To: Esteemed Bidder

Date: 23rd July 2021

Dear Sir/Madam,

REQUEST FOR QUOTATION

1. WaterAid in Malawi invites your firm to submit a priced quotation for:
2. CONSTRUCTION AND REHABILITATION OF WATER SUPPLY SYSTEMS AND PLUMBING WORKS AT NTCHISI DISTRICT HOSPITAL, MKHUZI AND KANGOLWA HEALTH CENTRES.
3. Full details of this procurement are given in the Instructions to Bidders ad section 6A (scope of work) and section 6C (Drawings) and section 6D (Bill of Quantity) of this Invitation to Bid.
4. Please submit your quotation using the Letter of Submission of Bid format as in section 4 (bidding Forms) and including all the information requested in the Instructions to Bidders in a sealed envelope, addressed to WaterAid Malawi, at the address under point 8 below before 10:00 hrs on 13th of August 2021.
5. Prices should be quoted without VAT and preferably in Malawi Kwacha.
6. Bidders are encouraged to familiarise themselves with the three sites and make prior arrangements with health care facility administrators before visiting the sites prior to the bid submission.
7. Delivery of services is within 45 Calendar Days of contract signature.
8. With your bid, please provide information as required in section 3 of Part 2 of the attachments to the address in point 8 below.
9. Address for bid submission:

   WaterAid Malawi,
   Area 47 Sector 5, Next to Masjid Mosque
   Behind Zodiac Broadcasting Station, Private Bag 364, Lilongwe, Malawi

10. You may obtain further information concerning this Invitation to Bid from WaterAid Malawi- 01 761 747 or 01 761 631

Yours faithfully,

Chrissie Howa

Administrative Assistant

Attachments: Part 1: Bidding Procedures
             Part 2: Schedule of Requirements
             Part 3: Form of Contract
Table of Contents

Part 1 - Bidding Procedures
  Section 1 – Instructions to Bidders
  Section 2 – Bid Data Sheet
  Section 3 – Evaluation and Qualification and Criteria
  Section 4 – Bidding Forms
  Section 5 – Eligible Countries

Part 2 - Schedule of Requirements
  Section 6(A) – Scope of Works
  Section 6(B) – Technical Specifications
  Section 6(C) – Drawings
  Section 6(D) – Bills of Quantities (or Activity Schedule)

Part 3 - Contract Forms
  Section 7 – General Conditions of Contract
  Section 8 – Special Conditions of Contract
  Section 9 – Contract Forms
PART 1 BIDDING PROCEDURES

Section 1: Instructions to Bidders

1. Scope of Bid

1.1 The Procuring Entity indicated in the Bid Data Sheet (BDS), invites bids for the construction of Works, as described in Section 6, Schedule of Requirements. The subject and procurement reference number are provided in the Bid Data Sheet.

1.2 The successful Bidder will be expected to complete the Works by the Intended Completion Date specified in the Bid Data Sheet.

2. Eligible Bidders

2.1 A bidder must:

(a) have the legal capacity to enter into a contract;
(b) not be insolvent, in receivership, bankrupt or being wound up, not have had their business activities suspended and not be the subject of legal proceedings for any of the foregoing; and
(c) have fulfilled all obligations to pay taxes according to the tax laws of Malawi.

2.2 To demonstrate compliance with the criteria a Bidder shall submit with its Bid copies of:

(a) its certificate of Contractor Registration from the National Construction Industry Council;
(b) tax clearance certificates or equivalent for the last financial year; and
(c) other appropriate documentary evidence demonstrating its compliance.

2.3 A Bidder that has been debarred from participating in public procurement in accordance with ITB Sub-Clause 17.4, at the date of the deadline for bid submission or thereafter, shall be disqualified.

2.4 To qualify for award of the Contract, bidders shall meet the minimum qualifying criteria specified in Section 3, Evaluation and Qualification Criteria.

2.5 Bidders applying for eligibility for a margin of preference in bid evaluation, if permitted in the Bid Data Sheet, shall supply all information to satisfy the criteria for eligibility as described in Section 3, Evaluation and Qualification Criteria.

3. Documents Comprising the Bid

3.1 The Bid submitted by the Bidder shall comprise the following, in the format indicated in Section 4, Bidding Forms, where appropriate:

(a) Bid Submission Form;
(b) Bid Security;
(c) Priced Bill of Quantities or Activity Schedule;
(d) Qualification Information Form and Documents; and
(e) any other document or information required to be completed and submitted by bidders, as specified in the BDS.

4. Bid Prices

4.1 The Contract will be an Admeasurement or Lump Sum Contract, as indicated in the Bid Data Sheet.

4.2 The Contract shall be for the whole Works, based on the:

(a) priced Bill of Quantities submitted by the Bidder in the case of an Admeasurement Contract;
(b) priced Activity Schedule submitted by the Bidder in the case of a Lump Sum Contract.
4.3 Bids shall cover all costs of labour, materials, equipment, overheads, profits including all associated cost for performing the works. All duties, taxes, and other levies payable by the Contractor under the Contract, shall be included in the rates, prices and total Bid price (or in the case of a lump sum contract, in the total bid price) submitted by the Bidder.

5. Currencies of Bid and Payment
5.1 The unit rates and prices (or in the case of a lump sum contract, the lump sum price) shall be quoted by the Bidder and paid entirely in Malawi Kwacha.

6. Bid Validity
6.1 Bids shall remain valid for the period specified in the BDS.

7. Bid Security
7.1 The Bidder shall furnish, as part of the Bid, a Bid Security in original form in Malawi Kwacha in the amount specified in the BDS.

7.2 The Bid Security shall be in the form of a certified cheque or payable order, bank draft, letter of credit, or a bank guarantee from a financial institution operating in Malawi. The format of the Bid Security should be in accordance with the form of Bid Security included in Section 4, Bidding Forms or another form acceptable to the Procuring Entity. Bid Security shall be valid for twenty-eight (28) days beyond the validity of the Bid.

8. Format and Signing of Bid
8.1 The Bidder shall prepare one original of the documents comprising the Bid as described in Clause 3 of these Instructions to Bidders, bound with the volume containing the Bid Submission Form, and clearly marked "ORIGINAL." In addition, the Bidder shall submit two copies of the Bid, in the number specified in the BDS, and clearly marked as "COPIES." In the event of discrepancy between them, the original shall prevail.

8.2 The original and all copies of the Bid must be typed or written in indelible ink and signed by a person or persons duly authorised to sign on behalf of the Bidder. All pages of the Bid where entries or amendments have been made must be initialled by the person or persons signing the Bid.

8.3 The Bid shall contain no alterations or additions, except those as necessary to correct errors made by the Bidder, in which case such corrections shall be initialled by the person or persons signing the Bid.

9. Sealing and Marking of Bids
9.1 The Bidder shall seal the original and all copies of the Bid in two inner envelopes and one outer envelope, duly marking the inner envelopes as “ORIGINAL” and “COPIES”.

9.2 The inner and outer envelopes shall:

(a) be addressed to the Procuring Entity at the address provided in the BDS;
(b) bear the name and procurement reference number of the Contract as defined in the BDS and SCC; and
(c) provide a warning not to open except in the presence of the Internal Procurement Committee and not to be opened before the specified time and date for Bid opening as defined in the BDS.

9.3 In addition to the identification required in Sub-Clause 9.2, the inner envelopes shall indicate the name and address of the Bidder to enable the Bid to be returned unopened in case it is declared late, pursuant to Clause 11.
9.4 If the outer envelope is not sealed and marked as above, the Procuring Entity will assume no responsibility for the misplacement or premature opening of the Bid.

10. **Deadline for Submission of Bids**
10.1 Bids shall be delivered to the Procuring Entity at the address specified in the BDS no later than the time and date specified in the BDS.

10.2 The Procuring Entity may extend the deadline for submission of bids by issuing an amendment, in which case all rights and obligations of the Procuring Entity and the bidders previously subject to the original deadline will then be subject to the new deadline.

11. **Late Bids**
11.1 Any Bid received by the Procuring Entity after the deadline prescribed in the BDS will be returned unopened to the Bidder.

12. **Bid Opening**
12.1 The Procuring Entity will open the bids, in the presence of the bidders' representatives who choose to attend at the time and in the place specified in the BDS.

12.2 The Procuring Entity will prepare minutes of the Bid opening, including the information disclosed to those present. Copies of the minutes will be made available to any Bidder who requests them.

12.3 No bid will be rejected at bid opening except for late bids, which will be returned unopened to the bidder.

13. **Domestic Preference**
13.1 If so indicated in the BDS, domestic Bidders or other Bidders using Malawian nationals to carry out the works shall receive a margin of preference in Bid evaluation in accordance with the procedure and criteria specified in Section 3, Evaluation and Qualification criteria.

14. **Award Criteria**
14.1 The Procuring Entity will award the Contract to the Bidder whose Bid has been determined to be substantially responsive to the bidding documents and who has offered the lowest evaluated Bid price, provided that such Bidder has been determined to be both eligible and qualified in accordance with the provisions of Clause 2.

15. **Procuring Entity’s Right to Accept and Bid and to Reject any or all Bids**
15.1 The Procuring Entity reserves the right to accept or reject any Bid, and to cancel the bidding process and reject all bids, at any time prior to the award of Contract, without thereby incurring any liability to the affected Bidder or bidders or any obligation to inform the affected Bidder or bidders of the grounds for the Procuring Entity’s action.

16. **Notification of Award and Signing of Agreement**
16.1 The notification of award by the Procuring Entity to the Bidder will constitute the formation of the Contract, subject to the Bidder signing the Contract and furnishing the Performance Security required in the Bid Data Sheet. The Procuring Entity shall publish in the Malawi Government Gazette the results of the award of contract, as required by the Public Procurement Act 2003.

16.2 The Contract will incorporate all agreements between the Procuring Entity and the successful Bidder. It will be signed by the Procuring Entity and sent to the successful Bidder, within fourteen
(14) days following the notification of award. Within fourteen (14) days of receipt, the successful Bidder will sign and date the Contract and deliver it to the Procuring Entity.

16.3 Upon the furnishing by the successful Bidder of the Performance Security, the Procuring Entity will, within one (1) week, notify the other bidders that their bids have been unsuccessful.

17. Performance Security
17.1 Within fourteen (14) days after receipt of the Notice of Acceptance, the successful Bidder shall deliver to the Procuring Entity a Performance Security in the form of a Bank Guarantee or other form acceptable to the Procuring Entity, in the amount specified in the Special Conditions of Contract.

17.2 Failure of the successful Bidder to comply with the requirements of Sub-Clause 15.1 shall constitute sufficient grounds for cancellation of the award and forfeiture of the Bid Security.

18. Adjudicator
18.1 The Procuring Entity proposes the person named in the BDS to be appointed as Adjudicator under the Contract, at an hourly fee specified in the BDS, plus reimbursable expenses. If the Bidder disagrees with this proposal, the Bidder should so state in the Bid. If, in the Notice 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 SCC at the request of either party.

19. Corrupt or Fraudulent Practices
19.1 The Government of the Republic of Malawi (hereinafter called “the Government”) requires that Procuring Entities, as well as Bidders and Contractors under public-financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, the Government:

19.2 defines, for the purposes of this provision, the terms set forth below as follows:

(i) "corrupt practice" means the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the procurement process or in contract execution;

(ii) "fraudulent practice" means a misrepresentation or omission of facts in order to influence a procurement process or the execution of a contract;

(iii) “collusive practices” means a scheme or arrangement between two or more Bidders, with or without the knowledge of the Procuring Entity, designed to establish prices at artificial, noncompetitive levels; and

(iv) “coercive practices” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in a procurement process, or affect the execution of a contract.

19.3 will reject a recommendation for award if it determines that the Bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive or coercive practices in competing for the contract in question;

19.4 will debar a Bidder from participation in public procurement for a specified period of time if it at any time determines that the firm has engaged in corrupt, fraudulent, collusive or coercive practices in competing for, or in executing, a contract.
## Section 2. Bid Data Sheet

<table>
<thead>
<tr>
<th>Instructions to Bidders (ITB) reference</th>
<th>Data relevant to ITB</th>
</tr>
</thead>
</table>
| **ITB 1.1**                           | **The Procuring Entity is:**  
**WaterAid Malawi, Area 47 Sector 5, Next to Masjid Mosque**  
**Behind Zodiak Broadcasting Station, Private Bag 364, Lilongwe, Malawi**  
**The subject of the Works is:**  
**Construction and Rehabilitation of Water Supply Systems and Plumbing works at Ntchisi District Hospital, Mkhuzi and Kangolwa Health Centres,**  
**Works include:**  
- Plumbing works at Ntchisi District hospital, Mkhuzi Health Centre and Kangolwa Health Centre;  
- Upgrading of water supply system at Mkhuzi Health Centre;  
- Upgrading of water supply pipeline at Kangolwa Health Centre  
**The procurement reference number is:** **WaterAid/150 CHALLENGE/2021/02** |
| **ITB 1.2**                           | **The Intended Completion Date for the Works shall be:** **45 Calendar Days from Commencement** |
| **ITB 3.1**                           | **The Bidder shall submit with its bid the following additional documents or information:**  
- **a) Programme of works**  
- **b) Evidence of paying taxes**  
- **c) Evidence of active membership with NCIC**  
- **d) Evidence of liquid assets**  
- **e) Methodology or Approach** |
| **ITB 4.1**                           | **The Contract is an Admeasurement.** |
| **ITB 6.1**                           | **Bids shall remain valid for 60 days.** |
| **ITB 7.1**                           | **The Bid shall include** “Bid Securing Declaration” using the form included in Section IV Bidding Forms. |
| **ITB 8.1**                           | **In addition to the original** of the bid, the number of copies is: **Three (3).** |
| **ITB 10.1**                          | **The Procuring Entity’s address for bid submission and clarifications is:**  
**Attention:** **WaterAid Malawi,**  
**Street Address:** **Area 47 Sector 5, Next to Masjid Mosque**  
**Behind Zodiak Broadcasting Station,**  
**Town/City:** **Lilongwe.**  
**PO Box No/Postal Code:** **Private Bag 364, Lilongwe, Malawi** |
<table>
<thead>
<tr>
<th>Instructions to Bidders (ITB) reference</th>
<th>Data relevant to ITB</th>
</tr>
</thead>
<tbody>
<tr>
<td>The deadline for bid submission is: 13&lt;sup&gt;th&lt;/sup&gt; of August 2021</td>
<td></td>
</tr>
</tbody>
</table>

| ITB 11.1 | Street Address:  
Area 47 Sector 5, Next to Masjid Mosque  
Behind Zodiak Broadcasting Station  
Town/City: Lilongwe. |
|----------|---------------------|
| Bid submission  
Date: 13<sup>th</sup> of August 2021  
Time: 10:00 hours |
| Bid opening  
Date: 13<sup>th</sup> of August 2021  
Time: 10:30 hours |

| ITB 13.1 | A margin of preference apply: N/A  
Where a margin of preference applies, the criteria for eligibility and the application methodology are described in Section 3 Evaluation Methodology and Criteria. |

| ITB 18.1 | The Adjudicator proposed by the Procuring Entity is:  
To be Appointed by National Construction Industry Council (NCIC)  
The hourly fee for this proposed Adjudicator shall be:  
To be established later |
|----------|-----------------------------------------------|
| The biographical data of the proposed Adjudicator is as attached to this Bid Data Sheet.  
To be established later |
Section 3. Evaluation and Qualification Criteria

This section, read in conjunction with Section 1, Instructions to Bidders and Section 2, Bid Data Sheet, contains all the factors, methods and criteria that the Procuring Entity shall use to evaluate a bid and determine whether a bidder has the required qualifications. No other factors, methods or criteria shall be used.

