Dams.</b>
7.	14.1	The minimum insurance covers shall be:  (a) loss of or damage to the Works, Plant, and Materials <b>Kshs 2,000,000</b>  (b) loss of or damage to Equipment <b>Kshs 2,000,000</b>  (c) loss of or damage to property (except the Works, Plant, Materials, and Equipment) in connection with the Contract <b>Kshs 2,000,000</b> and  (d) personal injury or death <b>Kshs 1,000,000</b>
8.	15.1	Site Investigation Reports available to the Tenderers are:  <b>a) None</b>
9.	22.4	The other measures include:  a. Minimising the number of migrant workers employed on the project and household in the site camp  b. Providing access to voluntary counselling and testing (VCT)  c. Providing psychological support and health care including prevention and treatment of opportunistic

		infections for workers infected and affected, as well as their families  d. Providing condoms (male and female) to workers
<b>10.</b>	<b>24.1 &amp; 47.1</b>	The Site Possession Date shall be <b>notified by the Project Manager</b>

<b>11.</b>	<b>28.2</b>	Hourly rate of Fees payable to the Adjudicator is: <b>Kshs 20,000</b>  Types of reimbursable expenses to be paid to the Adjudicator include: a) Transport b) Communication c) Accommodation
<b>12.</b>	<b>28.3</b>	Arbitration will take place at <i>Northern Water Services Board offices</i> Garissa in accordance with rules and regulations published by The Kenya Government as contained in the Arbitration act
<b>13.</b>	<b>29.1</b>	Appointing Authority for the Adjudicator: <i>The Institution of Engineers of Kenya</i>

#### **B. Time Control**

<b>14.</b>	<b>30.1</b>	The Contractor shall Submit a Programme for the Works within <b>14</b> days of delivery of the Letter of Acceptance.
<b>15.</b>	<b>30.3</b>	The period between Programme updates is <b>56 days</b>
<b>16.</b>	<b>30.3</b>	The amount to be withheld by the Project Manager in the case the contractor does not submit an updated programme is: <b>KES 100,000</b>

#### **C. Quality Control**

<b>17.</b>	<b>38.1</b>	The Defects Liability Period is <b>6 Months.</b>
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#### **D. Cost Control**

<b>18.</b>	<b>45.7</b>	Minimum Amount of Interim Payment Certificate will be KES <b>5,000,000.00</b>
<b>19.</b>	<b>46.1</b>	Payments will be made after all works are complete and defects rectified to the satisfaction of the supervisor.
<b>20.</b>	<b>47.1(a)</b>	The Site Possession Date shall be <b>notified by the Project manager</b>

21.	50	The contract <i>is not</i> subject to price adjustment in accordance with Clause 50 of the General Conditions of Contract.
22.	51.1	The amount of retention is <b>10%</b> of value of works of Interim Payment Certificate’.
		Limit of retention will be <b>10%</b> of contract price.
23.	52.1	The rate of liquidated damages is <b>0.1 percent of contract price per day</b>
	52.1 62.2 (g)	The maximum amount of liquidated damages is <b>5% of Contract Price]</b>
24.	53.1	The bonus for early completion is ... <b>Nil</b> ....
25.	54.1	The amount of <b>advance payment</b> shall be <b>N/A</b> of the contract sum payable within 30 days after provision of the Advance payment Guarantee
		Recovery of Advance Payment shall be <b>N/A</b> of amount of Interim Payment Certificate.
26.	55.1	The Performance Security shall be <b>10% of the contract price</b>
		<b>E. Finishing the Contract</b>
27.	61.1	As built drawings shall be supplied by the contractor by <b>two weeks after the date of completion of the works.</b>  Operating manual shall be supplied by the contractor by <b>the date of commissioning and at least one month before the date of completion of the works.</b>
28.	61.2	The amount to be withheld by the Project Manager in the case the contractor does not submit as built drawings is: <b>.05% of the contract amount</b> The amount to be withheld by the Project Manager in the case the contractor does not submit operating manual is <b>KES 200,000</b>
29.	63.1	The percentage to apply to the value of the work not completed, representing the Procuring Entity's additional cost for completing the Works, is <b>30%</b>

## **SECTION VI: TECHNICAL SPECIFICATIONS**

### **F. EARTHWORKS SPECIFICATIONS**

## **1. GENERAL**

### **1.1 Method Statements**

At least seven (7) days prior to the commencement of any open excavation at any section of the Works, the Contractor shall submit for the Employer's Representative's ( Engineer's) approval, a statement of the excavation methods and procedures he intends to adopt on that section.

The statement shall include a description of the following, together with any other items which the Contractor considers relevant:

- Sequence of operations;
- A detailed programme of events and any consequent change in the overall programme of the Works;
- Methods and plant to be used;
- blasting techniques, including charge spacing, delays, etc;
- Excavation protection and support, including drainage and temporary works;
- Disposal or re-use of materials, including quantities and locations.

The methods adopted shall provide for the safe and efficient execution of the excavation work in such a way as to conform to the programme for completion of the Works and so that they do not interfere with other operations in progress of the Contractor or others.

The Employer's Representative's (Engineer's) approval of the Contractor's method of excavation shall not relieve the Contractor of any of his responsibilities or obligations under the Contract.

In the event the Contractor's methods do not provide results which satisfy requirements stated in the Specification, the Contractor will be obliged to change them and to use techniques and procedures either agreed between the engineer and the Contractor or as indicated by the Engineer. Such changes will not warrant any extra payment to the Contractor.

### **1.2 Location and Shape of Excavation**

The Contractor shall locate the excavations for structures and all other work as shown on the drawings and in accordance with the benchmarks provided to him by the Engineer.

The Contractor shall be responsible for correct location, and all extra work caused by his negligence in this matter will be at his expense and shall be corrected at the Engineer's request.

If local survey points or bench marks have been removed or are insufficient, the setting-out shall be related back to other established survey points or bench marks. Excavation shall be to the lines, grades and dimensions shown on the drawings or as established by the Engineer.

During the progress of any open excavation work, it may be found necessary or desirable to vary the slopes or the dimensions of the excavations from those shown on the drawings or established by the Engineer. Such adjustment or trimming of the final excavated surface is considered to be a separate operation as defined hereafter.

Any and all over-excavation performed by the Contractor for any purpose or reason, except as may be directed by the Engineer, shall be at the expense of the Contractor. All such over-excavation shall be backfilled with approved material from excavations or concrete as directed by the Engineer, and the cost of furnishing and placing this backfill or concrete shall be at the expense of the Contractor.

The Engineer may direct alternative measures of backfilling, and the cost of such measures shall be at the expense of the Contractor.

Any other excavation performed at the option of the Contractor to secure access to required work, for disposal of material excavated, or for any other purpose, shall be at the expense of the Contractor.

### **1.3 Measurement of Excavated Volumes**

The Contractor shall submit to the Engineer for approval the proposed surveying method for the measurement of excavated volumes not less than seven (7) days before commencing any such work. The proposed method shall take one of the following forms:

a) Contour Line Method

Maps defining the ground surface before the commencement of excavation works shall be prepared. Immediately after a change of type of work or classification of material and after completion of any excavation, the Contractor shall take survey measurements to define the dimensions and elevations of the corresponding excavated surface. Measurements shall be taken with a tacheometer with a minimum density of points of one per 20m<sup>2</sup>. From these measurements, sets of contour lines shall be prepared for each successive surface, e.g. original ground, rock final and excavated surfaces, and all sets shall be presented on a single plan. From this plan, the measurement of excavated volumes shall be calculated by an analytical method and checked by means of a planimeter.

b) Average Section Method

Profiles shall be taken by the Contractor of the ground surface before commencement of excavation, immediately after a change of type of work or classification of material and after completion of any excavation. Measurements shall be taken by means of a tacheometer or leveling instrument in order that vertical sections may be prepared at intervals of 3.0m or as directed by the Engineer. The volumes of excavated material shall be calculated between adjoining sections by considering the average area of the two

sections over the intermediate distance. In the case of a curvilinear area, the profiles shall be measured radially. Volumes of excavated material shall be calculated for the cross-sectional area of each profile. The distance over which this area shall be considered is the length of the arc, passing through the centre of gravity of the section, subtended by the angle between the radial sections. Measurements, which are to be the basis of quantities for payment, shall be taken in the presence of the Engineer.

The Contractor shall give notice of his intention to take such measurements not less than twenty four (24) hours beforehand.

#### **1.4 Classification of Excavated Materials**

Separate measurements shall be made for bulk and trench excavation classified either as "common excavation" or "rock excavation". At the commencement of any excavation operations at each location of each section of the Works, the Contractor shall establish and agree with the Engineer the separate classification and their limits.

Subsequent modifications to these limits may be made during the progress of the Works in accordance with actual conditions as encountered, but such modifications will only be agreed when the materials are exposed.

Whenever an agreement is not possible on the classification of the material exposed in a certain area, a ripping test, in the form described below, shall be performed by the Contractor at his own expense at the area considered, in the presence of the Engineer.

The ripping test shall comprise:

- (a) a survey, on a 1.0 m grid, to establish cross-sections over a test area of not less than 10 x 4 m within the area to be classified;
- (b) provision of a Caterpillar Model D8K tractor or equivalent machine, equipped with a single straight ripper tooth 60 m penetration, hydraulically operated and approved by the manufacturer for use with the D8K;
- (c) Ripping of test area with two passes per meter of width, with the full load applied to ripper tooth;
- (d) After ripping, removal of ripped material by loading machine of approved type;
- (e) Re-survey of the cross-sections and calculation of the volume and equivalent depth of excavation.

Common excavation for the purposes of measurement and payment shall be defined as:

- (a) All materials excavated without prior visual inspection and classification by the Engineer;
- (b) All material that gives an equivalent depth of excavation equal to or more than 0.25 meters in the ripping test;
- (c) All non-rippable boulders, or detached pieces of solid rock, embedded in common excavation material, but each having a volume of less than one cubic meter or a weight of less than two tonnes.

Rock excavation for the purposes of measurement and payment shall be defined as:

- (a) All material so classified by visual inspection and agreed with the Engineer.
- (b) All material that gives an equivalent depth of excavation less than 0.25 meters in the ripping test;
- (c) All non-rippable boulders, or detached pieces of solid rock embedded in common excavation, each having a volume of more than one cubic meter or a weight of more than two tonnes.

## **1.5 Dewatering**

The Contractor shall be responsible for the protection of all sections of the Works from effects of surface water run-off and ground water.

Such protection shall include pipes, channels, embankments and pumping arrangements to keep the Works free from any water which may damage the finished quality or impede progress or inspection during construction.

Where local streams or natural drainage channels intersect the Site of the Works, these streams and channels shall be diverted outside the limits of the Works, at the expense of the Contractor.

The Contractor shall be responsible for the design of all such temporary dewatering works, and shall on request, provide the Engineer with drawings, calculations, explanatory reports and any other evidence that their performance will be adequate for their purpose.



Where some part of the Permanent Works can be adopted for such dewatering, the Engineer will instruct the Contractor on any limitations he requires with respect to their temporary use for dewatering during the construction of the Works.

## **2. TYPES OF EXCAVATION**

### **2.1 General Clearing**

General clearing comprises the removal and disposal of all trees, shrubs, buildings, fences and similar matter from the areas shown on the drawings or as directed by the Engineer.

The areas to be cleared shall include the foundation areas to all parts of the Works.

The limits of general clearing shall extend 5m beyond the toe of the fills and the limits of excavation, except where otherwise directed or indicated on the drawings.

Timber may be retained and used on Site by the Contractor. Unsuitable material shall be removed directly to an approved disposal area.

### **2.2 Stripping**

Stripping shall consist of the removal from the surface and disposal of all humus, stumps, roots, brush, rubbish, other vegetation matter, and perishable and undesirable materials generally to a depth of 0.5m or as otherwise directed by the Engineer.

Stripping work shall include the transporting and disposal of stripped material.

The limits of stripping shall extend at least 3 m beyond the toe of fills and limits of excavation, except where otherwise directed or shown on the drawings.

### **2.3 Bulk Excavation**

Bulk excavation comprises the open cut excavation to be performed to lines, grades and dimensions shown on drawings or as directed by the Engineer.

The method adopted shall be suitable for the types of material encountered, to provide for the work to progress in an orderly manner and to restrict over-excavation to a minimum.

Within 3 m of the levels shown on the drawings, the Engineer may direct the excavation in successive stages until a suitable foundation or surface, as determined by the Engineer, is reached.

The Contractor shall not be entitled to any additional payment above the unit prices for the excavation by reason of such successive stages in the excavation procedure. Each successive stage shall include sufficient cleaning to enable the Engineer to inspect the foundation in order to direct further excavation if required.

Loose excavated material shall be removed from the excavation as the work proceeds and shall be transported to the disposal area or stockpile as directed.

For the final preparation of slopes and foundations, the Engineer may direct that the last 20 cm of the excavation, whether in common material or rock excavation, shall be excavated without the use of explosives or ripping, and such excavation methods will not be considered for separate payment, since they shall be deemed to have been already included in the unit prices for excavation work.

For the Emergency Spillway, excavation shall be carried out by such methods that shall not in any way disturb the condition of the adjacent existing spillway and dam.

#### **2.4 Trench Excavation**

Trench excavations shall be defined as those whose final width is less than 2 meters, or greater than 2 meters when depth is greater than width.

Excavation for trenches (including pits, footings, etc.) shall be performed by the use of hand tools and approved mechanical equipment in such a manner as to prevent shattering of the sides and bottom of the excavation. At the option of the Contractor, and with the approval of the Engineer, blasting may be carried out in accordance with Sub-section 3 hereafter. All planking, strutting and supports necessary to retain the sides of the excavation shall be provided, erected and maintained in a safe condition by the Contractor.

#### **2.5 Slope Adjustment and Trimming**

If, during the progress or after completion of bulk or trench excavations in common material, the Engineer instructs the Contractor to modify or extend the slopes or dimensions of the excavation by a horizontal width of less than 5 m, such modifications or extensions will be considered as separate excavation operations defined as "slope adjustment" or "trimming".

Modifications or extensions of more than 5 m will be considered and paid for as bulk excavation.

- Slope adjustment shall apply where the modification or extension involves the adjustment of the limits of the bulk excavation by additional excavation of a horizontal width of more than 1 m up to 5 m.
- Trimming shall apply where the adjustment to the bulk excavation limits is required by a thickness of additional excavation of less than 1m.

## **2.6 Seams and Cavities**

The assumed lines of excavation shown on the drawings shall not be interpreted as indicating accurately the final or actual excavation lines.

There may be depressions, fissures, faults, seams and bands of soft disintegrating material running in various directions in the materials to be excavated and in the foundations, slopes and other areas.

Where defects occur they shall be made safe by supports or corrected by local excavation below the general surface of excavation to the lines, depths and dimensions directed by the Engineer.

## **3. DISPOSAL AND STOCKPILING AREAS**

The Contractor shall maintain appropriate disposal areas in the locations shown on the drawings, or as otherwise approved, for materials unsuitable for fill or aggregate production, surplus material from excavation and other approved waste.

All debris, bush, roots and other combustible material shall be burned or buried. All non-combustible waste shall be buried. Disposal by burying shall be done in such a manner that the material disposed of is buried with a minimum cover of 50 cm of excavation spoil or stripped material. The Contractor shall at no time leave a fire unattended and shall be responsible for any fire damage resulting from his operations.

Should the Contractor wish to form spoil dumps for his own convenience, other than those described, he shall obtain the Engineer's approval before any dumping is started.

Where excavated materials are suitable and are required for use in subsequent work, the Engineer may direct that these are separately stockpiled and will designate the location for such stockpiles within the disposal areas or in separate locations adjacent to the sites of the Works.

Adequate road access to the disposal and stockpile areas shall be established and maintained by the Contractor. Disposal and stockpile areas shall be cleared in accordance with Sub-section 2.1, and drainage channels shall be formed to remove surface water.

The tipping of materials in disposal or stockpile areas shall be controlled to provide a uniform and progressive use of the area, and tipped material shall be spread and graded to form layers of not more than 1 m thickness.

On completion of the Works, the disposal and stockpile areas shall be left in a tidy and safe condition to the satisfaction of the Engineer.

#### **4. BACKFILL**

The Contractor shall supply, place and compact backfill or selected material in trenches and around concrete structures as shown on the drawings or as directed by the Engineer.

No backfilling shall commence until the foundation and Permanent Works have been inspected and approved by the Engineer.

Backfill shall be placed and compacted in successive layers not exceeding 25 cm in thickness.

Compaction of cohesive soils shall continue until the dry density of the material reaches a value of 90% of the AASHTO maximum dry density, as determined in accordance with BS 1377.

The compaction of granular soils shall continue until the dry density of the material reaches a value of not less than 80% of the relative density as determined in accordance with Test 12 of U.S. Bureau of Reclamation Earth Manual (Section Edition, 1974).

In the event of any damage to any structure as a result of the placing or compaction of backfill, the Contractor shall repair the structure at his own expense, to the satisfaction of the Engineer.

#### **5. RIP-RAP**

The rock for rip-rap shall be of compact, firmly bound, uniformly grain texture and absolutely weather-resistant and shall not have cracks, holes, laminations or detrimental materials.

The materials shall be sound, un-weathered and with a low water absorption capacity in order to avoid cracking, bursting and decomposition as a result of exposure to rain, flowing water, abrasion and other elements. The rock shall mainly consist of large pieces of rock such that when placed and compacted, the height should not exceed 300mm and smaller pieces to secure the boulders against sliding and to form a mechanically interlocked uniform surface protection against the action of flowing water, waves, heavy rainfall, washouts, etc., and to provide stability to the fill structure.

The rock blocks shall be of natural irregular shape and of the size as specified hereunder. Thin-sliced blocks shall not be accepted. Any blocks covered by impurities shall be cleaned thoroughly before being used.

Unless it is indicated otherwise, the Contractor shall submit rock samples to be used in the slopes to the approval of the Engineer. Furthermore he shall send the samples at his own cost to the place assigned by the Engineer for the performance of all required tests and at least 60 days before the beginning of the riprap placement.

Unless otherwise specified in the Bill of Quantities and Rates, the following grading shall apply for riprap:

- The largest individual block shall not exceed 500 mm all directions.
- The smallest individual block shall not be less than 150 mm all directions.

## **6. Placing of Rip-Rap**

The rock blocks in rip-rap as specified in sub-Clause 5 shall be dumped and graded in a manner to ensure that the larger blocks are uniformly distributed and the smaller rock blocks serve to fill the interstices between the larger rocks in a manner that will result in compact uniform layers of rip-rap of the specified thickness.

No pockets of small rocks or clusters of large blocks will be permitted.

## **G. EMBANKMENT SPECIFICATIONS**

### **1. GENERAL**

#### **67.**

The embankment works shall be executed generally in accordance with the drawings and this Specification or as the Engineer may direct.

The Engineer reserves the right to modify, during the progress of the Works, any other features as he may consider necessary for the proper performance of the Works.

### **2. FOUNDATION PREPARATION**

#### **2.1 General**

The foundation for the embankments shall be excavated generally in accordance with the requirements of Section 2 - Excavation; All overhanging rock shall be detached by barring or wedging and all loose or semi-detached blocks shall be removed from foundation surfaces.

Preparation of foundations shall include adequate drainage and dewatering systems to obtain sufficiently dry working conditions.

The placing of fill to form the embankments may proceed only with the approval of the Engineer, based on the conditions of the foundations determined by inspection after completion of all foundation preparation works.

The Contractor shall be responsible for maintaining foundation surfaces in the approved condition until they have been covered by fill material.

Where erodible material is exposed in the foundations, specially selected and graded stone shall be placed over the area as directed by the Engineer to provide inverse filler.

## **2.2 Placing**

Thickness of compacted layers shall not exceed 25 cm; optimum placing thickness shall be determined by trial embankments, to the approval of the Engineer.