1. Qualification Criteria

To qualify for award of the Contract, bidders shall meet the minimum qualifying criteria:

a) average annual volume of construction work over the past three (3) years of at least 75% of the estimated cost of the Contract;

b) experience as prime contractor in the construction of at least three (3) works of a nature and complexity equivalent to the Works over the last five (5) years (to comply with this requirement, works cited should be at least seventy (70) percent complete);

c) (proposals for the timely acquisition (own, lease, hire, etc.) of the following essential minimum equipment:

<table>
<thead>
<tr>
<th>No.</th>
<th>Equipment Type and Characteristics to be brought to the site for the required work</th>
<th>Minimum Number required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Geophysical investigation equipment</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Compressor and accessories</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Drilling Rig and accessories</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Mud pumps and accessories (if necessary)</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Casings</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Dip meter</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>Pump testing equipment</td>
<td>1</td>
</tr>
</tbody>
</table>

The Bidder must demonstrate that it will have the personnel for the key positions that meet the following requirements:

<table>
<thead>
<tr>
<th>No.</th>
<th>Position (staff to be deployed fulltime on site during the construction)</th>
<th>Qualification</th>
<th>Total Work Experience (years)</th>
<th>Experience in Similar Works (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Project Manager/Site Engineer/Hydrogeologist</td>
<td>8 years</td>
<td>5 years</td>
<td>Degree in Civil Engineering (If diploma in Civil Engineering/geophysical Engineering or City and Guilds in geophysical engineering, minimum of 10 years in similar works is required)</td>
</tr>
<tr>
<td>2</td>
<td>Supervisor</td>
<td>5 years</td>
<td>5 years</td>
<td>Diploma in geophysical Engineering or City and Guilds in geophysical engineering with minimum experience of 5 years in similar works;</td>
</tr>
<tr>
<td>3</td>
<td>Mechanic</td>
<td>5 years</td>
<td>5 years</td>
<td>City Guilds in motor vehicle mechanics or equivalent with minimum experience of 3 years in similar works</td>
</tr>
<tr>
<td>4</td>
<td>Driller</td>
<td>5 years</td>
<td>5 years</td>
<td>Malawian School Certificate of Education plus a professional Certificate in drilling</td>
</tr>
</tbody>
</table>
Part 1: Section 3  
Evaluation and Qualification Criteria

<table>
<thead>
<tr>
<th>#</th>
<th>Position</th>
<th>Experience 1</th>
<th>Experience 2</th>
<th>Qualification Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Building Foreman</td>
<td>5 years</td>
<td>5 years</td>
<td>A Diploma in Civil Engineering/Construction Technology with at least 5 years’ experience in similar works.</td>
</tr>
<tr>
<td>6</td>
<td>Plumber</td>
<td>5 years</td>
<td>5 years</td>
<td>Grade I Trade Test Qualification</td>
</tr>
</tbody>
</table>

(e) Liquid assets and/or credit facilities, net of other contractual commitments and exclusive of any advance payments which may be made under the Contract, of at least 25% of the estimated cost of the Contract.

A consistent history of litigation or arbitration awards against the Applicant or any partner of a Joint Venture may result in disqualification.

The figures for each of the partners of a joint venture shall be added together to determine the Bidder’s compliance with the minimum qualifying criteria in (a) to (e) above; however, for a joint venture to qualify, each of its partners must meet at least thirty-five (35) percent of minimum criteria (a), (b), and (e) above for an individual Bidder, and the partner in charge at least forty (40) percent of those minimum criteria. Failure to comply with this requirement will result in rejection of the joint venture’s Bid.

Subcontractors’ experience and resources will not be taken into account in determining the Bidder’s compliance with the qualifying criteria.

A consistent history of litigation or arbitration awards against the Bidder may result in disqualification.

Subcontractors’ experience and resources will not be taken into account in determining the Bidder’s compliance with the qualifying criteria.

2. Application of Domestic Preference

If so indicated in the Bid Data Sheet, bidders for works contracts applying for a margin of domestic preference in bid evaluation shall provide such information, including details of ownership, certificates of registration, and composition of the labour force as are necessary to confirm whether a particular supplier or group of suppliers qualifies for domestic preference.

A margin of domestic preference may be awarded to established domestic contractors who are registered as Malawian contractors by the National Construction Industry Council, and are at least fifty (50) percent owned by Malawian nationals. This margin of domestic preference is also be extended to joint ventures between a foreign and such a qualifying Malawian partner provided that at least seventy-five (75) percent of the labour force to be used in the construction and supervision of the works is of Malawian nationality.

The margin of domestic preference shall be applied as follows: N/A

After bids have been received and reviewed by the Procuring Entity, responsive bids shall be classified into the following groups -

Group A, namely, bids offered by domestic contractors and joint ventures eligible for the preference.

Group B, namely, bids offered by other contractors.

For the purpose of evaluation and comparison of bids only, an amount equal to ten (10) percent of the bid amount shall be added to bids received from contractors in Group B.
Section 4. Bidding Forms

List of Forms

1. Bid Submission Form
2. Priced Schedules
3. Bid Security
4. Qualification Information Form

Note: All forms show the information to be completed by the Bidder in bold in square brackets e.g. [insert date] etc.
Bid Submission Form

Date: [insert date]
Procurement Reference No.: [insert procurement reference number]
Page [insert page number] of [insert total number of pages] pages

To: [insert complete name of Procuring Entity]

We, the undersigned, declare that:

(a) We have examined and have no reservations to the Bidding Documents;

(b) We offer to execute the [insert the name and procurement reference number of the Works] in conformity with the Bidding Documents for the Contract Price of [insert amount in numbers and words] Malawi Kwacha;

(c) Our bid shall be valid for a period of [specify the number of days that the bid is valid for] calendar days from the date fixed for the bid submission;

(d) We have not been debarred from participation in public procurement by the Government of the Republic of Malawi, in accordance with ITB Sub-Clause 17.4;

(e) Our firm, its affiliates or subsidiaries, including subcontractors or suppliers for any part of the contract are not under investigation by the Anti Corruption Bureau or any other law enforcement body in Malawi relating to participation in any public procurement tender exercise or execution of any public procurement contract relating to the purchase of goods, works and services by any Procuring Entity.

(f) The names and physical addresses of the Directors of our firm are provided in the table below or we enclose a copy of our latest Audited Accounts (issued within the last twenty-four (24) months):

<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

(g) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.

(h) We accept the appointment of [insert name of adjudicator proposed in the BDS] as the Adjudicator. [or] We do not accept the appointment of [insert name of adjudicator proposed in the BDS] as the Adjudicator, and propose instead that [insert name] be appointed as Adjudicator, whose daily fees and biographical data are attached.

Signed: [insert signature of person whose name and capacity are shown] In the capacity of [insert legal capacity of person signing the Bid]

Name: [insert complete name of person signing the Bid]

Duly authorised to sign the bid for and on behalf of: [insert complete name of Bidder]

Dated on __________ day of __________________, _______ [insert date of signing]
Note to Bidders: The information to be filled in by bidders in the following pages will only be used for purposes of post-qualification or for verification of pre-qualification as provided for in Clause 4 of the Instructions to Bidder, and will not form part of the Contract. Attach additional pages as necessary. If used for pre-qualification verification, the Bidder should fill in updated information only.

Qualification Information Form

1. Constitution or legal status of Bidder: [attach copy]
   - Place of registration: [insert]
   - Principal place of business: [insert]

2. Average volume of construction work performed in the previous number of years specified in Section 3: [insert details below and state average]

<table>
<thead>
<tr>
<th>Year</th>
<th>Volume</th>
</tr>
</thead>
</table>

3. Work performed on works of a similar nature and volume over the last five (5) years. Also list details of work under way or committed, including expected completion date.

<table>
<thead>
<tr>
<th>Project name and country</th>
<th>Name of client and contact person</th>
<th>Type of work performed and year of completion</th>
<th>Value of contract</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Major items of Equipment proposed for carrying out the Works. List all information requested below.

<table>
<thead>
<tr>
<th>Item of equipment</th>
<th>Description, make, and age (years)</th>
<th>Condition (new, good, poor) and number available</th>
<th>Owned, leased (from whom?), or to be purchased (from whom?)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. Qualifications and experience of key personnel for the Contract.

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Qualifications</th>
<th>Years of experience (general)</th>
<th>Years of experience in proposed position</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


7. Name, address, and telephone of banks that can provide references if contacted.

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

9. Bidders should provide any additional information required in Sections 2 or 3 of the Bidding Document or to fulfil the requirements of Clause 2 of the Instructions to Bidders, as applicable.
Bid-Securing Declaration

[The Bidders shall fill in this Form on their letterheads in accordance with the instructions indicated.]

Date: [insert date (as day, month and year) of Bid Submission].
Procurement Reference Number: [insert number of bidding process]

To: [insert complete name of Procuring Entity]

We, the undersigned, declare that:

We understand that, according to your conditions, bids must be supported by a Bid-Securing Declaration. We accept that we will automatically be suspended from being eligible for bidding in any contract with the Purchaser for the period of time of two (2) years, if we are in breach of our obligation(s) under the bid conditions, because we:

(a) have withdrawn our Bid during the period of bid validity specified in the Form of Bid; or
(b) having been notified of the acceptance of our Bid by the Purchaser during the period of bid validity, (i) fail or refuse to execute the Contract; or (ii) fail or refuse to furnish the Performance Security, if required, in accordance with the ITB.

We understand this Bid Securing Declaration shall expire if we are not the successful Bidder, upon the earlier of (i) our receipt of your notification to us of the name of the successful Bidder; or (ii) twenty-eight days after the expiration of our Bid.

Signed: [signature of person whose name and capacity are shown] in the capacity of [legal capacity of person signing the Bid Securing Declaration]

Name: [complete name of person signing the Bid Securing Declaration]

Duly authorized to sign the bid for and on behalf of: [complete name of Bidder]

Dated on __________ day of ________________, ______ [date of signing]

Corporate Seal (where appropriate)

[Note: In case of a Joint Venture, the Bid Securing Declaration must be in the name of all partners to the Joint Venture that submits the bid.]
Section 5. Eligible Countries

Procurement Reference Number:

All countries are eligible except countries subject to the following provisions.

A country shall not be eligible if:

1.2 (a) as a matter of law or official regulation, the Government of the Republic of Malawi prohibits commercial relations with that country, provided that the Government is satisfied that such exclusion does not preclude effective competition for the provision of the works required; or

(b) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Government of the Republic of Malawi prohibits any procurement of works from that country or any payments to persons or entities in that country.
Section 6. Schedule of Requirements

A. Scope of Works

The works are located at three Health Care Facilities in Ntchisi district, namely Ntchisi District Hospital, Mkhuzi Health Centre and Kangolwa Health Centre. The works shall include:

- Plumbing works at Ntchisi District hospital, Mkhuzi Health Centre and Kangolwa Health Centre;
- Upgrading of water supply system at Mkhuzi Health Centre;
- Upgrading of water supply pipeline at Kangolwa Health Centre
B. Technical Specifications

Section 1 General Contract Specification

PART I GENERAL SPECIFICATIONS

1.0 Miscellaneous

The Project Specifications form an integral part of the contract document and supplement the Standard Specifications that were published by the Ministry of Works and Supplies, Design Department in April 1978, hereinafter referred to as the "Standard Specification", a copy of which can be obtained from the Ministry of Transport and Public Works.

The Standard Specification shall be read in conjunction with the Project Specifications, which may supersede, vary or amplify the provisions of the Standard Specifications. In the event of any discrepancy with a part or parts of the Standard Specifications, the schedule of quantities or the drawings, the Project Specifications shall take precedence.

The Contractor shall be deemed to have included in his tender for complying in full with the terms and requirements of all these Specifications.