Material which is too dry shall be spread in a layer, sprinkled with water and re-mixed with equipment approved by the Engineer. On the other hand, material brought to Site which is too moist shall be removed and taken away, or, subject to specific approval by the Engineer and provided such material has not already been compacted, it may be left to dry out to the required moisture content level prior to being compacted.

Emplacement of materials shall be carried out using all means necessary to obtain maximum homogeneity in each zone of the embankment; lenses, pockets, bands and layers of material markedly different from that surrounding it shall not be allowed.

Where an emplacement surface is too moist, it shall be left to dry out sufficiently, to the Engineer's approval, prior to emplacement of the next layer.

Where, in the opinion of the Engineer, a surface is too dry or too smooth, it shall be appropriately moistened and harrowed prior to emplacement of the next layer.

Emplacement operations shall be suspended in the event of threat or actual occurrence of rain. In the latter instance, work shall not be resumed until all excess moisture in the soil has evaporated. Where moisture levels are too high, the Engineer may require removal of emplaced material to an appropriate depth.

Whereas placing of core materials during the rainy season is not envisaged in the construction program approved by the Engineer, the Contractor may construct the embankment dam and place such core materials during the rainy season, provided however that any extra cost arising therefrom as may be necessary to meet the requirements of the Specification shall be borne exclusively by the Contractor.

Emplacement surfaces shall at all times be flat and slightly inclined to upstream and downstream, in order to avoid the possibility of stagnant water collecting (even in small pockets).

Prior to any suspension of work, emplacement surfaces shall be leveled and rolled to eliminate subsequent stagnation of water; upon resumption of laying operations, they shall be re-set and harrowed.

### **2.3 Compaction**

Compaction of materials shall be carried out in layers, using suitable plant, machinery and equipment.

In general, the use of static sheep-foot or vibrating rollers shall be preferred.

In the event that excessively smooth surfaces are obtained from the use of rubber-tyred rollers, the Engineer may require harrowing of the lower layer prior to emplacement of the upper layer.

Based on trial embankment results, the Engineer shall be entitled to reject the type of plant, machinery and equipment proposed by the Contractor if specified results cannot be obtained by the use of same and, at particular locations or zones, establish moisture content, number of passes, and speed and time of vibration, even if these vary from those applied to trial embankment.

All parts of the embankment which rests on or are in contact with steep or irregular lateral surfaces, or zones of difficult contact, or areas where compaction equipment is difficult to access, as well as those parts of the embankment in contact with concrete structures or measurement and control equipment built into the embankment, shall be compacted in layers of not more than 15 cm, suitable means, such that their degree of compaction shall not be lower than that of other embankment zones.

The thickness of the Embankment material layer shall have a tolerance of  $\pm 15$  cm at any specified level.

## **3. FINE FILTERS**

### **3.1 General**

Materials to be utilized for the construction of fine filters shall have the following characteristics:

$$C_u = D_{60}/D_{10} < 12$$

$$D_{max} < 20\text{mm}$$

not more than 5% of the material shall be finer than 0.074 mm (200 mesh);

the granulometric curve shall be comprised within the zone defined by gradings G and H of Table A;

the grading curve shall be continuous;

Permeability  $K > 5 \times 10^{-3}$  cm/sec;

In-situ dry density: 90% ± 3% of maximum density  
Obtainable by the Standard AASHTO test.

Filter material may be obtained from crushing rock on Site, or, preferably, washed, sieved, natural sand from the nearby Areas where they are available; if mixed, particular attention shall be given to obtaining uniformity.

Utmost care shall be taken to avoid mixing of materials along their limiting planes and any filter material contaminated by other material shall be removed in its entirety. The Contractor shall propose and test a method of placement, which avoids any penetration of adjacent materials. If each penetration exceeds the permitted maximum of 10 cm, the Engineer shall require the use of appropriate separators, which shall be removed after emplacement but before compaction of the material.

No. 100 grading tests, 10 Standard AASHTO, 10 permeability and 10 transmissibility tests shall be carried out by the Contractor for the purpose of determining suitability of quarries or borrow pits, mixes, coarse and fine filters and for control purposes.

#### 4. DRAINAGE

Materials for drains shall be sound clean rock or stone, Dmax 80 mm, Dmin 10 mm, with not more than 5% of the material smaller than 10 mm; maximum size of the material may be varied at the discretion of the Engineer.

Drain material shall be placed using light compaction and ensuring that the drainage zone is filled entirely.

#### 5. CONCRETE SPECIFICATIONS

##### 5.1 Composition and types of concrete

The characteristics of the designated concrete types are given in Table 1.

TABLE 2  
TYPES OF CONCRETE

Type of Concrete	Characteristic Strength		Max. Size of Aggregates (D max; mm.)
	MPa	Kg/sq.cm	
A1 (blinding)	10	100	40
A2 (porous, no fines)	10	100	40
B1	20	200	40
BS	20	200	20
C1	25	250	40
C2	25	250	20
D1	30	300	40
D2	30	300	20

The suffix "A" added after the concrete type in the Bill of Quantities denotes the addition of an approved plastifier.



Table 3 – Minimum Cement Content

Class of Concrete	Minimum Cement Content – Kg/m <sup>3</sup> of compacted concrete		
	Moderate Exposure	Intermediate Exposure	Severe Exposure
10/75; 15/75	200	220	270
15/40, 20/40, 25/40, 30/40	240	270	290
15/20, 20/20, 25/20, 30/20	260	300	330
40/20	300	320	330
20/10, 25/10, 30/10,	300	340	390
40/10	310	340	390

Note: The minimum cement contents shown in the above table are required in order to achieve impermeability and durability. In order to meet the strength requirements in the Specification higher contents may be required.

### 5.1.1 Cement General

Cement shall be ordinary Portland cement, conforming to the requirements of BS 12 or similar approved standard, and shall be supplied by reputable manufacturers approved by the Engineer.

### 5.1.2 Aggregates General

Aggregates for all types of concrete shall comply in all respects with BS 882, and the Contractor shall test samples, as described therein and in BS 812, as required by the Engineer.

Fine aggregate shall be naturally occurring sand.

Coarse aggregate shall consist of crushed rock or, if approved by the Engineer, alluvial gravel.

Aggregates shall be hard, durable and clean and shall not contain materials that may affect adversely the strength and durability of plain or reinforced concrete.

### 5.1.3 Water

Water for mixing concrete shall be fresh, clean and free from oils, acids, alkali, sewage, deleterious minerals or organic matter.

**SECTION IX: TENDER FORMS**

**A. Form of Tender**

**Bidders Letter head**

*[date]*

To:

**THE CHIEF EXECUTIVE OFFICER  
NORTHERN WATER WORKS DEVELOPMENT AGENCY  
P.O BOX 495-70100  
GARISSA**

We offer to execute the *[name and identification number of contract]* in accordance with the Conditions of Contract accompanying this Tender for the Contract Price of *[amount in numbers]*, *[amount in words]* *[name of currency]*.

The Contract shall be paid in the following currencies:

<b>Currency</b>	<b>Percentage payable in currency</b>	<b>Rate of exchange: one foreign equals <i>[insert local]</i></b>	<b>Inputs for which foreign currency is required</b>
(a)			
(b)			

The advance payment required is:-

<b>Amount</b>	<b>Currency</b>
(a)	
(b)	

We accept the appointment of The Institution of Engineer's of Kenya as the adjudicator.

or

We do not accept the appointment The Institution of Engineer's of Kenya as the Adjudicator, and propose instead that *[name]* be appointed as Adjudicator, whose daily fees and biographical data are attached.

We are not participating, as Tenders, in more than one Tender in this Tendering process other than alternative Tenders in accordance with the Tendering documents.

Our firm, its affiliates or subsidiaries, including any subcontractors or suppliers for any part of the contract has not been declared ineligible by the Kenya Government under Kenya's laws or any other official regulations.

This Tender and your written acceptance of it shall constitute a binding Contract between us.

We understand that you are not bound to accept the lowest or any Tender you receive.

We hereby confirm that this Tender complies with the Tender validity and Tender Security required by the Tendering documents and specified in the Tender Data Sheet.

Authorized Signature: \_\_\_\_\_

Name and Title of Signatory: \_\_\_\_\_

Name of Tenderer: \_\_\_\_\_

Address: \_\_\_\_\_

## Appendix to Tender

### Schedule of Adjustment Data

[In Tables A, B, and C, below, the Tenderer shall (a) indicate its amount of local currency payment, (b) indicate its proposed source and base values of indices for the different foreign currency elements of cost, (c) derive its proposed weightings for local and foreign currency payment, and (d) list the exchange rates used in the currency conversion. In the case of very large and/or complex works contracts, it may be necessary to specify several families of price adjustment formulae corresponding to the different works involved.]

**Table A. Local Currency**

Index code	Index description	Source of index	Base value and date	Tenderer's related currency amount	Range of weighting Proposed by the Procuring Entity	Tenderer's proposed weighting
	Nonadjustable	—	—	—	a: _____* b: _____ to _____ .-* c: _____ to _____ .-* d: _____ to _____ .-* e: _____ to _____ .-* etc.	a: _____* b: _____ c: _____ d: _____ e: _____ etc.
<b>Total</b>						<b>1.00</b>

**Table B. Foreign Currency**

**State type:** ..... [If the Tenderer wishes to quote in more than one foreign currency, this table should be repeated for each foreign currency.]

Index code	Index description	Source of index	Base value and date	Tenderer's related source currency in type/ Amount	Equivalent in Foreign Currency 1	Range of weighting Proposed by the Procuring Entity	Tenderer's proposed weighting
	Nonadjustable	—	—	—		a: _____* b: ----- to - -----* c: ----- to - -----* d: ----- to -----* e: ----- to - -----* etc.	a: _____ b: _____ c: _____ d: _____ e: _____ etc.
<b>Total</b>							<b>1.00</b>

**Table C. Summary of Payment Currencies**

For .....[insert name of Section of the Works]

[Separate tables may be required if the various sections of the Works (or of the Bill of Quantities) will have substantially different foreign and local currency requirements. The Procuring Entity should insert the names of each Section of the Works.]

<b>Name of payment currency</b>	<b>A Amount of currency</b>	<b>B Rate of exchange (local currency per unit of foreign)</b>	<b>C Local currency equivalent C = A x B</b>	<b>D Percentage of Net Tender Price (NBP) <math>\frac{100 \times C}{NBP}</math></b>
<b>Local currency</b> _____		<b>1.00</b>		
<b>Foreign currency #1</b> _____				
<b>Foreign currency #2</b> _____				
<b>Foreign currency #</b> _____				
<b>Net Tender Price</b>				<b>100.00</b>
<b>Provisional sums expressed in local currency</b>	*	*	*	
<b>TENDER PRICE</b>				

Authorized Signature: \_\_\_\_\_

Name and Title of Signatory: \_\_\_\_\_

Name of Tenderer: \_\_\_\_\_

Address: \_\_\_\_\_

**B. Tender-Securing Declaration ( Must be filled in bidders letter head)**

Date: *[insert date (as day, month and year)]*

Tender No.: *[insert number of Tendering process]*

Alternative No.: *[insert identification No if this is a Tender for an alternative]*

To:

**Northern Water Works Development Agency**

We, the undersigned, declare that:

We understand that, according to your conditions, Tenders must be supported by a Tender-Securing Declaration.

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 *[insert number of months or years]* starting on *[insert date]*, if we are in breach of our obligation(s) under the Tender conditions, because we;

Have withdrawn our Tender during the period of Tender validity specified in the Form of Tender; or

- a) Having been notified of the acceptance of our Tender by the Procuring Entity during the period of Tender validity,
  - (i). Fail or refuse to execute the Contract, if required, or
  - (ii). Fail or refuse to furnish the Performance Security, in accordance with the ITT.

We understand this Tender Securing Declaration shall expire if we are not the successful Tenderer, upon the earlier of;

- 1) Our receipt of your notification to us of the name of the successful Tenderer; or
- 2) Thirty days after the expiration of our Tender.

Signed: *[insert signature of person whose name and capacity are shown]* In the capacity of *[insert legal capacity of person signing the Tender Securing Declaration]*

Name: *[insert complete name of person signing the Tender Securing Declaration]*

Duly authorized to sign the Tender for and on behalf of: *[insert complete name of Tenderer]*



Dated on \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_ *[insert date of signing]*

Corporate Seal (where appropriate)

### **C. Confidential Business Questionnaire**

- 1 **Individual Tenderer or Individual Members of**
  - 1.1 Constitution or legal status of Tenderer: *[attach copy]*  
Place of registration: *[insert]*

**joint Ventures**

Principal place of business: *[insert]*

Power of attorney of signatory of Tender: *[attach]*

Registration certificate *[attach]* current Business License *[attach]*

1.2 Total annual volume of construction work performed in two years, in Kenyan shillings as specified in the Tender Data Sheet; *[insert]*

1.3 Work performed as prime Contractor on works of a similar nature and volume over the last two years or as specified in the Tender Data Sheet in Kenyan Shillings. Also list details of work under way or committed, including expected completion dates.

<b>Project name and country</b>	<b>Name of client and contact person</b>	<b>Contractors Participation</b>	<b>Type of work performed and year of completion</b>	<b>Value of contract</b>
(a)				
(b)				

1.4 Major items of Contractor's Equipment proposed for carrying out the works. List all information requested below. Refer also to sub-Clause 12.3 of the Instructions to Tenderers.

<b>Item of equipment</b>	<b>Description, make, and age (years)</b>	<b>Condition (new, good, Poor) and number available</b>	<b>Owned, leased (from whom?) or to be purchased (from whom?)</b>
(a)			
(b)			
(c)			
(d)			

1.5 Qualifications and experience of key personnel proposed for administration and execution of the Contract. Attach biographical data. Refer also to sub-Clause 12.3 of the Instructions to Tenderers and Sub- Clause 10.1 of the General Conditions of Contract.

<b>Position</b>	<b>Name</b>	<b>Years of Experience (general)</b>	<b>Years of experience in proposed position</b>
(a)			
(b)			

1.6 Proposed sub-contractor and firms involved. Refer to Clause 7 of General Conditions of Contract.

<b>Sections of the Works</b>	<b>Value of subcontract</b>	<b>Subcontractor (name and address)</b>	<b>Experience in similar work</b>
(a)			
(b)			

1.7 Financial reports for the number of years specified in the Tender Data Sheet.

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

1.9 Name, address, and telephone, e-mail address, and facsimile numbers of banks that may provide references if contracted by the Procuring Entity.

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

Other party(ies)	Cause of dispute	Amount involved
(a)		
(b)		

1.11 Statement of compliance with the requirements of sub-Clause 3.2 of the Instructions to Tenderers.

1.12 Proposed Program (work method and schedule). Descriptions, drawings, and charts, as necessary, to comply with the requirements of the Tendering documents.

**2. Joint Ventures**

2.1 The information listed in 1.1 – 1.11 above shall be provided for each partner of the joint venture.

2.2 The information in 1.12 above shall be provided for the joint venture.

2.3 Attach the power of attorney of the signatory (ies) of the Tender authorizing signature of the Tender on behalf of the joint venture.

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

(a) all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms;

(b) one of the partners will be nominated as being in charge, authorized to incur liabilities, and receive instructions for and on behalf of any and all partners of the joint venture; and

(c) the execution of the entire Contract, including payment, shall be done exclusively with the partner in charge.

**3. Additional Requirements**

3.1 Tenderers should provide any additional information required in the **Tender Data Sheet** or to fulfil the requirements of sub-Clauses 12.1 of the Instructions to Tenderers, if applicable.



## **D. Integrity Declaration**

### **UNDERTAKING BY TENDERER ON ANTI – BRIBERY POLICY / CODE OF CONDUCT AND COMPLIANCE PROGRAMME**

1. Each Tenderer must submit a statement, as part of the Tender documents, in either of the two given formats which must be signed personally by the Chief Executive Officer or other appropriate senior corporate officer of the Tendering company and, where relevant, of its subsidiary in the Kenya. If a Tender is submitted by a subsidiary, a statement to this effect will also be required of the parent company, signed by its Chief Executive Officer or other appropriate senior corporate officer.
2. Tenderers will also be required to submit similar No-bribery commitments from their subcontractors and consortium partners; the Tenderer may cover the subcontractors and consortium partners in its own statement, provided the Tenderer assumes full responsibility.
3.
  - a) Payment to agents and other third parties shall be limited to appropriate compensation for legitimate services.
  - b) Each Tenderer will make full disclosure in the Tender documentation of the beneficiaries and amounts of all payments made, or intended to be made, to agents or other third parties (including political parties or electoral candidates) relating to the Tender and, if successful, the implementation of the contract.
  - c) The successful Tenderer will also make full disclosure [quarterly or semi-annually] of all payments to agents and other third parties during the execution of the contract.
  - d) Within six months of the completion of the performance of the contract, the successful Tenderer will formally certify that no bribes or other illicit commissions have been paid. The final accounting shall include brief details of the goods and services provided that they are sufficient to establish the legitimacy of the payments made.
  - e) Statements required according to subparagraphs (b) and (d) of this paragraph will have to be certified by the company's Chief Executive Officer, or other appropriate senior corporate officer.
4. Tenders which do not conform to these requirements shall not be considered.
5. If the successful Tenderer fails to comply with its No-bribery commitment, significant sanctions will apply. The sanctions may include all or any of the following:
  - a) Cancellation of the contract;

- b) Liability for damages to the public authority and/or the unsuccessful delays in the Tendering possibly in the form of a lump sum representing a pre-set percentage of the contract value (liquidated).
6. Tenderers shall make available, as part of their Tender, copies of their anti-Bribery Policy/Code of Conduct, if any, and of their-general or project - specific - Compliance Program.
  7. The Government of Kenya has made special arrangements for adequate oversight of the procurement process and the execution of the contract, and has invited civil society and other competent Government Departments to participate in the oversight. Those charged with the oversight responsibility will have full access to all documentation submitted by Tenderers for this contract, and to which in turn all Tenderers and other parties involved or affected by the project shall have full access (provided, however, that no proprietary information concerning a Tenderer may be disclosed to another Tenderer or to the public).

**ANTI-CORRUPTION DECLARATION COMITMENT/ PLEDGE**

*(Sections 39, 40, 41, 42, 43 & of the PPD Act, 2005)*

I/We/Messrs.....

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

.....

Contact/Phone/E mail.....

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

I/We .....

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

Tender/Tender No .....

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

Authorized Signature.....

Name and Title of Signatory.....



**E. Letter of Acceptance**

*[Letter head paper of the Procuring Entity]*

[date]

To: *[name and address of the Contractor]*

This is to notify you that your Tender dated [date] for execution of the [name of the Contract and identification number, as given in the Contract Data Sheet] for the Contract Price of the equivalent of [amount in numbers and works] [name of currency], as corrected and modified in accordance with the Instructions to Tenderers is hereby accepted by us.

We confirm that [insert name proposed by the procuring entity] to be the Adjudicator.

We accept that [name proposed by Tenderer] be appointed as Adjudicator.

Or

We do not accept that [name proposed by Tenderer] be appointed as adjudicator, and by sending a copy of this letter of acceptance to [insert the name of the Appointing Authority], we are hereby requesting [name], the Appointing Authority, to appoint the adjudicator in accordance with Clause 44.1 of the Instructions to Tenderers.

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

Please return the contract dully signed.

Authorized Signature: \_\_\_\_\_

Name and Title of Signatory: \_\_\_\_\_

Name of Agency: \_\_\_\_\_

Attachment: Form of Contract

**F. Form of Contract Agreement**

This Agreement, made the [day] day of [month], [year] between [name and address of Procuring Entity] (hereinafter called “the Procuring Entity”) and [name and address of Contractor] (hereinafter called “the Contractor”) of the other part.

Whereas the Procuring Entity is desirous that the Contractor execute [name and identification number of contract] (hereinafter called “the Works”) with the objectives of [insert functional objectives of the works] and the Procuring Entity has accepted the Tender by the Contractor for the execution and completion of such works and the remedying of any defects therein in the sum of [contract price in words and figures] (hereinafter called “Contract Price”).

**NOW THIS AGREEMENT WITNESSES AS FOLLOWS:**

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to, and they shall be deemed to form and be read and construed as part of this Agreement;
2. In consideration of the payments to be made by the Procuring Entity to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Procuring Entity to execute and complete the Works and remedy any defects therein in conformity in all respects with the provisions of the Contract;
3. The Procuring Entity hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects wherein the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

In Witness whereof the parties thereto have caused this Agreement to be executed the day and year first before written.

The Common Seal of \_\_\_\_\_

Was hereunto affixed in the presence of: \_\_\_\_\_

Signed, Sealed, and Delivered by the said \_\_\_\_\_

In the presence of: \_\_\_\_\_

Tendering Signature of Procuring Entity \_\_\_\_\_

Binding Signature of Contractor \_\_\_\_\_

## SECTION X: FORMS OF SECURITY

### G. Tender Security (Bank/ Insurance Guarantee)

*[If required, the **Bank Tenderer** shall fill in this Guarantee form in accordance with the instructions indicated in brackets.]*

*[insert bank's or insurance company's name, and address of issuing branch or office]*

**Beneficiary:** *[insert name and address of Procuring Entity]*

**Date:** *[insert date]*

**TENDER GUARANTEE No.:** *[insert number]*

We have been informed that *[insert name of the Tenderer; if a joint venture, list complete legal names of partners]* (hereinafter called "the Tenderer") has submitted to you its Tender dated *[insert date]* (hereinafter called "the Tender") for the execution of *[insert name of Contract]* under Invitation for Tenders No. *[insert IFT number]* ("the IFT").

Furthermore, we understand that, according to your conditions, Tenders must be supported by a Tender Guarantee.

At the request of the Tenderer, we *[insert name of bank or insurance company]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *[insert amount in figures expressed in the currency of the Purchaser's Country or the equivalent amount in an international freely convertible currency]* (*[insert amount in words]*) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Tenderer is in breach of its obligation(s) under the Tender conditions, because the Tenderer;

- a) Has withdrawn its Tender during the period of Tender validity specified by the Tenderer in the Form of Tender; or
- b) Does not accept the correction of errors in accordance with the Instructions to Tenderers (hereinafter "the ITT") of the IFT; or
- c) Having been notified of the acceptance of its Tender by the Procuring Entity during the period of Tender validity;
  - (i). Fails or refuses to execute the Contract Form, if required, or
  - (ii). Fails or refuses to furnish the Performance Security, in accordance with the ITT.

This Guarantee shall expire;

- a) If the Tenderer is the successful Tenderer, upon our receipt of copies of the Contract signed by the Tenderer and of the Performance Security issued to you by the Tenderer; or
- b) If the Tenderer is not the successful Tenderer, upon the earlier of;
  - (i) Our receipt of a copy of your notification to the Tenderer that the Tenderer was unsuccessful, or
  - (ii) Thirty days after the expiration of the Tenderer's Tender.

Consequently, any demand for payment under this Guarantee must be received by us at the office on or before that date.

---

*[signature(s) of authorized representative(s) ]*

## H. Performance Bank

[The **Bank successful Tenderer** providing the Guarantee shall fill in this form in accordance with the instructions indicated in brackets, if the Procuring Entity requires this type of security.]

*[insert bank's or insurance company's name, and address of issuing branch or office]*

**Beneficiary:** *[insert name and address of Procuring Entity]*

**Date:** *[insert date]*

**PERFORMANCE GUARANTEE No.:** *[insert Performance Guarantee number]*

We have been informed that *[insert name of Contractor]* (hereinafter called "the Contractor") has entered into Contract No. *[insert reference number of the Contract]* dated with you, for the execution of *[insert name of Contract and brief description of Works]* (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a Performance Guarantee is required.

At the request of the Contractor, we *[insert name of Bank or Insurance Company]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of *[insert amount in figures]* (*[insert amount in words]*), such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein.

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

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

This guarantee shall expire not later than thirty days from the date of issuance of the Taking-Over Certificate.

*[signature(s) of an authorized representative(s) of the Bank]*

**SECTION VIII: BILL OF QUANTITIES**

<b>AL DERE DAM CAPACITY 647,664M<sup>3</sup> DAM-BILLS OF QUANTITIES</b>					
<b>1.0 PRELIMINARIES OR GENERAL ITEMS</b>					
<b>Item No.</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Rates (Kshs.)</b>	<b>Amount (Kshs.)</b>
1.01	Allow for provision of Insurance of Works, Contractors Equipment, Third Party Insurance and nsurance against Accident to workmen all in accordance to Clauses 21,23, and 24 of Part I andII of the Conditions of Contract.	Item	Sum		
1.02	Provide and erect signboards at the sites indicated by the Engineer and as shown in the drawings.	No	2		
1.03	Allow for provisional sum of Kshs. 200,000 for providing RE's Office building, material laboratory,sanitary, accomondation and car parking facility all as specified.	Item	P.C		200,000
1.04	Allow provisional sum of Kshs. 200,000 for maintenance under 1.03.	Item	P.C		200,000
1.05	Allow provisional sum for the provision of continuous electricity and water supply to the office of the Engineer and material testing laboratory.	Month	3	50000	150,000
1.06	Allow provisional sum of Kshs. 50,000 for acquisition and services of a materials Laboratory Technician.	Item	P.C		50,000
1.07	Allow provisional sum of Kshs. 70000for the provision of labour, equipment, furniture and materials required for ttendance on the Engineer Rep and his staff and for obtaining samples of materials for testing,field tests surveying, setting out etc.	Item	P.C		70,000
1.08	Allow provisional sum of Kshs. 4,000,000 for supervision of the works by the Resident Engineer, Surveyor and any other Technical staff	Item	P.C		4,000,000
1.09	Allow provisional sum of Kshs. 2,000,000 for attendance of site meetings and supervision of the works		P.C		2,000,000



Item No.	Description	Unit	Quantity	Rates (Kshs.)	Amount (Kshs.)
1.10	Allow provisional sum of Kshs. 2,00,000 for Hiring of a-4 Wheeled Drive Double Cabin Vehicle (Diesel driven) for use by the Resident Engineer during construction period. The Vehicle must have high ground level clearance for rough terrain. The Vehicle to revert to the Employer after completion of works.	Item	P.C		2,000,000
1.11	Allow Kshs.200,000 for driver, fuels and maintainance of vehicle in 1.10 above	Item	P.C		200,000
1.12	Allow provisional sum for progress photos, reports and drawings.	Month	3	50000	150,000
1.13	Allow provisional sum of Kshs. 15,000 for telephone to the office of the Engineers Representative and maintenance.	Item	P.C		15,000
1.14	Allow provisional sum of Kshs. 10,000 for the provision and replacement of protective clothing for the Engineers Representative and staff.	Item	L. S		10,000
1.15	Allow for setting out contractors camp and site office.	Item	L. S		300,000
1.16	Allow a P.C Sum for acquisition of 0.5Acres for Extension and hiring Area to obtain good Embankment Fill(Core and Embankment)	Item	P.C		200,000
1.17	Allow a percentage additions on items 1.03-1.14 and 1.16 above for profit and overheads	%	9,245,000		
	<b>Total for BOQ 1</b>				

<b>AL DERE DAM CAPACITY 647,664M<sup>3</sup> DAM-BILLS OF QUANTITIES</b>					
<b>2.0 Bush Clearing and Vegetable Soil Stripping</b>					
<b>Item No.</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Rates (Kshs.)</b>	<b>Amount (Kshs.)</b>
2.01	Clear the works site of all bushes.The area shall cover the embankment area, reservoir area to maximum waterline, draw-off, access road,	M <sup>2</sup>	120,000		
2.02	Strip off top soil in the embankment area,reservoir area to maximum water level to a depth of 300mm and dispose off as directed by the Site Engineer:-	M <sup>3</sup>	36,000		
2.03	Cut and fell off all trees of the following girths,grub the roots and dispose off as directed by the site engineer				
2.03a	1000mm	No.	5		
2.03b	1600mm	No.	0		
2.03c	2000mm	No.	0		
2.04	Grub tree stumps' roots of various girths and dispose off as directed by the Engineer	No.	0		
	<b>Sub- Total</b>				

<b>AL DERE DAM CAPACITY 647,664M<sup>3</sup> DAM-BILLS OF QUANTITIES</b>					
<b>3.0 MAIN EARTHWORKS</b>					
<b>3.1 RIVER DIVERSION EARTHWORKS</b>					
<b>Item No.</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Rates (Kshs.)</b>	<b>Amount (Kshs.)</b>
3.1.1	Allow for Construction River Diversion Works	L/S	1		
	<b>Sub-Total 3.1</b>				
<b>3.2 EMBANKMENT &amp; CORE TRENCH EXCAVATIONS</b>					
<b>Item No.</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Rates (Kshs.)</b>	<b>Amount (Kshs.)</b>
3.2.1	Excavate for embankment foundation to a depth of 0.30m below the stripped level of 300mm below existing ground level or as directed by the Engineer	m <sup>3</sup>	378		

3.2.2	Excavate for core trench 2m wide at the bottom with side slopes of 1:1 at the extensions. The trench shall be 0.30m deep at the valley bottom as measured from the level attained in item 3.2.1 above. The depth of the trench shall be reduced from 0.30m deep to zero at the embankment crest or as directed by the Engineer	m <sup>3</sup>	3,200		
3.2.3	Allow for Excavation of a pan of length 412 m width 262m and depth 3.75m	m <sup>3</sup>	372,407		
3.2.4	Allow for Construction of Embankment while compacting at every 150mm on three sides of 412m and 262m and height 2.25m	m <sup>3</sup>	6,105		
3.2.5	Allow for Lining of dam where necessary with clay soil excavated elsewhere	m <sup>3</sup>	33,012		
	<b>Sub-Total 3.2</b>				
<b>3.3 SPILLWAY</b>					
3.3.1	Excavate for spillway channel Raising for the main dam. The channel has a trapezoidal section with sides slopes of 1:3 and 1:2, bottom width of 20m and not more than 60m long inclusive of areas of one sill. The channel will be used to evacuate flood water on the upstream of embankment. Stockpile or dispose as directed by the Engineer.	M <sup>3</sup>	1,200		
3.3.2	Provide and hand- place 0.3m thick riprap on the floor of the spillway.	M <sup>3</sup>	360		
	<b>Sub- Total 3.3</b>				
<b>EXCAVATION OF SOIL IN THE CORE TRENCH &amp; REDUCING LEVELS</b>					
<b>Item No.</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Rates (Kshs.)</b>	<b>Amount (Kshs.)</b>
	<b>3.4 INTAKE TOWER</b>				
3.4.1	Excavate an area of appropriate intake structure as directed	M <sup>3</sup>	0.40		
	<b>Sub- Total 3.5</b>				

	<b>3.5 DRAW OFF</b>				
3.5.1	Allow for a Drawoff System	L/S			
	<b>Sub- Total 3.5</b>				
	<b>3.6 FILL IN EMBANKMENT WORKS</b>				
3.6.1	Provide clay soil, spread while intermixing with water, spread and compact in layers of 300mm thick to maximum dry density to form the dam embankment as indicated in the drawings. Red clay soil suitable for dam construction can be obtained within a radius of 0.5km from the dam site. The rate to include watering.	M <sup>3</sup>	372,407		
3.6.2	Allow for trimming of embankment	M <sup>3</sup>	378		
3.6.3	Allow a lumpsum for water tankering for construction works other than water to be used in all items that water as described herein.	Item			
3.6.4	Allow for provision hand-placing of rip-rap 706m <sup>3</sup> on the upstream or front part of embankment protection against water waves	Ton	40		
3.6.5	Allow for supply and spreading of topsoil mixed with humus fertilizers 150mm thick on D/S slope and planting set at 30-60mm into topsoil on rows at 200mm c/c of approved grass by Engineer's Rep.	M <sup>3</sup>	3,600		
	<b>Sub- Total 3.6</b>				
	<b>3.7 FILL-ACCESS ROAD</b>				
3.7.1	Allow for provision and placing of 300mm thick laterite gravel (murrum) on access road, 1.5km long, 6m wide as wearing course.	M <sup>3</sup>	300		
3.7.2	Allow provisional sum of Kshs 100,000 for other minor works on the access road like culverts in river crossings.	Item			
	<b>Sub- Total 3.7</b>				

**AL DERE DAM CAPACITY 647,664M3 M<sup>3</sup> DAM-BILLS OF QUANTITIES**

<b>BOQ NO. 3.0 MAIN EARTHWORKS</b>					
<b>BOQ NO</b>	<b>DESCRIPTION</b>				<b>AMOUNT</b>
					<b>KSHS</b>
3.1	RIVER DIVERSION EARTHWORKS				
3.2	EMBANKMENT & CORE TRENCH EXCAVATIONS				
3.3	SPILLWAY				
3.4	INTAKE TOWER				
3.5	DRAW OFF				
3.6	FILL IN EMBANKMENT WORKS				
3.7	FILL-ACCESS ROAD				
	<b>TOTAL FOR BOQ 3 TRANSFERRED TO SUMMARY</b>				

<b>4.0 CONCRETE WORKS</b>					
<b>Item No.</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Rates (Kshs.)</b>	<b>Amount (Kshs.)</b>
	<b>4.1 SPILLWAY</b>				
	All earth works measured separately as so described under bill No. 3.0 stated herein.				
4.1.1	provide and place 0.06m 1:3:6 concrete blinding layers to sill bases 5 no.	M <sup>2</sup>	10		
4.1.2	provide,place and compact mass concrete of mix ratio of 1:2:4 and construct sills size 26m x 1m x 0.7m as indicated in the drawings	M <sup>3</sup>	15		
	<b>Sub-Total 4.1</b>				
	<b>4.2 INTAKE WORKS</b>				
	All earth works measured separately as so described under bill no. 3.0 stated herein.				
4.2.1	provide and place 0.06m thick 1:3:6 concrete blinding layers to foundation bases	M <sup>2</sup>	5		

4.2.2	provide and place 1:2:4 reinforced concrete layer to foundation base, columns and link floors.	M <sup>3</sup>	5		
	<b>Sub-Total 4.2</b>				
	<b>4.3 DRAW-OFF WORKS</b>				
	All earth works measured separately as so described under bill no. 3.0 stated herein.				
4.3.1	provide and place 0.06m thick 1:3:6 concrete blinding layers to foundation bases of draw-off pipe inclusive of valve chamber base and cover.	M <sup>3</sup>	3		
4.3.2	provide and place 1:2:4 reinforced concrete layer to foundation base, collars and surround of the 2 no. 200mm dia Pipeline. The collars shall be placed at 3m intervals with one collar being at the pipe-joint.	M <sup>3</sup>	6		
	<b>Sub-Total 4.3</b>				

<b>BOQ NO. 4.0 CONCRETE WORKS</b>					
<b>BOQ NO</b>	<b>DESCRIPTION</b>				<b>AMOUNT</b>
					<b>KSHS</b>
4.1	SPILLWAY				
4.2	INTAKE WORKS				
4.3	DRAW-OFF WORKS				
	<b>TOTAL FOR BOQ 4 TRANSFERRED TO SUMMARY</b>				

<b>5.0 REINFORCEMENT</b>					
<b>Item No.</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Rates (Kshs.)</b>	<b>Amount (Kshs.)</b>
	<b>5.1 INTAKE REINFORCEMENT</b>				
	Supply, fix and lay Square Twisted High Tensile Steel Reinforcement bars (length of one bar is 12m) in Intake and draw off as here enumerated:-				
5.1.1	Supply malleable B/wire for fixing reinforcement bars.	Kg	50		
5.1.2	Y 10 in Intake Tower	No.	40		
5.1.3	Y 20 in Intake Tower	No.	30		
	<b>Sub-Total 5.1</b>				
	<b>5.2 DRAW-OFF</b>				
5.2.1	Y 8 in Draw-off	No.	40		
5.2.2	Y 12 in Draw-off	No.	100		
	<b>Sub-Total 5.2</b>				
	<b>BOQ NO. 5.0 REINFORCEMENT</b>				
<b>BOQ NO</b>	<b>DESCRIPTION</b>				<b>AMOUNT</b>
					<b>KSHS</b>
5.1	INTAKE REINFORCEMENT				
5.2	DRAW-OFF				
	<b>TOTAL FOR BOQ 5 TRANSFERRED TO SUMMARY</b>				

<b>Bill No. 6.0 PIPE WORKS -INTAKE TOWER</b>					
<b>Item No.</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Rates (Kshs.)</b>	<b>Amount (Kshs.)</b>
	<b>6.1 INTAKE TOWER</b>				
6.1.1	Provide double flanged 200mm dia. Class B GS pipes and connect vertically as is indicated in the drawings.	No.	3		
6.1.2	Provide, lay, join and support 200mm dia flanged GS bell mouth housing.	No.	3		
6.1.3	Provide, lay, join and support 100mm 90 <sup>o</sup> flanged bend to form draw-off.	No.	2		
6.1.4	Provide, lay, join and support Tee 200mm x 200mm	No.	3		
6.1.5	Provide, lay, join and support 2000mm x 1060mm flanged reduced Tee	No.	1		
6.1.6	provide, lay, join and support 200mm dia Sluice valves.	No.	4		
6.1.7	Provide,lay,join and support 200mm dia flanged gate valve	No.	1		
6.1.8	Provide,lay,join and support 200mm dia flanged flat cap	No.	1		
6.1.9	Provide,lay,join and support 200mm dia flanged flat cap	No.	1		
6.1.10	Provide,lay,join and support VJ 160mm flanged adopter complete with through bolts, gaskets and washers.	No.	2		
	<b>Sub-Total 6.1</b>				
	<b>6.2 DRAW-OFF</b>				
6.2.1	provide double flanged class B GS 200mm dia pipes lay, join and support as indicated in the drawings.	No.	3		
6.2.2	Ditto 100mm Ditto	No.	2		
6.2.3	Provide, lay, join and support 200mm x 200mm dia flanged GS Reducing Tee as indicated in the drawings.	No.	4		
	<b>Sub-Total 6.2</b>				



<b>Bill No. 6.0 PIPE WORKS -INTAKE TOWER</b>					
<b>BOQ NO</b>	<b>DESCRIPTION</b>				<b>AMOUNT</b>
					<b>KSHS</b>
6.1	INTAKE TOWER				
6.2	DRAW-OFF				
	<b>TOTAL FOR BOQ 6 TRANSFERRED TO SUMMARY</b>				

<b>Bill No. 7.0 Auxillary Works</b>					
<b>Item No.</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Rates (Kshs.)</b>	<b>Amount (Kshs.)</b>
	<b>7.1 FORMWORKS</b>				
<b>Item No.</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Rates (Kshs.)</b>	<b>Amount (Kshs.)</b>
7.1.1	Supply, cut and fix rough size 8" x 1" vertical cypress shuttering to sides of foundation bases.	M <sup>2</sup>	10		
7.1.2	Ditto 3" x 2"	M <sup>2</sup>	10		
7.1.3	Ditto to columns faces in foundation to original ground level.	M <sup>2</sup>	10		
7.1.4	Supply, cut and fix wrot vertical 4" x 1/2" cypress T & G shuttering to column faces of tower from 0m to 2.1m	M <sup>2</sup>	10		
	<b>Sub-Total 7.2</b>				
<b>7.2 FENCING</b>					
7.2.1	Allow for provision of cedar posts 2m high	No.	281		
7.2.2	Allow for provision of barbed wire 12 1/2 gauge (180m long)	Roll	4		