2.0 Drawings

The contractor will be supplied with all necessary drawings upon award of the contract and or the subsequent site handover. Any information in the possession of the Contractor that is required by the Client or Project Manager to compile and complete as-built drawings must be supplied to the Project Manager before a Completion Certificate will be issued.

3.0 Contractor's Camp Site

The Contractor shall make his own arrangements and obtain the necessary approval from the property owner and or authority regarding the establishment of a campsite and accommodation for his construction personnel. No materials and equipment will be allowed to be stored in Employers personnel office without the approval of the office occupant. The location and layout of site camps, stores and workshop area together with usage and detailed dimensions shall be approved by the Project Manager.

The Contractor shall not erect any structures on the Site without the approval of the Project Manager. By the end of the Defects Liability Period or at such earlier time as the Project Manager may instruct or approve the Contractor shall clear all structures, plant and rubble from these areas and leave them in a condition acceptable to the Project Manager.

4.0 Additional Requirements

The travelling public shall have right of way on public roads, and the Contractor shall make use of approved methods to control the movement of vehicles and his equipment so as not to constitute a hazard on the road.
Where temporary road signs are required, the Contractor shall at all times ensure proper maintenance thereof. Failure to maintain signs in a good condition shall constitute ample reason for the Project Manager to bring the Works to a stop until repaired or maintained to the Project Manager’s satisfaction.

5.0 Security

The Contractor shall be responsible for security of his personnel, construction plant and equipment on and around the Site of works and for the security of his camp, and no claims in this regard will be considered by the Employer.

6.0 Environmental Issues

In general environmental impacts of minor capital works are minimal if all aspects of the works are properly completed or damage repaired. The total price of an item in the Schedule of Quantities should reflect the costs of proper completion. In any instance where the works are not completed to an environmentally acceptable standard, claim from that particular item will be withheld until such time it is completed to reinstate the environment.

7.0 Reporting of Accidents

The Contractor shall report every accident which occurs on the site, within the extent of the works to the Project Manager, within twenty-four (24) hours of such accident occurring, irrespective of whether such accident has a bearing on damage to the works or to persons, property or things.
PART II  PARTICULAR SPECIFICATIONS

The particular specifications contain some additional specifications and amendments to the standard specifications required for this particular contract. Numbering in this section has not been done in accordance with the numbering system in the standard specifications, but in numerical order.

1.0 Contractor's Establishment

This clause covers the establishment of the Contractor's organization, camp and construction plant on the site and the running cost for the Contractor's facilities including housing, offices, stores, workshop and protective clothing for workers as well as the removal on completion of the contract. It also covers payment for certain general obligations, risks and liabilities and general items of cost not covered elsewhere.

Payment of the lump sum tendered under this item shall include full compensation for all the Contractor's charges in respect of the following items:

- Setting up and maintaining his organization, camps, accommodation and plant on site and their removal on completion of the contract;
- Complying with the requirements of the Conditions of Contract;
- All general site and office overheads, profit, financing costs, risks, legal and contractual responsibilities and other costs and obligations.

Measurement and payment

The tendered lump sum will be made pro rata to the value of the works completed on each claim as a percentage without any contingencies. The lump sum tendered rate shall not exceed 10% of the total Contract Price excluding any contingencies allowed.

2.0 Setting out of Works

Locate, mark and protect all Surveyors’ stand pegs in the vicinity. These pegs must not be disturbed in any way. Should they be disturbed the Employer will arrange for their replacement at the cost of the Contractor.

Using the drawings (as provided) and sufficient reference pegs the Contractor shall be able to set out the work. Once datum pegs have been placed by the Project Manager, the Contractor shall be responsible for preserving them and for all further setting out and levelling.

3.0 Demolition and clearing

Clear the surface of the ground at the site of any structure or works, removing all vegetation complete with stumps and roots, including trees, bushes scrub and undergrowth, and also boulders, rubbish and debris. Fill material placed in the depressions shall be compacted satisfactorily with hand rammers. On items that includes top soil, site clearance shall mean removal of the top 150mm layer so as to make the land ready for construction works.

Cleared material shall be burned or hauled and disposed of by the contractor in a manner accepted by the Project Manager, and the land finally raked in order to remove depressions caused by grubbing. Such materials shall be the property of the contractor except in the materials classed as forest produce under the laws of Malawi. The contractor shall dispose of such forest produce as stated above but must hold a forest license if he proposes to remove any forest produce for his own use or sale.
However, neither protected flora nor historical relics should be damaged. The Project Manager should be informed if these are encountered, who then should direct the Contractor as to the appropriate action to be taken.

**Measurement and Payment**

Measurement shall be in square metres for general site clearance and in meters for site clearance along pipelines. The tendered rate shall include full compensation for the clearing and grubbing as stipulated under this item.

### 4.0 Excavations of Trenches for Pipe Laying and Foundations Construction as Well as General Excavations

Unless the Project Manager directs otherwise in writing, trenches for pipes shall be excavated to widths 500mm greater than the nominal bore of the pipes.

The Contractor shall ascertain the method of refilling before commencing excavation failing which he will be required to make good any error without extra payment. All material excavated and required for refilling shall be neatly stacked alongside the excavation, care being taken to restrict the area covered so as to cause as little obstruction as possible and to avoid damage to property and structures by the material so stacked. Spoil shall be kept at least 1.0 metre from the edge of an open trench in order not to endanger the stability of the sides, and this distance shall be increased without extra charge if the Project Manager directs.

Upon completion of backfilling using suitable excavated material, excess unwanted material shall be hauled and disposed of by the contractor in a manner accepted by the Project Manager, and the land finally raked in order to remove depressions caused by grubbing. Disposal in this case is assumed to be within a distance of 50m and shall therefore not attract any claims.

All trenches for pipes shall be trimmed to the correct grades, as shown on the Drawings or directed by the Project Manager. If, in trimming, the Contractor should remove more ground than is required on the drawings, and if, on account of this, it becomes necessary by further excavation to re-grade the trench, the Contractor must, at his own cost, carry out such further excavation and regarding or shall fill such excess excavation with grade 3 concrete, properly consolidated gravel, or other approved filling as directed by the Project Manager.

As regards to jointing holes, they shall be cut of sufficient length, width and depth to allow for proper making of pipe joints and proper inspection of joints during testing.

The Contractor shall be responsible for making good or having made good, at his own expense and to the direction of the Project Manager, any slips, falls, carvings-in of ground, damage to walls, roads, railways, sewers, drains, pipes, cables, structures or other works, and shall indemnify the employer against any claims made in respect of loss of life or injury or damage to persons, animals or things caused by reason of his works or through causes in his control.

The same shall apply to any over-excavation beyond the dimensions specified, shown on the Drawings or ordered by the Project Manager, or to any resulting damage. Where ordered by the Project Manager, the Contractor shall, at his own expense, fill all slips, falls or over-excavation with concrete of whatever mix may be specified, selected material compacted to the approval of the Project Manager dry rubble or other approved material.
The Contractor’s prices will be held to cover all liabilities in this respect, and the Employer shall have the right, if he shall have suffered loss from such causes, to deduct the value of such loss from any monies due or that may become due to the Contractor.

Measurement and Payment

Measurement shall be in cubic metres for excavation works. The tendered rate shall include full compensation for the labour as stipulated under this item, handling of the excavated material and disposal of any unwanted material to distances not in excess of 50m. For disposals to distances in excess of 50m, extra claims shall be made for the extra haulage distance in m3km. The tendered rate shall be an average rate applicable for a particular depth of trench.

As regards to sandstone and rock excavation, quantities shall be measured in cubic metres of rock excavated, which will be computed from approved cross sections taken in advance on the cleared rock surface or as agreed by the Project Manager. The tendered rate shall include full compensation for the breaking, removal and disposal of the rock (sandstone) material to the satisfaction of the Project Manager, fill material, backfilling and compacting as stipulated under this item.

For road crossing, normal excavation rates as stipulated under this item shall apply but an extra charge for handling such works on roads shall be tendered for, and these shall be in metres. The tendered rate shall be in accordance with the type of road due to the inconvenience likely to be encountered.

5.0 Pipe Work and Pipe Laying

The contractor may be required to procure materials on behalf of the Procuring Entity according to set specifications. Reimbursement of which shall be by direct cost of the materials plus an agreed mark-up percentage.

The Contractor shall be responsible for the delivery of materials from the Procuring Entity’s offices, store on site, cut into appropriate lengths as required, transport on site, lay, joint, clean and test to the satisfaction of the Project Manager, maximum working pressure according to design together with all jointing materials. Testing of any length of pipeline shall take place directly after the section has been laid.

Measurement and Payment

Measurement shall be in metres for pipe laying works. The tendered rate shall include full compensation for the labour as stipulated under this item.

6.0 Backfilling

If compaction is done by hand, it shall be carried out with rammers of approved type and of weight not less than 5 kg. At least two men shall be engaged in ramming to every in filling. Water shall be added in the correct proportion to aid compaction and shall be carefully and uniformly mixed into the soil. No filling shall be deposited in water except with the written consent of the Project Manager.

Refilling around pipes shall be carried out as pipe laying proceeds but no materials shall be filled in over the joints or around specials until these have been inspected, tested and approved by the Project Manager and permission is given by him for this refilling to be done. Specially selected soft materials without stones is to be used for filling in around the pipe work and to a height of at least 150mm above the top of the pipe and this material is to be thoroughly and evenly compacted to 95% lower compactive effort, as directed by the Project Manager.

On completion of backfilling, the excavation shall be banked to a height of up to 100mm above the general ground level to allow for settlement and the Contractor shall be responsible for making good in
any area where the backfilling subsides below ground level when called upon to do so at any time up to the period of maintenance without additional payment.

Measurement and Payment

Measurement shall be in cubic metres for backfilling works. The tendered rate shall include full compensation for the labour as stipulated under this item.

7.0 Pipe Chambers and Manholes

Manholes for sewer lines and chambers for sluice valves, air valves, washouts, connections etc. shall be constructed according to the drawings or as directed by the Project Manager. Foundation slabs shall consist of reinforced concrete class C20/20/B. Chamber walls shall be of brickwork or reinforced concrete class C20/20/B as directed by the Project Manager. Chambers are to be provided with step irons conforming to BS 1247. Chamber roofs shall be of reinforced concrete class C20/20/B or alternatively shall be of precast elements.

Chamber roofs cast in-situ are to be fitted with manhole covers and frames. Covers shall be of medium duty Grade ‘B’ cast iron construction and shall give a clear opening of 700mm x 700mm. Details are to be provided in a separate drawing and is to be compliant to BS 497, and covers are to be openable only using a standard key of the type used on existing Procuring Entity’s manholes. Valve boxes 140mm x 115mm with hinged covers are to be provided above valve caps for operating gate valves in chambers.

Where shown in the drawings or instructed by the Project Manager, chamber roofs shall be constructed of precast elements. The mass of each precast element shall not exceed 100 kg and each precast element shall be provided with lifting eyes on each end.

Measurement and Payment

Measurement shall be based on measured quantities as for the property construction tendered rates. In all categories, the tendered rate shall include full compensation for the works as stipulated under this item.

Measurement for pipe anchor and thrust block works shall be dealt like mass concrete as stipulated under concrete structures.

8.0 Demolition of Structures

Existing structures such as anchor blocks, concrete works, brick walls, masonry, etc shall be demolished and the material disposed of to the satisfaction of the Project Manager.

Measurement and Payment

Quantities for demolition shall be measured in cubic metres from the actual dimensions of the structure before demolition.

The tendered rate per cubic metre shall include for removal of structures as directed by the Project Manager, and disposal of the material to the satisfaction of the Project manager within a distance of 50m. Otherwise, a separate tendered rate for extra haulage distance shall be provided and shall be m³km.

9.0 Brick work
Bricks shall be of local manufacture and of the best available quality. Bricks shall be sound, hard, uniform in colour, regular in size and shape with straight parallel surfaces and sharp arises and free of cracks, stones and lumps, especially of lime. Bricks intended for fair-faced walls with tooled joints shall be particularly suitable with regard to durability and weather-resistance and of uniform colour. Bricks shall be well burnt. Their compression strength shall be at least 5.5 N/mm² on an average of any 12 bricks, but at least 3.5 N/mm² for any individual brick. The Contractor shall submit brick samples along with test certificates to the Projects Manager for approval.

The Projects Manager will take samples of bricks at random from deliveries to the site for comparison with the approved specimen. Supplies which are not in conformity with the requirements shall be removed from the site. All brick work shall be set out and built to the thickness and heights shown in the drawings, be built strictly vertical and all quoins etc. shall properly be bonded together, laid perfectly plumb, true to line, level and in accurately spaced courses. Before laying the bricks they shall be soaked in water for at least one hour. Mortar shall be mixed dry and water added until the correct consistency is obtained. All mortar shall be used within 45 minutes after the addition of water. Walls shall be bricked up in a uniform manner so that no portion is raised more than 0.75m at any time. Mortar joints shall be full and approximately 10 mm thick. They shall be raked out at least 10 mm deep as the work proceeds. At concrete columns, surfaces shall be chipped and steel binders shall provide rigid connection between column and brick work, wherever no expansion joints are provided.

**Measurement and Payment**

The unit of measurement shall be the square metre of the net finished surface areas. The tendered rate shall include full compensation for acquisition and furnishing all materials, labour, and for all other work necessary for construction of stone brick work.

**10.0 Plaster Works**

The materials used for plaster works shall be cement, water and sand. The cement shall be fresh Portland cement from an accredited manufacturer, and shall show no signs of deterioration or hardening prior to use. Water shall be clean and free from organic or chemical substances. The sand shall be clean and free from dust and debris.

External and internal plastering shall be of two coats, each not less than 10 mm thick and shall consist of one part of cement to three parts of sand, and shall be finished fair and smooth with a wood float unless otherwise directed. Immediately prior to plastering all surfaces shall be thoroughly wetted. All plaster shall be kept wet for two days after being applied. No decoration shall be applied to plaster surfaces until the walls and plaster are thoroughly dry to the satisfaction of the Project Manager.