7.2.3	Allow for construction of the fence of 5No. Strands of wire. The posts shall be fixed into the ground and surrounded by concrete. The holes for the posts shall be 0.6m deep.	Item			
	<b>Sub-Total 7.2</b>			1	
	<b>7.3 COMMUNAL WATER POINT</b>				
7.3.1	Provide materials and construct communal water point with double tap as indicated in the drawings.	Item			
	<b>Sub-Total 7.3</b>				
	<b>Bill No. 7.0 Auxillary Works</b>				
<b>BOQ NO</b>	<b>DESCRIPTION</b>				<b>AMOUNT</b>
					<b>KSHS</b>
7.1	FORMWORKS				
7.2	FENCING				
7.3	Communal Water Points				
	<b>TOTAL FOR BOQ 7 TRANSFERRED TO SUMMARY</b>				

<b>BOQ NO. 8- CATTLE TROUGH BILLS OF QUANTITIES</b>					
Item	Description	Unit	Qty	Rate	Amount
a	Supply the following materials and construct a cattle trough as shown in the drawing and as directed by the engineer. Rate shall be inclusive of all materials, labour, transport and overhead and taxes				
1	150mm x 150mm x 300mm concrete blocks	No.	819		
2	Ordinary Portland cement	Bags	64		
3	Weld mesh 4' x 8' - gauge 8	Pcs	7		
4	Aggregate size 13mm - 20mm	Tons	15		
5	Sand	Tons	7		
6	Stone Rubbles	Tons	5.44		

7	25mm dia. M.G. GI pipes	Lengths	2		
8	25mm dia. Ball Valve	No.	1		
9	25mm dia. Non - Return valve	No.	2		
10	25mm x 90° bend - M & F	No.	6		
11	Skilled Labour	Man-days	10		
12	Unskilled Labour	Man-days	30		
<b>TOTAL COST FOR 1No. CATTLE TROUGH</b>				<b>Kshs</b>	
<b>TOTAL COST FOR 2No. CATTLE TROUGH</b>				<b>Kshs</b>	

<b>BOQ 9-SHOAT TROUGH BILLS OF QUANTITIES</b>					
<b>Item</b>	<b>Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Rate</b>	<b>Amount</b>
a	Supply the following materials and construct a shoat trough as shown in the drawing and as directed by the engineer. Rate shall be inclusive of all materials, labour, transport and overhead and taxes				
1	150mm x 150mm x 300mm Stones	No.	100		
2	Ordinary Portland cement	Bags	5		
3	Weld mesh 4' x 8' - gauge 8	Pcs	4		
4	Aggregate size 13mm - 20mm	Tons	1		
5	Sand	Tons	1		
6	Stone Rubbles	Tons	0.87		
7	25mm dia. M.G. GI pipes	Lengths	2		
8	25mm dia. Ball Valve	No.	1		
9	25mm dia. Non - Return valve	No.	2		
10	25mm x 90° bend - M & F	No.	6		
11	Skilled Labour	Man-days	5		
12	Unskilled Labour	Man-days	15		
<b>TOTAL COST FOR 1No. SHOATS TROUGH</b>				<b>Kshs</b>	
<b>TOTAL COST FOR 2No. SHOATS TROUGH</b>				<b>Kshs</b>	

SUMMARY SHEET					
AL DERE DAM CAPACITY 647,664M <sup>3</sup> DAM-BILLS OF QUANTITIES					
BILL OF QUANTITIES					
BILL NO	DESCRIPTION				AMOUNT (KSHS)
1	PRELIMINARIES OR GENERAL ITEMS				
2	Bush Clearing and Vegetable Soil Stripping				
3	MAIN EARTHWORKS				
4	CONCRETE WORKS				
5	REINFORCEMENT				
6	PIPE WORKS -INTAKE TOWER				
7	Auxillary Works				
8	Cattle Trough				
9	Shoat Trough				
	<b>TOTAL</b>				
	<b>ADD 5% CONTINGUENCIES</b>				
	<b>GRAND TOTAL</b>				

# Drawings



NORTHERN WATER WORKS DEVELOPMENT AGENCY (NWWDA)

# FOROLE (AL DERE) HOMOGENOUS EARTH FILL DAM FEASIBILITY AND DETAILED DESIGN REPORT



## DESIGN DRAWINGS

OCTOBER 2019

### PREPARED BY

Northern Water Works Development Agency Assisted by  
Director Water, Sewerage and Sanitation Development,  
Ministry of Water&Sanitation and Irrigation

### CLIENT

The Chief Executive Officer  
Northern Water Works Development Agency  
P.O BOX 495-70100  
GARISSA  
Telephone +254-046-2103598  
Email- northwsb@yahoo.com

# AL DERE (FOROLE) EATHFILL DAM DESIGN DRAWINGS

<b>DRAWING INDEX SHEET</b>			
ITEM	DESCRIPTION	DRAWING NUMBER	NUMBERS
	<b>A. LAYOUTS</b>		
	GOOGLE IMAGE OF LAYOUT OF AL		
1	DERE DAM SITE		1
	CATCHMENT MAP OF AL DERE		
2	DAM CATCHMENT		1
	LOCATION OF AL DERE DAM ON		
3	TOPO MAP		1
4	AL DERE LAGA		1
	LOCATION OF AL DERE DAM IN		
5	RESPECT TO FOROLE		1

# AL DERE (FOROLE) EATHFILL DAM DESIGN DRAWINGS

<b>DRAWING INDEX SHEET</b>			
ITEM	DESCRIPTION	DRAWING NUMBER	NUMBERS
6	PLAN LAYOUT	SN/01-01	1
	DIMENSIONS AND DETAILS		
7	LAYOUT	SN/01-06	1
	<b>B. CROSS SECTIONS</b>		
1	CROSS SECTION PROFILE@CENTER OF DAM	SN/01-03 SHEET 3	1
	LONGITUDINAL SECTION @		
2	CENTER OF DAM	SN/01-02 SHEET 002	1
	LONGITUDINAL CROSS SECTION @		
3	CENTRE OF SILT TRAP	SN/01-02 SHEET 002	1



# AL DERE (FOROLE) EATHFILL DAM DESIGN DRAWINGS

<b>DRAWING INDEX SHEET</b>			
ITEM	DESCRIPTION	DRAWING NUMBER	NUMBERS
4	CROSS SECTION @CENTER OF SPILLWAY	SN/01-04 SHEET 04	1
	<b>C. TYPICAL EMBANKMENT</b>		
1	TYPICAL EMBANKMENT SECTIONS FOR PROPOSED DAM	SN/01-7 SHEET NO. 7	1
	<b>D. STANDARD DRAWINGS</b>		
1	WATER PAN SPECIAL	SN/01-08	2
	SPILLWAY FOR SMALL EARTH		
2	DAMS, TYPE DRAWING (II)	M.W.I	2

# AL DERE (FOROLE) EATHFILL DAM DESIGN DRAWINGS

## DRAWING INDEX SHEET

ITEM	DESCRIPTION	DRAWING NUMBER	NUMBERS
3	SMALL DAMS	003-TYPE-014	2
4	INTAKE AND VALVE CHAMBER FOR COMMUNAL WATER POINT	018-TYPE-006A	1
5	CATTLE TROUGH TYPE DRAWING IV-SHOATS AND CALVES	MWI	1
6	CATTLE TROUGH	018-TYPE-026A	1
7	EROSION PROTECTION WORKS	ML01/DD01	1
<b>TOTAL</b>			<b>22</b>

# A.LAYOUT

# Untitled Map

Al Dere Dam Site

## Legend

Feature 1

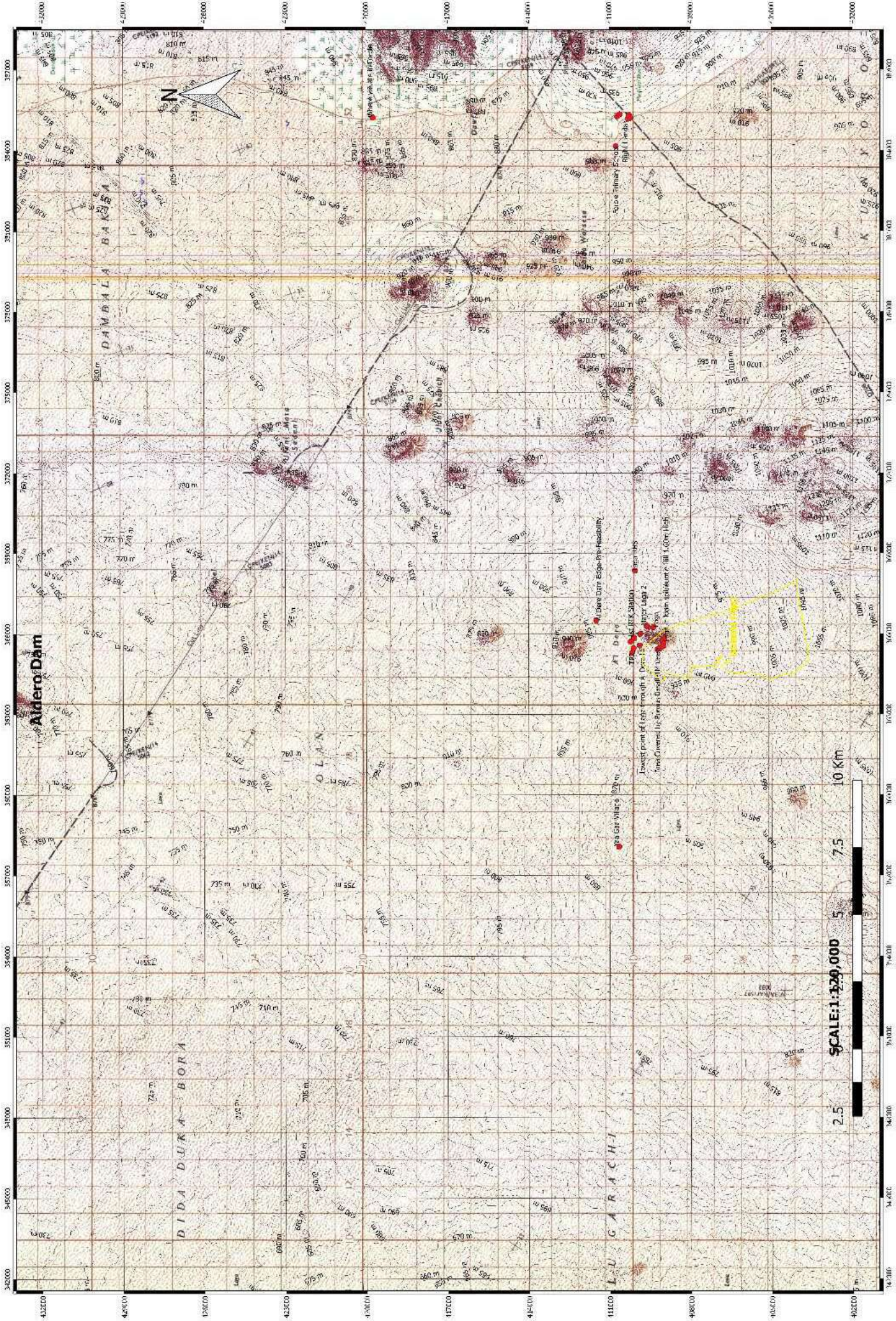


Google Earth

Image © 2019 Maxar Technologies

700 m





SCALE: 1:120,000

2.5 5 7.5 10 Km

KENYA  
1:100,000

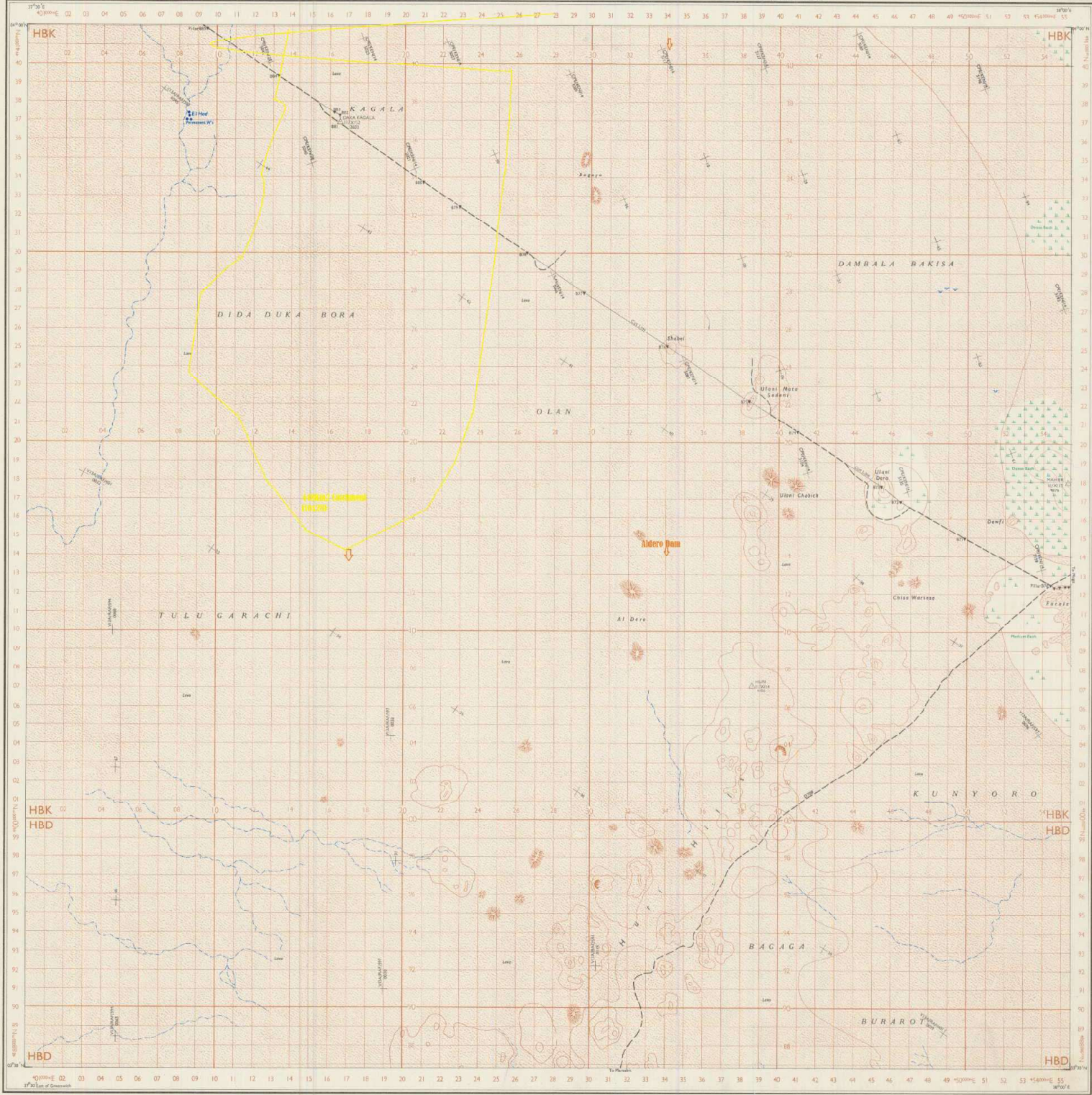
METRE GRID (EAST AFRICA) ZONE H

# NORTH HURI

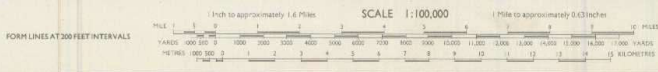
EDITION 2 - CGCS

Refer to this sheet as:  
SERIES Y633  
SHEET 16

Series Y633  
Sheet 16  
Edition 2 - 1970



Series Y633 Edition 2 - CGCS 1962  
Published by the Surveyor General and Air Ministry 1962  
Horizontal Control from K.E.S.C. Survey and from Astralia  
Vertical Control by Barometer using Cape Datum  
Compiled from Air Photographs dated 1954-1957  
Drawn and Printed by Survey of Kenya 1962



HIGHTS IN FEET




Printed by Survey of Kenya 1962

This map is NOT an authority on the delineation of boundaries

# Aldere Laga-Red

Write a description for your map.

## Legend

-  Aldere
-  Aldere Laga
-  Feature 1



# Untitled Map

Location of Al Dere Dam in Respect to Folore Village

Yaa Gaa Village-Consultation Point

Al Dero Dam-Collins

Al Dere Hill Laga RHS

Right Handaki Forole Handaki

Laga in loam soil/Auntie Hill 1.60m High Confluence of 2 Different Lagas

Gurarati-old Gabra HQS

Huri Hills Market centre

## Legend

- Aldere
- Aldere Laga
- Feature 1

E38.25°

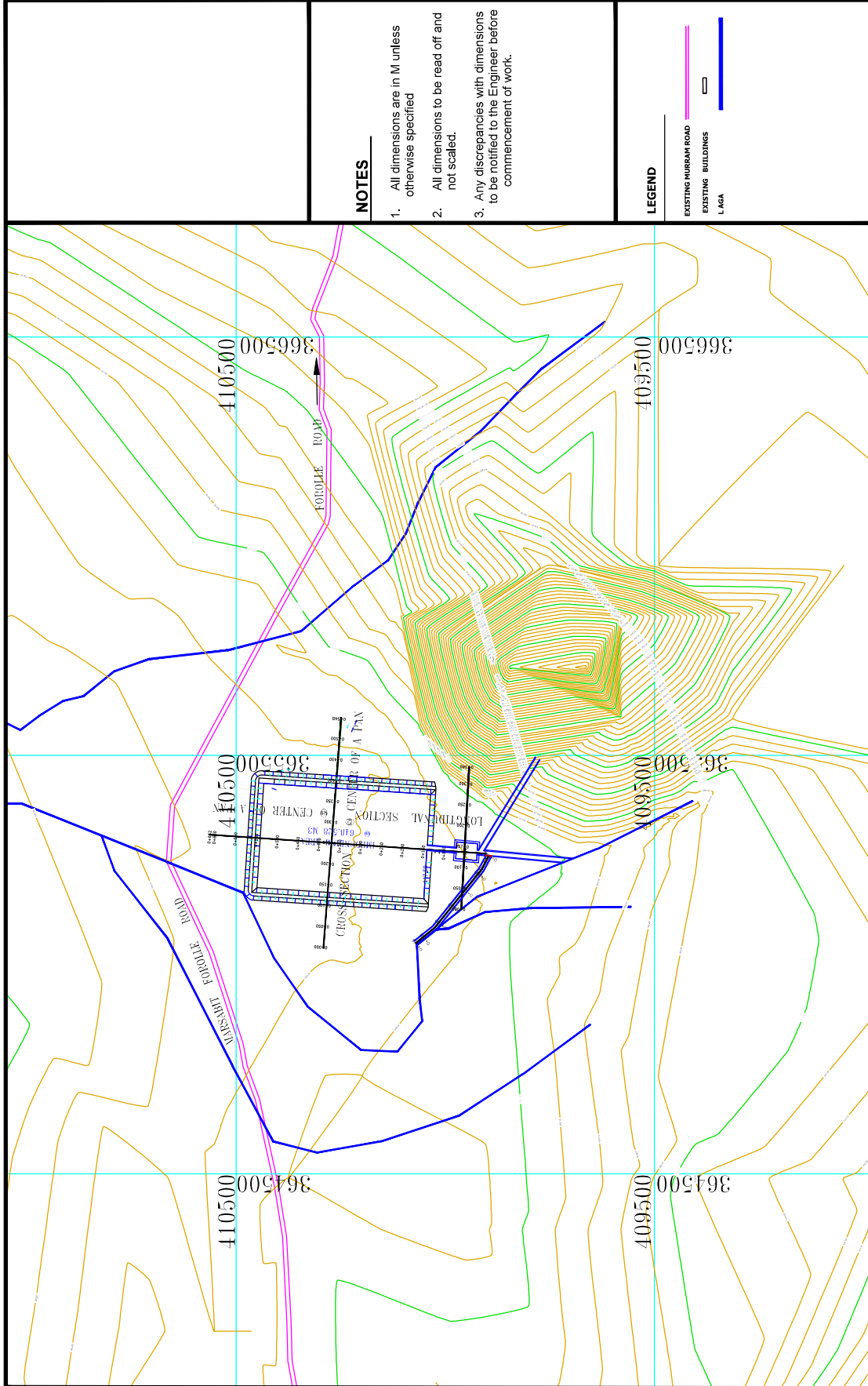


20 km

Google Earth

US Dept of State Geographer  
Image Landsat / Copernicus  
© 2018 Google  
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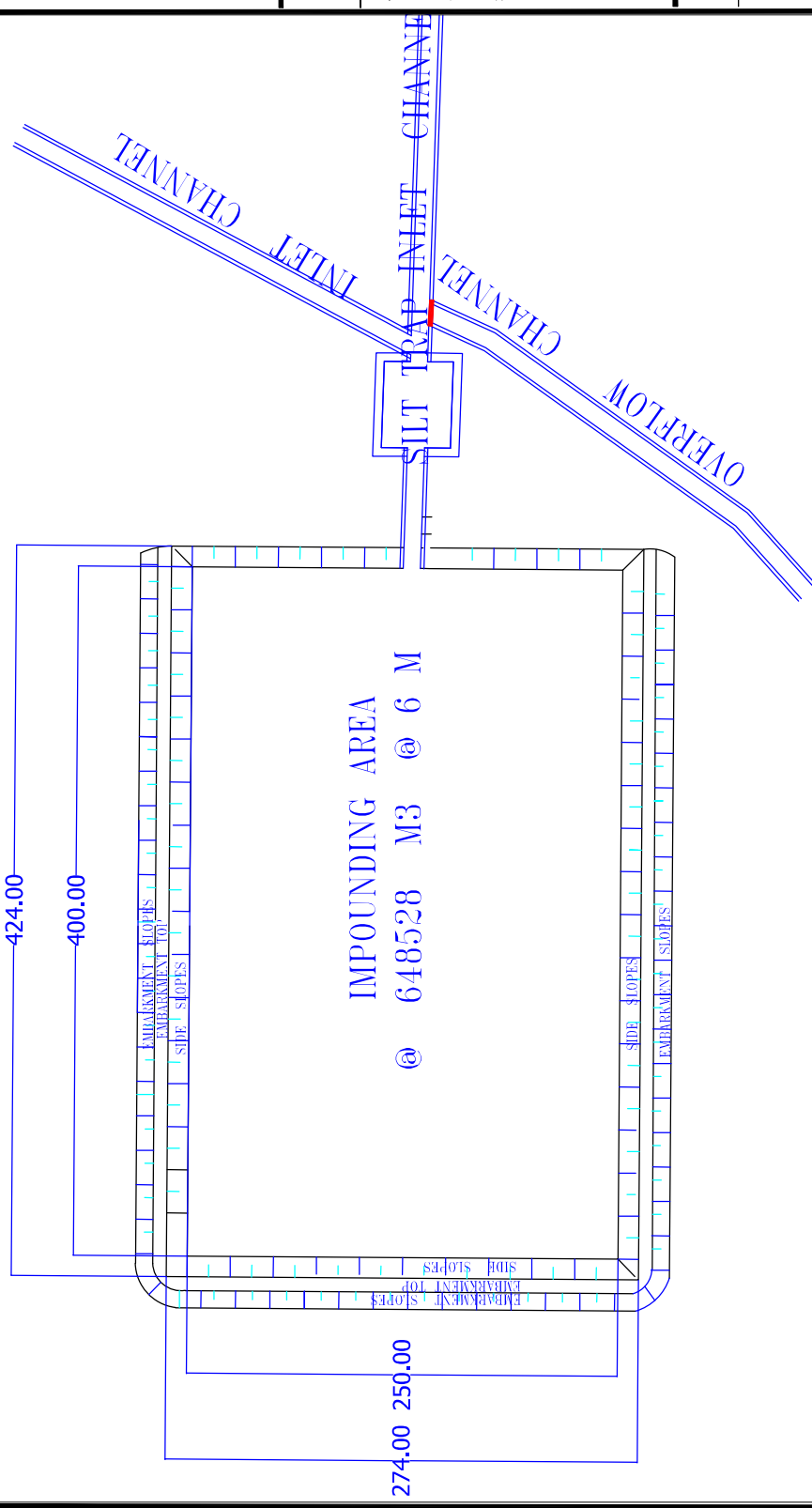
**NOTES**

1. All dimensions are in M unless otherwise specified
2. All dimensions to be read off and not scaled.
3. Any discrepancies with dimensions to be notified to the Engineer before commencement of work.

**LEGEND**

- EXISTING MURRAM ROAD
- EXISTING BUILDINGS
- L.A.G.A

<b>CLIENT</b> 	<b>ENGINEER</b>  REPUBLIC OF KENYA NORTHERN WATER SERVICES BOARD	<b>DESIGNED BY:</b> ENG. B. KASABULI	<b>Project Title:</b>	<b>Scale:</b> 1:10,000
		<b>SURVEYED BY:</b> G. N. <b>DRAWN BY:</b> ENG. C. OMTI <b>CHECKED BY:</b>	PROPOSED ALDERO-WATER WATER FOR PEACE WATER PROJECT Drg. Title: Plan layout	<b>Date:</b> OCT . 2019 <b>Drg. No.</b> SN/01-01 <b>SHEET</b> 001




**NOTES**

1. All dimensions are in M unless otherwise specified
2. All dimensions to be read off and not scaled.
3. Any discrepancies with dimensions to be notified to the Engineer before commencement of work.

**LEGEND**

- EXISTING MURRAM ROAD
- EXISTING BUILDINGS
- LAGA

<p>CLIENT</p>  <p>REPUBLIC OF KENYA NORTHERN WATER SERVICES BOARD</p>	<p>ENGINEER</p>  <p>REPUBLIC OF KENYA NORTHERN WATER SERVICES BOARD</p>	<p>DESIGNED BY: Eng. C.O.WITI</p>	<p>SURVEYED BY: G. N. J.MUE</p>	<p>DRAWN BY:</p>	<p>CHECKED BY:</p>	<p>Project Title: PROPOSED ALDERO-WATER WATER FOR PEACE WATER PROJECT</p>	<p>Scale: 1:10,000</p>
		<p>Dimensions and Details layout</p>				<p>Date: OCT. 2019</p>	<p>Drg. No. SN/01-06</p>

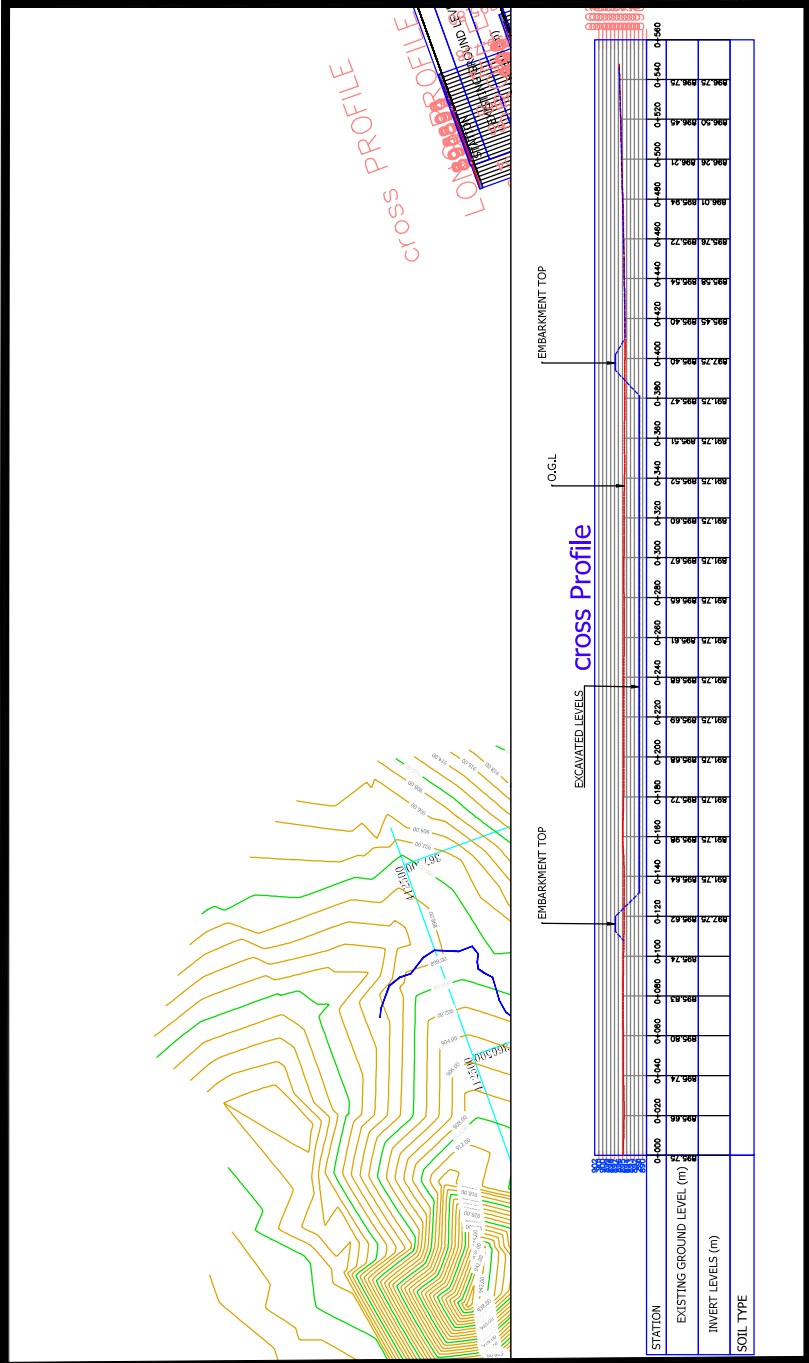
# B. CROSS SECTIONS

**LEGEND**

- EXISTING MURRAM ROAD
- AIR-STRIP
- TRENCH BOTTOM LEVELS
- BUILDINGS
- LAGS

**SCALE**

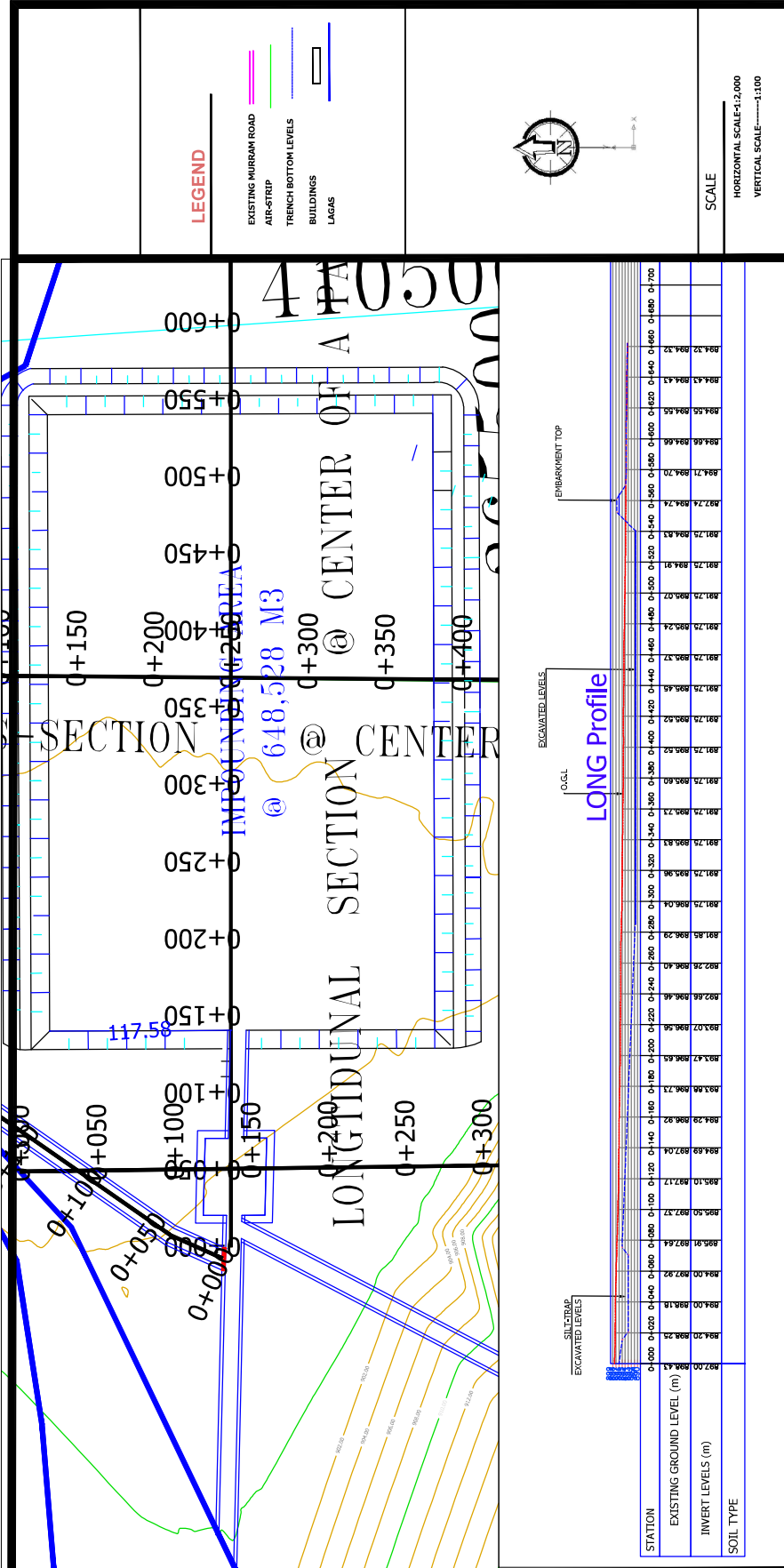
HORIZONTAL SCALE: 1:2,000  
VERTICAL SCALE: 1:100



**NOTES**

- All dimensions are in mm unless otherwise specified
- All dimensions to be read off and not scaled.
- Any discrepancies with dimensions to be notified to the Engineer before commencement of work.
- All water pipes are all UPVC except where it crosses the lags GI is used
- A nominal minimum cover for all pipes shall be 0.6m
- Marker posts shall be provided along pipelines at every 200m, except where they follow permanent roads

<b>CLIENT</b> REPUBLIC OF KENYA NORTHERN WATER SERVICES BOARD	<b>ENGINEER</b> G. N.	<b>DESIGNED BY:</b> ENG. B. KASABULI		<b>PROJECT TITLE:</b> PROPOSED ALDERO-WATER WATER FOR PEACE WATER PROJECT	
		<b>SURVEYED BY:</b> ENG. C. OWITI		DRG. TITLE: CROSS-SECTION PROFILE SECTION @ CENTER OF A PAN	
		<b>DRAWN BY:</b> ENG. NDERI		<b>Scale:</b> AS SHOWN	
		<b>APPROVED BY:</b>		<b>Date:</b> OCT. 2019	
				<b>DRG. No.:</b> SN/01-03	
				<b>SHEET 03</b>	



**LEGEND**

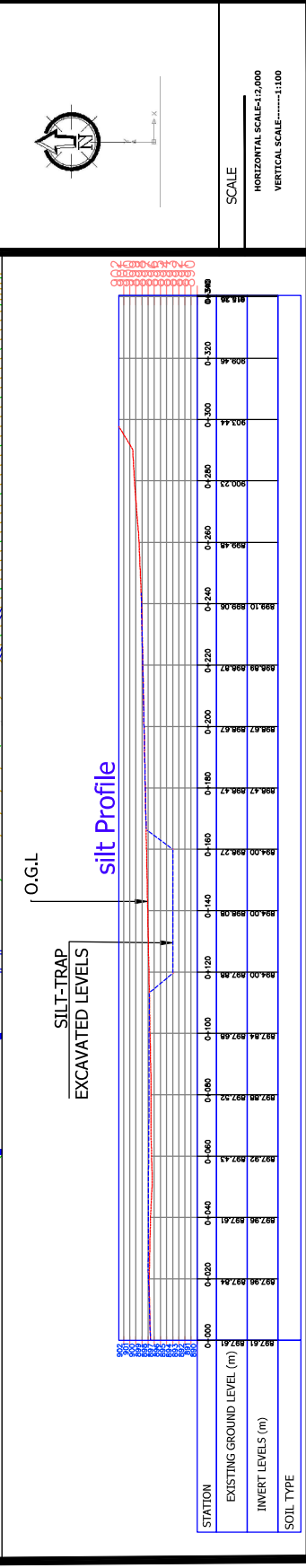
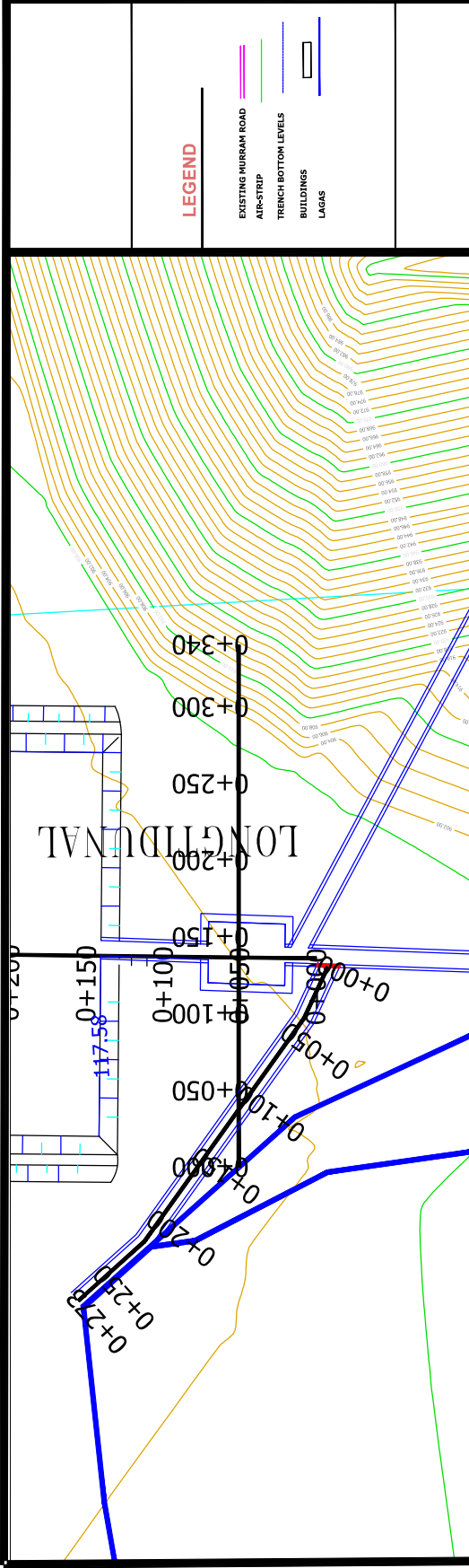
- EXISTING MURRAM ROAD
- AIR-STRIP
- TRENCH BOTTOM LEVELS
- BUILDINGS
- LAGS

**SCALE**  
HORIZONTAL SCALE: 1:2,000  
VERTICAL SCALE: 1:100

**NOTES**

- All dimensions are in mm unless otherwise specified
- All dimensions to be read off and not scaled.
- Any discrepancies with dimensions to be notified to the Engineer before commencement of work.
- All water pipes are all uPVC except where it crosses the lags GI is used
- A nominal minimum cover for all pipes shall be 0.6m
- Marker posts shall be provided along pipelines at every 200m, except where they follow permanent roads