**Measurement and Payment**

The unit of measurement shall be the square metre of the net finished surface areas. The tendered rate shall include full compensation for acquisition and furnishing all materials, labour, and for all other work necessary for plastering.

**11.0 Concrete for Structures**

No structural concrete shall be placed in the works until the relevant mix has been approved by the engineer. Prior to commencing trial mix design, the contractor shall submit samples of the aggregate he proposes to use for the engineers approval, and it shall be tested in accordance with relevant code of practice. When the mix has been approved, no variations shall be made in the proportions, the original source of cement and aggregate, or in the type, size and grading of the latter without the consent of the engineer who may require further tests to be made.
The engineer may also require practical tests to be made on the site by filling trial moulds to confirm the suitability of the mix for the works. In these tests, the type of plant used for mixing, the method of compaction used, and the formwork face to the mould shall be similar in all respects to those intended for use in the works.

When the contractor intends to purchase factory-made precast concrete units, the engineer may dispense with trial mixes and laboratory tests, provided that evidence is given which satisfies him that the factory regularly produces concrete which complies with the specification. The evidence shall include details of mix proportions, water: cement ratio, workability and strengths obtained at 28 days and 7 days.

The materials used for concrete for structures shall be cement, water, sand and aggregate. The cement shall be fresh Portland cement from an accredited manufacturer, and shall show no signs of deterioration or hardening prior to use. Water shall be clean and free from organic or chemical substances. All aggregates for concrete shall consist of naturally occurring sand, gravel or stone, crushed or uncrushed or a combination thereof. They shall be hard, strong, inert, durable, clean and free from clay films, other adherent coatings or deleterious matter.

The concrete shall be mixed on site either by hand or in a concrete mixer. For mixing by hand, a clean level area of concrete or rock shall be used. The sand and aggregate shall first be mixed together. The cement shall then be added and intimately mixed. Finally, the water shall be added a little at a time. The minimum water for workability shall be used as excess water leads to lack of strength of the concrete.

Concrete shall be transported and placed as soon as possible after mixing. Concrete shall not be used in the permanent works without prior approval of the Project Manager. Concrete shall not be placed in cold weather. Concrete shall be compacted by tamping, rodding, or using a concrete vibrator. It shall be thoroughly worked against all formwork or adjacent masonry to achieve a smooth surface free of honeycombing.

Temporary formwork shall be retained in place for at least 3 days. All exposed faces shall be kept moist for at least 5 days. This may be achieved by covering it with damp sand or Hessian, or covering it with a waterproof material such as plastic sheeting.

Where fresh concrete is placed against already set concrete, a construction joint shall be formed. The face of the set concrete at the construction joint shall be treated to remove the surface film of cement mortar and expose the aggregate. This shall be carried out by brushing if the concrete is still green, or by hammering, if the concrete is already hard.

The method of curing employed shall prevent loss of moisture from the concrete and shall be such that exposed surfaces of the structure are not marked, stained, contaminated or otherwise damaged. Details of the method to be used shall be subject to the approval of the engineer.

Measurement and Payment

The quantity shall be measured in cubic metre of concrete placed and cured in accordance to details shown on the Drawings or as specified. The tendered rate shall include full compensation for acquisition and transportation of all materials, surface preparation, mixing, placing, shuttering (falsework and formwork) and removal thereof, concrete testing, and curing.

The tendered rate for reinforced concrete shall include that for concrete as explained already but should also include the difficulty encountered in compaction with the reinforcement in place. Reinforcement (round and deformed bars, mesh wire, steel) shall be claimed separately in meters and in special cases as may be agreed in kilograms.
12.0 Painting Works

Before paint is applied to any surface other than metal-coated surfaces the appropriate surface preparations shall be carried out in accordance with the following:

Bare Metal Surfaces: Blast cleaning shall be carried out in accordance with BS 4232 to the quality of surface finishes.

Painted Surfaces: Painted surfaces shall be cleaned of all dust immediately prior to the application of further paint. Any loose paint and rust shall be removed. Areas contaminated by oil and grease shall be cleaned with white spirit. Where required by the engineer, the whole surface shall then be cleaned by washing down with a solution of an approved liquid detergent followed by rinsing with clean fresh water and allowed to dry before paint is applied.

Paint shall be stored in sealed containers in a lock-up store in accordance with the manufacturer’s instructions. Paint which has not been used with the “shelf life” period specified on the containers or within 12 months of the date of manufacture, whichever is the lesser, shall be replaced.

Paint from painter’s kettles shall be returned to store at the end of each working period where it shall be kept in a sealed container. Before it is re-issued for use it shall be thoroughly mixed and no fresh paint nor thinners be added. All paint shall be supplied from the store to the painters ready for application and the addition of thinners or of any other material shall be thereafter prohibited. Any instructions given by the paint manufacturer shall be strictly followed. All painting shall be carried out by skilled painters under competent supervision. Paint shall be applied to dry surfaces which have been prepared and cleaned as already explained.

Paint shall not be applied under the following conditions:

• When the ambient temperature falls below 4°C or the relative humidity rises above 90%.
• During rain or mist.
• When condensation has occurred or is likely to occur.

As soon as the first priming coat has dried an extra stripe of paint shall be applied by brush to edges, corners, crevices, bolt heads, rivet heads and welds, using paint of similar composition to the priming coat but in a contrasting shade. Successive coats shall have different shades for identification and each coat shall be thoroughly dry before the application of a further coat.

The total paint dry film thickness of the paint system on bare steel surfaces and on metal-coated surfaces shall be not less than 0.12 mm. The dry paint film thickness shall be measured by elcometer or other instrument approved by the Project Manager. In order to obtain the dry film thickness specified, the contractor shall ensure that the coverage rate given by the paint manufacturer will enable this thickness to be attained.

No paint shall be used after the expiration of the pot life stipulated by the manufacturer, and paints of limited pot life shall not be mixed with fresh paint or have thinners added to them.

Measurement and Payment

Measurement shall be in square metres for painting works. The tendered rate shall include full compensation for the labour as stipulated under this item including materials procurement and delivery, preparation, scraping.

13.0 Ceramic Wall and Floor Tiles
Glazed tiles shall generally be white, complying with BS 1281. They shall be laid on a bed of cement mortar (1:4) and pointed afterwards with accurate and straight joints. Colour and pattern shall be selected by the Project Manager.

Measurement and Payment

Measurement shall be square metres. The tendered rate shall include full compensation of cost of buying the tiles, adhesives delivery and cost of installation.

14.0 Carpentry and Joinery

14.1 Timber Generally

All timber shall be sound, thoroughly seasoned, free from sap, shakes, loose or dead knots, wane edges, insect attack, warps or twists or other defects within the limits contained in the relevant British Standard as hereafter specified.

14.2 Softwood

The softwood for structural carpentry work shall be equal to B.S. 4978 Grade SS. The softwood for non-structural carpentry work shall be equal to B.S. 4978 Grade GS.

14.3 Hardwood

The hardwood timbers are to be B.S. 1186 Part 1 Class 1 S and shall be selected Mlombwa or other equal and approved, selected, straight, close grained hardwood equal to sample to be approved.

Measurement and Payment

Rates for structural timbers described as “sawn” shall include for all workmanship and labour in preparing and connecting together by lapping, notching, splay or birds mouth cutting, halving and for all nails and spikes. Rates for non-structural timbers described as “sawn” shall in additional include for dovetailed and scarfed joints and for wrot faces to exposed ends.

15.0 Plumbing Works

15.1 Galvanized Sheet Steel

All sheet is to be galvanized of an approved brand and of the gauge specified. Rates are to include for clips, welted edges, wedging and fixing.

15.2 U.P.V.C. Gutters, Rainwater Pipes, Fitting And Fixing

The U.P.V.C. gutters, pipes and fittings are to be to B.S. 4514 and shall be obtained from a manufacturer approved by the Project Manager Officer. The pipes and fittings shall be jointed in accordance with the manufacturer’s instructions.

15.3 HDPE pipes

All HDPE pipes is to be from approved brand and of the specified pressure rating.

15.4 U.P.V.C. Sewer pipes fitting And Fixing
Measurement and Payment

Rates for eaves gutters shall include for fixing on purpose made bolted brackets to falls.

15.5 U.P.V.C. Soil, Waste And Ventilating Pipes, Fittings And Fixing

Rates for rainwater pipes are to include for temporary supporting the pipes in position while the mortar packing is placed around and for all loose pipe sockets, double sockets, straight couplings, union couplings, expansion couplings, short lengths and for forming all joints and cutting and waste and all necessary jointing materials. All other fittings are measured and rates shall include for extra joints. The U.P.V.C. pipes and fittings are to be to B.S. 4514 and shall be obtained from a manufacturer approved by the Project Manager. The pipes and fittings shall be jointed and fixed in accordance with the manufacturer’s instructions. Vertical and horizontal pipe runs shall be supported and fixed with clips drilled, plugged and screwed to walls and soffits and where necessary suitable hangers shall be provided. All branch connections to main soil, waste and ventilating pipes shall be swept in the direction of flow, and pitches tees only shall be used.

15.6 U.P.V.C. Soil, Waste and Ventilating Pipes, Fittings And Fixing

Generally, soil pipes where “horizontal” shall fall at 2.50 % towards the main vertical pipes, “horizontal” waste pipes shall fall at 1.50 % towards the main vertical pipes and “horizontal” ventilating pipes shall rise at 1.50 % away from the traps they serve. Expansion joint couplings shall be fixed in pipe runs at intervals in accordance with the manufacturer’s instructions.

Measurement and Payment

Rates for pipes are to include for fixing with all necessary clips, holder bats and hangers and drilling, plugging and screwing or cutting and pinning to walls and soffits and for making good the finishings to surfaces to which the pipes are fixed and for all loose pipe sockets, double sockets, straight couplings, union couplings, expansion couplings, short lengths and for forming all joints and cutting and waste and all necessary jointing materials. Allotter fittings are measured and rates shall include for extra joints.

15.5 Medium Duty Galvanized Steel Tubing, Fittings and Fixing

The galvanized steel tubing is to be medium weight in accordance with B.S. 1387 and joints are to be screwed with red lead and hemp. Fittings are to be galvanized wrought steel to B.S. 1740. All bends in any pipe run. Long and short nipples shall be used as required, running nipples will not be permitted. Unions shall be used at the final connection to all fittings, after all valves and on vertical pipe runs in ducts at each floor level. They shall be of the types having galvanized malleable cast iron bodies with ground spherical or taper gunmetal seating faces. All screwed tubing and fittings shall be connected by means of joints having taper or taper threads complying with B.S. 21. Prior to making and joint the male end of the connection shall be coated with “Boss White” as manufacturer by Crane Ltd. Or other equal and approved compound. Welding of galvanized tubing will not be permitted. No joints shall be made within an unobstructed distance of 600 mm of any electrical cable, conduit or component, nor shall any joints be formed with the thickness of any wall, slab, etc.

Measurement and Payment

Rates are to include for fixing pipes with approved pipe clips or galvanized holder bats including cutting and pinning and making good the finishings’s to the surfaces to which the pipes are fixed.
Rates for tubing of 20 mm diameter and less are to include for all labour to bent pipes and fittings such as bends, elbows, tees, crosses, connectors, nipples, sockets, unions, reducing sockets, backets, backnuts, plugs and the like and for all short lengths and cutting and waste.

Rates for tubing exceeding 20 mm diameter shall include for all paralled sockets, nipples, unions and for all short running lengths and cutting and waste. All other fittings and labours are measured and the rates for fittings shall include for extra red lead joints.

15.6 Pipe Work Generally

All internal pipe work shall be executive in collaboration with the work of any specialist employed for electrical work, etc. So that all trade provide a neat and workmanlike finish. Cutting of holes, chases, etc, through reinforced concrete shall be carried out only with the writing authority of the written of the Project Manager and all holes, chases, etc. shall be properly made good on completion. Plumbing work shall be carried out strictly in accordance with the plumbing and drainage plans and details and written authority shall be obtained from the Project Manager before any change or variation from the plan is made. Pipes shall be arranged and fixed in a neat workmanlike manner, straight, parallel in line and with the fittings set true and plumb. Exposed pipe shall be so fixed that there will be not less than 25 mm clear space everywhere between the pipes or pipe fittings and the finished wall, ceiling or beam face. Where such a clearance does not appear to be practicable or workmanlike, the Project Manager shall be consulted before fixing the piping and his written approval obtained. Access plates and fittings shall be used only where shown on the drawings.

All service and distribution pipe runs shall be set out and fixed to avoid traps and air locks, and branches taken from vertical pipes shall have a constant slight rise or fall as the case may require for the release of air and the enable the free end of all overflow pipes. Pipe-work of unlike materials shall be joint an approval manner in accordance with the best standard practice.

16.0 Brass and Sundries

All taps, valves, traps, etc. shall comply with the type and B.S. specified and to any requirements of the Local authority. Samples of taps, valves etc. are to be submitted to the Project Manager before fixing.

Taps shall be marked with an approved colour or letter identification. Cold water taps shall in every case be fixed at the righthand side of sanitary fitments.

All ball valves shall comply with B.S. 1212 and shall be of the sized and for the pressure indicated or directed. The loose orifice seats shall be of nylon for sizes 13 mm and 19 mm and bronze for sizes 25 mm, 38 mm and 51 mm. Ball valves shall be supplied and fixed complete with copper floats to B.S. 1968 or with plastic floats not less robust and having lifting effort not less than a B.S. 1968 copper float for the same duty.