<b>CLIENT</b> REPUBLIC OF KENYA NORTHERN WATER SERVICES BOARD	<b>ENGINEER</b> ENG. B. KASABULLI	<b>DESIGNED BY:</b> ENG. B. KASABULLI		<b>PROJECT TITLE:</b> PROPOSED ALDERO WATER WATER FOR PEACE WATER PROJECT	
		<b>SURVEYED BY:</b> G. N.		<b>DATE:</b> OCT. 2019	
		<b>DRAWN BY:</b> ENG. C. OWITI		<b>DRG. No.:</b> SN/01-02	
		<b>APPROVED BY:</b> ENG. NDERI		<b>SHEET 002</b>	



**LEGEND**

- EXISTING MURRAM ROAD
- AIR-STRIP
- TRENCH BOTTOM LEVELS
- BUILDINGS
- LAGS

**SCALE**

HORIZONTAL SCALE=1:2,000  
VERTICAL SCALE=1:100

**NOTES**

- All dimensions are in mm unless otherwise specified
- All dimensions to be read off and not scaled.
- Any discrepancies with dimensions to be notified to the Engineer before commencement of work.
- All water pipes are all uPVC except where it crosses the Bega GJ is used
- A nominal minimum cover for all pipes shall be 0.6m
- Marker posts shall be provided along pipelines at every 200m, except where they follow permanent roads

**CLIENT**  
REPUBLIC OF KENYA  
NORTHERN WATER SERVICES BOARD

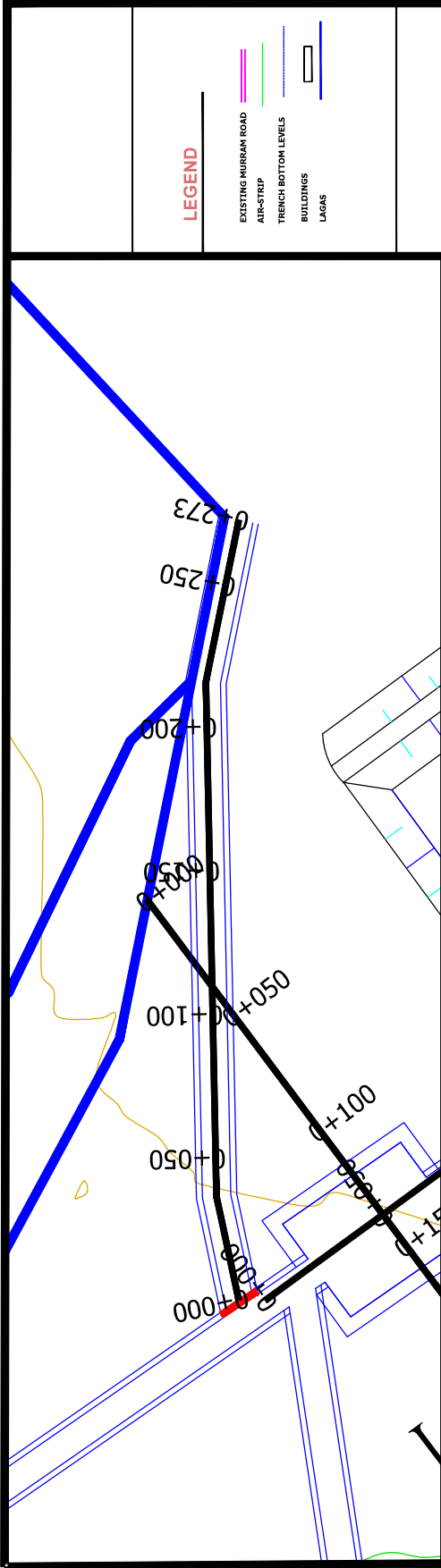
**ENGINEER**  
REPUBLIC OF KENYA  
NORTHERN WATER SERVICES BOARD

**DESIGNED BY:** ENG. B. KASABULI  
**SURVEYED BY:** G. N.  
**DRAWN BY:** ENG. C. O. WITI  
**APPROVED BY:** ENG. N. D. NDI

**PROJECT TITLE:**  
PROPOSED ALDERO -WATER WATER FOR PEACE WATER PROJECT

**Scale:** As shown  
**Date:** OCT, 2019  
**Dr. No.:** SN/01-02  
**SHEET 002**

DRG. TITLE: LONGITUDINAL-SECTION PROFILE SECTION @ CENTER OF A PAN

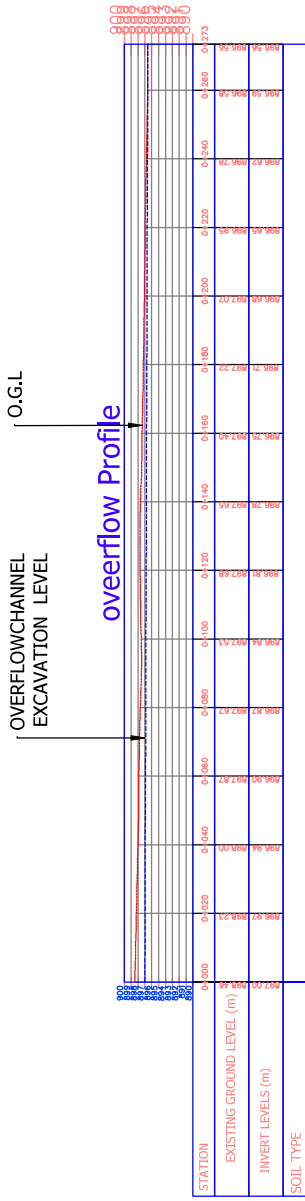


**LEGEND**

- EXISTING MURRAN ROAD
- AIR-STEP
- TRENCH BOTTOM LEVELS
- BUILDINGS
- LAGS



**SCALE**  
 HORIZONTAL SCALE=1:2,000  
 VERTICAL SCALE=1:100



**NOTES**

1. All dimensions are in mm unless otherwise specified
2. All dimensions to be read off and not scaled.
3. Any discrepancies with dimensions to be notified to the Engineer before commencement of work.
4. All water pipes are all uPVC except where it crosses the lags. GI is used

**NOTES**

5. A nominal minimum cover for all pipes shall be 0.6m
6. Marker posts shall be provided along pipelines at every 200m, except where they follow permanent roads

<b>CLIENT</b> REPUBLIC OF KENYA NORTHERN WATER SERVICES BOARD	<b>ENGINEER</b> ENG. B. KASABULI	<b>DESIGNED BY:</b> G. N.		<b>PROJECT TITLE:</b> PROPOSED ALDERO -WATER WATER FOR PEACE WATER PROJECT	<b>Scale:</b> As shown
		<b>SURVEYED BY:</b> ENG. C. OWITI			
<b>REPUBLIC OF KENYA          NORTHERN WATER SERVICES BOARD</b>		<b>APPROVED BY:</b> ENG. NDERI		<b>DRG. TITLE:</b> CROSS-SECTION PROFILE SECTION @ CENTER OF SILT-TRAP	<b>SHEET</b> 004

## C. TYPICAL DAM EMBANKMENT





# D. STANDARD DRAWINGS

**SPECIFICATIONS:**

**SILT:** SET TO BE DECIDED BY THE ENGINEER IN FUNCTION OF REQUIRED PROTECTION IN CASE OF PERMANENT FLOODING. THE PAN SHALL BE COVERED WITH AN IMPERMEABLE CLAY A SMALL SURFACE AND IS PREFERABLE.

**BASE:** TO BE DECIDED IN FUNCTION OF THE AVAILABLE LAND: SQUARE, ROUND, RECTANGULAR OR OTHER.

**PAVING:** PAN SURFACES AND SILT TRAP IS OR LESS, CATTLE RAMP IS OR LESS, BENCH OF REPOSED SILT TRAP SHALL BE COVERED WITH GOOD RESISTANCE CONCRETE AS SILT TRAP NECESSARY.

**VEGETATION:** PLANT CATCHMENT WITH OVERHANGS AND STEEP ATTACHMENT WITH GOOD VEGETATION SHALL BE ATTACHED TO THE PAN SURFACES AND SILT TRAP SURFACES. THE VEGETATION SHALL BE COVERED WITH LAYER OF TOP SOIL TO REDUCE WINDY AND DRYING.

**CONCRETE:** PROPOSED CONCRETE REINFORCEMENT SHALL BE USED WHERE IT IS REQUIRED FOR ACCESS BY ANIMALS.

**PAVING:** THE SAND WELL SHALL BE LOCATED IN A CONVENIENT PLACE AWAY FROM INLET AND CATTLE PAN.

**Engineer**

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**Client**

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BOARD

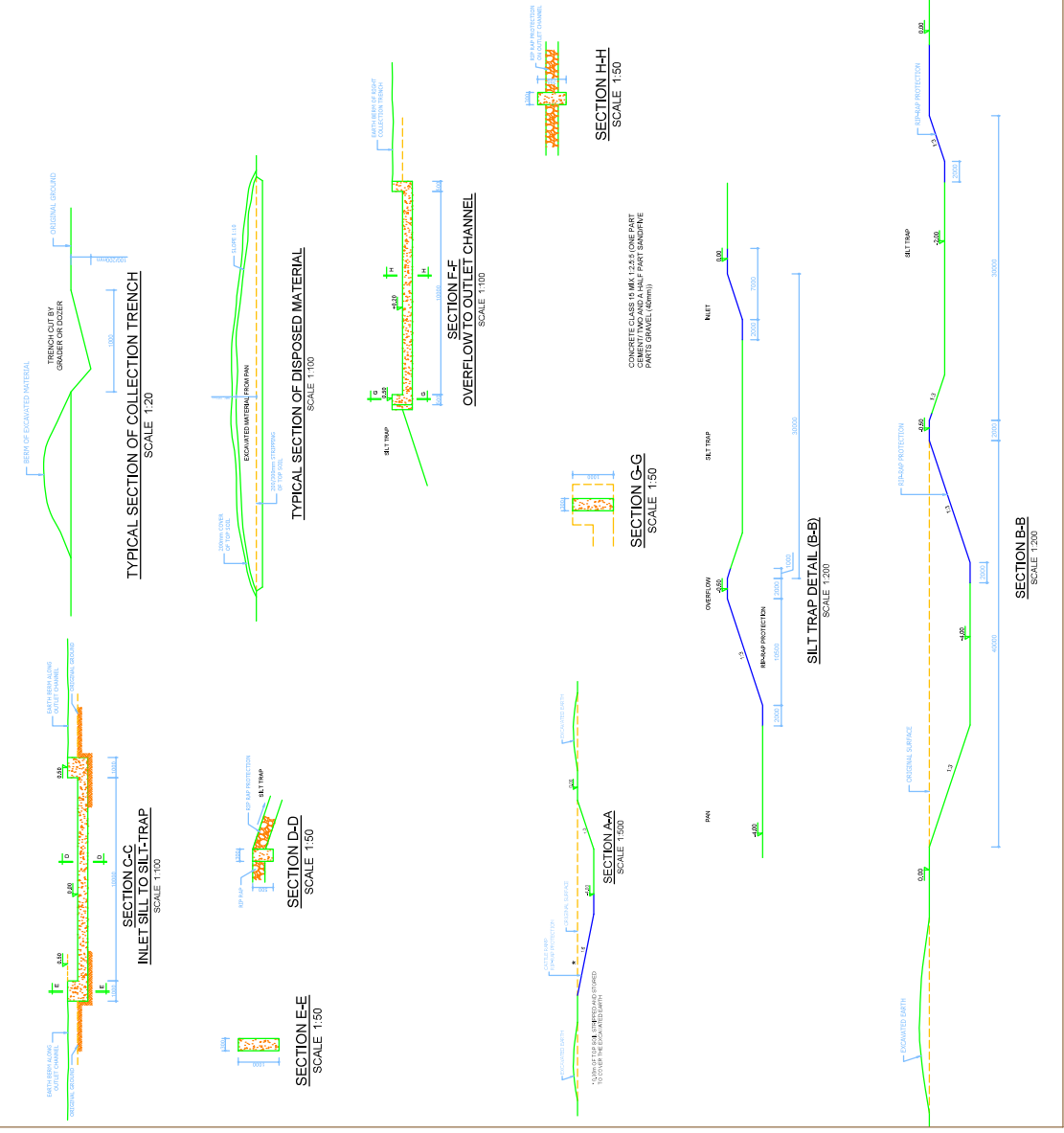


**WATER PAN**  
**SPECIAL CASES**  
1. INCLINED LOCATION  
2. DIVERSION STRUCTURE

**PROJECT**

**PROPOSED ALDERO -WATER  
WATER FOR PEACE WATER PROJECT**

MEMBERS	
Designed by	B. Kasabuli
Drawn by	F. Amwata
Digitized by	J.G. Muturi
Checked by	G. Nyasagare
Approved by	D.W.S
SCALE: AS SHOWN	
DRAWING NO: SW/01-08	



**NOTES ON EMBANKMENT**  
 THE EMBANKMENT SHALL BE PROPERLY COMPACTED ACCORDING TO THE USUAL SPECIFICATIONS FOR DAM CONSTRUCTION.  
**WIDTH:** THE GROSS FREEBOARD CREST LEVEL + N.W.AJ SHALL BE 1.0M MINIMUM.  
**HIGHT:** IN ADDITION CREST LEVEL SHALL BE AT LEAST 0.30M ABOVE THE PAN SLOPES AND UPSTREAM WALL. SLOPE 1:3.  
**SLOPES:** PAN SLOPES AND UPSTREAM WALL SLOPE 1:3. EXPOSED EXCAVATION MATERIAL DOWNSTREAM SLOPES MAY BE REDUCED TO 1:1 OR 1:1.5.  
**GRASSING:** DOWNSTREAM SLOPE AND UPSTREAM SLOPE FROM N.W.AJ TO BE COVERED WITH TOP SOIL TO INDUCE VEGETATION GROWTH.  
**OTHER FEATURES:** SEE DRWG 001-PPF-005A.

**NOTES ON DIVERSION STRUCTURE**  
 TYPE: THE STANDARD STRUCTURE WHICH MAY BE USED TO DIVERT WATER FROM A GULLY INTO A PAN FOR A GULLY LESS THAN 1.0M WIDE. CONVENTED RIP RAP MAY BE USED IN THE CONSTRUCTION IN PLACE OF CONCRETE FOR A GULLY WIDER THAN 5.0M. SPECIAL INVESTIGATIONS AND DESIGN HAVE TO BE MADE.  
**WEIR:** WIDTH OF HORIZONTAL SECTION = WIDTH OF ORIGINAL GULLY. CREST WIDTH 0.30M. HEIGHT TO BE AS PER ORIGINAL CHANNEL LEVEL. SHOULDER SLOPE 1:2. HEIGHT 1.0M ABOVE ORIGINAL CHANNEL LEVEL.  
**CONCRETE:** WEIR AND BELLS CLASS 20 MK 1:2.4 (ONE PART CEMENT, TWO PARTS SAND, FOUR PARTS GRAVEL).  
**OTHER FEATURES:** SEE DRWG 001-PPF-005A.

**Engineer**



REPUBLIC OF KENYA  
 NORTHERN WATER SERVICES  
 BOARD

**Client**



REPUBLIC OF KENYA  
 NORTHERN WATER SERVICES  
 BOARD

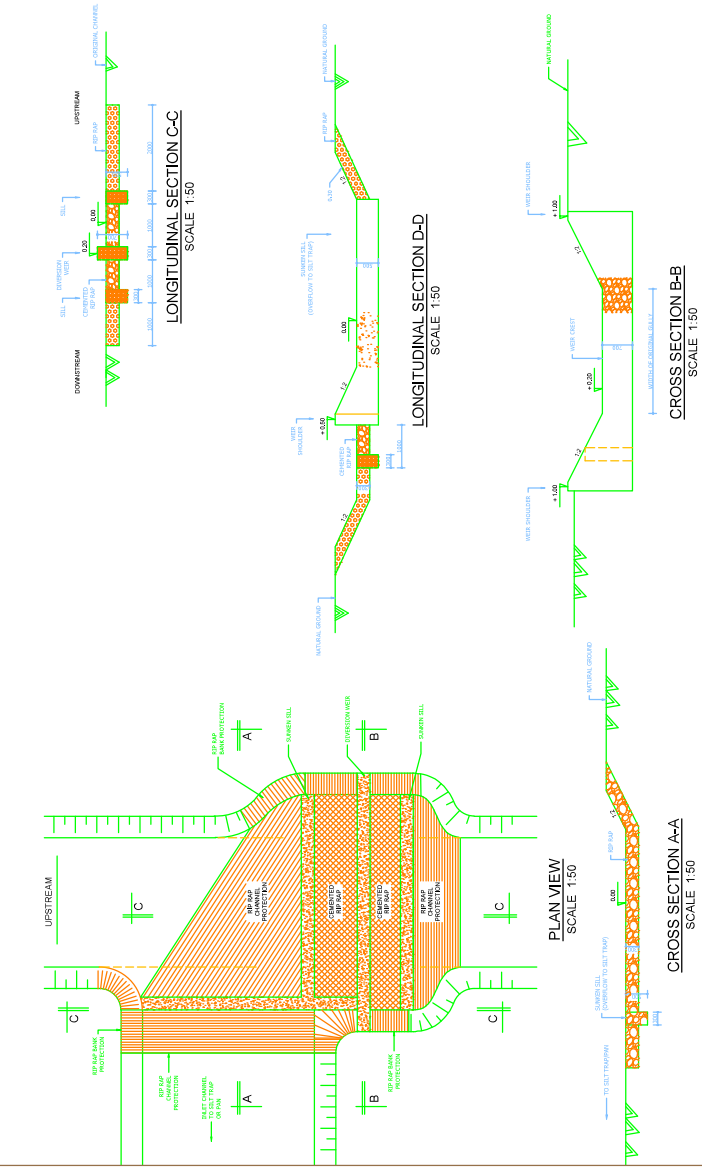
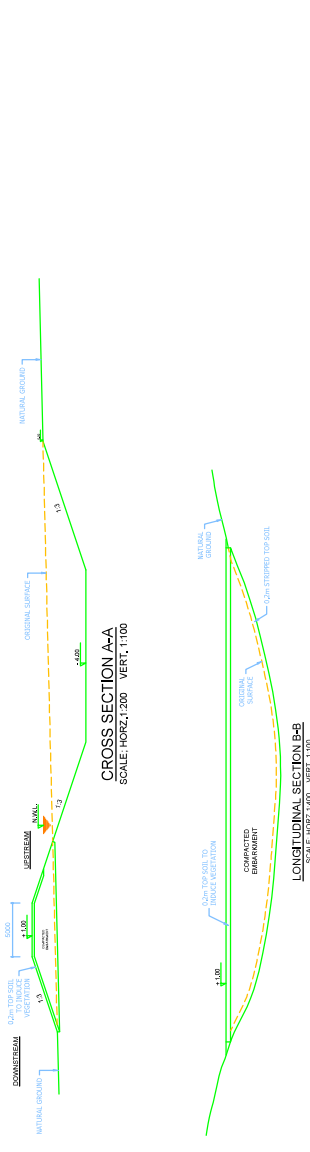
**WATER PAN  
 SPECIAL CASES**

1. INCLINED LOCATION
2. DIVERSION STRUCTURE

**PROJECT**

**PROPOSED ALDERO -WATER  
 WATER FOR PEACE WATER PROJECT**

MEMBERS	
Designed by	B.Kasabuli
Drawn by	F.Amwaia
Digitized by	J.G. Muturi
Checked by	G.Nyasagare
SCALE: AS SHOWN	
DRAWING NO:SN/01-09	