Measurement and Payment

Rates for taps, valves, traps, etc. are to include for jointing to pipes including making joints and any necessary connectors to suit the particular type of pipe to which they are fitted and for supplying samples and for providing and handling to the Project Manager here valve keys for each type and size of gate valve installed in the Works.

17.0 Sanitary Fittings

Sanitary fittings not specified reference to manufacturer’s catalogues shall be in accordance with B.S. 1125, 1188, 1189, 1206, 1213, 1244, 1254, 3380 (Part 1) and 3402 as applicable.
18.0 Compaction of Sub-grade

The area to be compacted shall be scarified and watered evenly, mixed in for the full depth to be compacted until a uniform mixture is obtained with moisture content within the range of 1 per cent of the optimum. During the full compaction process, the materials shall be kept at the optimum moisture content, the surface if necessary being occasionally lightly watered to counteract the effects of evaporation.

19.0 Foundations to Kerbs and Channels

Foundations to kerbs and channels shall be mass concrete laid to the dimensions on the drawings and compacted to a dense finish.

20.0 Kerbs and Channels

Kerbs and channels shall be hydraulically pressed and shall comply with B.S. 340 and be lola on layer of mortar not less than 134 thick. For a radius of 10000 mm or less, kerbs of appropriate radius shall be used. Any unit of kerb or channel deviating more than 3 mm from line and level at either end shall be made good by lifting and relaying.

21.0 Soiling and Grassing (Landscaping)

Landscaping shall be provided as directed by the Project Manager.

Measurement and Payment

Measurement shall be square metres of soiling and grassing performed. The tendered rate shall include full compensation for topsoil covering to the specified thickness, light rolling, providing grass, and planting grass as specified, as well as the frequent watering and maintenance thereof until growth is established.

Other Specifications

1.0 Health Costs

The contractor is to arrange subject to the Employer's requirements and approval, for taking of urine and stool samples from all persons who will be working in and around the treatment works to ensure that all such persons are free from pathogenic organisms.

The Employer will pay all medical costs incurred in the taking and analysis of these tests.

2.0 Defective Works

Work, which in the opinion of the Project Manager, does not comply with the specification shall be classified as defective and shall be removed from the works and replaced as directed by the Project Manager at the contractor's own expense.

3.0 Working in the vicinity of existing works and services

As stated in 1.0 above, the Contractor shall liaise with the Project Manager and Procuring Entity's Maintenance Office regarding the location of all existing works and services such as sewers, storm water drains, electricity cables, telephone lines, water mains, etc. The Contractor will be held responsible for
damages to any existing works or services whether he was aware of the existing works/services or not. Any damage caused must be made good at the Contractor’s cost.

The Contractor shall make good at his own expense any damage to existing works whatsoever which may occur as a result of the Contractor’s operations.

4.0 Interruptions of existing operational works

Where the works necessitate a temporary interruption in the operation of the hospital services, such works shall be carried out at times authorized by the Project Manager. The Contractor shall programme his works to take into account the employer’s requirements with regard to the operation of existing works and such programme shall be subject to approval by the Project Manager.

5.0 Paying of salaries and wages

The Contractor shall be responsible for paying all salaries of such personnel, including overtime, and for providing all benefits as are provided for other staff employed by him under the Conditions of Contract in respect of such employees.

6.0 Siting, Well Drilling, Pumping Test And Development

6.1 General

The work covered by this section consist of borehole geophysical surveys and siting, drilling, well development, hand pump supply and installation, disinfection and construction of civil works (pump head base or plinth, and pump testing, drains, washing slab and soak away pit, etc.) in Blantyre district. These shall be constructed according to the Drawings, Specifications and Bill of Quantities and inclusive of all pertaining accessories necessary to complete the work.

The Contractor shall use an experienced Hydrogeologist with complete set of equipment to conduct geophysical surveys (Vertical Electrical resistivity Survey using Terameter or similar equipment) and determine the point for borehole drilling which shall be in accordance with the wishes of the community. Vertical Electrical Sounding results shall be interpreted and recommendations drawn by the Contractor to the approval of the Project Manager or his representative.

6.2 Well Siting (Hydrogeological Assessment and Geophysical survey)

The Contractor must allow the community, DCTs and Employer’s staff to be involved in siting of the boreholes. The contractor has to conduct hydrogeological assessment supported by geophysical survey work for all sites to verify the potential for ground water. Vertical Electrical resistivity Survey method can be used and the penetration depth should not be less than the recommended maximum drilling depth. However if the Contractor is not convinced that the site selected by the community has the required potential for ground water extraction, he has the responsibility, in consultation with the community, to locate a better site to the satisfaction of the community and Project Manager or his representative. The Contractor is advised to make use of all available study documents and reports regarding assessment of ground water potential in the proposed drilling area. The Contractor shall submit the assessment report including VES curves and their interpretation to the Project Manager prior to the start of the drilling work.

6.3 Drilling
6.3.1 Drilling Rig

A suitable rig capable of drilling boreholes of minimum diameters up to 200 mm and to a maximum depth of 80 meters shall be employed. The rig should have all the necessary accessories for rimming, fishing etc. It is also worth mentioning that a reasonable thickness of the subsurface formation is expected to be soft. Therefore, the drilling equipment and the method have to be capable of drilling through both soft and hard formations. The Contractor has to use temporary steel casing to drill in the upper soft formation.

The rig shall have air and water/mud flush facilities for drilling through the over burden and down-the-hole hammer facilities for drilling in hard rock.

6.3.2 Drilling Fluids

In all formation that will be encountered during drilling only air or approved type of foam may be used as drilling fluid if down-the-hole hammer bit is used. If boreholes are drilled with rotary equipment the following drilling fluids may be used:

a) Air
b) Air with foam
c) Clear water
d) Drilling mud composed of water and a thickening agent containing no solid particles.
   Examples are the starch based mud, Revert, and Polymer based mud such as Quick Thick.
   **Use of bentonite is specifically prohibited.** Mud cake formed during this activity has to be removed to the satisfaction of the Project Manager or his representative.

6.3.3 Drilling Diameter

Drilling diameter of the production wells will vary depending on geological and hydrogeological set-up of the areas. However, the final inside diameter of any completed borehole section should not be less than 171 mm. All drilling should be carried out with the completion diameter of not less than 171 mm.

6.3.4 Well Depth

Well depths are envisaged to vary from one area to another depending on the geological conditions of the area, and the hydrogeological assessment and the survey results will determine the borehole depth. However, drilling may be ordered to be stopped at shallower depth, or to be continued to a maximum of 60 m. The Contractor's Hydrogeologist has the primary responsibility for determining drilling depths from the survey results. The Contractor is, therefore, required to provide drilling instructions including, the recommended drilling depths, with clear professional justification, in the borehole siting report to be submitted to the Project Manager or his representative for approval prior to commencement of the drilling program.

The total depth to be drilled for each borehole will be determined from the results of the interim yield tests. The acceptable minimum yield for boreholes is 0.25 l/sec but drilling will continue beyond that depth assuming a continuing incremental increase in yield is indicated by the drilling results obtained beyond the initial 0.25 l/s attaining depth.

In all cases interim yield tests shall be performed as stated under Section 4.3.6.

6.3.5 Well Logging
The Contractor shall collect unwashed drilling samples at 3 m intervals and at every change of formation, and store the samples in heavy gauge polythene bags clearly labelled and kept on site until the completion of drilling and testing. The samples are to be logged by the driller and record of strata at 3 m intervals will be kept on a daily log sheet. The record of strata will show:

(a) lithology
(b) degree of consolidation or hardness
(c) If unconsolidated - nature of granular material (i.e. subjective description of grain size, degree of rounding, clay content, colour).
(d) in basement areas it is most important that the weathered rock/fresh bedrock transition point is noted.

Following attainment of the final depth details of the proposed borehole design should be submitted to the Project Manager or his representative. The completion of an effective and efficient borehole design is the responsibility of the contractor.

6.3.6 Dry Boreholes

The contractor shall seek instruction from the Engineer or his Representative if water is not struck within the specified depth where it is expected to strike water. No movement from site shall be permitted until the dry hole is notified by the Contractor or his representative to the Engineer or his representative and is approved as such by the Engineer or his representative.

The Contractor will be paid for wet boreholes only. All dry boreholes shall be at the expense of the contractor.

6.3.7 Interim Yield Tests

On striking water, interim yield tests must be initiated. These tests should be repeated at the contractor’s discretion though flushing of the hole should take place after the drilling of every rod length. The method employed for establishing interim yields will be at the discretion of the contractor. Details should, however, be included in the Methods Statement. In general air lifting will be regarded as the ideal method for interim yield tests with measurement of the discharge being made by channelling the flow into either (i) a container of known volume and measuring the time taken to fill that container using a reliable stop watch; or (ii) a V notch weir of suitable dimension for the yield to be accurately established.

Interim tests should be carried out for at least 20 minutes to establish yields of less than 1.0 l/sec. Once a yield which is regarded as the optimum for the borehole is indicated, the test should be continued for at least 60 minutes to confirm the result.

The results of interim yield tests against a total depth at time of test must be recorded on drilling records.

6.3.8 Well Casings and Riser Pipes

Boreholes have to be lined with high impact-resistant Poly Vinyl Chloride (uPVC) plastic plain and slotted casings specifically manufactured for bore holes.

The casings, plain and slotted, shall be of class 10 and have an outer diameter of not less than 113 mm and each 3 m long. Similarly, riser pipes shall be uPVC class 16 with an outer diameter of 63 mm and in 3 metre lengths. All casings and riser pipes shall have socket and spigot joints. And all casings shall come with casing centralisers already fixed by manufacturers. Damaged and
deformed pipes due to mishandling will not be accepted for installation. The casings shall be securely stored and protected from direct sunlight.

To ensure that the casing is central and vertical in the borehole and to provide a uniform annular space for the filter pack, centralisers of suitable size shall be fitted to both casings and screens at minimum 3 m intervals as per the manufacturer’s recommendation.

To avoid the flow of surface water into the well 1.0 meter length of the casing shall be kept above the ground surface.

Immediately after completion of the drilling operation the Contractor has to provide the well installation design, and actual casing and screen, for the approval by the Project Manager or his representative. The Contractor shall only adopt design approved by the Project Manager or his representative, but any approval that may be given will not relieve the Contractor of his responsibility for the proper execution of the Works.

Casing shall be installed in the sizes and depths as per the result of the well logging and final well design.

At least a 1m length of plain casing of the same diameter shall be installed below the slotted casing. The bottom of this plain casing shall be sealed with a suitable end cap/bail plug. Plain casing shall be installed from the depth at which water was struck to a height of 1m above the ground and capped.

The protruding casing must be sealed with a suitable cap to prevent any unauthorized opening until the hand pump is installed.

The inner diameter and wall thickness of the screen shall be the same as for the plain casing. The open area of the screens shall be at least 10% of the surface area of the pipe.

Slots, which are prepared by using hacksaw, are not allowed, and all slots have to be factory or machine made.

### 6.3.9 Gravel Pack

The Contractor shall be responsible for obtaining screened filter pack from the Ministry of Irrigation and Water Development, approved gravel pack source (Nkhuzi’ Bay in Mangochi, Senga in Salima and Chilumba in Karonga). The pack should have a d50 size not exceeding 1.0 millimeter and a uniformity coefficient not greater than 2.0 (the contractor being responsible for grading). Ironstone or calcareous fragments in gravel packs are unacceptable. The gravel pack shall consist of well rounded and washed round quartz grain and shall be placed in the annular space between the borehole wall and the outer portions of casings and screens, to the satisfaction of the Project Manager or his representative.

To avoid bridging of the gravel, it is not allowed to fill-in the gravel by mechanized equipment. The gravel must be filled-in by hand slowly and carefully or by shovels during well development up to the level determined by the Project Manager or his representative depending on the static water level.

Filling will proceed slowly and carefully during well development. The correct placing of gravel will have to be controlled by continuous recording of the volume of gravel consumed and by repeated measurement of the level of packing.
Where temporary drill casing has been installed, initial packing will continue inside the drill casing, prior to casing pull back, to a height of at least 1.5m above the base of the temporary casing.

Once initial placement of filter pack material has reached a height of 0.6m above the base of casing placement above screen, gentle well development shall commence.

Placement of gravel, temporary casing pull back and gentle well development will proceed until gravel is settled without bridging the level to a height of 0.5m above the top of the screen. Gravel will be topped up as necessary during well development to maintain this level.

6.3.10 Well Development

Well development has to be carried out after completion of the construction of a well and prior to test pumping. The objective of development is to improve well performance, to increase well capacity and to reduce an unacceptable level of the amount of sediment contained in the water yielded by the well.

Well development shall be carried out using appropriate techniques (over pumping, surging, back washing, jetting etc) after casing installation and gravel packing and prior to pumping test. The work shall be carried out for a minimum of 4 hrs and to the satisfaction of the Project Manager or his representative.

Development shall continue until five (5.0 No.) visually sand free water samples of at least 1 litre collected over five separate 1 minute periods at least 10 minutes apart should be obtained from the total discharge. (Actual sand tolerance will be 5 mg/1.)

Should such a sample not be obtained development shall continue up to a maximum of 8 hours. If 5 sand free samples cannot be obtained at this point the borehole will be considered to have an unsatisfactory design and construction. Periods of development in excess of the 8 hours on a borehole set out in the schedule of prices shall therefore be at the Contractor's expense.

During the development the gravel will be topped up as necessary to maintain the level in annulus at 3.0 meters below ground level.

6.3.11 Cement grouting

The annular space between borehole and wall of the casing shall be grouted with mixture of cement and water slurry by a pour-in method from the top. Before grouting takes place a bridging medium of sand and puddle clay should be placed on the gravel pack in order to avoid any cement infiltration into the gravel. A minimum amount of water shall be used to obtain desired workability. Cement grout should not be placed before the end of the pumping test to allow the gravel to settle and to be filled-up as necessary. After the test pumping is completed the annulus between the surface casing and the wall of the well shall be sealed with cement grout containing no aggregate from a depth of 5m to the ground surface.