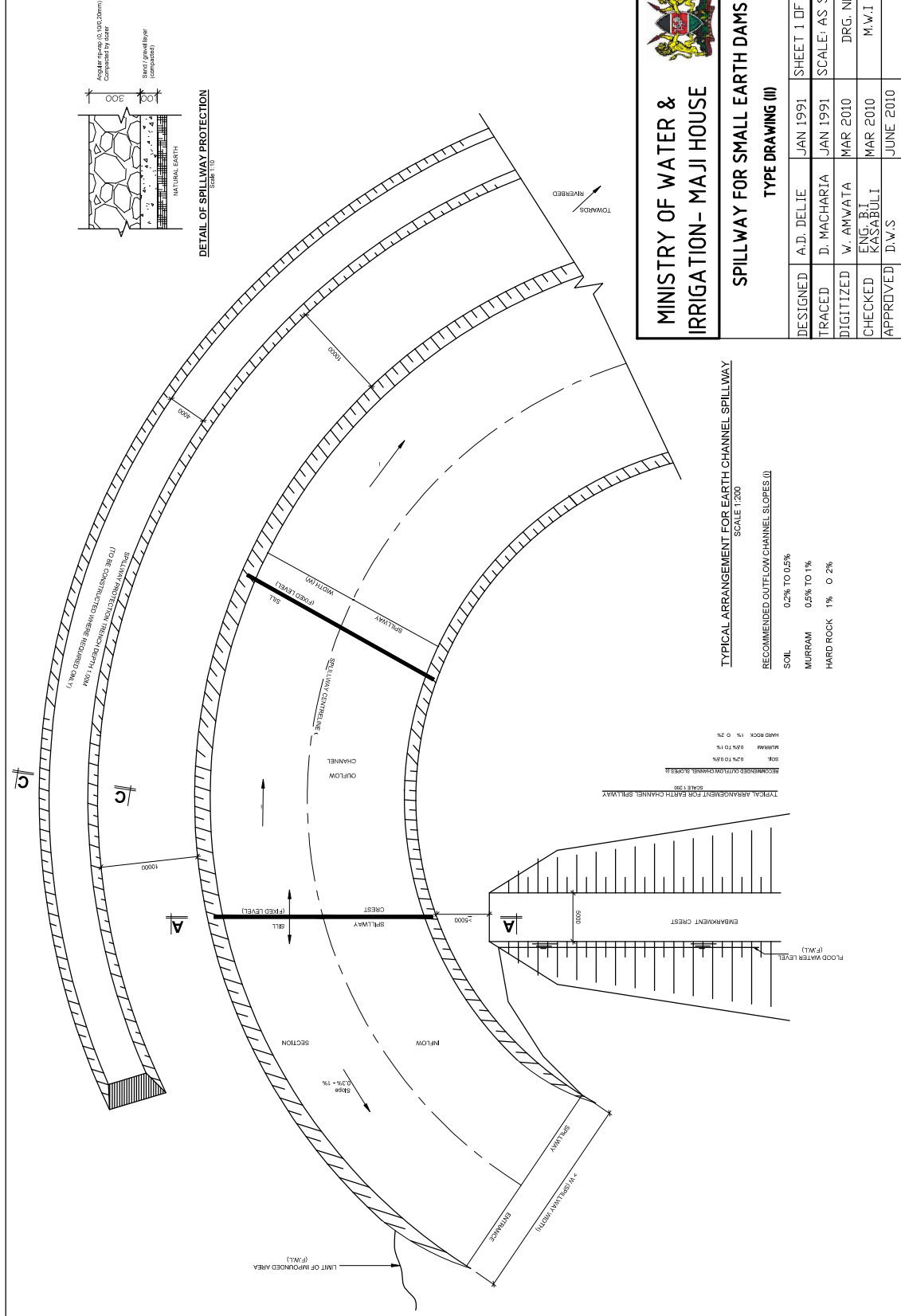


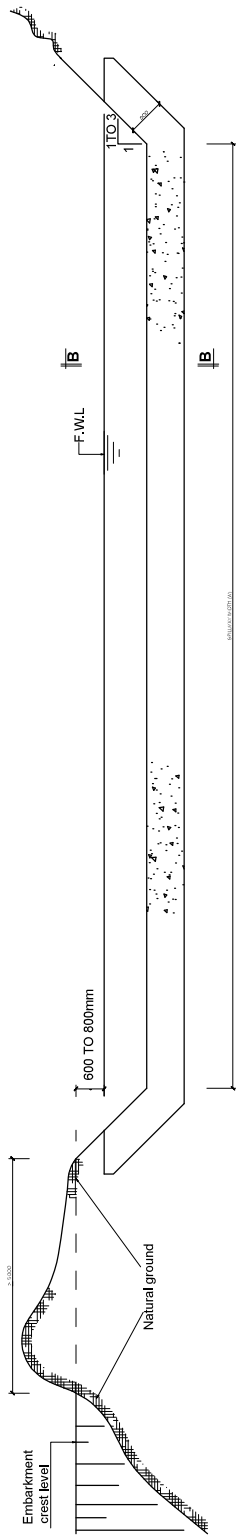
**MINISTRY OF WATER & IRRIGATION - MAJI HOUSE**

**SPILLWAY FOR SMALL EARTH DAMS**

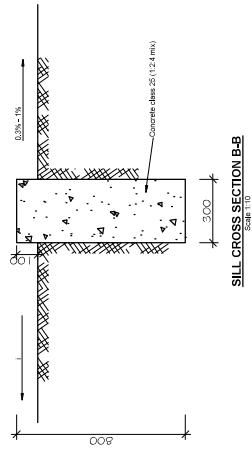
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DESIGNED	A.D. DELIE	JAN 1991	SHEET 1 OF 2
TRACED	D. MACHARIA	JAN 1991	SCALE: AS SHOWN
DIGITIZED	W. AMWATA	MAR 2010	DRG. NO.
CHECKED	ENG. B.I. KASABULI	MAR 2010	M.V.I
APPROVED	D.W.S	JUNE 2010	

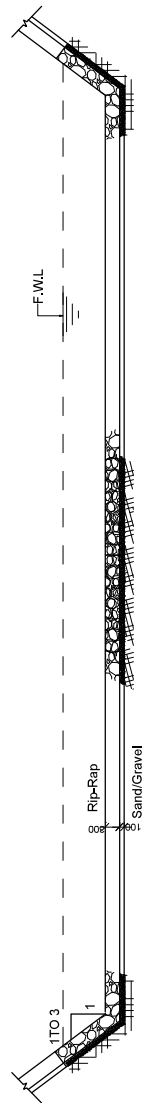




**CROSS-SECTION A-A (SPILLWAY CREST)**

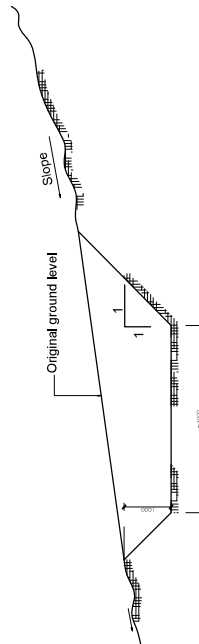


**SILL CROSS SECTION B-B**  
Scale 1:10



**SPILLWAY PROTECTION ARRANGEMENT**

Scale 1:100



**CROSS-SECTION C-C (PROTECTIVE TRENCH)**

Scale 1:100

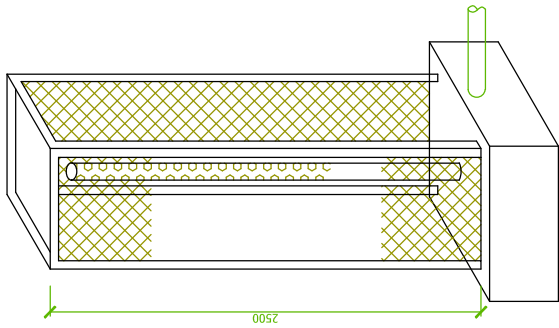


**MINISTRY OF WATER & IRRIGATION- MAJI HOUSE**

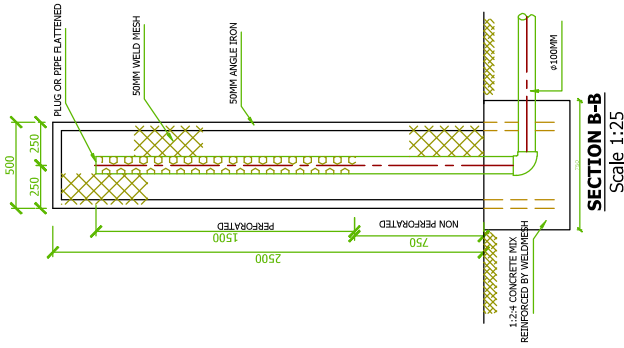
**SPILLWAY FOR SMALL EARTH DAMS**

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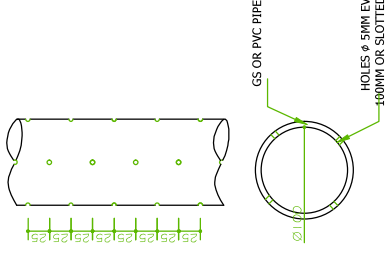
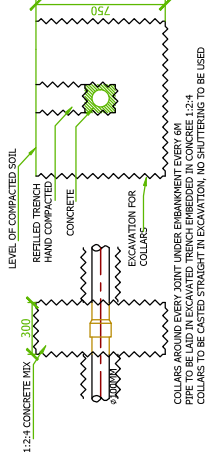
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TRACED	D. MACHARIA	JAN 1991	SCALE: AS SHOWN
DIGITIZED	V. AMWATA	MAR 2010	DRG. NO.
CHECKED	ENG. BI KASABULI	MAR 2010	M.V.I
APPROVED	D.W.S	JUNE 2010	



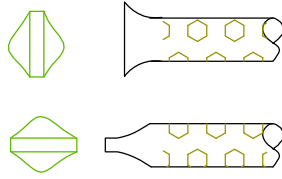
**INTAKE STRUCTURE**  
Scale 1:25



**SECTION B-B**  
Scale 1:25



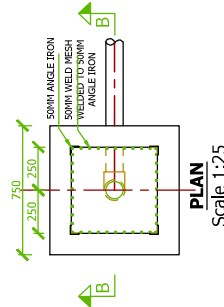
**PERFORATED PIPE 5MM HOLES EVERY 5CM**  
Scale 1:5



**CLOSING TOP END PERFORATED PIPE OR A SOLID PLUG**  
Scale 1:10

INTAKE	REQUIRED MATERIALS	NO
	EQUAL ELBOW 100MM	1
	50MM ANGLE IRON 6000MM	2 1/2
	50MM Ø 3 WELD MESH 500X2500MM	4
	50MM Ø WELDMESH 500X500MM	1
	100MM GS PIPE CLASS "A" 2500MM LONG WITH TOP 500MM PERFORATED CONCRETE 0.28M3	1

Scale 1:10

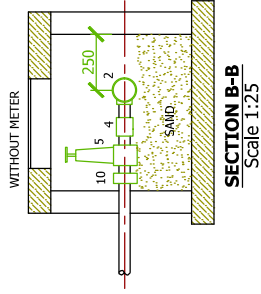
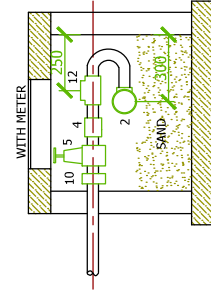
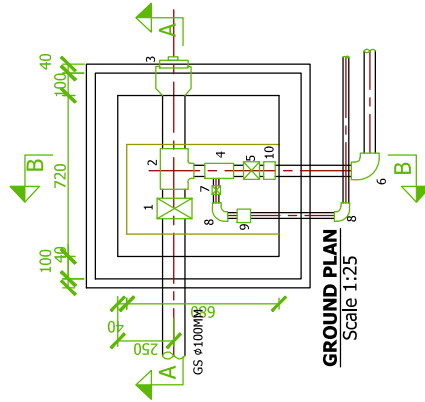
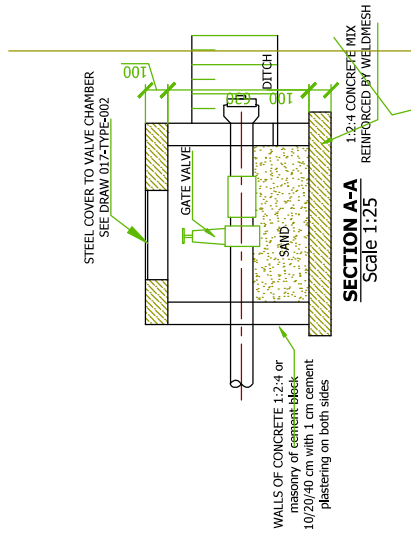


Scale 1:25

DESIGNED	POOLMAN MA	JULY 1979	SHEET 1 OF 2
TRACED	NYANGOKA PETER	JULY 1979	SCALE: AS SHOWN
DIGITIZED	H.K. NJERI	JAN 2010	DRG. NO.
CHECKED	ENG. B.I. KASABULLI	JAN 2010	M.W.I
APPROVED	D.W.S	JUNE 2010	003-TYPE-014

REQUIRED FITTINGS		
ITEM	DESCRIPTION	NO
1	GATE VALVE 100MM	1
2	UNEQUAL TEE 100MM	1
3	PLUG 100MM	1
4	UNEQUAL TEE 50/25 MM	1
5	GATE VALVE 50MM	1
6	EQUAL ELBOW 50MM	1
7	GATE VALVE 25MM	1
8	EQUAL ELBOW 25MM	1
9	UNION 25MM	2
10	UNION 50MM	1
11	RETURN BEND 50MM	1
12	WATER METER 50MM	1
	NB ALL GS STEEL	

Scale 1:10



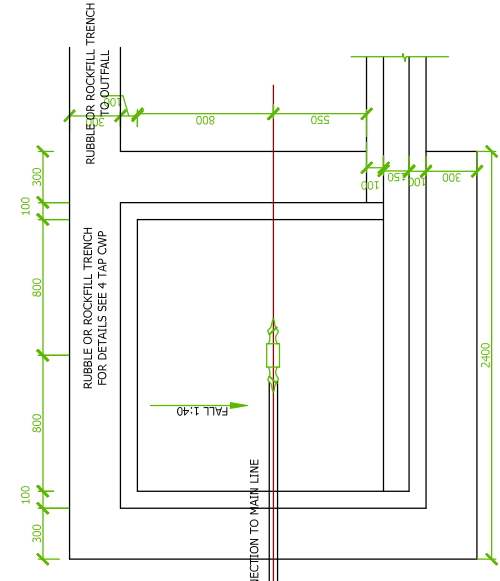
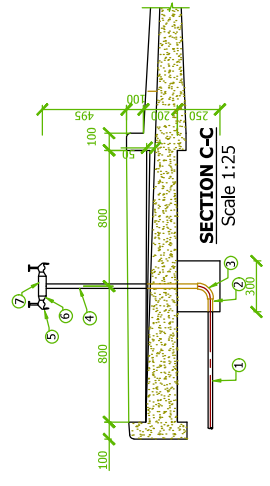
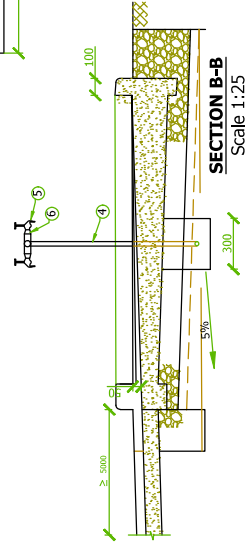
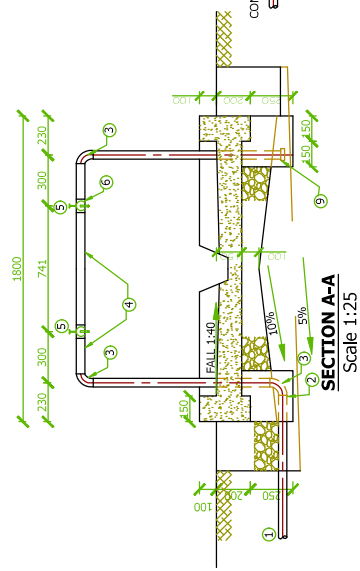
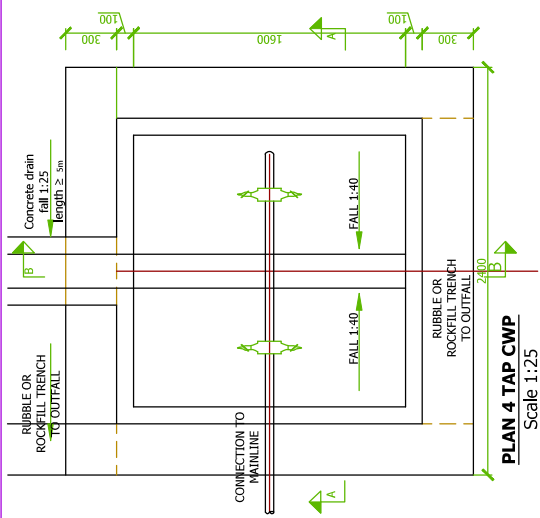
MINISTRY OF WATER & IRRIGATION- MAJI HOUSE



INTAKE AND VALVE CHAMBER FOR SMALL EARTH DAMS

DESIGNED	POOLMAN MA	JULY 1979	SHEET 2 OF 2
TRACED	NYANGOKA PETER	JULY 1979	SCALE: AS SHOWN
DIGITIZED	H.K. NJERI	JAN 2010	DRG. NO.
CHECKED	ENG. B.I. KASABULI	JAN 2010	M.W.I
APPROVED	D.W.S	JUNE 2010	003-TYPE-014





LIST OF MATERIALS	
PIPES AND PIPE FITTINGS	
4 TAP CWP	
1	25MM DIA GS PIPE 15M
2	50-25 MM HEX BUSH 1NO
3	50MM DIAGS ELBOW 1 NO
4	50MM DIA GS PIPE 1M
5	19MM DIA BRASS BIB COCK 2 Nos
6	50-19 MM REDUCING SOCKET 2 Nos
8	50MM DIA GS CROSS 1NO
9	50MM DIA GS CAP 1 NO.
10	25MM DIA GATE VALVE AT THE CONNECTION TO THE MAIN OR STORAGE TANK 1NO
ALL GS PIPES CLASS B	
BUILDING MATERIALS	
1	ROCK OR RUBBLE FILL 1.5M3
2	CONCRETE CLASS D 1M3
REINFORCEMENT BARS 8MM $\phi$ AT 150MM SPACING CROSS WISE EACH FACE	
NOTE: RUBBLE AND ROCKFILL SHALL BE PLACED ON 50MM SAND/GRAVEL LAYER	
ALL Voids BETWEEN ROCKS SHALL BE FILLED BY SAND	

REVISIONS  
30-7-86 rubble trench

REFERENCES  
B 1574A Type Rural community W/points ( in metric)  
C 1708 TYPE HUMAN w/POINT- rural areas  
B 1574 Type Rural community W/points ( in feet)



COMMUNAL WATER POINT

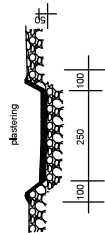
DRAFT BY	STIG HEDLUND	APRIL 1974	SHEET 1 OF 1
TRACED BY	SAUL E. EGALA	AUG 1974	SCALE: AS SHOWN
DIGITIZED	H.K. NJERI	JAN 2010	DRG. NO.
CHECKED	ENG. B.I. KASABULI	JAN 2010	M.W.1
APPROVED	D.W.S	JUNE 2010	018-TYPE-006A