Cement grouting shall be carried out in one continuous operation before initial setting of the cement occurs. The Contractor shall advise the Project Manager or his representative at the start of the drilling operation the method he intends to employ for grouting. Regardless of the method used, the grout shall be introduced at the bottom of the space to be grouted. In no circumstance will this be less than 5 m below the well head. The method proposed by the Contractor will be changed or modified if and as required to suit the site conditions.

6.3.12 Concrete Pad
The Contractor shall construct a concrete pad having concrete of **class 20MPa** for all productive boreholes to dimensions shown in the Drawings. The Contractor shall ensure that the sides of the pad are straight by properly anchoring the forms. The top of the pad shall be trowelled to provide good standing and easy drainage. The identification code number of the well provided by the Project Manager or his representative has to be inscribed on the concrete pad.

The Contractor shall excavate and concrete the drainage channel for a distance of 10m down slope away from the centre of the borehole as shown in the plan view.

The materials used for the construction work shall have to satisfy the requirements of Section 2 of the Specification.

### 6.3.13 Well Disinfection

After drilling and clearing, wells should be disinfected to make sure that no bacteria, viruses and other pollutants are remaining in the well, which may have entered the well during drilling, construction and installation works.

### 6.3.14 Plumbness and Alignment

The borehole shall be tested for verticality and straightness using deviation measuring instruments like Inclinometer, Drift Indicator, etc, at any time when the Project Manager or his representative may request that the alignment be checked.

The Contractor may also conduct these and any other tests he may deem necessary to satisfy himself that the borehole is being drilled plumb and straight. These tests shall be made entirely at the Contractor’s own expense.

If the hole is out of alignment as determined by the dummy or more than 1% out of vertical, then the hole shall be abandoned and re-drilled.

### 6.4 Pumping Test

The Contractor shall supply at least 2 power generators of appropriate capacity to run the pumps. The Contractor shall have sufficient stand-by pumping sets and parts on the sites to guarantee uninterrupted pumping.

The equipment and crew shall be capable of performing a continuous test for up to 10 hours if required and shall include all necessary tools and equipment to carry out a pump test with accurate measurement of water flow and water level in the well.

Discharge measurements could be done either by standard v-notch, calibrated water meter or by simple container of known volume.

Pumping test result will not be accepted if interrupted due to negligence or technical defects of the pump, generator, or water level indicator and any other causes. The Contractor will repeat the test at his own expense.

Pumping test data shall be recorded on prepared sheets in the English language. The data sheets prepared in triplicate shall include the following information:

a) the location of the well being tested.
b) the physical characteristic of the well including depth, diameter, size and length of casing and screen.

c) characteristics of the test pump.

d) depth of setting of the test pump in meters.

e) date and time of start and finish of pumping test.

f) static water level at commencement of test, dynamic water levels and discharge rates at prescribed time intervals.

g) draw-down recovery immediately after pumping is completed.

h) date and time of start of removal of test pump from the borehole.

The pumped water during pumping test should not be allowed to form pools so as to avoid re-infiltration in the vicinity of the wells. The water should be disposed off by means of discharge pipes towards a near by natural drain over a distance of at least 100 m downstream form the well being pumped.

6.5 Pumping Test Procedures

After development the water will be allowed to recover and stabilize prior to the pumping test process.

a) Interim yield test as stated under Section 4.3.6- in order to determine constant pumping test rate.

b) If the well yields below 0.25 l/s after the interim yield test the well is deemed to be dry well and has to be abandoned.

c) The constant discharge test as the name implies, must be run uninterruptedly for a maximum of 6 hours, or until such an earlier time when no further drawdown is achieved.

d) The recovery test shall be carried out until 90% percent recovery of the drawdown is attained.

e) Electric water level indictor has to be used for the measurements of the water level. The electric water level shall be provided with sound and light signals.

f) Discharge measurements could be done as stated in section 4.9.12 else where in the Specification.

g) No bulk spilling of water is allowed to re-infiltrate in the vicinity of the well. The discharged water has to be carried away by means of discharge pipe towards a natural drain.

h) Water samples shall be collected for analysis as stated under Section 4.6.
For boreholes to be equipped with hand pumps, the test pumping will take the form of a continuous discharge test (Constant Yield Test) at the discharge rate to be determined during development of the borehole. The discharge rate shall not be less than the minimum acceptable yield of 0.25 litres per second. The minimum period of the test shall be 180 minutes. The test will however stop after the pumping water level stabilizes or until the maximum period for test of 360 minutes has been reached.

For boreholes to be motorized, the test pumping shall take the form of a Step Test of 400 minutes duration using 100 minutes each step. This will be followed by an aquifer test at a constant discharge rate for a period not less than 720 minutes. The test will continue until the pumping water level stabilizes or the maximum acceptable period of 1440 minutes is reached.

At the end of either form of test, recovery shall be taken until either the well recovers in full or a period of 120 minutes elapses, whichever is the earlier.

For Step Tests, the discharge rates shall be based on the results of the Interim Yield tests. The rates should be close to 50%, 70%, 100% and 150% of the expected long-term yield. Where the Contractor fails to achieve requirements of the Step Test, the results will be treated as an aquifer test and the Contractor will be paid accordingly.

In cases where a yield higher than the minimum 0.25 litre per second is not sustainable for the period of the constant yield test pumping at the sustainable yield shall be 360 minutes.

In all cases draw down reading shall be taken at the following time intervals using an electric or alternative water level dipper graduated at 0.01 metre intervals. The datum point for measurements shall be recorded plus the height of the datum above ground level.

The time intervals for the Step Test and Constant Yield Test shall be as follows:

(a) Step Test:
   one minute intervals from 0 - 10min;
   two minute intervals from 10 - 30min;
   five minute intervals from 30 - 100min.

(b) Constant Yield Test:
   one minute intervals from 0 - 10min;
   two minute intervals from 10 - 30min;
   five minute intervals from 30 - 100min;
   ten minute intervals from 100 - 200min;
   twenty minute intervals from 200 - 400min;
   fifty minute intervals from 400 - 600min;
   hundred minute intervals from 600 - 1500min.

In all cases recovery shall be recorded, at the same time interval as above, until either full recovery has been attained or a period of time equivalent to the pumping period has passed.
6.6 Water Sampling and Quality Test

To ensure that water being delivered from the newly drilled boreholes is potable, the contractor shall be required to carry out quality tests on the water samples. “Water quality” is a term used here to express the suitability of water to sustain uses or processes.

A sample of water from the borehole shall be taken at the end of the constant rate test for Physical, Chemical and Bacteriological analyses. The physical and chemical analysis would determine the following: pH, temperature, colour, turbidity, total dissolved solids (TDS), Calcium, Magnesium, Sodium, Potassium, Total Iron, Manganese, Bicarbonate, Sulphate, Chloride, Nitrate, Nitrite, Fluoride, and Total Hardness.

The bacteriological analysis would determine Total Coliform and E. Coliform. The laboratory water tests may be carried by any other laboratory as the Contractor may wish but the results will have to be checked by the District Coordinating Teams.

Each sample consists of 2 containers, one in a calibrated, hermetically closed glass or suitable plastic container of 1 litre capacity. Water samples should be clearly marked showing name and number of well, date of sampling, hour of sampling, temperature of water during sampling and signature of person taking the sample.

Samples will be stored in a cool place and delivered within 24 hour to the Central Water Laboratory in Lilongwe, Mzuzu or Blantyre or any other laboratory acceptable to the Employer as the Contractor may wish to choose.

If water samples collected during drilling show that the water is not of suitable quality for domestic use, the well will be abandoned. The Contractor will be paid for the completed work as per the rates in the Bill of Quantities considering the well as successful one.

Communication

The Contractor shall communicate at least weekly by telephone and in writing with the Project Manager or his representative, detailing the progress achieved.

6.7 Supervision Work

The communities through their water committee members or Water Users Association members, with the assistance of the representative of the Project Manager representative of DCTs, will be actively engaged in the supervision of all aspects of the contract to their capacity in addition to the supervision provided by the Project Manager and/or his representative. The Contractor shall facilitate involvement of the water committee members in the supervision work and during the installation of hand pumps.

6.8 Work Sheets and Records

The Contractor shall maintain a work-sheet in which all the information concerning the works would be recorded, sample of daily recording format is attached. This would enable the Project Manager or his representative to be precisely informed on the drilling activities upon arrival at site. The work-sheets will contain the following information:

a) General Information
i. Traditional Authority Area
ii. Village Name
iii. Grid reference (UTM format)
iv. Borehole number
v. Distance from previous destination
vi. Contractors Name
vii. Date arrival on site
viii. Date of starting drilling
ix. Consultants/supervisor’s Name and signature

b) Drilling Rig

i. Registration number of Equipment
ii. Make model, type and size of drilling rig
iii. Type of work performed and number of hours on each type of work
iv. Names of all crew members
v. Size of hole and number of meters drilled per shift
vi. Penetrated sample description
vii. Length and size of casing installed.
viii. Length and size of screen installed.
ix. Length and size of observation pipe installed.
x. Problems encountered during drilling.
xi. Total standby time, and.
xii. Other site specific items as appropriate

c) Test Pump Unit

i. Location.
ii. Make, model and capacity of test pump.
iii. Type of work performed and number of hours on each type of work.
iv. Names of all crew members.
v. The static water level.
vi. Pump position during testing.
vii. Total duration of the pumping test operation
viii. Total standby time,
ix. Other site specific items as appropriate

6.9 Final Reports
After completion of each well (drilling, development, pumping test, etc.) the Contractor has to submit a final technical report prepared in English incorporating all important results of specific activities in three copies. The report should be counter signed by DCTs and respective target Community / School representatives.

The report should include the details of the following points:

- Siting of water wells including GPS readings
- Description of VES data, including resistivity graphs and interpretations
- Recommendations on the possible aquifer depth and depth of drilling
- Equipment and instruments used for the drilling operation,
- Description of borehole logging results,
- Final well design for the installation of casings and screens,
- Equipment and instruments used for the pumping test operation,
- Data collection sheets of the pumping test and relevant remarks about the data acquisition,
- Static and dynamic water levels,
- The plotted pumping test graphs,
- Description about the analytical methods and the relevant calculations and the interpretation of pumping test results,
- Recommended pump position and yield,
- Water quality analysis and test result, and well disinfection,
- Description of the well construction should have to include quantity of materials used for the well, well head and pump complete,
- The final report has to contain remarks on special observations, difficulties encountered and findings that would be followed by interpretation of results and proposed recommendations.

6.10 Measurement and Payment

6.10.1 Mobilization and Demobilization

Payment for mobilization and demobilization shall be made on Lump sum bases as specified in the Bills of Quantities.

The price shall include the complete mobilization of the necessary drilling equipment, materials and crew from and to the Contractor's yard and to and from the working areas including the construction of temporary roads required for access to the working areas, inter site mobilization, and the complete installation of the equipment. It also includes cleanup of the sites, restoration and cleanup of anything disturbed by the construction and use of the temporary access roads.

6.10.2 Borehole Siting

Payment for borehole siting will be made on lump sum basis for all activities performed and equipment used and any other incidentals there including the report only for each successful well after the drilling is completed and the well is accepted as successful by the project Manager.
6.10.3 Drilling

Drilling works shall be measured and paid per linear metre as specified in the Drawings and Bills of Quantities.

Measurement will be made vertically to the nearest 0.1m from the original ground level to the base of the completed hole. This price will include all materials, equipment, cutting, welding, labour and all work incidentals thereto except for those items for which payment is specified additionally to that of the drilling.

No payment will be made for boreholes abandoned or incomplete as a result of lost or stuck tools, stuck casing, failure to meet plumpness or alignment tests, or any other reason that is the fault of the Contractor.

In all other cases, dry holes shall be at the expense of the Contractor. No payment will be made for abandoned or dry boreholes.

6.10.4 Well Casing

Well casing shall be measured and paid per linear metre as specified in the Drawings and Bills of Quantities.

Measurement will be made to the nearest 0.1 meter vertically from the top flange of the well head to the bottom of the casing in the borehole less any section of screen, which is paid for separately. This price shall include supply and secure storage of casing, cleaning fluid, solvent cement and couplings, welding, installation, testing and all work incidentals thereto. No payment will be made for temporary casing, which is installed to facilitate drilling and is subsequently to be removed. No payment will be made for well casing installed in abandoned boreholes.

6.10.5 Casing Bottom Cap or Bail Plug

Casing bottom cap shall be measured and paid per number or item as specified in the Drawings and Bills of Quantities

This price shall include supply, installation, testing and all work incidentals thereto.

6.10.6 Gravel Pack

Gravel pack shall be measured and paid per cubic metre as per the Bills of Quantities.

This price shall include supply, installation, testing and all work incidentals thereto.

6.10.7 Well Heads or Concrete Pad

Payment for well heads will be made on Lump Sum basis per well head as specified in the Bill of Quantities. This price shall include materials, excavation, prefabrication, installation, soak away, drainage, backfilling, site grading and all work incidentals thereto. It also includes supply and placement of sand and paddle clay seal.

6.10.8 Grouting

Payment for grouting will be made at the unit price per meter shown in the Bill of Quantities.
Measurement will be made vertically to the nearest 0.1 m. from the top to the bottom of the completed grouting. This price shall include materials, installations and all work incidentals thereto.

6.10.9 *Well Development*

Payment for well development will be made at the price per hour shown in the Bill of quantity. The price will include materials, equipment and all work incidentals thereto.

6.10.10 *Plumbness and Alignment Test*

Payment for plumbness and Alignment Tests if requested by the Project Manager or his representative will be made at the price per well site shown in the Bill of Quantities. The price will include material, equipment and all work incidentals thereto. No payment will be made for tests carried out by the Contractor for his own information.