Required Fittings

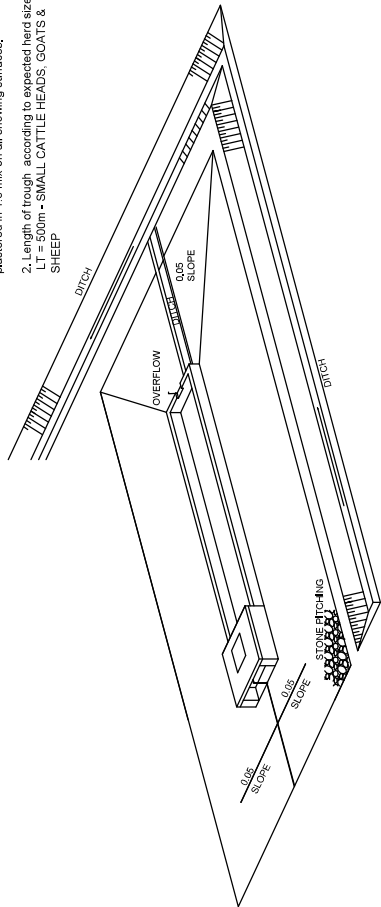
1. 2 no 50mm Elbows
2. 2 no 50mm gate valve
3. 1 no 50mm ball valve

NOTE

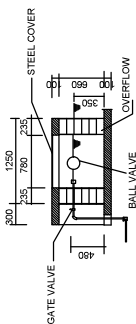
1. Structure in 400x200x100mm cement blocks plastered in 1:3 mix on all showing surfaces.
2. Length of trough according to expected herd size, LT = 500m - SMALL CATTLE HEADS, GOATS & SHEEP



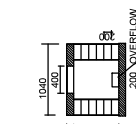
SECTION C-C



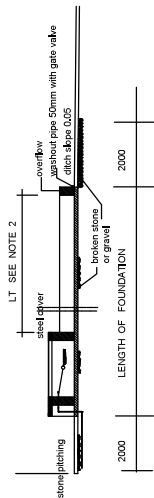
ISOMETRIC VIEW



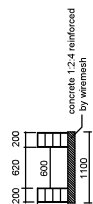
SECTION E-E



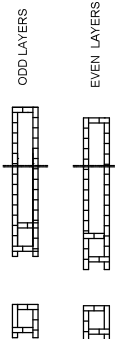
SECTION F-F



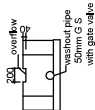
SECTION A-A



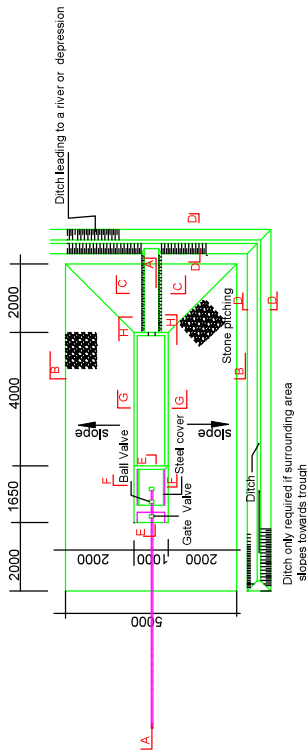
SECTION G-G



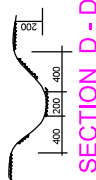
BLOCK LAYING



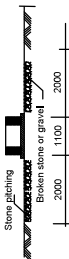
SECTION H-H



PLAN OF CATTLE TROUGH



SECTION D-D



SECTION B-B



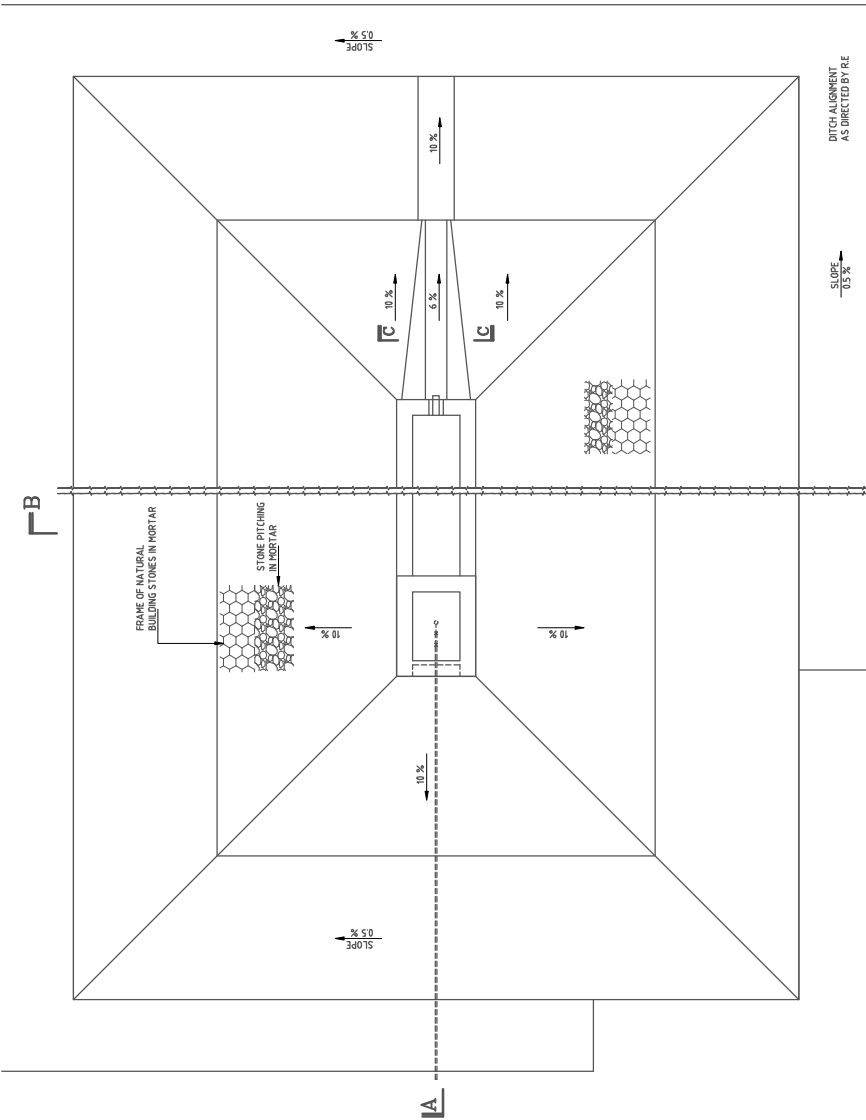
MINISTRY OF WATER & IRRIGATION - MAJI HOUSE

CATTLE TROUGH TYPE DRAWING (IV)

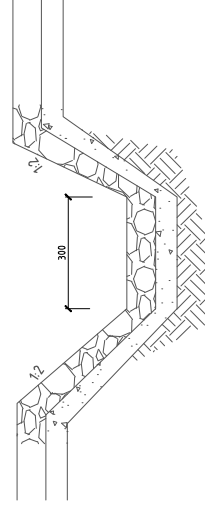
DESIGNED	REDMER G.	Aug 1979	SHEET 1 OF 1
TRACED	D. MACHARIA	Dec 1990	SCALE: As shown
DIGITIZED	MUGAMBI	MAR 2010	DRG. NO.
CHECKED	ENG. BT KASABULI	MAR 2010	M.V.I
APPROVED	D.W.S	JUNE 2010	

Ditch only required if surrounding area slopes towards trough

Ditch leading to a river or depression



**GROUND PLAN**  
SCALE 1:50



**SECTION C-C**  
SCALE 1:15

- NOTES**
- CONCRETE GRADE 25 REINFORCED BY MILD STEEL  $\phi$  6mm AT 150mm SPACINGS CROSSWISE BOTTOM AND TOP, CONCRETE COVER 4.0mm, BLINDING CONCRETE GRADE 10.
  - STRUCTURE IN 400X200X100mm CEMENT BLOCKS.
  - 10mm PLASTER MIX 1:3 ON ALL FACES
  - ALL PIPES G.S MEDIUM GRADE
  - STEEL COVER SIZE 600X800mm ( SEE DRG. 017-TYPE-002)

**REQUIRED FITTINGS**

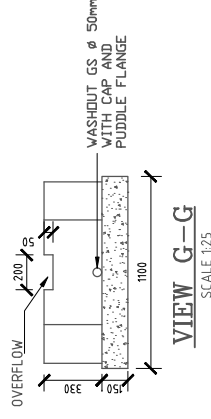
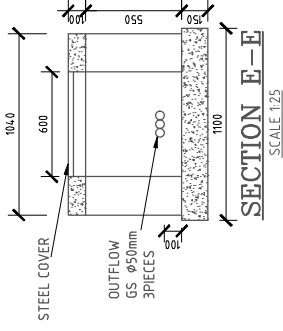
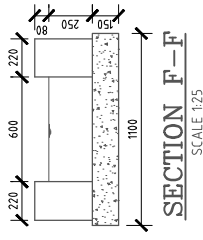
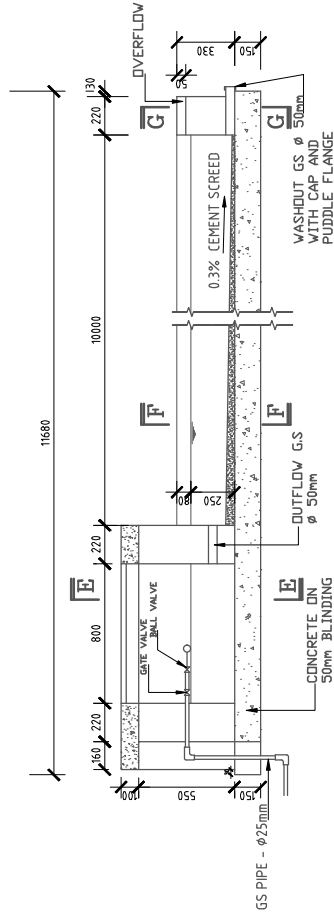
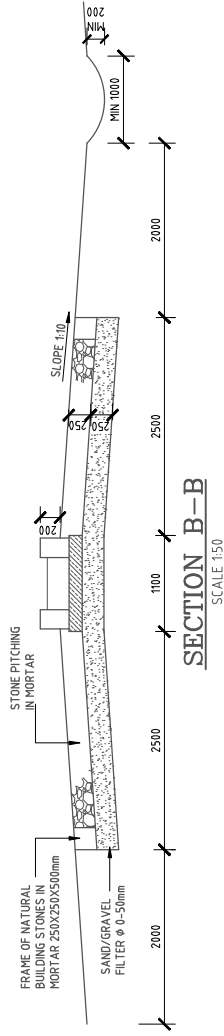
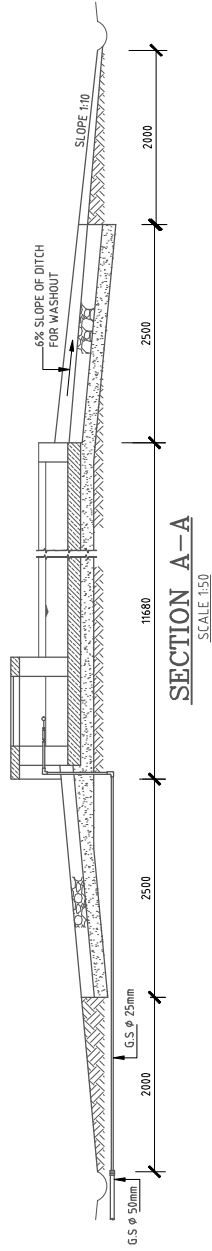
- 2 ELBOWS  $\phi$  25mm
- 1 GATE VALVE  $\phi$  25mm
- 1 BALL VALVE  $\phi$  25mm
- 1 EQUAL TEE  $\phi$  50mm
- 1 REDUCING BUSH  $\phi$  50/25mm
- 1 PLUG  $\phi$  50mm
- 1 CAP  $\phi$  50mm



**MINISTRY OF WATER & IRRIGATION - MAJI HOUSE**

**CATTLE TROUGH**

DESIGNED	G. REDMER	JAN. 1983	SHEET 1 OF 2
DRAWN	G. REDMER	JAN. 1983	SCALE: AS SHOWN
DIGITIZED	ALUCHID M.F	JUNE 2009	DRG. NO.
CHECKED	ENG. B. I. KASABULI	JUNE 2009	M.W.I
APPROVED	D.W.S	JUNE 2009	018-TYPE-026A



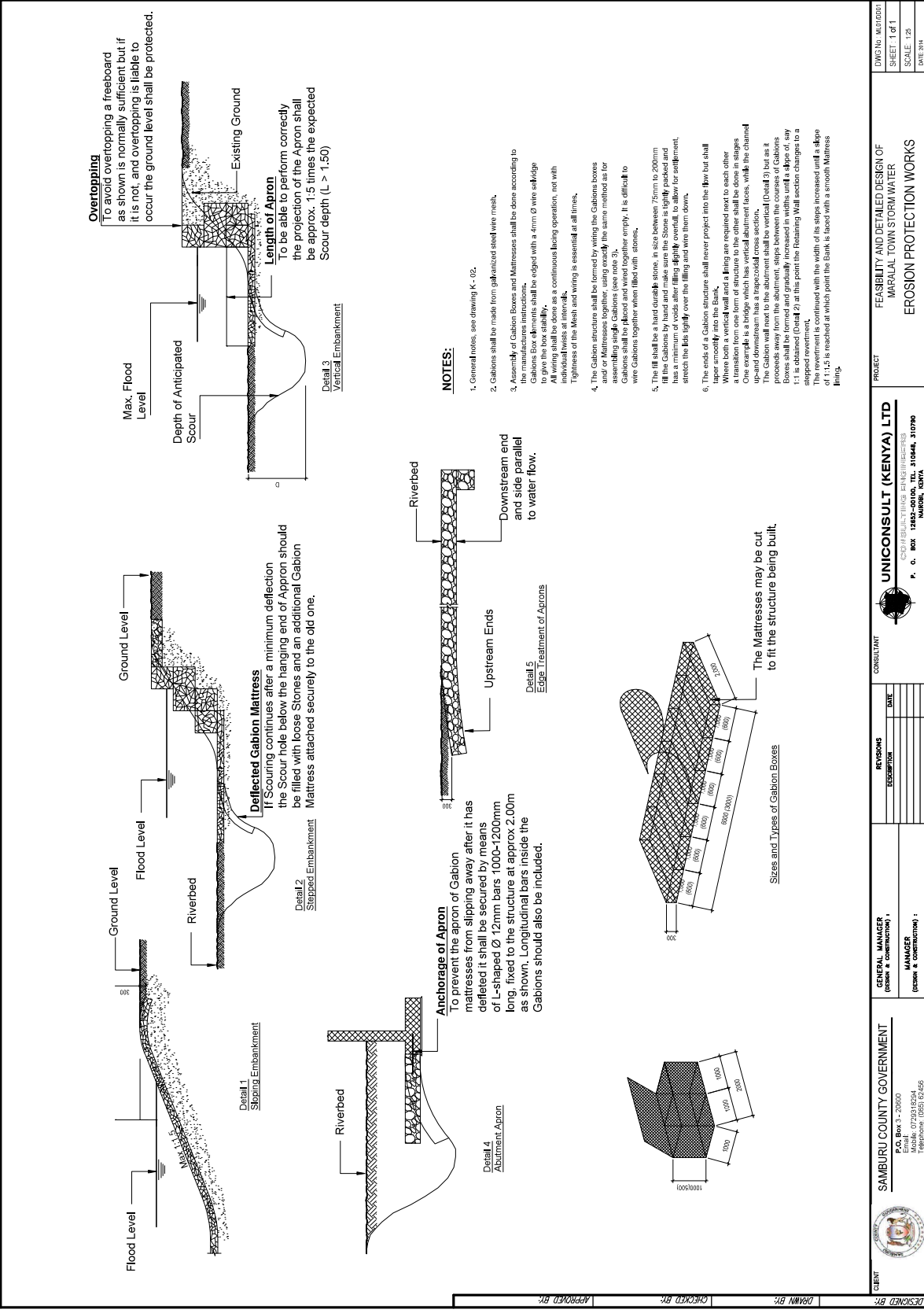
MINISTRY OF WATER & IRRIGATION - MAJI HOUSE

**SECTION D-D**  
SCALE 1:25

**CATTLE TROUGH**

DESIGNED	G. REDMER	JAN. 1983	SHEET 2 OF 2
DRAWN	G. REDMER	JAN. 1983	SCALE: AS SHOWN
DIGITIZED	ALUCHIO M.F	JUNE 2009	DRG. NO.
CHECKED	ENG. B.I. KASABULI	JUNE 2009	M.V.I
APPROVED	D.W.S	JUNE 2009	018-TYPE-026A





**Overlapping**  
To avoid overlapping a freeboard as shown is normally sufficient but if it is not, and overlapping is liable to occur the ground level shall be protected.

**Length of Apron**  
To be able to perform correctly the projection of the Apron shall be approx. 1.5 times the expected Scour depth ( $L > 1.50$ )

**Deflected Gabion Mattress**  
If Scouring continues after a minimum deflection the Scour hole below the hanging end or Apron should be filled with loose Stones and an additional Gabion Mattress attached securely to the old one.

**Anchorage of Apron**  
To prevent the apron of Gabion mattresses from slipping away after it has deflected it shall be secured by means of L-shaped  $\varnothing$  12mm bars 1000-1200mm long, fixed to the structure at approx. 2.00m as shown. Longitudinal bars inside the Gabions should also be included.

**Upstream Ends**  
Downstream end and side parallel to water flow.

**Sizes and Types of Gabion Boxes**

The Mattresses may be cut to fit the structure being built.

**NOTES:**

1. General notes, see drawing K - 02.
2. Gabions shall be made from galvanized steel wire mesh.
3. Assembly of Gabion Boxes and Mattresses shall be done according to the manufacturers instructions. Gabions box elements shall be edged with a 4mm  $\varnothing$  wire selvage. All wiring shall be done as a continuous lining operation, not with individual twists at intervals. Tightness of the Mesh and wiring is essential at all times.
4. The Gabion structure shall be formed by joining the Gabion boxes and/or Mattresses together, using exactly the same method as for assembling single Gabions (see note 3). Gabions shall be placed and wired together empty. It is difficult to wire Gabions together when filled with stones.
5. The fill shall be a hard durable stone, in size between 75mm to 200mm fit the Gabions by hand and make sure the Stone is tightly packed and has a minimum of voids after filling slightly overfill to allow for settlement, stretch the fill tightly over the filling and wire them down.
6. The ends of a Gabion structure shall never project into the flow but shall taper smoothly into the Bank. Where both a vertical wall and a lining are required next to each other a transition from one form of structure to the other shall be done in stages. The Gabion structure shall be formed by joining the Gabion boxes and/or Mattresses together, using exactly the same method as for assembling single Gabions (see note 3). The Gabion wall next to the abutment shall be vertical (Detail 3) but as it proceeds away from the abutment, steps between the courses of Gabions Boxes shall be formed and gradually increased in width until a slope of, say 1:1 is reached (Detail 2) at this point the retaining Wall section changes to a stepped overfillment. The overfillment is continued with the width of its steps increased until a slope of 1:1.5 is reached at which point the Bank is faced with a smooth Mattress lining.

<p><b>CLIENT</b> SAMBURU COUNTY GOVERNMENT P.O. Box 3 - 20010 Eldoret, 07293-18254 Mobile: 07293-18254 Fax: 07293-18254</p>	<p><b>GENERAL MANAGER</b> (DESIGN &amp; CONSTRUCTION) :</p> <p><b>MANAGER</b> (DESIGN &amp; CONSTRUCTION) :</p>	<p><b>REVISIONS</b></p> <table border="1"> <thead> <tr> <th>NO.</th> <th>DESCRIPTION</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	DESCRIPTION	DATE										<p><b>PROJECT</b> FEASIBILITY AND DETAILED DESIGN OF MARALAL TOWN STORM WATER EROSION PROTECTION WORKS</p>
			NO.	DESCRIPTION	DATE										
<p><b>CONSULTANT</b> <b>UNICONCONSULT (KENYA) LTD</b> CONSTRUCTION SERVICES P. O. BOX 12682-20100, TEL: 310544, 310790 NAIROBI, KENYA</p>		<p>DWG No. M-01-0201 SHEET 1 of 1 SCALE 1:25 DATE 2014</p>													