6.10.11 *Pumping Test*

Payment for pumping test will be made at the unit price per hour shown in the Bill of Quantities. No payment will be made for tests terminated prior to the time specified by the Project Manager or his representative or rendered unsatisfactory by reason of breakdown, lack of fuel or for any other reason that is the responsibility of the Contractor. The price shall include materials, equipment and work incidental thereto.

6.10.12 *Monitoring Recovery*

Payment for monitoring recovery will be made at the unit price per hour shown in the Bill of Quantity. No payment will be made for monitoring terminated prior to the time specified by the Project Manager or his representative or rendered unsatisfactory by reason of breakdown, lack of fuel or any other reason that is the responsibility of the Contractor. The price shall include materials, equipment and all work incidentals thereto.

6.10.13 *Well Disinfection*

Payment for well disinfection will be made on Lump sum basis per well as shown in the Bill of Quantities. The price will include supply of chlorine, equipment and all work incidentals thereto.

6.10.14 *Final Report Production*

Payment for Final Reports will be made at unit price per productive well Reported.

C. *Technical schedule of particulars*

Contractors should enter full particulars of equipment which shall be used. General entries of equipment held by the Contractor but which will not be available for definite allocation to the contract should not be included. It should be noted that the time of, but prior to, the tender award the first choice contractor shall be asked to firmly guarantee the availability of the equipment described as a pre-condition for the final tender award.
1. **Drilling Rigs**
   - Number
   - Type
   - Make
   - Model
   - Age (include hours worked)
   - Gross Nos
   - (Allocated rigs)

2. **Foam Pump Type**

3. **Mud Pump**
   - Type
   - Make

4. **Drill String**
   - Drill pipe (mm)
   - Pipe Length
   - O.D. joint (mm)
   - Drill Collar
   - Quantity
   - Length (mean) (m)
   - Stabilizers
   - Quantity
   - Max O.D

5. **Compressor**
   - Number
   - Make
   - Free air delivery
   - Normal effective working pressure

6. **Auxiliary Equipment – List**

7. **Development method proposed with tool design**

8. **Test pumps**
   - Type
   - Make
   - Length runaway main/lay float

Discharge measurement methods

### 7.0 Abbreviations

- BS = British Standards
- K = Malawi Kwacha
- l = Litre
- m = Metre
- m³ = Cubic Metre
- m² = Square Metre
## C. Drawings

<table>
<thead>
<tr>
<th>Drawing Number</th>
<th>Drawing Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>G001</td>
<td>Steel Water Tower</td>
</tr>
<tr>
<td>WA-01</td>
<td>Kangolwa HC Pipeline Aerial View</td>
</tr>
</tbody>
</table>
D. Bills of Quantities

(REFER TO EXCEL SHEET ATTACHED SEPARATELY)

Preamble to Bill of Quantities and Bill of Quantities

Preamble for Bill of Quantities

Objectives

The objectives of the Bill of Quantities are

(a) to provide sufficient information on the quantities of Works to be performed to enable bids to be prepared efficiently and accurately; and
(b) when a Contract has been entered into, to provide a priced Bill of Quantities for use in the periodic valuation of Works executed.

In order to attain these objectives, Works have been itemized in the Bill of Quantities in sufficient detail to distinguish between the different classes of Works, or between Works of the same nature carried out in different locations or in other circumstances which may give rise to different considerations of cost. Consistent with these requirements, the layout and content of the Bill of Quantities has been made as simple and brief as possible.

Bill Items

1. The Bill of Quantities shall be read in conjunction with the Instructions to Bidders, General and Special Conditions of Contract, Technical Specifications, and Drawings (if any).

2. The quantities given in the Bill of Quantities are estimated and provisional, and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Engineer and valued at the rates and prices bid in the priced Bill of Quantities, where applicable, and otherwise at such rates and prices as the Engineer may fix within the terms of the Contract.

Provisional Sums

A general provision for physical contingencies (quantity overruns) has been made by including a provisional sum in the Summary Bill of Quantities. Similarly, a contingency allowance for possible price increases has been provided as a provisional sum in the Summary Bill of Quantities. Where such provisional sums or contingency allowances are used, it is stated in the Contract Data the manner in which they will be used, and under whose authority (usually the Project Manager’s).
PART 3 CONTRACT FORMS

Section 7: General Conditions of Contract
Section 7. General Conditions

1. Definitions
   (a) The following words and expressions shall have the meanings hereby assigned to them:

   The “Activity Schedule” means the priced Activity Schedule forming part of the Bid for a Lump Sum Contract.

   An “Admeasurement Contract” means a contract based on a priced Bill of Quantities or schedule of unit price rates in which payment to the Contractor is subject to measurement of physical quantities of items by the Employer.

   The “Adjudicator” is the person appointed jointly by the Employer and the Contractor to resolve disputes in the first instance, as provided for in Clauses 13 and 14 hereunder.

   “Bill of Quantities” means the priced and completed Bill of Quantities forming part of the Bid for an Admeasurement contract.

   “Compensation Events” are those defined in Clause 27 hereunder.

   The “Completion Date” is the date of completion of the Works as certified by the Project Manager in accordance with Sub-Clause 35.1.

   The “Contract” is the Contract between the Employer and the Contractor to execute, complete, and maintain the Works.

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

   “Contractor” means the Supplier appointed under the Contract for the performance of the Works.

   “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 Project Manager upon correction of defects by the Contractor.

   The “Defects Liability Period” is the period named in the Special Conditions of Contract 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.

   “Employer” means the Procuring Entity 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 Employer’s Notice 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 Special Conditions of Contract. 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 “Procuring Entity” is the party who employs the Contractor to carry out the Works.

The “Project Manager” is the person named in the Special Conditions of Contract (or any other competent person appointed by the Employer and notified to the Contractor, to act in replacement of the Project Manager) who is responsible for supervising the execution of the Works and administering the Contract.

The “Site” is the area defined as such in the Special Conditions of Contract.

“Site Investigation Reports” are those that were included in the bidding 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 Special Conditions of Contract. It is the latest date when the Contractor shall commence execution of the Works. It does not necessarily coincide with any 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.

The “Supplier” is a person or corporate body whose Bid to carry out the Works has been accepted by the Procuring Entity.

The “Contractor’s Bid” is the completed bidding document submitted by the Contractor to the Procuring Entity.

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

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

2. Language and Law

2.1 The language of the Contract is English and the governing law is that of Republic of Malawi.

3. Project Manager’s Decisions

(b) Except where otherwise specifically stated and subject to any restrictions in the Special Conditions of Contract, the Project Manager will decide contractual matters between the Employer and the Contractor in the role representing the Employer.

4. Communications

4.1 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.

5. Subcontracting

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

6. Other Suppliers

6.1 The Contractor shall cooperate and share the Site with other suppliers, contractors, public authorities, utilities, and the Employer between the dates given in the Schedule of Other Suppliers, as referred to in the Special Conditions of Contract. The Contractor shall also provide facilities and services for them as described in the Schedule. The Employer may modify the Schedule of Other Suppliers, and shall notify the Contractor of any such modification.

7. Personnel
7.1 The Contractor shall employ the key personnel named in the Schedule of Key Personnel, as referred to in the Special Conditions of Contract, 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.

7.2 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 (7) days and has no further connection with the work in the Contract.

8. Contractor’s Risks
8.1 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) are the Contractor’s risks.

9. Insurance
9.1 The Contractor shall provide, in the joint names of the Employer and the Contractor, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts stated in the Special Conditions of Contract for the following events which are due to the Contractor’s risks:
   (c) loss of or damage to the Works, Plant, and Materials;
   (d) loss of or damage to Equipment;
   (e) loss of or damage to property (except the Works, Plant, Materials, and Equipment) in connection with the Contract; and
   (f) personal injury or death and Third Party liability.

9.2 Policies and certificates for insurance shall be delivered by the Contractor to the Project Manager for approval before the Start Date. All such insurance shall provide for compensation to be payable as required to rectify the loss or damage incurred. If the Contractor does not provide any of the policies and certificates required, the Employer may effect the insurance which the Contractor should have provided and recover the premiums the Employer 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.

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

10. Contractor to Construct the Works
10.1 The Contractor shall construct and install the Works in accordance with the Specifications and Drawings.

11. The Works to Be Completed by the Intended Completion Date
11.1 The Contractor may commence execution of the Works on the Start Date and shall carry out the Works in accordance with the Program submitted by the Contractor, as updated with the approval of the Project Manager and complete them by the Intended Completion Date.

12. Safety
12.1 The Contractor shall be responsible for the safety of all activities on the Site.

13. Disputes
13.1 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 fourteen (14) days of the notification of the Project Manager’s decision.
14. Procedure for Disputes

14.1 The Adjudicator shall give a decision in writing within twenty-eight (28) days of receipt of a notification of a dispute.

14.2 The Adjudicator shall be paid by the hour at the rate specified in the Special Conditions of Contract, together with reimbursable expenses of the types specified in the Special Conditions of Contract, and the cost shall be divided equally between the Employer and the Contractor, whatever decision is reached by the Adjudicator. Either party may refer a decision of the Adjudicator to an Arbitrator within twenty-eight (28) days of the Adjudicator’s written decision. If neither party refers the dispute to arbitration within the above twenty-eight (28) days, the Adjudicator’s decision will be final and binding.

14.3 The arbitration shall be conducted in accordance with the arbitration procedure published by the institution named and in the place shown in the Special Conditions of Contract.

14.4 Should an Adjudicator resign or die, or should the Employer 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 Employer and the Contractor. In case of disagreement between the Employer and the Contractor, within thirty (30) days, the Adjudicator shall be designated by the Appointing Authority designated in the Special Conditions of Contract at the request of either party, within fourteen (14) days of receipt of such request.

15. Program

15.1 Within the time stated in the Special Conditions of Contract, the Contractor shall submit to the Project Manager for approval a Program showing the general methods, arrangements, order, and timing for all the activities in the Works.

15.2 The Contractor shall submit to the Project Manager for approval an updated Program at intervals no longer than the period stated in the Special Conditions of Contract.

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

16. Extension of the Intended Completion Date

16.1 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.

17. Delays Ordered by the Project Manager

17.1 The Project Manager may instruct the Contractor to delay the start or progress of any activity within the Works.

18. Early Warning

18.1 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.

18.2 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.
19. Correction of Defects
19.1 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 Special Conditions of Contract. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.

19.2 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.

20. Uncorrected Defects
20.1 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 be liable for this amount. The amount will be deducted from current and future payment certificates, or paid by the Contractor if insufficient funds are due under the contract.

21. Bill of Quantities or Activity Schedule
21.1 This Contract is:
   (g) An Admeasurement Contract with a Bill of Quantities, subject to Option 1; or
   (h) A Lump Sum Contract with an Activity Schedule, subject to Option 2, as indicated in the Special Conditions of Contract.

Option 1: Bill of Quantities for Admeasurement Contract
21.2 The Bill of Quantities shall contain items for the construction, installation, testing, and commissioning work to be done by the Contractor.

21.3 The Bill of Quantities is used to calculate the Contract Price. The Contractor is paid for the quantity of the work done at the rate in the Bill of Quantities for each item.

Option 2: Activity Schedule for Lump Sum Contract
21.4 The Contractor shall provide updated Activity Schedules within fourteen (14) days of being instructed to by the Project Manager. The activities on the Activity Schedule shall be coordinated with the activities on the Program.

21.5 The Contractor shall show delivery of Materials to the Site separately on the Activity Schedule if payment for Materials on Site shall be made separately.

22. Change in the Bill of Quantities or Activity Schedule
Option 1: Changes in the Bill of Quantities for Admeasurement Contracts
22.1 If the final quantity of the work done differs from the quantity in the Bill of Quantities for the particular item by more than twenty-five (25) percent, provided the change exceeds one (1) percent of the Initial Contract Price, the Project Manager shall adjust the rate or price to allow for the change.

22.2 The Project Manager shall not adjust rates or prices from changes in quantities if thereby the Initial Contract Price is exceeded by more than five (5) percent, except with the prior approval of the Employer.

22.3 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.

Option 2: Changes in the Activity Schedule for Lump Sum Contracts
22.4 The Activity Schedule shall be amended by the Contractor to accommodate changes of Program or method of working made at the Contractor’s own discretion. Prices in the Activity Schedule shall not be altered when the Contractor makes such changes to the Activity Schedule.

23. Variations
   (i) All Variations shall be included in updated Programs (or in the case of Lump Sum Contracts in updated Programs and Activity Schedules) produced by the Contractor.
24. Payment for Variations
24.1 The Contractor shall provide the Project Manager with a quotation for carrying out the Variation when requested to do so by the Project Manager.

24.2 For Admeasurement Contracts only, if the work in the Variation corresponds with an item description in the Bill of Quantities, the rate in the Bill of Quantities shall be used to calculate the value of the Variation. If the 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.

24.3 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.

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

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

25. Payment Certificates
25.1 The Contractor shall submit to the Project Manager monthly statements of the estimated value of the work executed and materials on site less the cumulative amount certified previously.

25.2 The Project Manager shall check the Contractor’s executed work and materials on site and certify the amount to be paid to the Contractor.

25.3 The value of work executed and materials on site shall be determined by the Project Manager.

26. Payments
26.1 Payments shall be adjusted for deductions for advance payments and retention. The Employer shall pay the Contractor the amounts certified by the Project Manager within thirty (30) days of the date of each certificate. If the Employer 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 and add normal absolute net adjustment of price differences.

26.2 Items of the Works for which no rate or price has been entered will not be paid for by the Employer and shall be deemed covered by other rates and prices in the Contract.

27. Compensation Events
27.1 The following shall be Compensation Events:

(j) The Employer does not give access to a part of the Site by the Site Possession Date stated in the Special Conditions of Contract.

(k) The Project Manager orders a delay or does not issue Drawings, Specifications, or instructions required for execution of the Works on time.

(l) The Project Manager instructs the Contractor to uncover or to carry out additional tests upon work, which is then found to have no Defects.

(m) Other suppliers, contractors, public authorities, utilities, or the Employer cause delay or extra cost to the Contractor.

(n) The advance payment is delayed.

(a) The Project Manager unreasonably delays issuing a Certificate of Completion.

27.2 If a Compensation Event would cause additional cost or would prevent the work being completed before the Intended Completion Date, 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.

27.3 The Contractor shall not be entitled to compensation to the extent that the Employer’s interests are adversely affected by the Contractor not having given early warning.

28. Currencies
28.1 Payments shall only be made in Malawi Kwacha.

29. Retention
29.1 The Employer shall retain from each payment due to the Contractor the proportion stated in the Special Conditions of Contract until Completion of the whole of the Works.

29.2 On completion of the whole of the Works, half the total amount retained shall be repaid to the Contractor and 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.

29.3 With the approval of the Employer, the Contractor may substitute retention money with an “on demand” Bank guarantee.

30. Liquidated Damages
30.1 The Contractor shall pay liquidated damages to the Employer at the rate per day stated in the Special Conditions of Contract 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 Special Conditions of Contract. The Employer may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not affect the Contractor’s liabilities.

31. Advance Payment
31.1 The Employer shall make advance payment of the amount stated in the Special Conditions of Contract against provision by the Contractor of an Unconditional Bank Guarantee, in a form and by a bank acceptable, to the Employer.

31.2 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.

31.3 The advance payment shall be repaid by deducting proportionate amounts from payments otherwise due to the Contractor, to be recovered within one half of the completion period.

32. Securities
32.1 The Performance Security shall be provided to the Employer no later than twenty-one (21) days after receipt of the Notice of Acceptance and shall be issued in the form of a Guarantee in the format specified in the contract and in an amount specified in the Special Conditions of Contract and by a bank acceptable to the Employer. The Performance Security shall be valid until a date twenty-eight (28) days from the date of issue of the Certificate of Completion.

33. Dayworks
33.1 If applicable, the Dayworks rates in the Contractor’s Bid 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.

33.2 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 (2) days of the work being done.
33.3 The Contractor shall be paid for Dayworks subject to obtaining signed Dayworks forms.

34. Cost of Repairs
34.1 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.

35. Completion
35.1 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.

36. Taking Over
36.1 The Employer shall take over the Site and the Works within seven (7) days of the Project Manager’s issuing a Certificate of Completion.

37. Final Account
37.1 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 thirty (30) days of receiving the Contractor’s account if it is correct and complete. If it is not, the Project Manager shall issue within thirty (30) days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Project Manager shall decide on the amount payable to the Contractor and issue a payment certificate.

38. Termination
38.1 The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.

38.2 Fundamental breaches of Contract shall include, but are not limited to, the following:

   (o) the Contractor stops work for twenty-eight (28) days when no stoppage of work is shown on the current Program and the stoppage has not been authorised by the Project Manager;

   (p) the Project Manager instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within twenty-eight (28) days;

   (q) the Employer or the Contractor is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation;

   (r) a payment certified by the Project Manager is not paid by the Employer to the Contractor within ninety (90) days of the date of the Project Manager’s certificate;

   (a) 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;

   (b) 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 Special Conditions of Contract; and

   (c) if the Contractor, in the judgement of the Employer has engaged in corrupt, fraudulent, collusive or coercive practices in competing for or in executing the Contract.

For the purpose of this paragraph:
"corrupt practice" means the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the procurement process or in contract execution.
"fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract;
“collusive practices” means a scheme or arrangement between two or more Bidders, with or without the knowledge of the Employer, designed to establish prices at artificial, noncompetitive levels; and
“coercive practices” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in a procurement process, or affect the execution of a contract.

38.3 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 38.2 above, the Project Manager shall decide whether the breach is fundamental or not.

38.4 Notwithstanding the above, the Employer may terminate the Contract for convenience.

38.5 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.

39. Payment upon Termination
39.1 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 Special Conditions of Contract. Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be a debt payable to the Employer.

39.2 If the Contract is terminated for the Employer’s convenience or because of a fundamental breach of Contract by the Employer, the Project Manager shall issue a certificate for the value of the work done, Materials ordered, the reasonable cost of removal of Equipment, repatriation of the Contractor’s personnel employed solely on the Works, and the Contractor’s costs of protecting and securing the Works, and less advance payments received up to the date of the certificate.

40. Property
40.1 All Materials on the Site, Plant, Equipment, Temporary Works, and Works shall be deemed to be the property of the Employer if the Contract is terminated because of the Contractor’s default.

41. Force Majeure
(s) For purposes of this Clause, “Force Majeure” means an event or situation beyond the control of the Contractor that is not foreseeable, is unavoidable, and its origin is not due to negligence or lack of care on the part of the Contractor. Such events may include, but not be limited to, acts of the Employer in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes.

41.1 If a Force Majeure situation arises, the Contractor shall promptly notify the Employer in writing of such condition and the cause thereof. Unless otherwise directed by the Employer in writing, the Contractor shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

(t) The Contractor shall not be liable for forfeiture of its performance security or retention monies held, liquidated damages, or termination for default if and to the extent that its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

42. Release from Performance
42.1 If the Contract is frustrated by an event of Force Majeure or by any other event entirely outside the control of either the Employer or the Contractor, the Project Manager shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which a commitment was made.
Section 8. Specific Conditions of Contract

The following Special Conditions of Contract (SCC) shall supplement the General Conditions of Contract (GCC). Whenever there is a conflict, the provisions herein shall prevail over those in the GCC.

<table>
<thead>
<tr>
<th>GCC Clause Reference</th>
<th>Special Conditions</th>
</tr>
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<tbody>
<tr>
<td>GCC 1.1</td>
<td>The name and procurement reference number of the Contract is: <strong>WaterAid/150 CHALLENGE/2021/02</strong></td>
</tr>
<tr>
<td></td>
<td>The Project Manager is: <strong>Natasha Mwenda</strong></td>
</tr>
<tr>
<td></td>
<td>The Works consist of:</td>
</tr>
<tr>
<td></td>
<td>Construction and Rehabilitation of Water Supply Systems and Plumbing works at Ntchisi District Hospital, Mkhuzi Health Centre and Kangolwa Health Centre. Works include:</td>
</tr>
<tr>
<td></td>
<td>• Plumbing works at Ntchisi District hospital, Mkhuzi Health Centre and Kangolwa Health Centre;</td>
</tr>
<tr>
<td></td>
<td>• Upgrading of water supply system at Mkhuzi Health Centre;</td>
</tr>
<tr>
<td></td>
<td>• Upgrading of water supply pipeline at Kangolwa Health Centre</td>
</tr>
<tr>
<td></td>
<td>The sites are Ntchisi District Hospital, Mkhuzi Health Centre and Kangolwa Health Centre.</td>
</tr>
<tr>
<td></td>
<td>The Start Date shall be: <strong>01 September 2021</strong></td>
</tr>
<tr>
<td></td>
<td>The Intended Completion Date for the Works shall be: <strong>16th October 2021</strong></td>
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<td>The Defects Liability Period shall be: 12 months</td>
</tr>
<tr>
<td>GCC 3.1</td>
<td>The Employer’s specific approval is required for: individual Variations (GCC Clauses 23 and 24) or Compensation Events (GCC Clause 27) or Measurements (GCC Clause 22) which would result in an increase to the Initial Contract Price of more than 5 (five) percent; any new Variations or Compensation Events or Measurements which together with previously approved Variations and Compensation Events and Measurements, would result in an increase to the Initial Contract Price of more than 15 (fifteen) percent.</td>
</tr>
<tr>
<td>GCC 6.1</td>
<td>The Schedule of Other Suppliers is <strong>not part</strong> of the Contract</td>
</tr>
<tr>
<td>GCC 7.1</td>
<td>The Schedule of Key Personnel is part of the Contract</td>
</tr>
<tr>
<td>GCC Clause Reference</td>
<td>Special Conditions</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------------</td>
</tr>
</tbody>
</table>
| GCC 9.1              | The minimum insurance cover and deductibles shall be: (u) The minimum cover for insurance of the Works, Plant and Materials is: **100%**  
|                      | (b) The maximum deductible for insurance of the Works, Plant and Materials is: **100%**  
|                      | (c) The minimum cover for insurance of Equipment is: **100%**  
|                      | (d) The maximum deductible for insurance of Equipment is: **100%**  
|                      | (e) The minimum cover for insurance of property is: **100%**  
|                      | (f) The maximum deductible for insurance of property is: **100%**  
|                      | (g) The minimum cover for personal injury or death insurance is: **MK5,000,000.00** with no deductible. |
| GCC 14.2             | The hourly rate to be paid to the Adjudicator is: **To be established later**  
|                      | Fees and types of reimbursable expenses to be paid to the Adjudicator are: **Transport and accommodation and meals** |
| GCC 14.3             | The institution whose arbitration procedures shall be used is: **National Construction Industry Council (NCIC)**  
|                      | Arbitration shall take place at: **Lilongwe** |
| GCC 14.4             | The Appointing Authority for a replacement Adjudicator is: **NCIC** |
| GCC 15.1             | The Contractor shall submit a revised Program for the Works within 10 days of delivery of the Notice of Acceptance. |
| GCC 15.2             | The period between Program updates is 14 days. |
| GCC 19.1             | The Defects Liability Period is: **12 months** |
| GCC 21.1             | This Contract is a **admeasurement** Contract. |
| GCC 26.1             | The rate of interest for late payments is **0.5%** percent. |
| GCC 27.1             | The Site Possession Date shall be: **7 days after Contract signing** |
| GCC 29.1             | The proportion of payments retained is **10%** percent. The whole retained amount shall be paid after the expiry of the defects liability period. |
| GCC 30.1             | The rate per day for liquidated damages is **0.1%** percent of the final Contract Price per day.  
|                      | The maximum amount of liquidated damages for the whole of the Works is **10%** percent of the final Contract Price. |
| GCC 31.1             | The Advance Payment will be equivalent to **20%** percent of the Contract Price. It will be paid to the Contractor no later than **14 days after contract signing and only after receiving request accompanied by an Advance Payment Guarantee.** |
### GCC Clause Reference

<table>
<thead>
<tr>
<th>GCC Clause Reference</th>
<th>Special Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCC 31.3</td>
<td>The Advance Payment will be repaid by deducting amounts from payments due to the Contractor as follows:</td>
</tr>
<tr>
<td></td>
<td><strong>Percentage of Works Completed</strong></td>
</tr>
<tr>
<td></td>
<td>40%</td>
</tr>
<tr>
<td></td>
<td>80%</td>
</tr>
<tr>
<td>GCC 32.1</td>
<td>The Performance Security shall be for <strong>10%</strong> percent of the Contract Price:</td>
</tr>
<tr>
<td>GCC 39.1</td>
<td>The percentage to apply to the value of the work not completed, representing the Employer’s additional cost for completing the Works, is: <strong>30%</strong></td>
</tr>
</tbody>
</table>
Section 9. Contract Forms

Agreement

Procurement Reference No:

THIS AGREEMENT made the … day of, ……………., 20..., between …………………………… of …………………………… (hereinafter called “the Employer”), of the one part, and …………. of …………………………… (hereinafter called “the Contractor”), of the other part:

WHEREAS the Employer is desirous that the Contractor execute …………………. (hereinafter called “the Works”) and the Employer has accepted the Bid by the Contractor for the execution and completion of such Works and the remedying of any defects therein for the sum of ………….. ………………………………………………………. (hereinafter called the Contract Price).

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Contract referred to.

2. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz:
   (a) the General Conditions of Contract;
   (b) the Special Conditions of Contract;
   (c) the Schedule of Requirements;
   (d) the Bid Submission Form and the priced Activity Schedule or priced Bill of Quantities submitted by the Contractor;
   (e) the Employer’s Notification to the Contractor of award of contract;

3. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all respects with the provisions of the Contract.

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

IN WITNESS whereof the parties thereto have caused this Agreement to be executed in accordance with the law specified in the Special Conditions of Contract on the day, month and year indicated above.

Signed by: (for the Employer)
Name: Position:
Witnessed by:
Name: Address:

Signed by: (for the Contractor)
Name: Position:

Witnessed by:
Name: Address:
Part 3: Section 9  Contract Forms

Note for Bidders: The Performance Security should be on the letterhead of the issuing Financial Institution and should be signed by a person with the proper authority to sign documents that are binding on the Financial Institution.

Performance Bank Guarantee

Performance Bank Guarantee (Unconditional)

Date: [insert date]
Procurement Reference No.: [insert procurement reference number]
To: [name and address of Employer]
WHEREAS [name and address of Contractor] (hereinafter called “the Contractor”) has undertaken, in pursuance of Contract No. [number] dated [date] to execute [name of Contract and brief description of Works] (hereinafter called “the Contract”);
AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a recognised bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract;
AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee;
NOW THEREFORE WE hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of [amount of Guarantee] [amount in words], such sum being payable in the types and proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of [amount of Guarantee] as aforesaid without your needing to prove or to show grounds or reasons for your demand for 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 or addition to or other modification of the terms of the Contract or of the Works to be performed thereunder or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this Guarantee, and we hereby waive notice of any such change, addition, or modification.
This Guarantee shall be valid until a date twenty-eight (28) days from the date of issue of the Certificate of Completion.
This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458, except that subparagraph (ii) of Sub-article 20(a) is hereby excluded.

Signature and seal of the Guarantor:
Name of Financial Institution:
Address:
Date: