



**LAMU WATER AND SEWERAGE COMPANY  
(LAWASCO)**

**TENDER DOCUMENT**

**FOR CONSTRUCTION OF DECENTRALIZED TREATMENT  
FACILITY- DTF 50M3**

**TENDER NO. LAWASCO/MOKOWE/ONT/001/2020-2021**

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# SECTION I

## INVITATION FOR TENDERS

**Tender Reference No. LAWASCO/MOKOWE/ONT/001/2020-2021**

**Tender Name for Construction of Decentralised Treatment Facility – DTF  
50m3**

- 1.1 The Lamu Water and Sewerage Company invites sealed tenders for the **Construction of Decentralised Treatment Facility**-DTF 50m3 Interested eligible candidates may obtain further information from and inspect the tender documents at Supply Chain Management office Lamu Water and Sewerage Company (LAWASCO) in Lamu next to Lamu Police Station during normal working hours, visit Lamu County Government website <http://lamu.go.ke.tenders>.
- 1.3 A complete set of tender documents shall be made available on the Lamu County Government website: <http://lamu.go.ke.tenders> and LAWASCO Website: [www.lamuwater.co.ke](http://www.lamuwater.co.ke)
- 1.4 Prices quoted should be net inclusive of all taxes, must be in Kenya shillings and shall remain valid for 90 days from the closing date of tender.
- 1.5 Completed tender documents are to be enclosed in plain sealed envelopes marked with Tender name and reference number and deposited in the Tender Box at Supply Chain Management Office **Lamu Water and Sewerage Company** in Lamu or to be addressed to below address so as to be received on or before **2<sup>nd</sup> June 2021 at 10.00 am.**
- Managing Director,  
Lamu Water and Sewerage Company  
P. O. Box 185-80500  
LAMU**
- 1.6 Tenders will be opened immediately thereafter in the presence of the candidates or their representatives who choose to attend at Lamu Water and Sewerage Company Board Room.

For (*Managing Director/Lamu Water and Sewerage Company*)

**SECTION II**  
**INSTRUCTIONS TO TENDERERS**  
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## **INSTRUCTIONS TO TENDERERS.**

### **1. General**

- 1.1 The Employer as defined in the Appendix to Conditions of Contract invites tenders for Works Contract as described in the tender documents. The successful Tenderer will be expected to complete the Works by the Intended Completion Date specified in the said Appendix.
- 1.2 Tenderers shall include the following information and documents with their tenders, unless otherwise stated:
  - (a) Principal place of business;
  - (b) experience in works of a similar nature and size for each of the last five years, and clients who may be contacted for further information on these contracts;
  - (c) major items of construction equipment owned;
  - (d) qualifications and experience of key site management and technical personnel proposed for the Contract;
  - (e) authority to seek references from the Tenderer's bankers.
  - (f) Audited Financial Accounts for the last three years;
  - (g) Certified Copy of Certificate of Incorporation/Registration.
  - (h) Certified Copy of Current Tax Compliance certificate from Kenya Revenue Authority.
  - (i) Certified Copy of Valid and current Business Permit.
  - (j) Disclosure of business ownership (Directors/ Partners /Sole Proprietor). Attach a copy of CR12 Form
- 1.3 The Tenderer shall bear all costs associated with the preparation and submission of his tender, and the Employer will in no case be responsible or liable for those costs.
- 1.4** The Tenderer, at the Tenderer's own responsibility and risk, is encouraged to visit and examine the Site of the Works and its surroundings, and obtain all information that may be necessary for preparing the tender and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Tenderer's own expense. **The site visit date is 25<sup>th</sup> May 2021**
- 1.5 The procurement entity's employees, committee members, board members and their relative (spouse and children) are not eligible to participate in the tender.
- 1.6 The price to be charged for the tender document shall not exceed Kshs.5,000/=
- 1.7 The Lamu Water and Sewerage Company shall allow the tenderer to review the tender document free of charge.
- 1.8

## **2. Tender Documents**

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

## **3. Preparation of Tenders**

- 3.1 All documents relating to the tender and any correspondence shall be in English Language.
- 3.2 The tender submitted by the Tenderer shall comprise the following:-
- (a) The Tender;
  - (b) Tender Security;
  - (c) Priced Bill of Quantities/Schedule of Rates for lump-sum Contracts

- (d) Any other materials required to be completed and submitted by Tenderers.
- 3.3 The Tenderer shall fill in rates and prices for all items of the Works described in the Bill of Quantities/Schedule of Rates. Items for which no rate or price is entered by the Tenderer will not be paid for when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities/Schedule of Rates. All duties, taxes and other levies payable by the Contractor under the Contract, as of 30 days prior to the deadline for submission of tenders, shall be included in the tender price submitted by the Tenderer.
  - 3.4 The rates and prices quoted by the Tenderer shall not be subject to any adjustment during the performance of the Contract.
  - 3.5 The unit rates and prices shall be in Kenya Shillings.
  - 3.6 Tenders shall remain valid for a period of ninety (90) days from the date of submission. However in exceptional circumstances, the Employer may request that the Tenderers extend the period of validity for a specified additional period. The request and the Tenderers' responses shall be made in writing.
  - 3.7 The Tenderer shall prepare one original of the documents comprising the tender documents as described in these Instructions to Tenderers.
  - 3.8 The original shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the Tenderer. All pages of the tender where alterations or additions have been made shall be initialed by the person or persons signing the tender.
  - 3.9 Clarification of tenders shall be requested by the tenderer to be received by the Lamu Water and Sewerage Company not later than 7 days prior to the deadline for submission of tenders.
  - 3.10 The Lamu Water and Sewerage Company shall reply to any clarifications sought by the tenderer within 3 days of receiving the request to enable the tenderer to make timely submission of its tender.

#### **4. Submission of Tenders**

- 4.1 The tender duly filled and sealed in an envelope shall;-
  - (a) be addressed to the Employer at the address provided in the invitation to tender;
  - [b] bear the name and identification number of the Contract as defined in the invitation to tender; and

[c] provide a warning not to open before the specified time and date for tender opening.

(d) be submitted in both original and copy.

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

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

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

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

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

## **5. Tender Opening and Evaluation**

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

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

5.3 Information relating to the examination, clarification, evaluation and comparison of tenders and recommendations for the award of the Contract shall not be disclosed to Tenderers or any other persons not officially concerned with such process until the award to the successful Tenderer has been announced. Any effort by a Tenderer to influence the Employer's officials, processing of tenders or award decisions may result in the rejection of his tender.

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

(a) where there is a discrepancy between the amount in figures and the amount in words, the amount in words will prevail; and



- (b) where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will prevail, unless in the opinion of the Employer's representative, there is an obvious typographical error, in which case the adjustment will be made to the entry containing that error.
  - (c) In the event of a discrepancy between the tender amount as stated in the Form of Tender and the corrected tender figure in the main summary of the Bill of Quantities/Quotation, the amount as stated in the Form of Tender shall prevail.
  - (d) The Error Correction Factor shall be computed by expressing the difference between the tender amount and the corrected tender sum as a percentage of the Corrected Builder's Work (i.e. corrected tender sum less P.C. and Provisional Sums).
  - (e) The Error Correction Factor shall be applied to all Builder's Work (as a rebate or addition as the case may be) for the purposes of valuations for Interim Certificates and valuation of variations.
  - (f) The amount stated in the tender will be adjusted in accordance with the above procedure for the correction of errors and with concurrence of the Tenderer, shall be considered as binding upon the Tenderer. If the Tenderer does not accept the corrected amount, the tender may be rejected and the Tender Security forfeited.
- 5.5 The tender evaluation committee shall evaluate the tender within 30 days of the validity period from the date of opening the tender.
- 5.6 Contract price variations shall not be allowed for contracts not exceeding one year (12 months)
- 5.7 Where contract price variation is allowed, the valuation shall not exceed 15% of the original contract price.
- 5.8 Price variation requests shall be processed by the Lamu Water and Sewerage Company within 30 days of receiving the request.
- 5.9 Preference where allowed in the evaluation of tenders shall not exceed 15%
- 5.10 To assist in the examination, evaluation, and comparison of tenders, the Employer at his discretion, may request [in writing] any Tenderer for clarification of the tender, including breakdowns of unit rates. The request for clarification and the response shall be in writing or by cable, telex or facsimile but no change in the tender price or substance of the tender shall be sought, offered or permitted.
- 5.11 The Tenderer shall not influence the Employer on any matter relating to his tender from the time of the tender opening to the time the Contract is

awarded. Any effort by the Tenderer to influence the Employer or his employees in his decision on tender evaluation, tender comparison or Contract award may result in the rejection of the tender.

## **6. Award of Contract**

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

6.8 The Lamu Water and Sewerage Company shall give prompt notice of the termination to the tenderers and on request give its reasons for termination within 14 days of receiving the request from any tenderer.

**7. Terms of Payment.**

Lamu water and sewerage company shall not pay any advance payment on this works. Payments will be based on work done.

**8. Corrupt and fraudulent practices**

8.1 The Lamu Water and Sewerage Company requires that the tenderer observes the highest standard of ethics during the procurement process and execution of the contract. A tenderer shall sign a declaration that he has not and will not be involved in corrupt and fraudulent practices.

8.2 The Lamu Water and Sewerage Company will reject a tender if it determines that the tenderer recommended for award has engaged in corrupt and fraudulent practices in competing for the contract in question.

8.3 Further a tenderer who is found to have indulged in corrupt and fraudulent practices risks being debarred from participating in public procurement in Kenya.

## APPENDIX TO INSTRUCTIONS TO TENDERERS

The following information regarding the particulars of the tender shall complement supplement or amend the provisions of the instructions to tenderers. Wherever there is a conflict between the provision of the instructions to tenderers and the provisions of the appendix, the provisions of the appendix herein shall prevail over those of the instructions to tenderers.

<b>INSTRUCTIONS TO TENDERERS REFERENCE</b>	<b>PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS</b>
<b>1.1</b>	<p>This Invitation for Tenders is open to all tenderers eligible as described below:</p> <ul style="list-style-type: none"> <li>(a) the person has the legal capacity to enter into a contract for procurement or asset disposal;</li> <li>(b) the person is not insolvent, in receivership, bankrupt or in the process of being wound up;</li> <li>(c) the person, if a member of a regulated profession, has satisfied all the professional requirements;</li> <li>(d) the procuring entity is not precluded from entering into the contract with the person under section 38 of PPAD Act (<b>MUST</b> complete the attached form);</li> <li>(e) the person and his or her sub-contractor, if any, is not debarred from participating in procurement proceedings under Part XI of PPAD Act (<b>MUST</b> complete the attached form);</li> <li>(f) the person has fulfilled tax obligations;</li> <li>(g) the person has not been convicted of corrupt or fraudulent practices; and</li> <li>(h) is not guilty of any serious violation of fair employment laws and practices.</li> </ul>
<b>1.2</b>	<p>Tenderers are required to provide copies of the following documents:</p> <ul style="list-style-type: none"> <li>a) Audited Financial Accounts for the last three years: (2016 – 2018)</li> <li>b) Certified Copy of Certificate of Incorporation/Registration.</li> <li>c) Certified Copy of Current Tax Compliance certificate from Kenya Revenue Authority.</li> <li>d) Certified Copy of Valid and current Business Permit.</li> <li>e) Disclosure of business ownership (Directors/ Partners /Sole Proprietor). Attach a copy of CR12 Form</li> <li>f) Form of tender duly filled, signed and stamped.</li> </ul>

<b>3.2</b>	The tender security shall be <b>2% of the Tender sum</b> and submitted in any of the following forms: a) Cash b) A bank guarantee c) Such insurance guarantee approved by the Authority d) Letter of credit.
<b>1.4</b>	Site visit will be on Tuesday <b>25th May 2021</b>
<b>5.1</b>	Tenders will close on 02 <sup>nd</sup> June 2021
<b>5.1</b>	Tenders will open on 02 <sup>nd</sup> June 2021
<b>7.0</b>	No advance payment acceptable for this tender
	The inquiry address is hereby given as <a href="mailto:muchidzipha@gmail.com">muchidzipha@gmail.com</a> Only written inquiries are accepted
<b>2.13.3</b>	Documentary evidence for those submitting tenders for this works shall comprise of; a) Drawings b) Equipment Data Sheet c) Performance charts, d) CVs for 2 technical persons e) Work plan/schedule
<b>3.6</b>	Tenders validity shall be <b>120 days</b> from the date of Tender Opening
<b>4.</b>	Tenders shall be submitted in both original and copies, and shall be properly marked
<b>5.4</b>	Price offers as read during Tender Opening shall be evaluated as is without conducting arithmetic checks
<b>2.26(a)</b>	Post-qualification shall not be done.
<b>5.3</b>	Qualification criteria has been detailed further in Section VII of this Tender Document (Evaluation Criteria)

**SECTION III**  
**CONDITIONS OF CONTRACT**

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## SECTION III - CONDITIONS OF CONTRACT

### 1. Definitions

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

## **2. Contract Documents**

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

- (1) Agreement,
- (2) Letter of Acceptance,
- (3) Contractor’s Tender,
- (4) Conditions of Contract,
- (5) Specifications,
- (6) Drawings,
- (7) Bills of Quantities or Schedule of Rates [whichever is applicable]

## **3. Employer’s Representative’s Decisions**

3.1 Except where otherwise specifically stated, the Employer’s Representative will decide contractual matters between the Employer and the Contractor in the role representing the Employer.



#### **4. Works, Language and Law of Contract**

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

#### **5. Safety, Temporary works and Discoveries**

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

#### **6 Work Program and Sub-contracting**

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

#### **7 The site**

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

## **8 Instructions**

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

## **9 Extension of Completion Date**

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

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

Delay by:-

- (a) force majeure, or
- (b) reason of any exceptionally adverse weather conditions, or
- (c) reason of civil commotion, strike or lockout affecting any of the trades employed upon the Works or any of the trades engaged in the preparation, manufacture or transportation of any of the goods or materials required for the Works, or
- (d) reason of the Employer's Representative's instructions issued under these Conditions, or
- (e) reason of the contractor not having received in due time necessary instructions, drawings, details or levels from the Employer's Representative for which he specifically applied in writing on a date which having regard to the date for Completion stated in the appendix to these Conditions or to any extension of time then fixed under this clause was neither unreasonably distant from nor unreasonably close to the date on which it was necessary for him to receive the same, or
- (f) delay on the part of artists, tradesmen or others engaged by the Employer in executing work not forming part of this Contract, or
- (g) reason of delay by statutory or other services providers or similar bodies engaged directly by the Employer, or
- (h) reason of opening up for inspection of any Work covered up or of the testing or any of the Work, materials or goods in accordance with these conditions unless the inspection or test showed that the Work, materials or goods were not in accordance with this Contract, or
- (i) reason of delay in appointing a replacement Employer's Representative, or

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

## **10 Management Meetings**

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

## **11 Defects**

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

## **12 Bills of Quantities/Schedule of Rates**

- 12.1 The Bills of Quantities/Schedule of Rates shall contain items for the construction, installation, testing and commissioning of the Work to be done by the Contractor. The Contractor will be paid for the quantity of the Work done at the rates in the Bills of Quantities/Schedule of Rates for each item. Items against which no rate is entered by the Tenderer will not be paid for

when executed and shall be deemed covered by the rates for other items in the Bills of Quantities/Schedule of Rates.

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

### **13 Variations**

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

### **14 Payment Certificates and Final Account**

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

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

- 14.2 Upon deciding that Works included in a particular stage are complete, the Contractor shall submit to the Employer's Representative his application for payment. The Employer's Representative shall check, adjust if necessary and

certify the amount to be paid to the Contractor within 21 days of receipt of the Contractor's application. The Employer shall pay the Contractor the amounts so certified within 30 days of the date of issue of each Interim Certificate.

- 14.3 The Contractor shall supply the Employer's Representative with a detailed final account of the total amount that the Contractor considers payable under the Contract before the end of the Defects Liability Period. The Employer's Representative shall issue a Defect Liability Certificate and certify any final payment that is due to the Contractor within 30 days of receiving the Contractor's account if it is correct and complete. If it is not, the Employer's Representative shall issue within 21 days a schedule that states the scope of the corrections or additions that are necessary. If the final account is still unsatisfactory after it has been resubmitted, the Employer's Representative shall decide on the amount payable to the Contractor and issue a Final Payment Certificate. The Employer shall pay the Contractor the amount so certified within 60 days of the issue of the Final Payment Certificate.
- 14.4 If the period laid down for payment to the Contractor upon each of the Employer's Representative's Certificate by the Employer has been exceeded, the Contractor shall be entitled to claim simple interest calculated pro-rata on the basis of the number of days delayed at the

Central Bank of Kenya's average base lending rate prevailing on the first day the payment becomes overdue. The Contractor will be required to notify the Employer within 15 days of receipt of delayed payments of his intentions to claim interest.

## **15. Insurance**

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

## **16. Liquidated Damages**

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

## **17. Completion and Taking Over**

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

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

## **18. Termination**

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

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

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

## **19. Payment Upon Termination**

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

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

19.3 Until after completion of the Works under this clause, the Employer shall not be bound by any other provision of this Contract to make any payment to the Contractor, but upon such completion as aforesaid and the verification within a reasonable time of the accounts therefor the Employer's Representative shall certify the amount of expenses properly incurred by the Employer and, if such amount

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

## **20. Corrupt Gifts and Payments of Commission**

20.1 The Contractor shall not;

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

## **21. Settlement of Disputes**

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

## **APPENDIX TO CONDITIONS OF CONTRACT**

THE EMPLOYER IS

Name: Lamu Water And Sewerage Company Limited

Address: P.O BOX 185 - 80500

Name of Employer's Representative: MR. JACOB CHIDZIPHA

Title; TECHNICAL MANAGER

Telephone: 0720211309

The Name (and identification number) of the Contract is

The Works Consist Of Construction of Decentralised Treatment Facility

The Start Date shall be – June 2021

The Intended Completion Date for the whole of the Works shall be- AUGUST 2021

The following documents also form part of the Contract:

- (i) Letter of Acceptance
- (ii) Form of Tender
- (iii) Conditions of Contract Part I
- (iv) Conditions of Contract Part II and Appendix to Conditions of Contract
- (v) Specifications
- (vi) Drawings
- (vii) Priced Bills of Quantities/Priced Schedule of Rates[whichever is applicable]

The Site Possession Date shall be MAY 2020

The Site is located at MOKOWE and is defined in drawings no **Section IV**

The Defects Liability Period is Six Months.

Amount of Tender Security is 2% of the tender sum ...(Note: This amount should be between one (1) percent and three (3) percent of the value of the Works)



The name and Address of the Employer for the purposes of submission of tenders is Lamu Water And Sewerage Company P.O Box 185-80500 Lamu

The tender opening date and time is 10.00 AM on 02<sup>nd</sup> June 2021.

The amount of performance security is 10% of the contract price (Note: the Employer must select the form of performance security to be accepted. A bank guarantee of between five (5) and ten (10) percent is acceptable. A performance bond on the other hand from an insurance company may be of up to thirty (30) percent of the Contract Price).

**SECTION VI**  
**STANDARD FORMS**

**List of Standard Forms**

- (i) Form of Invitation for Tenders**
- (ii) Form of Tender**
- (iii) Letter of Acceptance**
- (iv) Form of Agreement**
- (v) Form of Tender Security**
- (vi) Performance Bank Guarantee**
- (vii) Performance Bond**
- (viii) Bank Guarantee for Advance Payment**
- (ix) Qualification Information**
- (x) Tender Questionnaire**
- (xi) Confidential Business Questionnaire**
- (xii) Details of Sub-Contractors**
- (xiii) Request for Review Form**

# FORM OF INVITATION FOR TENDERS

\_\_\_\_\_ [date]

To: \_\_\_\_\_ [name of Contractor]  
\_\_\_\_\_ [address]  
\_\_\_\_\_  
\_\_\_\_\_

Dear Sirs:

Reference: \_\_\_\_\_ [Contract Name]

You have been prequalified to tender for the above project.

We hereby invite you and other prequalified tenderers to submit a tender for the execution and completion of the above Contract.

A complete set of tender documents may be purchased by you from \_\_\_\_\_  
\_\_\_\_\_ [mailing address, cable/telex/facsimile numbers].

Upon payment of a non-refundable fee of Kshs \_\_\_\_\_

All tenders must be accompanied by \_\_\_\_\_ number of copies of the same and a tender security in the form and amount specified in the tendering documents, and must be delivered to

\_\_\_\_\_ [address and location]

at or before \_\_\_\_\_ (time and date). Tenders will be opened immediately thereafter, in the presence of tenderers' representatives who choose to attend.

Please confirm receipt of this letter immediately in writing by cable/facsimile or telex.

Yours faithfully,

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

\_\_\_\_\_ Name and Title

## **FORM OF TENDER**

TO: \_\_\_\_\_ [Name of Employer] \_\_\_\_\_ [Date]

\_\_\_\_\_ [Name of Contract]

Dear Sir,

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

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_\_

Signature \_\_\_\_\_ in the capacity of \_\_\_\_\_

duly authorized to sign tenders for and on behalf of  
\_\_\_\_\_ [Name of Tenderer] of  
\_\_\_\_\_ [Address of Tenderer]

Witness; Name \_\_\_\_\_

Address \_\_\_\_\_

Signature & Stamp \_\_\_\_\_

Date \_\_\_\_\_

(Amend accordingly if provided by Insurance Company)

**LETTER OF ACCEPTANCE**  
**[letterhead paper of the Employer]**

\_\_\_\_\_ [date]

To: \_\_\_\_\_  
          [*name of the Contractor*]

\_\_\_\_\_  
          [*address of the Contractor*]

Dear Sir,

This is to notify you that your Tender dated \_\_\_\_\_  
for the execution of \_\_\_\_\_  
*[name of the Contract and identification number, as given in the Tender documents]* for the  
Contract Price of Kshs. \_\_\_\_\_ *[amount in figures]* [Kenya  
Shillings \_\_\_\_\_ *(amount in words)* ] in accordance with the  
Instructions to Tenderers is hereby accepted.

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

Authorized Signature .....

Name and Title of Signatory .....

Attachment : Agreement

## FORM OF AGREEMENT

THIS AGREEMENT, made the \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_\_ between \_\_\_\_\_ of [or whose registered office is situated at] \_\_\_\_\_ (hereinafter called “the Employer”) of the one part AND \_\_\_\_\_ of [or whose registered office is situated at] \_\_\_\_\_ (hereinafter called “the Contractor”) of the other part.

WHEREAS THE Employer is desirous that the Contractor executes

\_\_\_\_\_ (*name and identification number of Contract* ) (hereinafter called “the Works”) located at \_\_\_\_\_ [*Place/location of the Works*] and the Employer has accepted the tender submitted by the Contractor for the execution and completion of such Works and the remedying of any defects therein for the Contract Price of Kshs \_\_\_\_\_ [*Amount in figures*], Kenya Shillings \_\_\_\_\_ [*Amount in words*].

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 Conditions of Contract hereinafter referred to.
2. The following documents shall be deemed to form and shall be read and construed as part of this Agreement i.e.
  - (viii) Letter of Acceptance
  - (ix) Form of Tender
  - (x) Conditions of Contract Part I
  - (xi) Conditions of Contract Part II and Appendix to Conditions of Contract
  - (xii) Specifications
  - (xiii) Drawings
  - (xiv) Priced Bills of Quantities/Priced Schedule of Rates [whichever is applicable]
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 the day and year first before written.

The common Seal of \_\_\_\_\_

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

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

Binding Signature of Employer \_\_\_\_\_

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

In the presence of (i) Name \_\_\_\_\_

Address \_\_\_\_\_

Signature \_\_\_\_\_

[ii] Name \_\_\_\_\_

Address \_\_\_\_\_

Signature \_\_\_\_\_

## FORM OF TENDER SECURITY

WHEREAS .....(hereinafter called “the Tenderer”) has submitted his tender dated ..... for the construction of .....  
..... (name of Contract)

KNOW ALL PEOPLE by these presents that WE ..... having our registered office at .....(hereinafter called “the Bank”), are bound unto .....(hereinafter called “the Employer”) in the sum of Kshs..... for which payment well and truly to be made to the said Employer, the Bank binds itself, its successors and assigns by these presents sealed with the Common Seal of the said Bank this ..... Day of .....20.....

THE CONDITIONS of this obligation are:

If after tender opening the tenderer withdraws his tender during the period of tender validity specified in the instructions to tenderers  
Or

If the tenderer, having been notified of the acceptance of his tender by the Employer during the period of tender validity:

- (a) fails or refuses to execute the form of Agreement in accordance with the Instructions to Tenderers, if required; or
- (b) fails or refuses to furnish the Performance Security, in accordance with the Instructions to Tenderers;

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

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

\_\_\_\_\_  
[date]

\_\_\_\_\_  
[signature of the Bank]

\_\_\_\_\_  
[witness]

\_\_\_\_\_  
[seal]



## PERFORMANCE BANK GUARANTEE

To: \_\_\_\_\_ (Name of Employer) \_\_\_\_\_ (Date)  
\_\_\_\_\_ (Address of Employer)

Dear Sir,

WHEREAS \_\_\_\_\_ (hereinafter called "the Contractor") has undertaken, in pursuance of Contract No. \_\_\_\_\_ dated \_\_\_\_\_ to execute \_\_\_\_\_ (hereinafter called "the Works");

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 Kshs. \_\_\_\_\_ (*amount of Guarantee in figures*) Kenya Shillings \_\_\_\_\_ (*amount of Guarantee in words*), and we undertake to pay you, upon your first written demand and without civil or argument, any sum or sums within the limits of Kenya Shillings \_\_\_\_\_ (*amount of Guarantee in words*) 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, addition 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 change, addition, or modification.

This guarantee shall be valid until the date of issue of the Certificate of Completion.

SIGNATURE AND SEAL OF THE GUARANTOR \_\_\_\_\_

Name of Bank \_\_\_\_\_

Address \_\_\_\_\_

Date \_\_\_\_\_

*(Amend accordingly if provided by Insurance Company)*

## **PERFORMANCE BOND**

By this Bond, We \_\_\_\_\_ of (or whose registered office is situated at] \_\_\_\_\_ as Principal (hereinafter called "the Contractor") and \_\_\_\_\_ of[or whose registered office is situated at] \_\_\_\_\_ as Surety (hereinafter called "the Surety"), are held and firmly bound unto \_\_\_\_\_ of[or whose registered office is situated at] \_\_\_\_\_ as Obligee (hereinafter called "the Employer") in the amount of Kshs. \_\_\_\_\_ [amount of Bond in figures] Kenya Shillings

\_\_\_\_\_  
[amount of Bond in words], for the payment of which sum well and truly, the Contractor and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Contractor has entered into a Contract with the Employer dated the \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_\_ for the execution of \_\_\_\_\_

[name of Contract] in accordance with the Contract documents, Specifications and amendments thereto, which to the extent herein provided for, are by reference made part hereof and are hereinafter referred to as the Contract.

NOW THEREFORE, the Condition of this Obligation is such that, if the Contractor shall promptly and faithfully perform the said Contract (including any amendments thereto), then this obligation shall be null and void; otherwise it shall remain in full force and effect. Whenever the Contractor shall be, and declared by the Employer to be, in default under the Contract, the Employer having performed the Employer's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

- (1) complete the Contract in accordance with its terms and conditions; or
- (2) obtain a tender or tenders from qualified tenderers for submission to the Employer for completing the Contract in accordance with its terms and conditions, and upon determination by the Employer and the Surety of the lowest responsive tenderer, arrange for a Contract between such tenderer and Employer and make available as work progresses (even though there should be a default or a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the Contract Price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof.

The term "Balance of the Contract Price", as used in this paragraph, shall mean the total amount payable by the Employer to the Contractor under the

Contract, less the amount properly paid by the Employer to the Contractor; or

- (3) pay the Employer the amount required by the Employer to complete the Contract in accordance with its terms and conditions up to a total not exceeding the amount of this Bond.

The Surety shall not be liable for a greater sum than the specified penalty of this Bond.

Any suit under this Bond must be instituted before the expiration of one year from the date of issuance of the Certificate of Completion.

No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Employer named herein or the heirs, executors, administrators, successors and assigns of the Employer.

In testimony whereof, the Contractor has hereunto set his hand and affixed his seal, and the Surety has caused these presents to be sealed with his corporate seal duly attested by the signature of his legal representative, this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_

SIGNED ON \_\_\_\_\_ SIGNED ON \_\_\_\_\_

On behalf of \_\_\_\_\_ On behalf of \_\_\_\_\_  
[name of Contractor] [name of Surety]

By \_\_\_\_\_ By \_\_\_\_\_

In the capacity of \_\_\_\_\_ In the capacity of \_\_\_\_\_

In the presence of;Name \_\_\_\_\_ In the presence of;Name \_\_\_\_\_

Address \_\_\_\_\_

Address \_\_\_\_\_

Signature \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_

Date \_\_\_\_\_

## BANK GUARANTEE FOR ADVANCE PAYMENT

To: \_\_\_\_\_ [name of Employer] \_\_\_\_\_ (Date)  
\_\_\_\_\_ [address of Employer]

Gentlemen,

Ref: \_\_\_\_\_ [name of Contract]

In accordance with the provisions of the Conditions of Contract of the above-mentioned Contract, We, \_\_\_\_\_ [name and Address of Contractor] (hereinafter called "the Contractor") shall deposit with \_\_\_\_\_ [name of Employer] a bank guarantee to guarantee his proper and faithful performance under the said Contract in an amount of Kshs. \_\_\_\_\_ [amount of Guarantee in figures] Kenya Shillings \_\_\_\_\_ [amount of Guarantee in words].

We, \_\_\_\_\_ [bank or financial institution], as instructed by the Contractor, agree unconditionally and irrevocably to guarantee as primary obligator and not as Surety merely, the payment to \_\_\_\_\_ [name of Employer] on his first demand without whatsoever right of objection on our part and without his first claim to the Contractor, in the amount not exceeding Kshs \_\_\_\_\_ [amount of Guarantee in figures] Kenya Shillings \_\_\_\_\_ [amount of Guarantee in words], such amount to be reduced periodically by the amounts recovered by you from the proceeds of the Contract.

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 \_\_\_\_\_ [name of Employer] 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.

No drawing may be made by you under this guarantee until we have received notice in writing from you that an advance payment of the amount listed above has been paid to the Contractor pursuant to the Contract.

This guarantee shall remain valid and in full effect from the date of the advance payment under the Contract until \_\_\_\_\_ (name of Employer) receives full payment of the same amount from the Contract.

Yours faithfully,

Signature and Seal \_\_\_\_\_

Name of the Bank or financial institution \_\_\_\_\_

Address \_\_\_\_\_

Date \_\_\_\_\_

Witness: Name: \_\_\_\_\_

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

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

Date: \_\_\_\_\_

# QUALIFICATION INFORMATION

## 1. Individual Tenderers or Individual Members of Joint Ventures

1.1 Constitution or legal status of tenderer (attach copy of Incorporation Certificate);

Place of registration: \_\_\_\_\_

Principal place of business \_\_\_\_\_

Power of attorney of signatory of tender \_\_\_\_\_

1.2 Total annual volume of construction work performed in the last five years

Year	Volume	
	Currency	Value

1.3 Work performed as Main Contractor on works of a similar nature and volume over the last five years. Also list details of work under way or committed, including expected completion date.

Project name	Name of client and contact person	Type of work performed and year of completion	Value of Contract
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

1.4 Major items of Contractor's Equipment proposed for carrying out the Works. List all information requested below.

Item of Equipment	Description, Make and age (years)	Condition(new, good, poor) and number available	Owned, leased (from whom?), or to be purchased (from whom?)
_____	_____	_____	
_____	_____	_____	
_____	_____	_____	
(etc.)			

1.5 Qualifications and experience of key personnel proposed for administration and execution of the Contract. Attach biographical data.

Position	Name	Years of experience (general)	Years of experience in proposed position
Project Manager _____ _____	_____	_____	_____
(etc.)			

1.6 Financial reports for the last five years: balance sheets, profit and loss statements, auditor's reports, etc. List below and attach copies.

\_\_\_\_\_

\_\_\_\_\_

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

1.8 Name, address and telephone, telex and facsimile numbers of banks that may provide reference if contacted by the Employer.

\_\_\_\_\_

\_\_\_\_\_

1.9 Statement of compliance with the requirements of Clause 1.2 of the Instructions to Tenderers.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

1.10 Proposed program (work method and schedule) for the whole of the Works.

## **2 Joint Ventures**

- 2.0 The information listed in 1.1 – 2.0 above shall be provided for each partner of the joint venture.
- 2.1 The information required in 1.11 above shall be provided for the joint venture.
- 2.2 Attach the power of attorney of the signatory(ies) of the tender authorizing signature of the tender on behalf of the joint venture
- 2.3 Attach the Agreement among all partners of the joint venture ( and which is legally binding on all partners), which shows that:
- a) all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms;
  - b) one of the partners will be nominated as being in charge, authorized to incur liabilities and receive instructions for and on behalf of any and all partners of the joint venture; and
  - c) the execution of the entire Contract, including payment, shall be done exclusively with the partner in charge.



# TENDER QUESTIONNAIRE

Please fill in block letters.

1. Full names of tenderer;

.....

2. Full address of tenderer to which tender correspondence is to be sent (unless an agent has been appointed below);

.....

3. Telephone number (s) of tenderer;

.....

4. Telex of tenderer;

.....

5. Name of tenderer's representative to be contacted on matters of the tender during the tender period;

.....

6. Details of tenderer's nominated agent (if any) to receive tender notices. This is essential if the tenderer does not have his registered address in Kenya (name, address, telephone, telex);

.....

.....

\_\_\_\_\_  
Signature of Tenderer

Make copy and deliver to: \_\_\_\_\_ (*Name of Employer*)

# **CONFIDENTIAL BUSINESS QUESTIONNAIRE**

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

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

## *Part 1 – General*

Business Name .....

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

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

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

Nature of Business.....

Current Trade Licence No..... Expiring date.....

Maximum value of business which you can handle at any time: K.  
pound.....

Name of your bankers.....

Branch.....

## *Part 2 (a) – Sole Proprietor*

Your name in full..... Age.....

Nationality..... Country of Origin.....

Citizenship details .....Sign/Stamp.....

## *Part 2 (b) – Partnership*

*Give details of partners as follows:*

	<i>Name in full</i>	<i>Nationality</i>	<i>Citizenship Details</i>	<i>Shares</i>
1	.....	.....	.....	.....
2	.....	.....	.....	.....
3	.....	.....	.....	.....

## **DETAILS OF SUB-CONTRACTORS**

If the Tenderer wishes to sublet any portions of the Works under any heading, he must give below details of the sub-contractors he intends to employ for each portion.

Failure to comply with this requirement may invalidate the tender.

(1) Portion of Works to be sublet: .....

[i] Full name of Sub-contractor  
and address of head office: .....

.....

[ii] Sub-contractor's experience  
of similar works carried out  
in the last 3 years with  
Contract value: .....

.....

.....

(2) Portion of Works to sublet: .....

[i] Full name of sub-contractor  
and address of head office: .....

.....

.....

[ii] Sub-contractor's experience  
of similar works carried out  
in the last 3 years with  
contract value: .....

.....

\_\_\_\_\_  
[Signature of Tenderer]

\_\_\_\_\_  
Date

**LETTER OF NOTIFICATION OF AWARD**

Address of Lamu Water and Sewerage  
Company

\_\_\_\_\_  
\_\_\_\_\_

To: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

RE: Tender No. \_\_\_\_\_

Tender Name \_\_\_\_\_

This is to notify that the contract/s stated below under the above mentioned tender have been awarded to you.

\_\_\_\_\_  
\_\_\_\_\_

1. Please acknowledge receipt of this letter of notification signifying your acceptance.
2. The contract/contracts shall be signed by the parties within 30 days of the date of this letter but not earlier than 14 days from the date of the letter.
3. You may contact the officer(s) whose particulars appear below on the subject matter of this letter of notification of award.

*(FULL PARTICULARS)* \_\_\_\_\_  
\_\_\_\_\_

SIGNED FOR ACCOUNTING OFFICER

REPUBLIC OF KENYA
PUBLIC PROCUREMENT ADMINISTRATIVE REVIEW BOARD

APPLICATION NO.....OF.....20.....

BETWEEN

.....APPLICANT

AND

.....RESPONDENT (Lamu Water and Sewerage Company)

Request for review of the decision of the..... (Name of the Lamu Water and Sewerage Company) of
.....dated the...day of .....20.....in the matter of Tender No.....of .....20...

REQUEST FOR REVIEW

I/We.....,the above named Applicant(s), of address: Physical
address.....Fax No.....Tel. No.....Email ....., hereby request the Public Procurement
Administrative Review Board to review the whole/part of the above mentioned decision on the following
grounds , namely:-

- 1.
2.
etc.

By this memorandum, the Applicant requests the Board for an order/orders that: -

- 1.
2.
etc

SIGNED .....(Applicant)

Dated on.....day of ...../...20...

FOR OFFICIAL USE ONLY

Lodged with the Secretary Public Procurement Administrative Review Board on ..... day of
.....20.....

SIGNED
Board Secretary

## SECTION VII: EVALUATION CRITERIA

The tenders submitted by tenderers shall be evaluated in the following three (3) stages:

### Stage 1: Preliminary Bid Responsiveness Assessment

This will involve assessing whether bidders have complied with submission requirements and have also attached certified copies of mandatory eligibility and statutory documents. Evaluation at this stage will be conducted on **Yes/No**, and bidders are expected to show evidence of ALL required items so as to proceed to the next stage of evaluation.

<b>Stage 1: Preliminary Bid Responsiveness Assessment (Mandatory Requirements)</b>	<b>Yes/No</b>
<p><b>Submission Requirements:</b></p> <ul style="list-style-type: none"> <li>a) Tender submitted in both Original and Copy (Ref: 2.17.1)</li> <li>b) Each page of the tender document serialized including the attachments.</li> <li>c) Form of tender dully filled, signed and stamped by the authorized person.</li> <li>d) Tender submitted with tender security as required .</li> <li>e) Completed and signed confidential business questionnaire form</li> <li>f) NCA 7 and above for water works and civil works.</li> <li>g) Site Visit Certificate.</li> </ul> <p><b>Eligibility and Statutory Documents:</b></p> <ul style="list-style-type: none"> <li>h) Bidder to provide self-declaration that the person/tenderer is not debarred in the matter of the Public Procurement and Asset Disposal Act 2015 (As per section 62 of the Act).</li> <li>i) Bidder to provide self-declaration that the person/tenderer will not engage in any corrupt or fraudulent practice.</li> <li>j) Audited Financial Accounts for the last three years: (2018 – 2020)</li> <li>k) Certified Copy of Certificate of Incorporation/Registration.</li> <li>l) Certified Copy of Current Tax Compliance certificate from Kenya Revenue Authority.</li> <li>m) Certified Copy of Valid and current Business Permit.</li> </ul>	

n) Disclosure of business ownership (Directors/ Partners /Sole Proprietor). Attach a copy of CR12 Form	
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**Stage 2: Technical Evaluation Stage**

Tenders will be evaluated to ensure that they are substantially responsive to the technical specifications and contract conditions stated in the Tender Document. The determination of a tender’s technical responsiveness will be based on the contents of the tender itself, subject to any clarifications received in the preliminary examination of Tenders. Items of this evaluation will be scored.

	<b>Particulars</b>	<b>Max Points</b>
1.	Experience in handling the same magnitude of works. Attach reference letters/contracts/purchase orders for five different firms. <b>3 points</b> will be awarded for each evidence attached.	15 points
2.	Technical skill in terms of human resource. Attach CVs detailing qualifications of at least two (2) key personnel: lead supervisor and foreman, who shall be involved in this assignment. The persons must be working with the organization by the time of submitting this proposal. Each of the 2 personnel will be evaluated as follows: Relevant technical qualification (2 points) Experience for not less than 5 years in practice (2 points) Registration with relevant professional body (1.5 points) Consent letters from Engineers/ Technicians ( 2 Point)	15 points
3.	Equipment proposed for execution of works as per item 1.4 of qualifying information: Attach evidence of ownership (own purchase/lease) (5 points) List and condition of at least 5 equipment’s and explanation of how they will be useful to the execution of works (10 points)	15 points
4.	Work plan/Schedule. Provide a work plan detailing schedule of activities which must not be more than 12 weeks. A relative score formula will be applied to the advantage of shorter work schedules.	15 points
	<b>Total</b>	<b>60 points</b>

### Stage 3: Financial Evaluation Stage

Tenders that are determined to be substantially responsive to the requirements of the Tender Document shall be subjected to financial evaluation to determine the evaluated price of each Tender, and the lowest evaluated tender. The evaluated price for each Tender is determined by:

	<b>Particulars</b>	<b>Max Points</b>
1.	Evidence of adequate of working capital for this contract. This shall be assessed based on the profits shown in the audited accounts or volume of works recently and successfully done by the firm.	5 points
2.	Access to line(s) of credit. This will be shown by letters issued by the financial institution or a demonstration by the company that they have internal resources and that they do not require credit facility.	5 points
3.	Price evaluation. A relative score formula will be applied to the advantage of the lowest quoted price as indicated below. <b>(a/b)*30</b> Where: <b>a</b> = lowest quoted price at financial stage; <b>b</b> = price of bidder being evaluated	30 points
	<b>Total</b>	<b>40 points</b>

Final ranking and consideration for award will be based on the summation of both technical and financial scores. The tenderer with the highest combined score will be awarded the contract.



**SECTION IV – SPECIFICATIONS, DRAWINGS AND BILLS OF  
QUANTITIES/SCHEDULE OF RATES**

**I. SPECIFICATIONS**

**II DRAWINGS**

**III BILL OF QUANTITIES/SCHEDULE OF RATES**





**WSTF - URBAN SANITATION UPSCALING PROGRAM  
CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR LAMU WATER AND  
SANITATION COMPANY LTD IN MOKOWE - LAMU COUNTY**

**BILL 1 - PRELIMINARY AND GENERAL**

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
<b>1.00</b>	<b><u>CONTRACTUAL REQUIREMENT</u></b>				
1.10	Allow for provision of Performance Security in accordance with Conditions of Contract	Item	LS		
1.20	Allow for provision of Insurance of Works and Contractor's Equipment in accordance with the Conditions of Contract	Item	LS		
1.30	Allow for provision of Third Party Insurance (including Employer's Property) all in accordance with the Conditions of Contract	Item	LS		
1.40	Allow for provision of Insurance against Accident to Workmen in accordance with the Conditions of Contract	Item	LS		
<b>2.00</b>	<b><u>SPECIAL REQUIREMENT</u></b>				
2.10	Allow a P.C. Sum of KShs. 300,000 for provision of supervision costs by an approved Resident Inspector of Works qualified with Diploma in Civil Engineering/Building and Construction or approved equivalent from a reputable institution of learning and with a minimum of 2 years of experience in related field.	Item	LS	300,000.00	
2.20	Add .....% for profit, administration, attendance upon, overheads, etc. for Item 1.10 above (% to be as per Appendix to Form of Tender)	%	0.0		
2.30	Allow for supply of materials and construction of a temporary Site Office (to be used by the Contractor) and Store (to be used by the Supervising Staff), total area not exceeding 30m <sup>2</sup> . The structure to revert back to the Contractor upon completion of the Project.	item	ls		
<b>4.00</b>	<b><u>SIGN POST</u></b>				
4.10	Provide and erect contract/Project Sign boards as shown on the Contract drawings. 1 No. Sign post to be constructed during the DTF construction and the additional one to be constructed by contractor after DTF construction is substantially completed.	nr	2		
<b>5.00</b>	<b><u>TESTING OF SYSTEM</u></b>				
5.10	Allow for test running of the DTF by filling all the modules (balancing tank, settler and ABR) with water (200 m <sup>2</sup> ) and leaving it to stay for at least 2 days to check the water tightness. Water should then be passed through the entire system to check flow in a typical treatment process from the balancing tank to the outlet of the vertical flow constructed wetland.	item	ls		

**SUBTOTAL 1**

**TOTAL**

**NOTE:**  
**1. All the rates include all applicable taxes**  
**2. All the rates include supply, handling, assembling, installation, deployment of machines, processing (i.e. welding), and all related labour work**

**WSTF - URBAN SANITATION UPSCALING PROGRAM**  
**CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR LAMU WATER AND**  
**SANITATION COMPANY LTD IN MOKOWE - LAMU COUNTY**



**BILL 2 - RECEIVING BAY / BALANCING TANK / SLUDGE DRYING BED**

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
<b>1.00</b>	<b>EARTHWORKS</b>				
	The rates shall include for all survey works, strutting, shuttering, stabilizing excavation phases and keeping the excavation free of water by pumping, bailing or other means.				
<b>1.10</b>	<b>Top soil removal</b>				
1.11	Bulk excavations and top soil removal for the whole area of Receiving Bay and Balancing Tank (depth n.e. 150mm). Spread top soil stacked on site for reuse. Level and prepare for grassing and landscaping.	m <sup>2</sup>	133.8		
<b>1.20</b>	<b>Excavation for foundation</b>				
	Excavate for foundations, part backfill after construction and remainder, cart away to tips or use as fill on site, all as directed by the Project Manager				
1.21	Maximum depth n.e. 1m after stripping of top soil	m <sup>3</sup>	93.6		
1.22	Disposal of excavated material which cannot be used as backfill material on site. The rates shall include disposal of surplus material to tips identified by the Contractor in liaison with the Local Authority	m <sup>3</sup>	62		
1.23	Extra over for Items 1.21-1.22 : for excavation in rock Class 'A', blasting not permitted (Provisional), to be approved and directed by the Project Manager	m <sup>3</sup>	56.2		
1.24	-Ditto- for excavation in rock Class 'B', blasting not permitted(Provisional)	m <sup>3</sup>	28.1		
1.25	-Ditto- for excavation in rock Class 'C', blasting not permitted(Provisional)	m <sup>3</sup>	9.4		
<b>1.30</b>	<b>Making Up Levels and Compaction</b>				
1.31	200mm Thick Foundation walling reinforced with 20 swg hoop iron at every third course, and bedded, jointed and bonded in cement mortar (1:3) to make up levels	m <sup>2</sup>	120.0		
1.32	Provide approved hard core and compact in one layer of 300mm and blinded with sand or gravel	m <sup>3</sup>	97.6		
1.33	Provide approved granular fill and compact in one layer as per details in drg and blinded with sand or gravel	m <sup>3</sup>	7.8		
<b>SUBTOTAL 1</b>					
<b>2.00</b>	<b><u>SUBSTRUCTURE: CONCRETE / REINFORCEMENT/ FORMWORKS</u></b>				
<b>2.10</b>	<b>Damp-proof membrane</b>				
2.11	Damp-proof membrane, gauge 1000 laid over hard core	m <sup>2</sup>	325.3		
<b>2.20</b>	<b>Concrete</b>				
2.21	Blinding: Provide all materials, mix and place concrete grade C15/20 (1:3:6) for blinding of ground slab, mixing to be done using concrete mixer approved to be suitable for the type of works by the Project Manager	m <sup>2</sup>	83.5		

**WSTF - URBAN SANITATION UPSCALING PROGRAM**  
**CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR LAMU WATER AND SANITATION**  
**COMPANY LTD IN MOKOWE - LAMU COUNTY**



**BILL 2 - RECEIVING BAY / BALANCING TANK / SLUDGE DRYING BED**

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
2.22	Ground slab: Provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3) for ground slab, mixing to be done using concrete mixer approved to be suitable for the type of works by the Project Manager	m <sup>3</sup>	16.4		
2.23	Columns: provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3)	m <sup>3</sup>	0.8		
<b>2.30</b>	<b>Reinforcement</b>				
			83.5		
2.31	Provide all materials as specified below and fix at sites; fabric reinforcement no. A142 mesh size 150 x 150mm weighing 2.22 kg per m <sup>2</sup> , including Bends, tying Wire and spacer blocks; fabric reinforcement with minimum 150mm wide side and end laps, laid in bed	m <sup>2</sup>	84		
2.32	Provide reinforcement - deformed high yield steel D10 bars	Kg	193		
<b>2.40</b>	<b>Formwork</b>				
	Provide and fix shuttering including propping, strutting and striking, all as specified				
2.41	Wrot Formwork - Class F3 Finish				
2.411	Sides of columns	m <sup>2</sup>	16.6		
<b>2.50</b>	<b>Finishing</b>				
2.51	Screed the ground slab with water proof cement mortar 1:3 with a slope of 1% towards the outlet for the Balancing tank	m <sup>2</sup>	63.2		
<b>SUBTOTAL 2</b>					
<b>3.00</b>	<b>WALLING</b>				
<b>3.10</b>	<b>Natural stone wall</b>				
	Natural Stone Block Walling, medium chisel dressed, reinforced with 20 swg hoop iron at every third course, and bedded, jointed and bonded in cement mortar (1:3)				
3.11	200 mm walling	m <sup>2</sup>	94.7		
<b>3.20</b>	<b>Plaster</b>				
3.21	Plaster internally and externally with water proof cement mortar 1:3	m <sup>2</sup>	189.45		
<b>SUBTOTAL 3</b>					
<b>4.00</b>	<b><u>SUPERSTRUCTURE: CONCRETE / REINFORCEMENT/ FORMWORKS</u></b>				
<b>4.10</b>	<b>Concrete</b>				
4.11	Suspended slab Balancing Tank: Provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3) for balancing tank suspended slab, depth of 150mm. Allow for 3 openings of 600x400mm for the manholes	m <sup>3</sup>	9.2		
4.12	Suspended slab Receiving Bay: Provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3) for the two receiving bay suspended slabs, depth of 150mm.	m <sup>3</sup>	0.2		
4.13	Beams: provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3)	m <sup>3</sup>	2.4		
4.14	Suspended slab outlet chamber: Provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3) for outlet chamber suspended slab, depth of 150mm. Allow for a circular opening of 600mm dia.	m <sup>3</sup>	0.2		

**WSWF - URBAN SANITATION UPSCALING PROGRAM**  
**CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR LAMU WATER AND SANITATION**  
**COMPANY LTD IN MOKOWE - LAMU COUNTY**



**BILL 2 - RECEIVING BAY / BALANCING TANK / SLUDGE DRYING BED**

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
4.15	Provide and install reinforced fibre covers of 600x450mm including frame and fitted with a handle for the balancing tank and the outlet Chamber	nr	6		
<b>4.20</b>	<b>Reinforcement</b>				
4.21	Provide reinforcement - deformed high yield steel D10 bars	Kg	1107.0		
<b>4.30</b>	<b>Formwork</b>				
	Provide and fix shuttering including propping, strutting and striking, all as specified				
4.31	Sawn Formwork - Class F1 Finish	m <sup>2</sup>	30		
4.311	Horizontal soffits of suspended slabs	m <sup>2</sup>	57.8		
4.32	Wrot Formwork - Class F3 Finish	m <sup>2</sup>	25		
4.321	Sides of beams	m <sup>2</sup>	23.7		
<b>SUBTOTAL 4</b>					
<b>5.00</b>	<b>PIPEWORK - PIPES and FITTINGS</b>				
<b>5.10</b>	<b>Pipes</b>				
	Supply, transport to site and store in secure place, including jointing material, bolts, gaskets, packing, jointing glues, etc. as applicable. Install, test and commission.				
5.11	100 mm dia. uPVC pipe 500mm long with a bend bringing the overflow bypass from the balancing tank to the outlet chamber. All fittings should be protected with a coat of water paint and two coats of emulsion paint	item	1s		
5.12	100 mm dia. uPVC pipe (connected to the gate valve at the balancing tank outlet)	m	0.4		
5.13	100 mm dia. uPVC pipe (connecting the balancing tank outlet chamber to the sludge drying bed inspection chamber)	m	10		
5.14	100mm dia. class 41 uPVC pipe (underdrain pipes of the sludge drying bed)	m	11		
5.15	100mm dia. class 41 uPVC pipe (from the sludge drying bed inspection chamber to the next module)	m	5		
5.16	Provide all materials and perforate the pipes supplied under item 5.14 (underdrain pipes). Perforation shall be holes of 10mm diameter at 100mm center to center spacing. The holes are placed on two parallel lines located at a 30° angle from the central line as per	m	10		
<b>5.20</b>	<b>Fittings and Valves</b>				
5.21	100mm dia. Gate valve including stub, flange, bolts and nuts (controlling the flow from the outlet chamber)	nr	1		
<b>5.30</b>	<b>Pipe laying</b>				
	The rate quoted shall be deemed to include, supply, transport to site, storage, excavation, laying, jointing and backfilling with selected excavated material in pipe trenches. The rates shall include disposal of surplus material to tips identified by the Contractor in liaison with the Local Authority				
	uPVC Flexible Jointed Pipes Nominal Diameter 100mm				

**WSTF - URBAN SANITATION UPSCALING PROGRAM**  
**CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR LAMU WATER AND SANITATION COMPANY**  
**LTD IN MOKOWE - LAMU COUNTY**



**BILL 2 - RECEIVING BAY / BALANCING TANK / SLUDGE DRYING BED**

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
5.31	Outlet pipe connecting the balancing tank outlet to the sludge drying bed inspection chamber to the next module (anaerobic reactor) at a depth n.e. 1.5m	m	5		
<b>SUBTOTAL 5</b>					
<b>6.00</b>	<b>METAL WORKS</b>				
6.10	GMS Coarse Screen, size 500x640mm, fabricated using GMS bars, 5x50 mm at spacing 30 mm (centre to centre) welded to frame hinged into concrete walls, all as per details on Drg. Apply 1 coat of primer and 2 coats of approved gloss paint	nr	1		
6.20	GMS Fine Screen, size 500x640mm, fabricated using GMS bars, 5x50 mm at spacing 15 mm (centre to centre) welded to frame hinged into concrete walls, all as per details on Drg. Apply 1 coat of primer and 2 coats of approved gloss paint	nr	1		
6.30	Provide and install a rectangular MS sluice gate size 400x400mm with an extended handle on a 25mm MS sliding channel. Apply 1 coat of primer and 2 coats of approved gloss paint	nr	2		
<b>SUBTOTAL 6</b>					
<b>7.00</b>	<b>FILTER MEDIA</b>				
<b>7.10</b>	<b>PE liner</b>				
7.11	Supply and place the 1mm thick PE liner as shown on the drawing. Allow for welding of joints between two sheets using hot wedge welding machine (where applicable)	m <sup>2</sup>	66.5		
<b>7.20</b>	<b>Filter media</b>				
7.21	Drainage layer: supply and place 300mm thick layer of approved coarse gravel size 20-32mm as shown on the drawings.	m <sup>3</sup>	10.2		
7.22	Transition layer: supply and place 100mm thick layer of approved medium gravel size 10-14mm as shown on the drawings.	m <sup>3</sup>	4.6		
7.23	Filtration layer: supply and place (as per drawings) 350mm thick layer of <b>approved</b> sieved and washed sand with the following characteristics: - dia 0.2 - 0.7 mm - free of silt - normal particle size distribution	m <sup>3</sup>	13.7		
<b>SUBTOTAL 7</b>					
<b>TOTAL</b>					

**NOTE:**

1. All the rates include all applicable taxes
2. All the rates include supply, handling, assembling, installation, deployment of machines, processing (i.e. welding), and all related labour work

**WSTF - URBAN SANITATION UPSCALING PROGRAM**  
**CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR LAMU WATER AND**  
**SANITATION COMPANY LTD IN MOKOWE - LAMU COUNTY**



**BILL 3 - ANAEROBIC REACTOR**

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
<b>1.00</b>	<b>EARTHWORKS</b>				
	The rates shall include for all survey works, strutting, shuttering, stabilizing excavation phases and keeping the excavation free of water by pumping, bailing or other means				
<b>1.10</b>	<b>Top soil removal</b>				
1.11	Bulk excavations and top soil removal for the whole area of ABR (depth n.e. 150mm). Spread top soil stacked on site for reuse. Level and prepare for grassing and landscaping.	m <sup>2</sup>	101.2		
<b>1.20</b>	<b>Excavation for foundation</b>				
	Excavate for foundations, part backfill after construction and remainder, cart away to tips or use as fill on site, all as directed by the Project Manager				
1.21	Maximum depth n.e. 1.0 m after stripping of top soil	m <sup>3</sup>	101.2		
1.22	ditto, but depth from 1.0m up to 2m	m <sup>3</sup>	101.2		
1.23	ditto, but depth from 2.0m up to 3.0m	m <sup>3</sup>	90.7		
1.24	ditto, but depth from 3.0m up to 4m	m <sup>3</sup>	63.5		
1.25	Disposal of excavated material which cannot be used as backfill material on site. The rates shall include disposal of surplus material to tips identified by the Contractor in liaison with the Local Authority	m <sup>3</sup>	132.3		
1.26	Extra over for Items 1.21-1.23 : for excavation in rock Class 'A', blasting not permitted (Provisional), to be approved and directed by the Project Manager	m <sup>3</sup>	214.0		
1.27	-Ditto- for excavation in rock Class 'B', blasting not permitted (Provisional)	m <sup>3</sup>	107.0		
1.28	-Ditto- for excavation in rock Class 'C', blasting not permitted (Provisional)	m <sup>3</sup>	35.7		
<b>1.30</b>	<b>Compaction</b>				
1.31	Provide approved hard core and compact in one layer of 300mm and blinded with sand or gravel	m <sup>3</sup>	30.4		
<b>SUBTOTAL 1</b>					
<b>2.00</b>	<b><u>SUBSTRUCTURE: CONCRETE / REINFORCEMENT/FORMWORKS</u></b>				
<b>2.10</b>	<b>Damp-proof membrane</b>				
2.11	Damp-proof membrane, gauge 1000 laid over hard core	m <sup>2</sup>	103.3		
<b>2.20</b>	<b>Concrete</b>				



**WSTF - URBAN SANITATION UPSCALING PROGRAM  
CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR LAMU WATER AND SANITATION  
COMPANY LTD IN MOKOWE - LAMU COUNTY**



**BILL 3 - ANAEROBIC REACTOR**

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
2.21	Blinding: Provide all materials, mix and place concrete grade C15/20 (1:3:6) for blinding of ground slab, mixing to be done using a concretemixer approved to be suitable for the type of works by the Project Manager	m <sup>2</sup>	105.1		
2.22	Footing: provide all materials, mix, place and compact concrete grade C25/20 ( 1:1.5:3)	m <sup>3</sup>	0.4		
2.23	Ground slab: Provide all materials, mix, place and compact concretegrade C25/20 (1:1.5:3) for ground slab, mixing to be done using a concrete mixer approved to be suitable for the type of works by the Project Manager	m <sup>3</sup>	21.0		
2.24	Columns: provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3)	m <sup>3</sup>	2.6		
2.25	Beams: provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3)	m <sup>3</sup>	1.0		
2.26	Base slab of the siphon chamber: provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3)	m <sup>3</sup>	1.4		
<b>2.30</b>	<b>Reinforcement</b>				
2.31	Provide all materials as specified below and fix at sites; fabric reinforcement no. A142 mesh size 150 x 150mm weighing 2.22 kg per m2, including bends, tying wire and spacer blocks; fabric reinforcement with minimum 150mm wide side and end laps, laid in Bed	m <sup>2</sup>	105.1		
2.32	Provide reinforcement - deformed high yield steel D10 bars	Kg	678.0		
<b>2.40</b>	<b>Finishing</b>				
2.41	Screed the ground slab with water proof cement mortar 1:3	m <sup>2</sup>	83.5		
<b>2.50</b>	<b>Formwork</b>				
	Provide and fix shuttering including propping, strutting and striking, all as specified				
2.51	Wrot Formwork - Class F3 Finish	m <sup>2</sup>	30		
2.511	Sides of beams	m <sup>2</sup>	49.9		
<b>SUBTOTAL 2</b>					
<b>3.00</b>	<b><u>WALLING</u></b>				
<b>3.10</b>	<b>Natural stone wall</b>				
	Natural stone block walling, medium chisel dressed, reinforced with 20 swg hoop iron at every third course, and bedded, jointed and bonded in cement mortar (1:3)				
3.11	200 mm Walling	m <sup>2</sup>	266.3		
<b>3.20</b>	<b>Supporting edge</b>				
3.21	200mm PCC supporting wall for the anaerobic filter media		1.59		

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**BILL 3 - ANAEROBIC REACTOR**

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
<b>3.30</b>	<b>Plaster and Rendering</b>				
3.31	Plaster internally and externally with water proof cement mortar 1:3	m <sup>2</sup>	532.6		
<b>SUBTOTAL 3</b>					
<b>4.00</b>	<b><u>SUPERSTRUCTURE: CONCRETE / REINFORCEMENT/ FORMWORKS</u></b>				
<b>4.10</b>	<b>Concrete</b>				
4.11	Beams: provide all materials, mix, place and compact concrete grade C25/20 ( 1:1.5:3)	m <sup>3</sup>	5.6		
4.12	Suspended roof slab for Settler, ABR Tank and siphon chamber: Provide all materials, mix, place and compact concrete grade C20 (1:1.5:3)	m <sup>3</sup>	13.7		
4.13	Provide and install reinforced fibre covers 600mm x 450mm with aframe and fitted with a handle (inlet and outlet chamber)	nr	22		
4.14	Provide all material and fabricate reinforced precast concrete covers of 400x700x40mm with a 40x40mm angle frame connected with the welded mesh as per drawings. Allow for two metal handles per coverwith a minimum of 100mm length and 40mm height. Apply 1 coat of primer and 2 coats of approved gloss paint to all metal parts. Allow for recess of 30x30mm on either side of the distibution trenches wall as per drawings.	nr	22		
<b>4.20</b>	<b>Reinforcement</b>				
4.21	Provide reinforcement - deformed high yield steel D10 bars	Kg	1688.0		
<b>4.30</b>	<b>Formwork</b>				
	Provide and fix shuttering including propping, strutting and striking, all as specified				
4.31	Sawn Formwork - Class F1 Finish	m <sup>2</sup>	30		
4.311	Horizontal soffits of suspended slabs	m <sup>2</sup>	91.4		
4.32	Wrot Formwork - Class F3 Finish	m <sup>2</sup>	25		
4.321	Sides of beams	m <sup>2</sup>	9.1		
<b>SUBTOTAL 4</b>					
<b>5.00</b>	<b>PIPEWORK - PIPES and FITTINGS</b>				
<b>5.10</b>	<b>Pipes</b>				
	Supply, transport to site and store in secure place, including jointing material, bolts, gaskets, packing, jointing glues, etc. as applicable. Install, test and commission.				

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**BILL 3 - ANAEROBIC REACTOR**

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
5.11	100mm dia. class 41 uPVC pipe (inlet and AF outlet down pipes)	m	5.2		
5.12	100mm dia. class 41 uPVC pipe (ABR and AF compartments down pipes )	m	255.94		
5.13	150mm dia. Class 41 uPVC (for the siphon drainage chamber outlet to the inlet chamber of the VFCW)	m	10		
5.14	100mm dia. 2000mm long uPVC Pipe for vent pipe, with three coats of gloss paint, PVC wire gauze, vent cap, all fittings (two bend and one tee) and a 1000mm high protective concrete stub as per details in Drg	nr	1		
<b>5.20</b>	<b>Fittings and Valves</b>				
5.21	100x100mm dia. uPVC class 41 Equal tee (for inlet, ABR, AF and outlet down pipes)	nr	95		
5.22	50mm dia. uPVC pipe 200mm long (sleeve for aeration holes in the ABR chambers)	nr	32		
5.23	150mm dia uPVC pipe 200mm long (sleeve for overflow pipe in the siphon chamber)	nr	1		
<b>5.30</b>	<b>Pipe laying</b>				
	The rate quoted shall be deemed to include, supply, transport to site, storage, excavation, laying, jointing and backfilling with selected excavated material in pipe trenches. The rates shall include disposal of surplus material to tips identified by the Contractor in liaison with the Local Authority				
	uPVC Flexible Jointed Pipes Nominal Diameter 150mm				
5.31	Outlet pipe connecting the siphon chamber outlet to the VFCW inlet at a depth n.e. 1.5m	m	10		
<b>5.40</b>	<b>Siphon</b>				
5.41	Supply and install the siphon system fabricated by Nairobi IronMongers Ltd or other approved suppliers, to details provided in the Drg	Item	LS		
<b>SUBTOTAL 5</b>					
<b>6.00</b>	<b>FILTER MEDIA</b>				
<b>6.10</b>	<b>Filter media</b>				
6.11	Anaerobic filter material: supply and place 1200mm thick layer of approved aggregates size 30-42mm as shown on the drawings	m <sup>3</sup>	11.6		
<b>6.20</b>	<b>Precast concrete slab</b>				
6.21	Supply material, fabricate and place precast concrete slab class 20/20 finished fair 875mm x 500mm x 100mm reinforced by D10 bars both ways, perforated to details shown on the drawings.	nr	44		
<b>SUBTOTAL 6</b>					

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**BILL 3 - ANAEROBIC REACTOR**

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
<b>TOTAL</b>					

**NOTE:**

- 1. All the rates include all applicable taxes**
- 2. All the rates include supply, handling, assembling, installation, deployment of machines, processing (i.e. welding), and all related labour work**

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**BILL 4 - VERTICAL FLOW CONSTRUCTED WETLANDS**

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
<b>1.00</b>	<b>EARTHWORKS</b>				
	The rates shall include for all survey works, strutting, shuttering, stabilizing excavation phases and keeping the excavation free of water by pumping, bailing or other means				
<b>1.10</b>	<b>Top soil removal</b>				
1.11	Bulk excavations and top soil removal for the whole area of VFCW (depth n.e. 150mm). Spread top soil stacked on site for reuse. Level and prepare for grassing and landscaping.	m <sup>2</sup>	353.9		
<b>1.20</b>	<b>Excavation</b>				
	Excavate, part backfill after construction and remainder, cart away to tips or use as fill on site, all as directed by project manager				
1.21	Maximum depth n.e. 1m after stripping of top soil	m <sup>3</sup>	353.9		
1.22	Disposal of excavated material which cannot be used as backfill material on site. The rates shall include disposal of surplus material to tips identified by the Contractor in liaison with the Local Authority	m <sup>3</sup>	194.7		
1.23	Extra over for Items 1.21-1.22: for excavation in rock Class 'A', blasting not permitted (Provisional), to be approved and directed by the Project Manager	m <sup>3</sup>	212.4		
1.24	-Ditto- for excavation in rock Class 'B', blasting not permitted (Provisional)	m <sup>3</sup>	106.2		
1.25	-Ditto- for excavation in rock Class 'C', blasting not permitted (Provisional)	m <sup>3</sup>	35.4		
<b>1.30</b>	<b>Embankment</b>				
1.31	Use excavated material to form embankment 250mm high with a top base of 600mm width and a 1:2 slope on either side. Allow for compaction to 95% MDD using approved material to the satisfaction of the project manager	m <sup>3</sup>	23.7		
<b>1.40</b>	<b>Compaction</b>				
1.41	Compact using approved material to the right formation level with a slope of 1% toward the drainage channel for each bed as shown in Drawings	m <sup>2</sup>	284		
1.42	Provide approved hard core and compact in one layer of 250mm and blinded with sand or gravel at the drainage channel level	m <sup>3</sup>	2.2		
<b>SUBTOTAL 1</b>					
<b>2.00</b>	<b>CONCRETE / REINFORCEMENT/ FORMWORKS</b>				
<b>2.10</b>	<b>Damp-proof membrane</b>				
2.11	Damp-proof membrane, gauge 1000 laid over hard core (drainage channel)	m <sup>2</sup>	8.9		

**WS TF - URBAN SANITATION UPSCALING PROGRAM**  
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**BILL 4 - VERTICAL FLOW CONSTRUCTED WETLANDS**

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
<b>2.20</b>	<b>Concrete</b>				
2.21	Blinding: Provide all materials, mix and place concrete grade C15/20 (1:3:6) for blinding of ground slab (drainage channel), mixing to be done using concrete mixer approved to be suitable for the type of works by the Project Manager	m <sup>2</sup>	8.9		
2.22	Ground slab (drainage channel): Provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3) for ground slab, mixing to be done using concrete mixer approved to be suitable for the type of works by the project manager	m <sup>3</sup>	1.3		
<b>2.30</b>	<b>Reinforcement</b>				
2.31	Provide all materials as specified below and fix at sites; fabric reinforcement no. A142 mesh size 150 x 150mm weighing 2.22 kg per m <sup>2</sup> , including bends, tying wire and spacer blocks; fabric reinforcement with minimum 150mm wide side and end laps, laid in Bed	m <sup>2</sup>	8.9		
<b>2.40</b>	<b>Finishing</b>				
2.41	Screed the ground slab (drainage channel) with water proof cement mortar 1:3. Allow for carrying out benching with a slope of 1:4 towards the central channel as per drawings.	m <sup>2</sup>	8.9		
<b>2.50</b>	<b>Precast concrete covers</b>				
2.51	Provide all material and fabricate reinforced precast concrete covers of 700x400x40mm with a 40x40mm angle frame connected with the welded mesh as per drawings. Allow for two metal handles per cover with a minimum of 100mm length and 40mm height. Apply 1 coat of primer and 2 coats of approved gloss paint to all metal parts. Allow for recess of 50x50mm on either side of the wall as per drawings.	nr	22		
<b>SUBTOTAL 2</b>					
<b>3.00</b>	<b>WALLING</b>				
<b>3.10</b>	<b>Natural stone wall</b>				
	Natural stone block walling, medium chisel dressed, reinforced with 20 swg hoop iron at every third course, and bedded, jointed and bonded in cement mortar (1:3)				
3.11	200mm walling	m <sup>2</sup>	23.0		
<b>3.20</b>	<b>Plaster</b>				
3.21	Plaster internally and externally with water proof cement mortar 1:3	m <sup>2</sup>	46.1		
<b>SUBTOTAL 3</b>					
<b>4.00</b>	<b>PIPEWORK - PIPES and FITTINGS</b>				
<b>4.10</b>	<b>Pipes</b>				

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**BILL 4 - VERTICAL FLOW CONSTRUCTED WETLANDS**

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
	Supply, transport to site and store in secure place, jointing material, bolts, gaskets, packing, jointing glues, etc. as applicable. Install as per drawings, level, test and commission				
4.11	100mm dia. class 41 uPVC pipe (distribution pipe)	m	20.6		
4.12	60mm dia. class 41 uPVC pipe (intermediate distribution pipe)	m	24.2		
4.13	40 mm dia. dia. class 41 uPVC pipe (feeding pipes)	m	204		
4.14	100mm dia. class 41 uPVC drain pipes	m	212.8		
4.15	100mm dia. class 41 uPVC outlet pipe (from the drain channel to the discharge point)	5	150		
4.16	Provide all materials and perforate the pipes supplied under item 4.13. (feeding pipes) Perforation shall be holes of 10mm diameter at 300mm centre to centre spacing. The holes are placed on two parallel lines located at a 30° angle from the central line as per drawings	m	204		
4.17	Provide all materials and perforate the pipes supplied under item 4.14. (drain pipes). Perforation shall be holes of 10mm diameter at 100mm centre to centre spacing. The holes are placed on two parallel lines located at a 30° angle from the central line as per drawings	m	212.8		
4.18	Sealing of each opening (bitumen, welding or brackets) for the drain pipe to pass through the PE liner to reach the drain channel	pc	14		
<b>4.20</b>	<b>Fittings and Valves</b>				
4.21	150x150mm equal tee to connect the inlet pipe to the ballcock valves	nr	2		
4.22	150mm dia. PVC Ball Cock valve	nr	2		
4.23	150mm dia. PVC end cap to connect to the socket end of the bypass pipe in the drainage channel.	nr	1		
4.24	150mm PVC elbow	nr	2		
4.25	150x150mm PVC equal tee	nr	2		
4.26	150x100mm PVC reducer	nr	4		
4.27	100x40mm PVC reducing tee	nr	24		
4.28	100mm PVC end caps to place at each end of the 2 last reducing tee 100x40mm	nr	4		
4.29	40mm dia. PVC end cap	nr	24		
<b>4.30</b>	<b>Pipe laying</b>				
	The rate quoted shall be deemed to include, supply, transport to site, storage, excavation, laying, jointing and backfilling with selected excavated material in pipe trenches. The rates shall include disposal of surplus material to tips identified by the Contractor in liaison with the Local Authority				
	uPVC Flexible Jointed Pipes Nominal Diameter 100mm				

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**BILL 4 - VERTICAL FLOW CONSTRUCTED WETLANDS**

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
4.31	Outlet pipe from the VFCW drainage channel to the discharge point at a depth n.e. 1.5m	m	150		
<b>SUBTOTAL 4</b>					
<b>5.00</b>	<b>FILTER MEDIA AND PLANTS</b>				
<b>5.10</b>	<b>PE liner</b>				
5.11	Supply and place the 1mm thick PE liner as shown on the drawing. Allow for welding of joints between two sheets using hot wedgewelding machine (where applicable)	m <sup>2</sup>	390		
<b>5.20</b>	<b>Filter media</b>				
5.21	Drainage layer: supply and place approved 100mm thick layer of approved coarse gravel size 20-32mm as shown on the drawings.	m <sup>3</sup>	19.1		
5.22	Transition and distribution layer: supply and place approved 2 x 100mm thick layer of approved medium gravel size 10-14mm as shown on the drawings.	m <sup>3</sup>	45.8		
5.23	Filtration layer: Supply and place (as per drawings) 450mm thick layer of approved sieved and washed sand with the following characteristics: - dia 0.2 - 0.7 mm - free of silt - normal particle size distribution	m <sup>3</sup>	102.96		
<b>5.30</b>	<b>Plants</b>				
5.31	Supply and plant common reeds (PHRAGMITES AUSTRALIS) or other local aquatic plant: 4 shoots per square metre. Allow for 3 months of nursing before planting and once planted maintainance until commissioning	item	1s		
<b>SUBTOTAL 5</b>					
<b>TOTAL</b>					

**NOTE:**

**1. All the rates include all applicable taxes**

**2. All the rates include supply, handling, assembling, installation, deployment of machines, processing (i.e. welding), and all related labour work**



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**BILL 5 - SOLID WASTE INCINERATOR**

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
<b>1.00</b>	<b><u>EARTHWORKS</u></b>				
	The rates shall include for all survey works, strutting, shuttering, stabilizing excavation phases and keeping the excavation free of water by pumping, bailing or other means				
<b>1.10</b>	<b><u>Top soil removal</u></b>				
1.11	Bulk excavations and top soil removal for the whole area of CA (depth n.e. 150mm). Spread top soil stacked on site for reuse. Leveland prepare for grassing and landscaping.	m <sup>2</sup>	9.86		
<b>1.20</b>	<b><u>Excavation for foundation</u></b>				
	Excavate for foundations, part backfill after construction and remainder, cart away to tips or use as fill on site, all as directed bythe Project Manager				
1.21	Maximum depth n.e. 0.9 m after stripping of top soil	m <sup>3</sup>	7.14		
1.22	Disposal of excavated material which cannot be used as backfill material on site. The rates shall include disposal of surplus materialto tips identified by the Contractor in liaison with the Local Authority	m <sup>3</sup>	4.607		
1.23	Extra over for Items 2.21 - 2.22: for excavation in rock Class 'A', blasting not permitted (Provisional), to be approved and directed bythe Project Manager	m <sup>3</sup>	4.284		
1.24	-Ditto- for excavation in rock Class 'B', blasting not permitted (Provisional)	m <sup>3</sup>	2.142		
1.25	-Ditto- for excavation in rock Class 'C', blasting not permitted (Provisional)	m <sup>3</sup>	0.714		
<b>1.30</b>	<b><u>Compaction</u></b>				
1.31	Provide approved hard core and compact in layers of 200mm	m <sup>3</sup>	1.7		
<b>SUBTOTAL 1</b>					
<b>2.00</b>	<b><u>CONCRETE / REINFORCEMENT/ FOMWORKS</u></b>				
<b>2.10</b>	<b><u>Damp-proof membrane</u></b>				
2.11	Damp-proof membrane, gauge 1000 laid over hard core	m <sup>2</sup>	8.5		
<b>2.20</b>	<b><u>Concrete</u></b>				
2.21	Footing: provide all materials, mix, place and compact concrete grade C25/20 ( 1:1.5:3)	m <sup>3</sup>	1.248		
2.22	Blinding: Provide all materials, mix and place concrete grade C15/20 (1:3:6) for blinding of strip footing, mixing to be done using concrete mixer approved to be suitable for the type of works by the engineer	m <sup>2</sup>	42.5		
2.23	Ground slab: Provide all materials, mix, place and compact concretegrade C25/20 (1:1.5:3) for ground slab 150mm high, mixing to be done using concrete mixer approved to be suitable for the type of works by the engineer	m <sup>3</sup>	1.125		

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**BILL 5 - SOLID WASTE INCINERATOR**

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
2.24	Plinth for the incinerator unit: Provide all materials, mix, place and compacte concrete grade C25/20 (1:1.5:3) for plinth 150mm high, mixing to be done using concrete mixer approved to be suitable for the type of work by the project manager.	m <sup>3</sup>	0.225		
2.25	Deck: Provide all materials, mix, place and compacte concrete gradeC25/20 (1:1.5:3) for plinth 75mm high, mixing to be done using concrete mixer approved to be suitable for the type of work by the	m <sup>3</sup>	0.249075		
<b>2.30</b>	<b><u>Reinforcement</u></b>				
2.31	Provide all materials as specified below and fix at sites for ground slab, plinth and decks; fabric reinforcement no. A142 mesh size 150x 150mm weighing 2.22 kg per m2 , including Bends, tying Wire andspacer blocks; fabric reinforcement with minimum 150mm wide side and end laps, laid in bed	m <sup>2</sup>	12.321		
<b>2.40</b>	<b><u>Formwork</u></b>				
	Provide and fix shuttering including propping, strutting and striking, all as specified.Sawn Formwork - Class F1 Finish				
2.41	Sides of ground slab	m	11		
2.42	Sides of the plinths	m	5		
2.43	Horizontal soffits of suspended slab (for the 2 decks)	m <sup>2</sup>	3.321		
<b>2.50</b>	<b><u>Finishing</u></b>				
2.51	Screed ground slab with water proof cement mortar 1:3 with a slope of 1% towards the door side where a channel is leading the drainedwater outside	m <sup>2</sup>	7.5		
<b>SUBTOTAL 2</b>					
<b>3.00</b>	<b><u>INCINERATOR</u></b>				
3.10	Provide all materials: fire bricks, fire cement, ballast, sand, hinges, steel angle, steel channel RHS and flat sheet. Construct solid wasteincinerator as specified in the drawing and plaster the external walls.Provide, connect and paint (quality gloss) 4m high DN150 steel pipeas chimney as per drawings. Fabricate, paint (quality gloss) and install steel top frame, cover, ash door and fire grate as per drawings	item	1s		
<b>SUBTOTAL 3</b>					
<b>4.00</b>	<b><u>WALLING</u></b>				
<b>4.10</b>	<b><u>Natural stone wall</u></b>				
	Natural stone block walling, medium chisel dressed, reinforced with20 swg hoop iron at every third course, and bedded, jointed and bonded in cement mortar (1:3)				
4.11	200 mm Walling	m <sup>2</sup>	10.1		
4.12	Strip walling	m <sup>2</sup>	5.5		
<b>4.20</b>	<b><u>Plaster and Rendering</u></b>				
4.21	Plaster internally and externally with water proof cement mortar 1:3	m <sup>2</sup>	20.2		

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**BILL 5 - SOLID WASTE INCINERATOR**

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
<b>SUBTOTAL 4</b>					
<b>5.00</b>	<b><u>PIPEWORK - PIPES and FITTINGS</u></b>				
	Supply and install:				
<b>5.10</b>	<b><u>Pipes</u></b>				
5.11	uPVC 150mm dia. rain gutter complete with accessories (e.g. union, end cap)	m	8.00		
5.12	uPVC 75mm down pipe with appropriate elbows	m	5.00		
<b>SUBTOTAL 5</b>					
<b>6.00</b>	<b><u>METAL WORKS</u></b>				
<b>6.10</b>	<b><u>Steelwork for columns</u></b>				
6.11	Supply and fix 75mmx75mmx3mm thick and 3200mm long SHS column with fish tail lugs embedded in column footing as per drawings. Allow for welding of a 100x3mm U-shape steel sheet on top of the column to accommodate wall plate.	nr	6		
<b>6.20</b>	<b><u>Wire mesh</u></b>				
6.21	Supply and install 50x50mm welded mesh to be welded to the steel column all around the incinerator shed	m <sup>2</sup>	18		
<b>6.30</b>	<b><u>Chimney support</u></b>				
6.31	Supply and install 5mm thick steel cables from the roof of the shed to the top of the chimney	m	20		
<b>6.40</b>	<b><u>Steel Door</u></b>				
	Supply and fix steel casement door with 50 x 50mm pressed metal frames, including hinges, pad bolts and tower bolts, all to manufacturer's details, with one coat lead oxide primer complete with opening accessories including bedding and pointing around				
6.41	Door size 900 x 2100 mm high	nr	1		
<b>SUBTOTAL 6</b>					
<b>7.00</b>	<b><u>ROOFING</u></b>				
<b>7.10</b>	<b><u>Roofing sheets</u></b>				
7.11	IT4 (box profile) roofing sheets with resin coat laid on sawn cypress (Grade 2) battens size 100 x 50mm pressure impregnated with approved preservative	m <sup>2</sup>	13.2		
<b>7.20</b>	<b><u>Carpentry and joining</u></b>				
	Roof Timbers: double pitch roof truss and overhanging canopy insawn cypress grade II seasoned and pressure impregnated with wood preservative and timber joints with bolted and nailed connections as per the drawings				
7.21	Equal truss 2500mm clear span and 650mm high with 450mm eaves projection, in 100 x 50mm rafters and 100 x 50mm struts and ties with a spacing of 1500 mm C/C	nr	3		

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**BILL 5 - SOLID WASTE INCINERATOR**

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
	Other Roof Members: Sawn cypress grade II maximum moisture content 12% seasoned and pressure impregnated with wood preservative and timber joints with bolted and nailed connections as per drawings				
7.22	100 x 50mm purlins	m	24		
7.23	100 x 50mm wall plate tied to wall with 20 s.w.g. hoop iron at 900mm Centres	m	7.5		
7.24	200 x 40mm fascia board	m	16.8		
<b>SUBTOTAL 7</b>					
<b>8.00</b>	<b><u>PAINING AND DECORATING</u></b>				
<b>8.10</b>	<b><u>Painting</u></b>				
	Prepare, knot, prime, stop and apply three coats first quality gloss Paint				
8.11	General surfaces of fascia boards	m <sup>2</sup>	3.36		
8.12	General surfaces of steel columns	item	ls		
8.13	General surfaces of steel casement door	item	ls		
<b>SUBTOTAL 8</b>					
<b>9.00</b>	<b><u>PCC SLABS</u></b>				
9.10	Provide all material, fabricate and place PCC slabs 600x600mm in front of the incinerator shed and allow for preparation of the bedding including all required earthwork	m <sup>2</sup>	1.8		
<b>SUBTOTAL 09</b>					
<b>TOTAL</b>					

**NOTE:**

- 1. All the rates include all applicable taxes**
- 2. All the rates include supply, handling, assembling, installation, deployment of machines, processing (i.e. welding), and all related labour work**

**WSTF - URBAN SANITATION UPSCALING PROGRAM  
CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR LAMU WATER AND  
SANITATION COMPANY LTD IN MOKOWE - LAMU COUNTY**

**BILL 6 - OPERATOR STORE**

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
<b>1.00</b>	<b><u>EARTHWORKS</u></b>				
	The rates shall include for all survey works, strutting, shuttering, stabilizing excavation phases and keeping the excavation free of water by pumping, bailing or other means				
<b>1.10</b>	<b><u>Top soil removal</u></b>				
1.11	Bulk excavations and top soil removal for the whole area of operator store bed (depth n.e. 150mm)	m <sup>2</sup>	22.2		
<b>1.20</b>	<b><u>Excavation for foundation</u></b>				
	Excavate for foundations, part backfill after construction and remainder, cart away to tips or use as fill on site, all as directed by the Project Manager				
1.21	Maximum depth n.e. 1.2 m after stripping of top soil	m <sup>3</sup>	16.668		
1.22	Disposal of excavated material which cannot be used as backfill material on site. The rates shall include disposal of surplus material to tips identified by the Contractor in liaison with the Local Authority	m <sup>3</sup>	10.6		
1.23	Extra over Items : for excavation in rock Class 'A', blasting not permitted (Provisional), to be approved and directed by the engineer	m <sup>3</sup>	10.0		
1.24	-Ditto- for excavation in rock Class 'B', blasting not permitted (Provisional)	m <sup>3</sup>	5.0		
1.25	-Ditto- for excavation in rock Class 'C', blasting not permitted (Provisional)	m <sup>3</sup>	1.7		
<b>1.30</b>	<b><u>Compaction</u></b>				
1.31	Provide approved hard core and compact in layers of 200mm	m <sup>3</sup>	5.99		
<b>SUBTOTAL 1</b>					
<b>2.00</b>	<b><u>SUBSTRUCTURE: CONCRETE / REINFORCEMENT/ FORMWORKS</u></b>				
<b>2.10</b>	<b><u>Concrete</u></b>				

2.11	Blinding: Provide all materials, mix and place concrete grade C15/20 (1:3:6) for blinding of strip footing, mixing to be done using concrete mixer approved to be suitable for the type of works by the engineer	m <sup>2</sup>	11.3		
2.12	Footing: provide all materials, mix, place and compact concrete grade C25/20 ( 1:1.5:3)	m <sup>3</sup>	2.3		
2.13	Ground slab: Provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3) for ground slab, mixing to be done using concrete mixer approved to be suitable for the type of works by the	m <sup>3</sup>	2.8		
<b>2.20</b>	<b><u>Reinforcement</u></b>				
2.21	Provide all materials as specified below and fix at sites; fabric reinforcement no. A142 mesh size 150 x 150mm weighing 2.22 kg per m <sup>2</sup> , including bends, tying wire and spacer blocks; fabric reinforcement with minimum 150mm wide side and end laps, laid in	m <sup>2</sup>	18.6		
2.22	Provide reinforcement - deformed high yield steel D10 bars	kg	74.5		
<b>2.30</b>	<b><u>Formwork</u></b>				
2.31	Provide and fix shuttering including propping, strutting and striking, all as specified				
2.32	Sides of ground slab	m	17.3		
			<b>SUBTOTAL 2</b>		

**WSTF - URBAN SANITATION UPSCALING PROGRAM  
CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR LAMU WATER AND  
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**BILL 6 - OPERATOR STORE**

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
<b>3.00</b>	<b><u>WALLING</u></b>				
<b>3.10</b>	<b><u>Natural stone wall</u></b>				
	Natural stone block walling, medium chisel dressed, reinforced with 20 swg hoop iron at every third course, and bedded, jointed and bonded in cement mortar (1:3)				
3.11	200mm thick walling	m <sup>2</sup>	51.5		
3.12	Strip walling	m <sup>2</sup>	13.8		
<b>3.20</b>	<b><u>Damp-proof course</u></b>				
3.21	Damp-proof membrane, gauge 1000 laid over hard core	m <sup>2</sup>	18.6		
3.22	Bituminous felt damp-proof course under 200mm wide walls	m	17.3		
<b>3.30</b>	<b><u>Plaster and Rendering</u></b>				
3.31	Plaster walls internally and external wall above the ring beam with 12.5mm Thick Gauged Cement ratio 1:3	m <sup>2</sup>	69.7		
<b>SUBTOTAL 3</b>					
<b>4.00</b>	<b><u>SUPERSTRUCTURE: CONCRETE / REINFORCEMENT/ FORMWORKS</u></b>				
<b>4.10</b>	<b><u>Concrete</u></b>				
4.11	Beams: provide all materials, mix, place and compact concrete grade C25/20 (1:1.5:3)	m <sup>3</sup>	0.8		
<b>4.20</b>	<b><u>Reinforcement</u></b>				
4.21	Provide reinforcement - deformed high yield steel DTU bars	Kg	236		
<b>4.30</b>	<b><u>Formwork</u></b>				
	Provide and fix shuttering including propping, strutting and striking, all as specified. Wrot Formwork - Class F3 Finish				
4.31	Sides for beams	m <sup>2</sup>	13.5		
<b>SUBTOTAL 4</b>					
<b>5.00</b>	<b><u>PIPEWORK - PIPES and FITTINGS</u></b>				
<b>5.10</b>	<b><u>Pipes</u></b>				
5.11	Provide all materials and install internal waste water drainage for the hand wash basin, the WC and the shower, to be connected to the inspection chamber outside the building	item	1s		
5.12	Provide and lay 100mm dia. Class 41 uPVC sewer pipe from the inspection chamber to the next treatment module	m	10		
5.13	Provide 25mm dia. HDPE water pipe and construct pipeline from the existing service line to the operator store through the overhead tank, incl. all required fittings. Allow for connection of the HDPE pipe to the service line with all appropriate fittings.	item	1s		
5.14	Provide and install 15mm dia. HDPE water pipe in the washroom of the operator store, including all required fittings for connection and chasing all pipes within the wall and make good after	item	1s		
<b>5.20</b>	<b><u>Supplementary parts</u></b>				
	Provide and install the following complete with associated pipework and fittings				

5.21	Glazed ceramic wash hand basin	nr	1		
5.22	Glazed Ceramic water closet	nr	1		
5.23	Shower: instant shower head(Lorenzetti or equivalent) and 15mm dia. water tap	item	1s		
<b>SUBTOTAL 5</b>					
<b>6.00</b>	<b><u>METALWORK</u></b>				
<b>6.10</b>	<b><u>Steel tower</u></b>				



**WSTF - URBAN SANITATION UPSCALING PROGRAM  
CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR LAMU WATER AND  
SANITATION COMPANY LTD IN MOKOWE - LAMU COUNTY**

**BILL 6 - OPERATOR STORE**

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
6.11	Provide all material and construct a 3000mm high steel tower as specified in the drawings. Allow for excavating and placing of 4 nr class 25/20 concrete footing size 400x400x600mm deep as per Drawings	item	LS		
<b>6.20</b>	<b><u>Steel Door</u></b>				
	Supply and fix steel casement door with 50 x 50mm pressed metal frames, including hinges, pad bolts and tower bolts, all to manufacturer's details, with one coat lead oxide primer complete with opening accessories including bedding and pointing around frames in cement mortar				
6.21	Door size 900 x 2100 mm high	nr	2		
<b>6.30</b>	<b><u>Steel Casement Windows</u></b>				
	Supply and fix the following standard section horizontal bar type steel casement windows with one coat lead oxide primer complete with opening accessories including burglar proofing bedding and pointing around frames in cement mortar				
6.31	Window size 1200 x 1200mm high	nr	2		
6.32	Window size 600 x 600mm high	nr	2		
<b>6.40</b>	<b><u>Glazing</u></b>				
	4mm thick clear sheet glass and glazing to steel casements with putty in panes				
6.41	0.10 - 0.50 square metres	m <sup>2</sup>	4.8		
<b>SUBTOTAL 6</b>					
<b>7.00</b>	<b><u>ROOF COVERINGS</u></b>				
<b>7.10</b>	<b><u>Roofing sheets</u></b>				
7.11	IT4 (box profile) roofing sheets gauge 28 with resin coat laid on sawn cypress (Grade 2) battens size 100 x 50mm pressure impregnated with approved preservative	m <sup>2</sup>	35.0		
<b>7.20</b>	<b><u>Carpentry and joining</u></b>				
	Roof Timbers: mono pitch roof truss and overhanging canopy in sawn cypress grade II seasoned and pressure impregnated with wood preservative and timber joints with bolted and nailed connections as per the drawings				
7.21	Roof Timbers: mono pitch roof truss and overhanging canopy in sawn cypress grade II seasoned and pressure impregnated with wood preservative and timber joints with bolted and nailed connections as per the drawings				
7.22	Equal truss 4000mm clear span and 750mm high with 600mm eaves projection, in 100 x 50mm rafters and 100 x 50mm struts and ties with a spacing of 1500 mm C/C	nr	4		
	Other Roof Members: Sawn cypress grade II maximum moisture content 12% seasoned and pressure impregnated with wood preservative and timber joints with bolted and nailed connections as per drawings				
7.23	Other Roof Members: Sawn cypress grade II maximum moisture content 12% seasoned and pressure impregnated with wood preservative and timber joints with bolted and nailed connections as per drawings				
7.24	100 x 50mm purlins	m	16		
7.25	100 x 50mm wall plate tied to wall with 20 s.w.g. hoop iron at 900mm centres	m	17.3		
7.26	200 x 40mm fascia board	m	22.1		
<b>7.30</b>	<b><u>Ceiling</u></b>				

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CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR LAMU WATER AND  
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**BILL 6 - OPERATOR STORE**

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
7.31	Provide and fix 9mm chipboard ceiling fixed on 600x600mm branding (50x50mm). Allow for 1nr 600x600mm access hatch with Cover	m <sup>2</sup>	18.6		
7.32	50mm high cornice	m	25.3		
<b>7.40</b>	<b><u>Timber Battern Door</u></b>				
7.41	50mm thick lipped timber framed batterned & braced cypress doors 900x2100mm high made of 100x50mm seasoned timber including hinges, ironmongery, frame and galvanised metal sheet (1m high) at the bottom of the door	nr	1		
<b>SUBTOTAL 7</b>					
<b>8.00</b>	<b><u>PAINTING AND DECORATING</u></b>				
<b>8.10</b>	<b><u>Painting</u></b>				
	Prepare, knot, prime, stop and apply three coats first quality emulsion paint				
8.11	Plastered surfaces internally	m <sup>2</sup>	64.4		
8.12	Under side of the ceiling	m <sup>2</sup>	18.6		
8.13	Prepare, knot, prime, stop and apply three coats first quality gloss Paint				
8.14	General surfaces of fascia boards	m <sup>2</sup>	4.4		
8.15	General surfaces of glazed metal windows, including burglar-Proofing	item	1s		
8.16	General surfaces of steel casement door and flush door	item	1s		
<b>8.20</b>	<b><u>Tiling</u></b>				
	Supply and fix tiles on the floor and walling up to 1.2m high for the toilet area				
8.21	Floor tiles for the office and the washroom: 6mm thick ceramic Coloured	m <sup>2</sup>	16.1		
8.22	Skirting tiles: 6mm thick and 100mm high ceramic coloured	m <sup>2</sup>	2.2		
8.23	Wall tiles around the washroom to the height of 1500mm: 4mm thick ceramic coloured	m <sup>2</sup>	5.3		
<b>SUBTOTAL 8</b>					
<b>9.00</b>	<b><u>PCC SLABS</u></b>				
9.10	Provide all material, fabricate and place PCC slabs 600x600mm around the operator store and allow for preparation of the bedding including all required earthwork	m <sup>2</sup>	26.5		
<b>SUBTOTAL 9</b>					
<b>10.00</b>	<b><u>ELECTRICAL CONNECTION</u></b>				
10.10	Allow for electrical connection including complete meter connection with meter box (KPLC), compact switch board, wiring and testing of the lighting system for two rooms (office and bathroom), 2 fluorescent bulbs, 2 switch buttons, 3 double electrical sockets and any other installation as to make lighting system operational as specified in the technical specifications or approved equivalent	ls	1		
<b>SUBTOTAL 10</b>					

<b>11.00</b>	<b><u>WATER SUPPLY</u></b>				
11.10	Supply and installation of a 1000L water tank on a steel tower. The rates should include materials and labour for interconnecting the tank and operators store water outlet points	ls	1		
<b>SUBTOTAL II</b>					
<b>TOTAL</b>					
<b>NOTE:</b>					
1. All the rates include all applicable taxes					
2. All the rates include supply, handling, assembling, installation, deployment of machines, processing (i.e. welding), and all related labour work					

**WSTF - URBAN SANITATION UPSCALING PROGRAM CONSTRUCTION OF A  
DECENTRALISED TREATMENT FACILITY FOR LAMU WATER  
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**BILL 7 - SITE AND AUXILIARY WORKS**

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
<b>1.00</b>	<b><u>SITE CLEARANCE AND GENERAL EXCAVATION</u></b>				
<b>1.10</b>	<b><u>General Clearance</u></b>				
1.11	Clear area within the DTF site of all grass, bushes, shrubs, hedges and grub up roots	m <sup>2</sup>	2288		
<b>1.20</b>	<b><u>Removal of trees and stumps</u></b>				
1.21	Tree of girth: up to 500mm (provisional)	nr	2		
1.22	Tree of girth: 500mm - 1m (provisional)	nr	10		
	<b>Note:-</b> Girth shall be measured 1.0 m above the ground level Trees to remove to be identified by the Project Manager				
<b>1.30</b>	<b><u>Landscaping and grass planting</u></b>				
1.31	Allow for trimming of site to correct slopes and use excavated material as fill and cart-away remaining material to approved tips.	item	1s		
1.32	Provide and plant approved grass and maintain until it takes roots	m <sup>2</sup>	1475		
<b>1.40</b>	<b><u>Surface water drainage</u></b>				
1.41	Excavate earth drain to the lines and levels directed by the project manager. Depth to invert not exceeding 0.5m	m	150		
<b>SUBTOTAL 1</b>					
<b>2.0</b>	<b><u>DISPOSAL OF DEBRI</u></b>				
2.10	Re-use debri from demolished existing reinforced concrete structures as granular fill to foundations. Compact in layers ne 200mm	Item	LS		
2.20	Cart away debris from demolished existing reinforced concrete structures to tips as identified by the contractor with the local authorities and approved by the Project Manager. Distance of hauliage ne 5Km	Item	LS		
<b>SUBTOTAL 2</b>					
<b>3.0</b>	<b><u>RAMP</u></b>				
3.10	Provide designs for an appropriate ramp for trucks to access the Receiving Bay. Allow for construction of a retaining wall height ne 2m.	Item	LS		
3.20	Provide all materials and construct the ramp.	Item	LS		
<b>SUBTOTAL 3</b>					

**WSTF - URBAN SANITATION UPSCALING PROGRAM CONSTRUCTION OF A  
DECENTRALISED TREATMENT FACILITY FOR LAMU WATER  
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**BILL 7 - SITE AND AUXILIARY WORKS**

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
<b>4.0</b>	<b><u>CHAMBERS</u></b>				
	Provide and construct chambers as described below. The rates quoted shall include site clearance, excavation, disposal of excavated material, backfilling, compacting and fixing of all inlet, outlet at the bottom of chamber, including haunching works and smooth finishing etc. as specified and instructed by the project Manager				
4.10	Detached inspection chamber (SDB + VFCW + Site): internal dimension 1000 x 1000 mm up to a depth n.e. 3000 mm including base slab, haunching, masonry walling 150mm thick, plastering internal and external, proper finishing and a cover slab 150mm thick with a rectangular 900mm x 900mm reinforced fibre access cover including a frame and fitted with a handle	pcs	7		
<b>SUBTOTAL 4</b>					
<b>5.0</b>	<b><u>INTERCONNECTION</u></b>				
5.10	Provide all materials and carry out interconnection of the effluent from the Wetland to the existing Lagoons. Allow for general cleaning and minor repairs of the existing lagoons and effluent channel to the satisfaction of the Engineer. This includes survey works to allow effluent flows.	Item	LS		
<b>6.00</b>	<b><u>FENCING AND GATE</u></b>				
6.10	Provide all materials and construct metal gate 6.0 m wide with 1 Nr 915 mm wide pedestrian entrance door within the gate, including 2Nr pillars with column all as detailed on drawing, inclusive of painting with undercoating and finish coating	pcs	1		
6.20	Excavate for 3425mm long post holes (2700mm overground and 725mm underground), provide all materials and construct chain link fence to be gauge 12 galvanized steel wire double twist with 3 strands of gauge 16 barbed wire on concrete posts at 3 m centres all as per details on drawings provided including straining posts at every 10th post and additional posts at corners	m	192		
<b>SUBTOTAL 5</b>					
<b>7.00</b>	<b><u>ROADS</u></b>				
7.10	<b><u>Gravel access road within the DTF</u></b>				
7.11	Bulk excavations and top soil removal for the whole area of the road (depth n.e. 250mm). Spread top soil stacked on site for reuse.	m <sup>2</sup>	208		
7.12	Existing formation compacted to 95% MDD as shown in the drawing	m <sup>2</sup>	208		
7.13	150mm hard core fill compacted base as shown in the drawing	m <sup>2</sup>	208		
7.14	Supply and place approved 150mm thick crusher-run gravel shown on the drawings.	m <sup>2</sup>	208		
<b>SUBTOTAL 6</b>					
<b>TOTAL</b>					

**WSTF - URBAN SANITATION UPSCALING PROGRAM CONSTRUCTION OF A  
 DECENTRALISED TREATMENT FACILITY FOR LAMU WATER  
 AND SANITATION COMPANY LTD IN MOKOWE - LAMU COUNTY**



**BILL 7 - SITE AND AUXILIARY WORKS**

ITEM	ITEM DESCRIPTION	UNIT	QTY	RATE [KSh]	AMOUNT [KSh]
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**NOTE:**  
 1. All the rates include all applicable taxes  
 2. All the rates include supply, handling, assembling, installation, deployment of machines, processing (i.e.welding), and all related labour work

**WSTF - URBAN SANITATION UPSCALING PROGRAM  
CONSTRUCTION OF A DECENTRALISED TREATMENT FACILITY FOR LAMU WATER AND  
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<b>BILL No</b>	<b>DESCRIPTION</b>	<b>AMOUNT (KSh)</b>
Bill No 1	PRELIMINARY AND GENERAL	
Bill No 2	RECEIVING BAY / BALANCING TANK / SLUDGE DRYING BED	
Bill No 3	ANAEROBIC REACTOR	
Bill No 4	VERTICAL FLOW CONSTRUCTED WETLAND	
Bill No 5	SOLID WASTE INCINERATOR	
Bill No 6	OPERATOR STORE	
Bill No 7	SITE AND AUXILIARY WORKS	
<b>TOTAL [KSh]</b>		
<b>GRAND TOTAL INVESTMENT COSTS - All taxes inclusive [KSh]</b>		

# STRUCTURAL AND ENGINEERING DRAWINGS

## DECENTRALISED TREATMENT FACILITY

*50m<sup>3</sup> daily capacity*

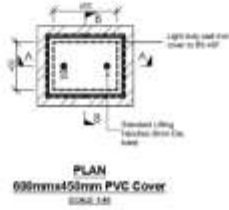
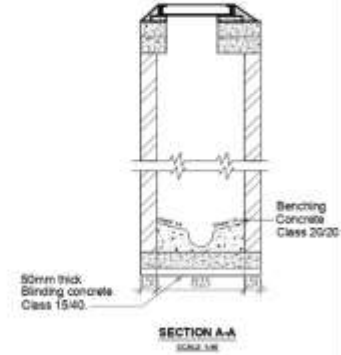
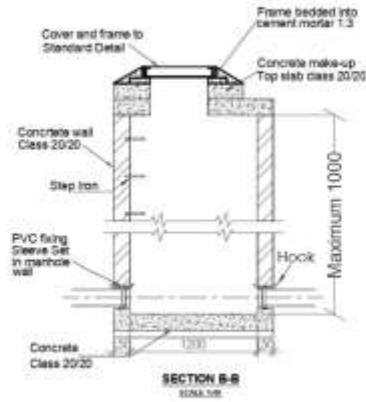
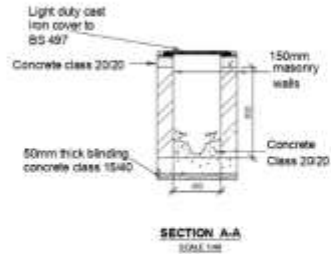
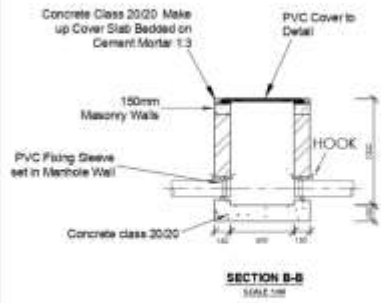
**DTF 50**

Up-Scaling Basic Sanitation for the Urban Poor  
(UBSUP)



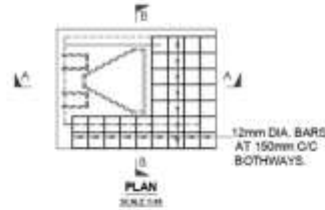
May 2018



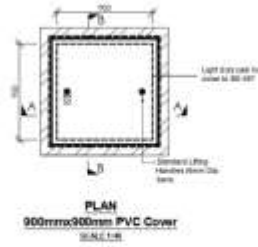
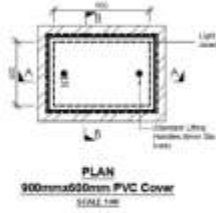
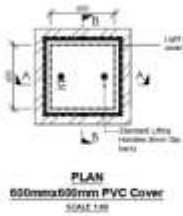


**NOTES:**

1. INSPECTION CHAMBER SHOULD BE SIZE 600x600mm UP TO DEPTH OF 1000mm
2. FOR CHAMBERS EXCEEDING DEPTH 1000mm SIZE SHOULD BE 900x900mm
3. WALLS OF INSPECTION CHAMBER TO BE OF MASONRY
4. ALL CONCRETE TO BE CLASS 20/20 IN ACCORDANCE WITH THE SPECIFICATION



**RECTANGULAR MANHOLE DETAILS**



**INSPECTION CHAMBER DETAILS**

**CHAMBERS AND MANHOLES**

**Project Title:**  
Up-scaling Basic Sanitation for Urban Poor (UBSLP)



**Project Area:**

**Designed and drawn by:** BSUP technical team  
**Checked by:** Programme Manager Urban Investments  
**Approved by:** CEO WSTF

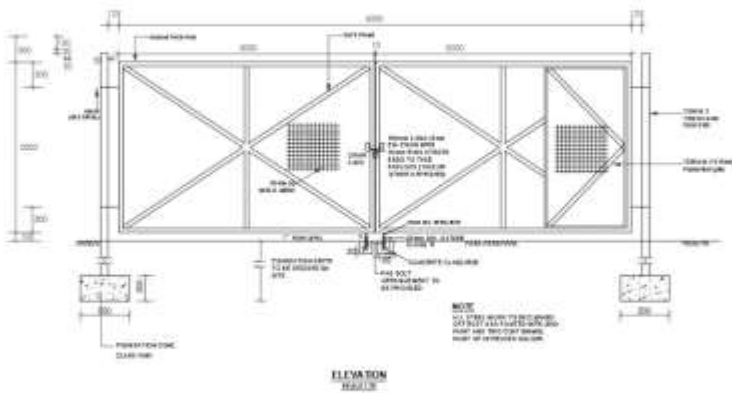
**Notes:**  
See Above

**Index No.:**      **Description:**

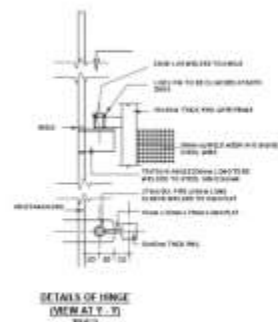

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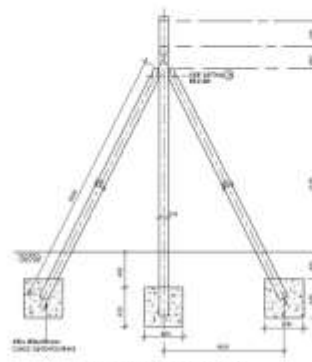
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DETAILS OF 6M WIDE GATE



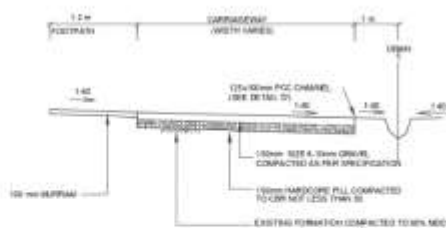
DETAILS OF HINGE (SEE AT T. 3)



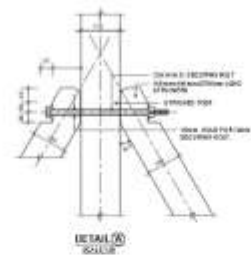
DETAILS OF STRAINING POST FOR CHAIN LINK FENCE AT 33.3m C/C



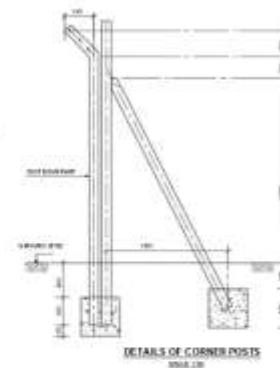
DETAILS OF SINGLE P.C.C. POST AT 3.3m C/C



TYPICAL SECTION OF GRAVEL ROAD



DETAILS OF CORNER POST



DETAILS OF CORNER POST

- NOTES:
1. ALL STEEL WORK TO BE GALVANIZED OR PAINTED AS PER SPECIFICATION AND ALL WELDS TO BE FULL PENETRATION WELDS.
  2. ALL STEEL WORK TO BE GALVANIZED OR PAINTED AS PER SPECIFICATION AND ALL WELDS TO BE FULL PENETRATION WELDS.
  3. ALL STEEL WORK TO BE GALVANIZED OR PAINTED AS PER SPECIFICATION AND ALL WELDS TO BE FULL PENETRATION WELDS.
  4. ALL STEEL WORK TO BE GALVANIZED OR PAINTED AS PER SPECIFICATION AND ALL WELDS TO BE FULL PENETRATION WELDS.
  5. ALL STEEL WORK TO BE GALVANIZED OR PAINTED AS PER SPECIFICATION AND ALL WELDS TO BE FULL PENETRATION WELDS.

CHAIN LINK FENCE

FENCE, GATE AND ROAD

Project Title  
Up-scaling Basic Sanitation  
for Urban Poor  
(UBSUP)



Project Area

Designed and drawn by: UBSUP technical team  
Checked by: Programme Manager Urban Investments  
Approved by: CEO WSTF

Notes:  
See Above

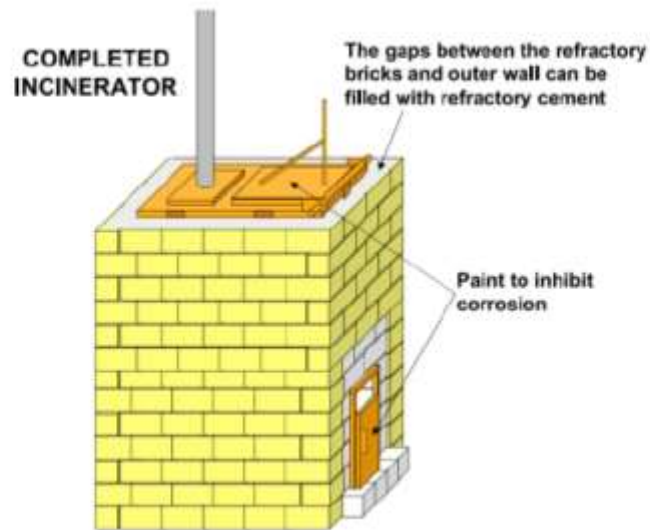
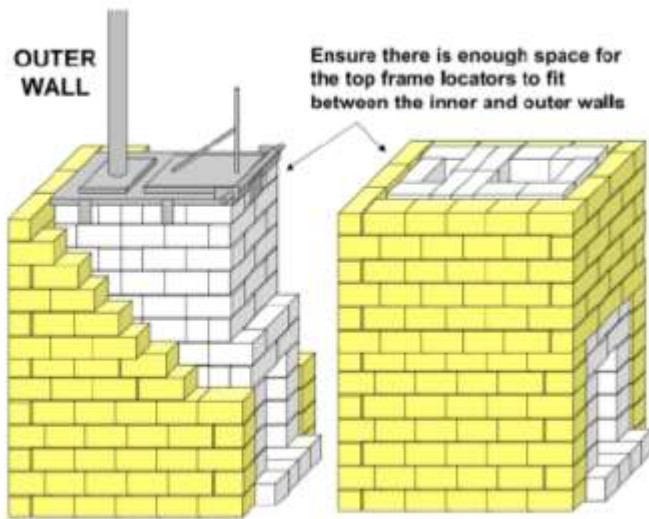
Index No. Description

Index No.	Description

Date:

Scale: As shown

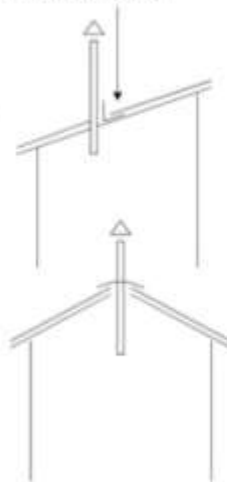
Page:



## SHELTER



## Channel to divert rain way from chimney



## Operation

The incinerator should be started by putting **waste paper, cardboard** or similar easily ignited material over the grate. Burning paper can then be dropped on top, and when a good flame is established, more combustible material added till the combustion chamber is half full. If available, about 100 ml of kerosene, diesel oil or small lubricating oil can be poured on top to speed the heating process. Only dry, non-sulphated waste should be added for the first 10 minutes or until a fierce flame is established.

The combustion chamber should be kept at least half full, and reduction and/or wet waste should be added above dry materials to ensure that it does not become too hot. Additional liquid fuel can be added if it is suspected that the combustion rate is decreasing. Any plastic waste available will also help to raise the temperature of combustion, but both this and the oil will give rise to black smoke if used to excess.

The incinerator will be most efficient if it is operated for fairly long periods since it is ignited. The grate and the fire passage to the base of the chimney must be kept clear by poking a steel rod through the air inlet hole from time to time. It may also be necessary to push down the load from time to time to prevent it "sticking" above the grate. **The last load before closing down should be as dry and safe as possible**, so that no unburned material is left.

## Maintenance

As with any type of equipment, there is a need to perform some regular maintenance to ensure both that the system will continue to work properly and to prolong the life span of the incinerator.

### Before each operation

- Check that ash has been completely cleaned from the grate and flow of incinerator.
- Check that loading door closes properly over the seal and is in air-tight position. Lubricate seal if necessary.

## Annual inspection and verifications

Component	Check	Rectify if necessary
Chimney	Vertical flange	Re-seal or replace
	Corrosion	Repair any holes or weak points. Replace chimney or section thereof if necessary.
Chimney support plate	Corrosion	Replace if necessary
Top wind valve	Correct seal in brickwork. Adjust valve level.	Re-seal with refractory cement. Top up seal.
Ash door	Corrosion, hinges, catch. Check lock to door frame.	Repair and clean as necessary.
Brick wall	Missing cement	Replace with refractory cement.
	Evidence of thermal damage to bricks	Use inner surface of bricks with 10 mm refractory cement.

## Disclaimer

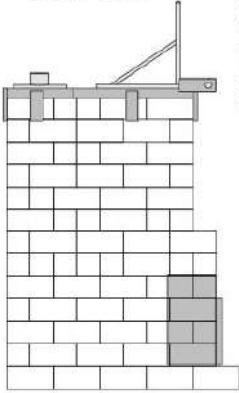
Since the safe and successful use of the incinerator, which operates at very high temperatures, is entirely dependent on the building, operation and maintenance thereof, the University and the organisations supplying the drawings and instructions can bear no responsibility for any mishaps or personnel or equipment technical performance of the incinerator.

## Information & queries

Any questions relating to these instructions should be referred to Professor D.J. Pickett (De Montfort University, Leicester, UK)

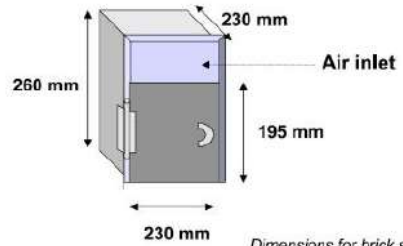
Contact formater available at:  
[formater@dmu.ac.uk](mailto:formater@dmu.ac.uk)

**ASH DOOR & SUPPORT**



The brick arch at the front is supported by a steel tunnel (3mm thickness). Steel angle (30x30x3) welded around the front edge of the tunnel forms the support for the ash door, which is hinged.

The ash door (3mm thickness) covers  $\frac{1}{3}$  of the area of the arch. The remainder forms the air inlet.



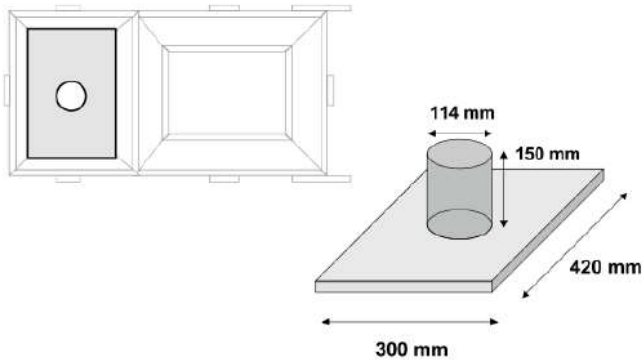
*Dimensions for brick size (230 x 100 x 65), may need to be adjusted*

**BODY OF INCINERATOR WITH ASH DOOR AND TOP FRAME**



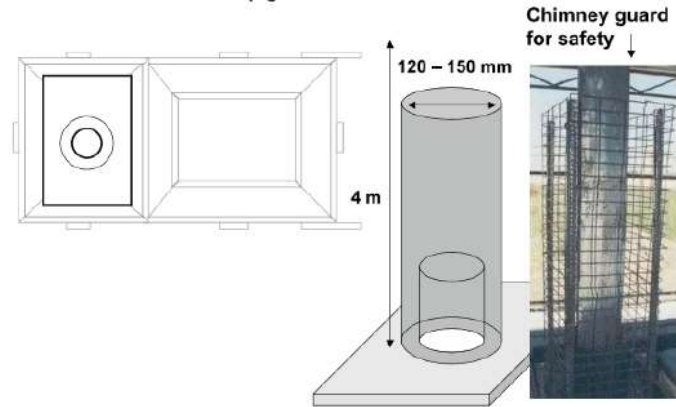
**CHIMNEY SPIGOT**

The chimney spigot is made from a frame of metal angle (30 x 30 x 3) with a plate of 5mm steel welded on top and a piece of steel pipe (3mm thickness)

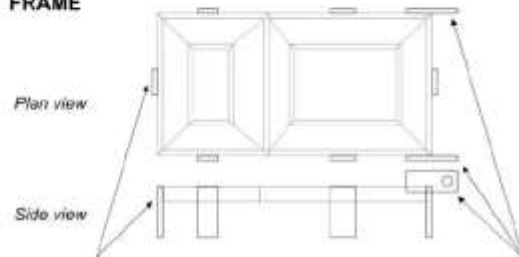


**CHIMNEY**

The chimney is made from a steel pipe (3mm thickness). It is sealed to the spigot with fire cement.



### TOP FRAME

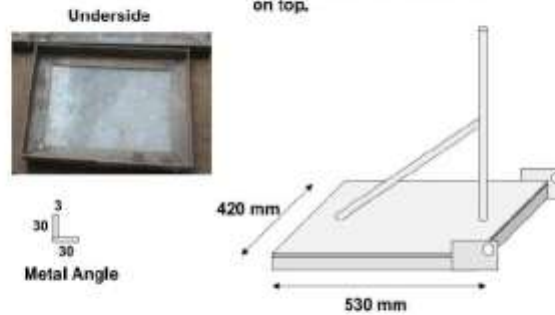


**LOCATORS:** Pieces of metal channel are welded to the top frame as locators

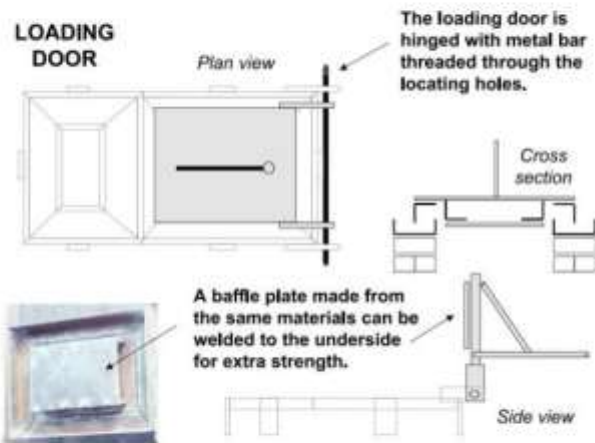
**HINGES:** 3mm metal plate is used for the loading door hinges

### LOADING DOOR

The loading door is made from a frame of metal angle (30 x 30 x 3) with a plate of 3mm steel welded on top.



### LOADING DOOR

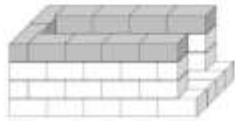


### FITTING THE TOP FRAME TO THE INCINERATOR BODY

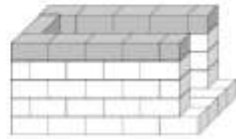


Seal with refractory cement

LAYER 4

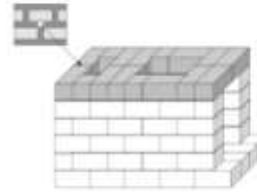


LAYER 5

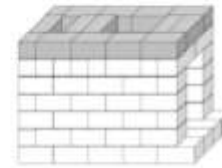


LAYER 6

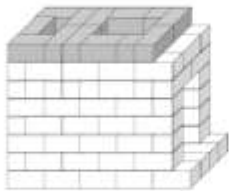
Make a viewing hole by creating a gap in the cement bed between Layer 6 & 7. Insert a piece of wood that can be removed.



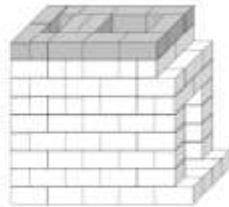
LAYER 7



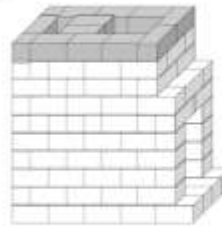
LAYER 8



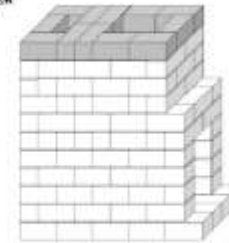
LAYER 9



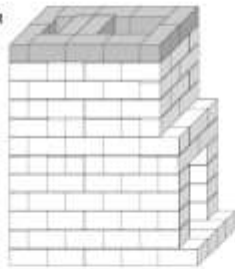
LAYER 10



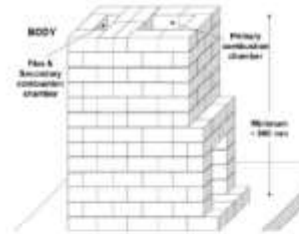
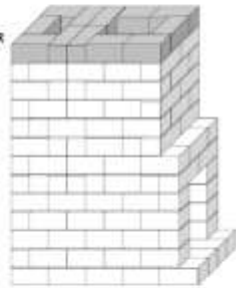
LAYER 11



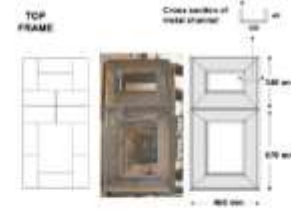
LAYER 12



LAYER 13



TCP FRAME



## De Montfort Mark 8a Incinerator

### Introduction

This is the recommended incinerator for all but large hospitals.

The instructions which follow are meant to be used in all countries. The building instructions give the number and position of the bricks, but not the overall dimensions of the incinerator. This is because bricks differ slightly in size between one country and another, and it is simpler to adjust the overall size of the incinerator to the available bricks than to have to cut bricks to an exact dimension.

Strictly, only approximate dimensions of the steelwork are given. The correct procedure is to lay out the first two layers of bricks, and then measure the length and breadth of the steel which fits on top. The steel top can then be made to fit the finished brickwork.

The steel base and side door can also be dimensional to fit the brickwork by taking measurements from the brickwork once the tunnel is formed to the first five layers of bricks.

### Summary of characteristics

**Use:** designed especially for most healthcare facilities, except large hospitals (more than 300-500 beds).

**Capacity:** 12 high

**Lifespan:** average 5-7 years

**Approximate unit cost:** in USD (materials only): 250 - 300 depending on the availability of refractory bricks

**Time necessary to build:** 3-4 days

**Remarks:** When the fuel to be burned contains almost entirely of **sheep bones** filter with great frequency, special conditions apply.

1. The plastic in the springs has a very high catalytic value and additional fuel will not be required after the initial start-up period.

2. Bones should be introduced **one at a time**. There will be a brief delay, then an increase in smoke level followed by a gradual decrease. The smoke level should be monitored when the smoke level is observed to be decreasing.

3. Take care always that this means that boxes of up to 100 springs can be burned at a rate of about one every 10 minutes.

4. Introducing bones at a higher rate than this will result in very high smoke rates and excessive plastic in the line of the incinerator.

### List of materials

Item	Dimensions	Quantity
Fire bricks		200 (approx.)
Sand		200 kg
Fire cement (high alumina)		50 kg
Refractory steel angle (cold steel)	20x20x3mm x 3m	12 metres
Refractory steel channel (cold steel)	100x40x5mm (high)	4 metres
Two sheet metal steel fire loading door	600 x 150 x 3mm	1 sheet
Plus sheet metal steel fire ash door	250 x 250 x 3mm	1 sheet
Two sheet metal steel fire chimney spring support	150 x 150 x 3mm	1 sheet
Mild steel plate	150mm (thickness) x 1000 (width) approx.	4 metres
Hinges for ash door		
Pipe for loading door hinge	1 inch	1
Lock for loading door hinge	1/2 inch	1
Masonry plugs (concrete)	see list	46
SPRINGS, 10		10
Working scale (cold steel)		40 metres
Hand spade (optional)	500 x 150 mm long	4 (one essential)
Wire Mesh (optional)	Any fine gauge	1 metre (1)
Flat tank, top and pipe (optional)		1 set

### Note:

If required, the incinerator body can be strapped together with steel bars. It can also be surrounded by an outer case of concrete bricks to give extra strength and

weather protection. In this case, the two thicknesses of brick should be "lapped" with cement. Materials should be obtained before starting the construction!

### Complete layout



Figure 1. De Montfort incinerator Mark 8a

### FOUNDATION

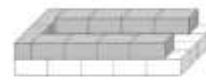
Concrete foundation: L x W x H = 2m x 2m x 0.15m  
Refractory bricks: L x W x H = approx. 220 x 110 x 65 mm  
Mortar: Refractory cement (high alumina)



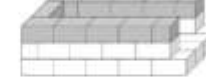
### LAYER 1

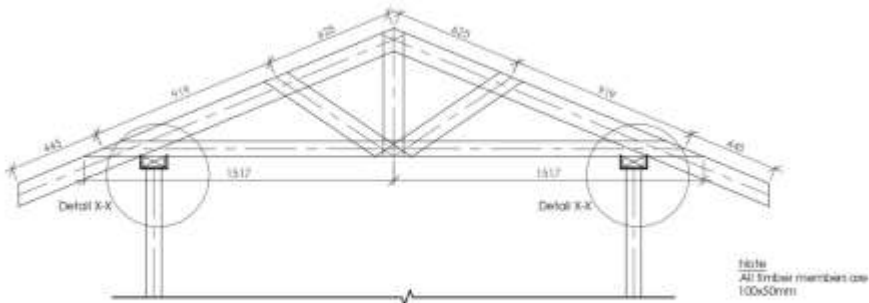


### LAYER 2



### LAYER 3

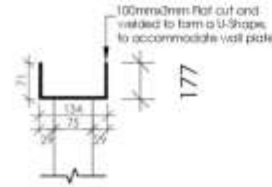
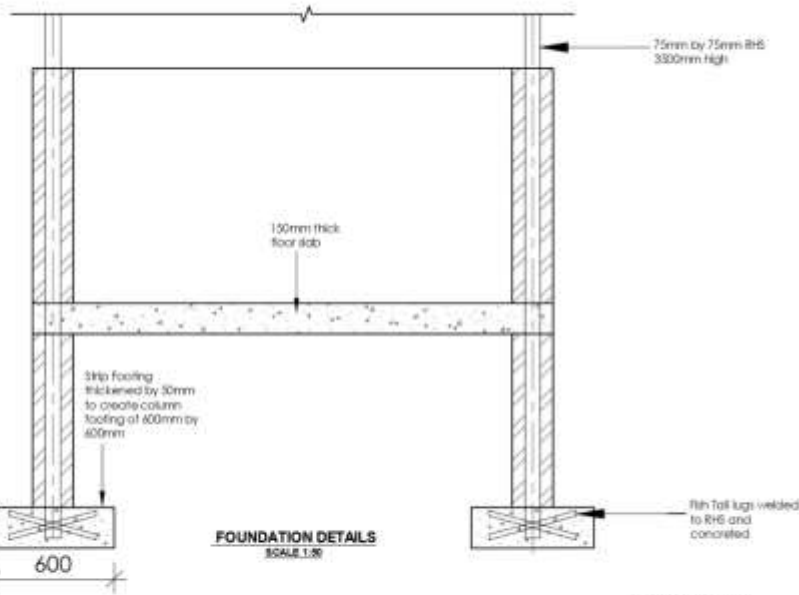




**TRUSS DETAILS - 3 NR REQUIRED**  
SCALE 1:30

**LIST OF MATERIALS FOR THE INCINERATOR UNIT**

Item	Dimensions	Quantity
Fire Bricks	230mm by 115mm by 60mm	200 approx
Sand		300kg
Pore Cement (High Alumina)	50kg bag	2 bags
Steel Angle	30mm by 30mm by 3mm	12m
Steel Channel	100mm by 40mm by 5mm	4m
Rat sheet for loading door	600mm by 750mm by 3mm	1 sheet
Rat sheet for ash door	250mm by 250mm by 3mm	1 sheet
Rat sheet for chimney pipe support	250mm by 150mm by 3mm	1 sheet
Steel pipe	150mm Dia by 3mm thickness	4m long
Hinges for Ash Door		
Pipe for loading door hinge	1 inch	1pc
Rod for loading door hinge	3/4 inch	1pc
Masonry plug	no 10	16pc
Steel cable	no 10	40m



**INCINERATOR SHED**

**Project Title:**  
Up-scaling Basic Sanitation  
for Urban Poor  
(UBSUP)



**Project Area:**

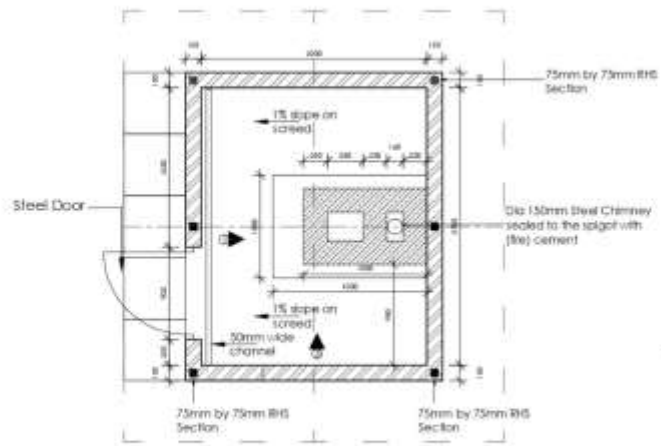
**Designed and drawn by:** BSUP technical team  
**Checked by:** Programme Manager Urban Investments  
**Approved by:** CEO WSTF

**Notes:**  
See Above

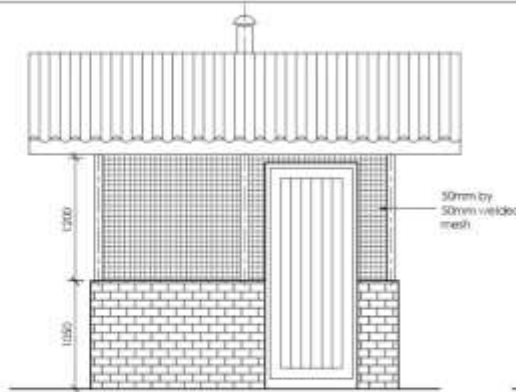
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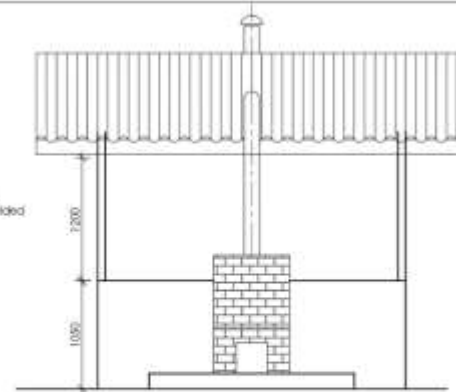




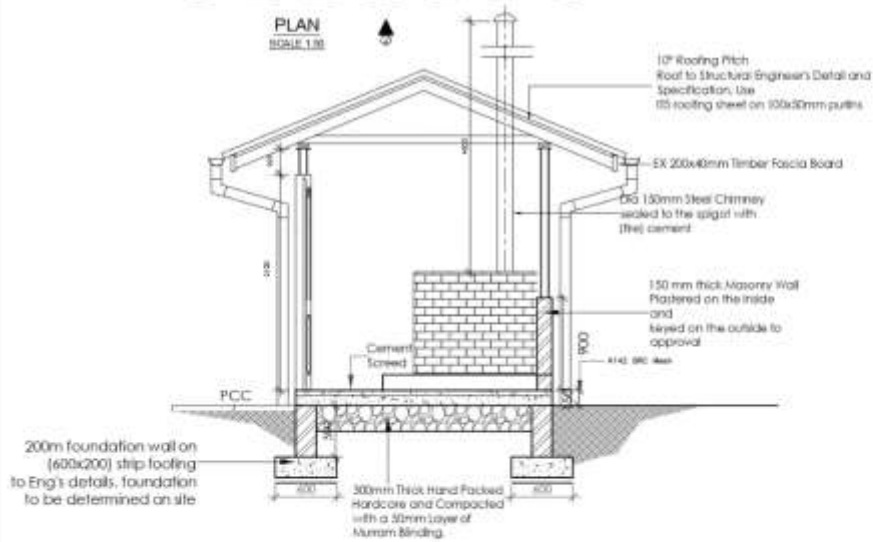
PLAN  
SCALE 1:30



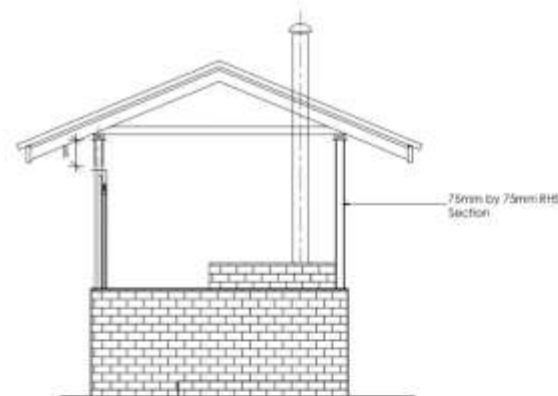
FRONT ELEVATION  
SCALE 1:30



ELEVATION 1  
SCALE 1:30



ELEVATION 3  
SCALE 1:30



ELEVATION 2  
SCALE 1:30

INCINERATOR SHED

**Project Title**  
Up-scaling Basic Sanitation for Urban Poor (UBSUP)

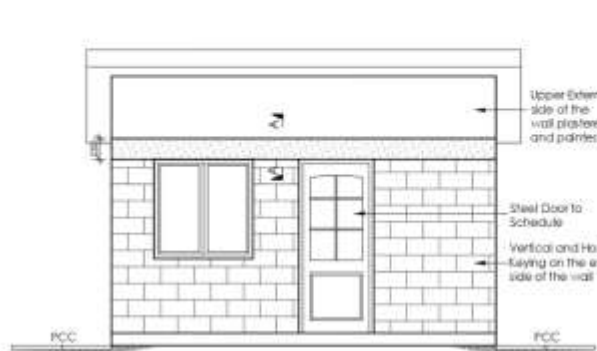
**Project Area**

**Designed and drawn by** UB SUP technical team  
**Checked by** Programme Manager Urban Investments  
**Approved by** CEO WSTF

**Notes:**  
See Above

Index No.	Description

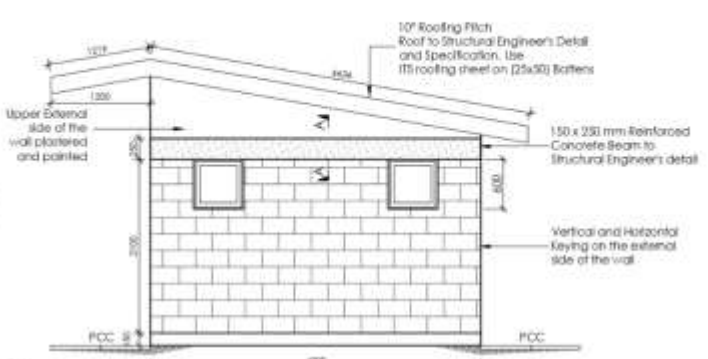
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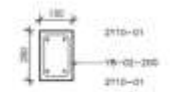
**ELEVATION E1**  
SCALE 1:10



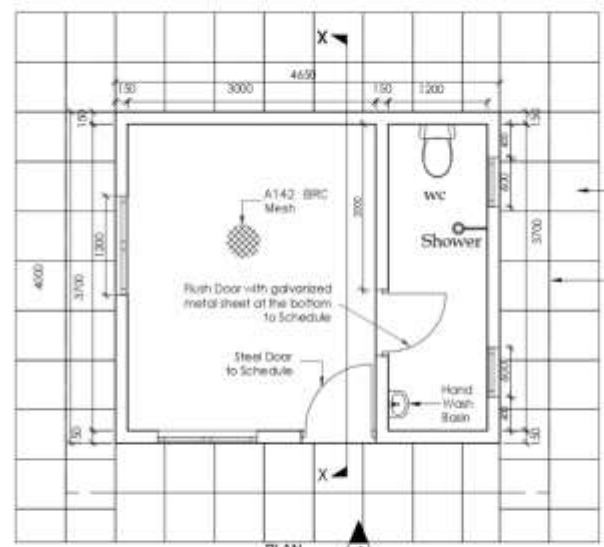
**PVC TANK ELEVATED ON A STEEL TOWER**  
SCALE 1:10



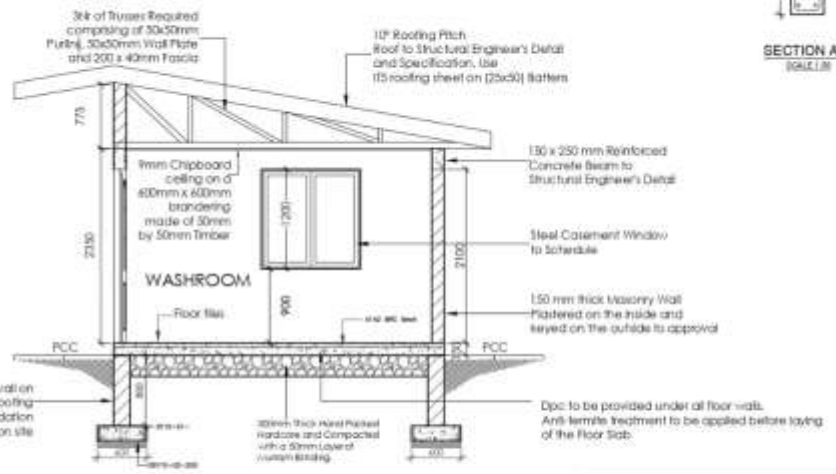
**ELEVATION E2**  
SCALE 1:10



**SECTION AA**  
SCALE 1:10



**PLAN**  
SCALE 1:10



**SECTION X-X**  
SCALE 1:10

**Doors and Windows Schedule**

Type	Width	Height
Door-D1	910	2100
Window-W1	1200	1200
Window-W2	600	600

**OPERATORS OFFICE**

**Project Title:**  
Up-scaling Basic Sanitation for Urban Poor (URSUP)

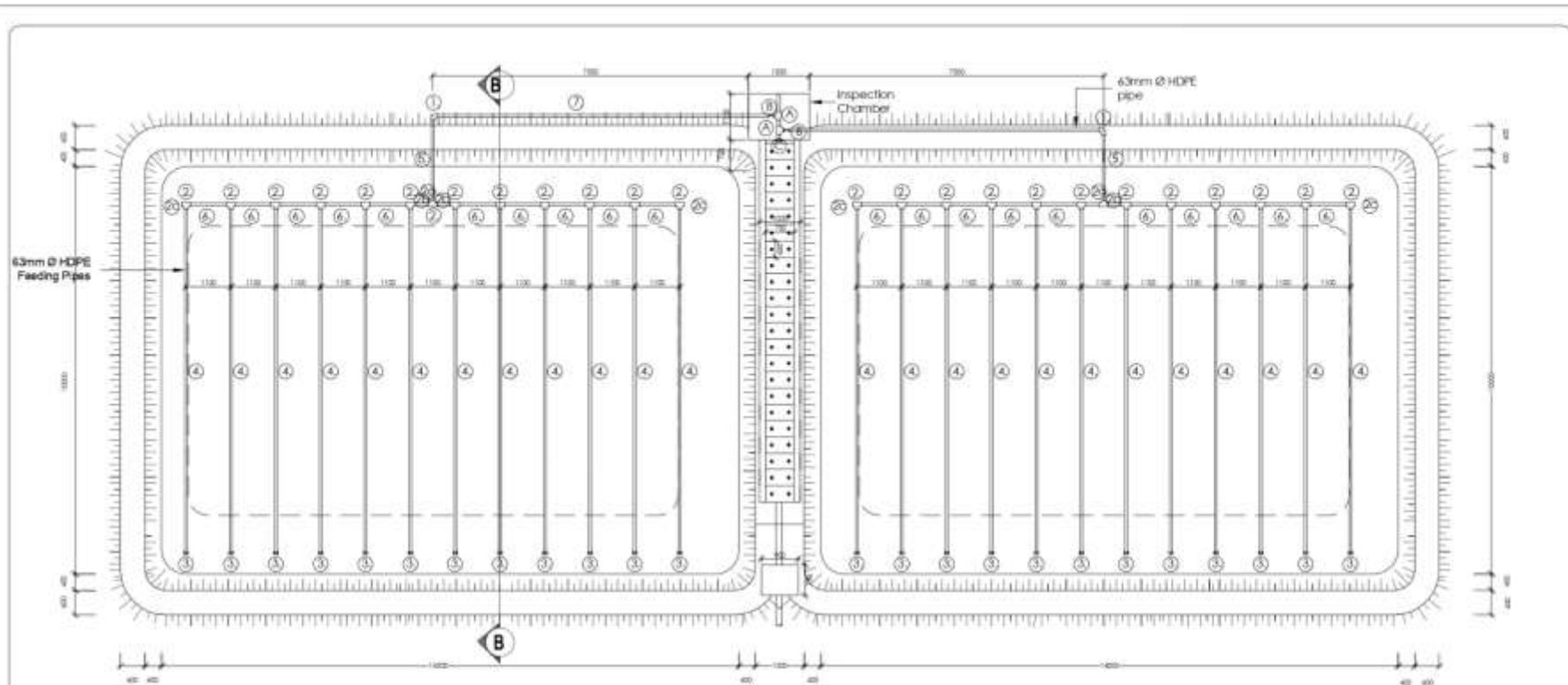
**Project Area**

**Designed and drawn by:** BSUP technical team  
**Checked by:** Programme Manager (Urban Investment)  
**Approved by:** CEO WSTP

**Note:**  
See Above

Index No.	Description

**Date:**  
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**Page:**



**PLAN**  
SCALE 1:500

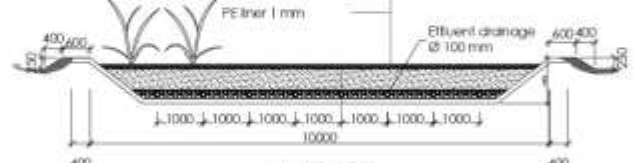
**SCHEDULE OF PIPEL AND FITTINGS**

Description	Length	Qty
① 130mm Dia. uPVC 90° Bends	-	6
② 100x40mm Dia. uPVC reducing Tee	-	24
③ 150mm Dia. uPVC Equal Tee	-	2
④ 150x100mm Dia. uPVC Reducer	-	4
⑤ 100mm Dia. uPVC End Caps	-	4
⑥ 40mm Dia. uPVC End Caps	-	24
⑦ 40mm Dia. uPVC Pipe	8.5m	24
⑧ 150mm Dia. uPVC Pipe	2.0m	2
⑨ 100mm Dia. uPVC Pipe	1.1m	22
⑩ 150mm Dia. uPVC Pipe	8.3m	2

Description	Length	Qty
Ⓐ 150mm Dia. uPVC Equal Tee	-	2
Ⓑ 150mm Dia. uPVC Ball Cock valve	-	2
Ⓒ 150mm Dia. uPVC end cap	-	1



- KEY**
- 100mm Distribution Layer - Medium Gravel dia. 10 - 14mm
  - 450mm Filter Layer - Sand dia. 0.1 - 0.4mm
  - 100mm Transition Layer - Medium Gravel dia. 10 - 14mm
  - 100mm Drainage Layer - Course Gravel dia. 20 - 32mm
  - PE liner 1 mm



**VERTICAL FLOW CONSTRUCTED WETLAND**

**Project Title:**  
Up-scaling Basic Sanitation  
for Urban Poor  
(UBSUP)

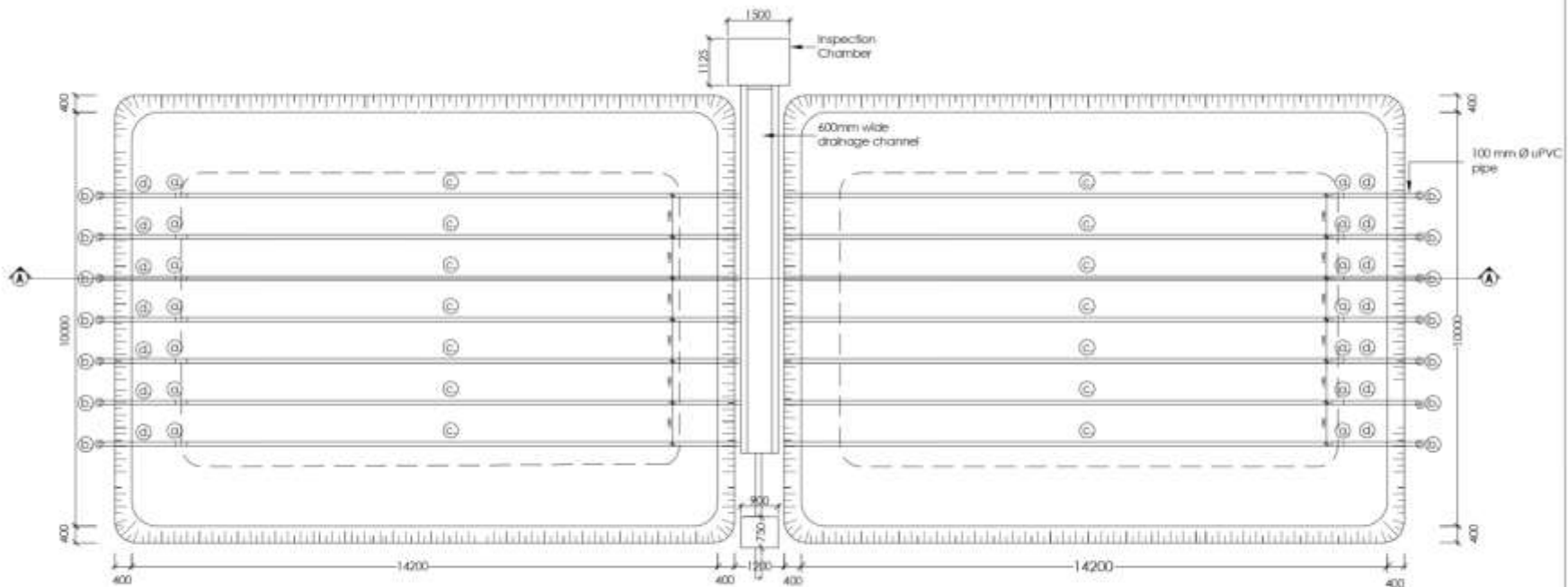
**Project Area:**

**Designed and drawn by:** UBSP technical team  
**Checked by:** Programme Manager Urban Investments  
**Approved by:** CEO WSP

**Notes:**  
See Above

Index No.	Description

**Date:**  
**Scale:** As shown  
**page:**



SCHEDULE OF PIPES AND FITTINGS

Description	Length	Qty
(a) 100mm Dia. uPVC 45° Bends	-	14
(b) 100mm Dia. uPVC Vent Cocks	-	14
(c) 100mm Dia. uPVC Pipe	13.5m	14
(d) 100mm Dia. uPVC Pipe	1.7m	14

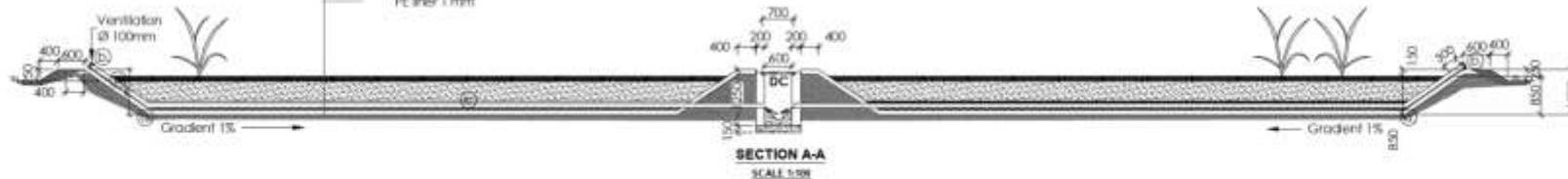
PLAN - UNDERDRAINAGE PIPEWORK  
SCALE 1:500

- KEY**
- 100mm Distribution Layer - Medium Gravel dia. 10 - 14mm
  - 450mm Filter Layer - Sand; dia. 0.1 - 0.4mm
  - 100mm Transition Layer - Medium Gravel; dia. 10 - 14mm
  - 100mm Drainage Layer - Course Gravel; dia. 20 - 32mm
  - PE liner 1 mm



100mm Dia. UNDERDRAIN PIPES  
SCALE 1:50

SECTION M-M  
SCALE 1:50



SECTION A-A  
SCALE 1:50

VERTICAL FLOW CONSTRUCTED WETLAND

**Project Title:**  
Up-scaling Basic Sanitation  
for Urban Poor  
(UBSPUP)

**Project Area:**

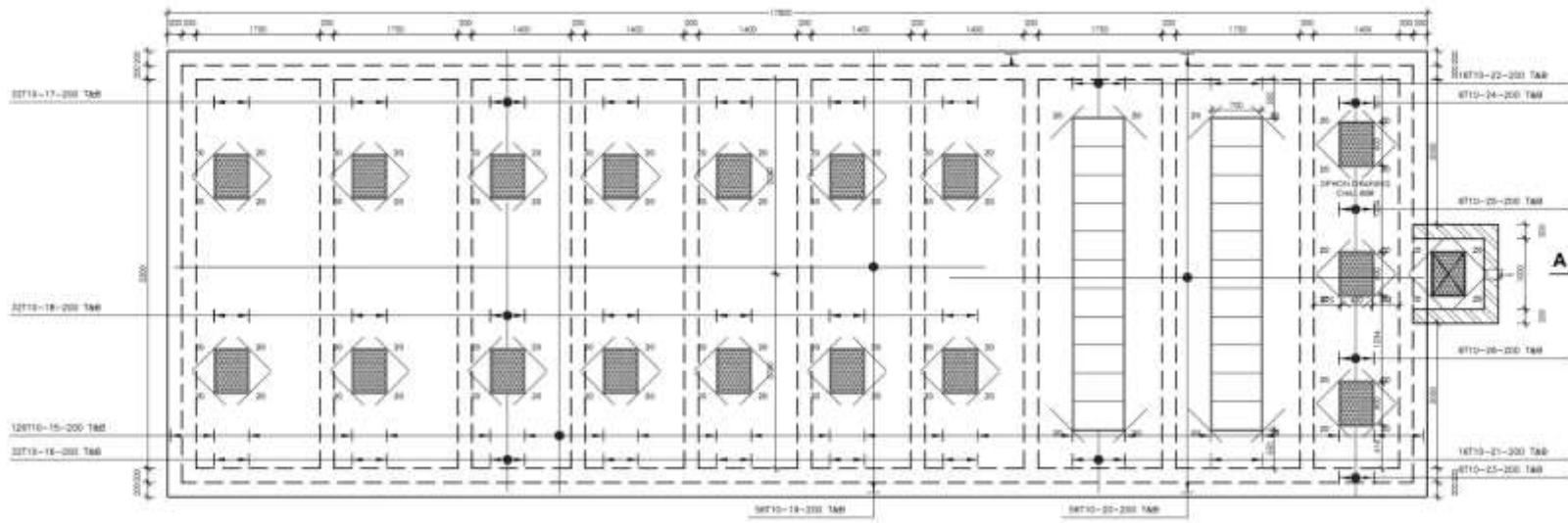
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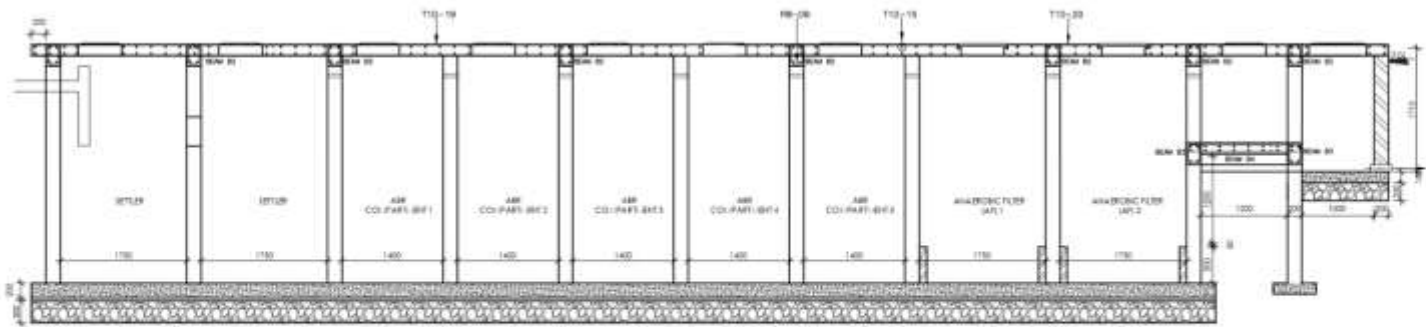
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**Scale:** As shown  
**page:**





**ROOF SLAB - PLAN**  
SCALE:1/8



**SECTION A-A**  
SCALE:1/8

**ANAEROBIC FILTER**

- NOTES**
- CONCRETE  
 (1) CONCRETE TO BE PREPARED POUNDING CONCRETE TO B.S. 12  
 (2) CONCRETE AGGREGATE TO COMPLY WITH B.S. 688  
 (3) WATER TO CONCRETE RATIO TO B.S. 1248  
 (4) CONCRETE CLASSIFIED TO BE AS FOLLOWS:-  
 - BED CONCRETE FILL AND BEARING WALL SLAB FLOOR  
 - REINFORCED CONCRETE, CLASS C25/30  
 (5) REINFORCEMENT TO ALL REINFORCEMENT TO BE 4MM Ø UNLESS  
 OTHERWISE SPECIFIED  
 MATERIALS OF REINFORCEMENT:-  
 - SLAB - 10 MM  
 - COLUMN - 12 MM  
 - FOUNDATION & BEARING - 16 MM  
 (6) WALL/COLUMN SHOULD BE FINISHED, IF POSSIBLE, IN A FULL  
 HEIGHT FROM AS TOOK AS POSSIBLE AFTER THE WALL HAS BEEN  
 CONCRETED TO 3 METERS
  - REINFORCEMENT  
 (1) REINFORCEMENT TO BE HIGH YIELD SQUARE BARS TO  
 BS 4449  
 (2) REINFORCEMENT TO B.S. 4449  
 (3) ALL REINFORCEMENT TO BE PROVIDED FOR PROVIDING ALL SHOWN  
 DEVELOPMENT LENGTHS  
 (4) REINFORCEMENT TO BE PROVIDED TO ALL SHOWN  
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 (5) ALL REINFORCEMENT TO BE PROVIDED TO ALL SHOWN  
 DEVELOPMENT LENGTHS
  - JOINTS  
 (1) JOINTS TO BE PROVIDED TO ALL SHOWN  
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 (4) JOINTS TO BE PROVIDED TO ALL SHOWN  
 DEVELOPMENT LENGTHS  
 (5) JOINTS TO BE PROVIDED TO ALL SHOWN  
 DEVELOPMENT LENGTHS
  - REFERENCES  
 (1) BS 12  
 (2) BS 688  
 (3) BS 1248  
 (4) BS 4449  
 (5) BS 4449  
 (6) BS 4449  
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**Project Title:**  
Up-scaling Basic Sanitation  
for Urban Poor  
(UBSUP)

**Project Area:**

**Designed and drawn by:** UBSUP technical team  
**Checked by:** Programme Manager Urban Investments  
**Approved by:** CEO WGF

**Notes:**  
See Above

Index No.	Description:

**Date:**  
Scale: As shown  
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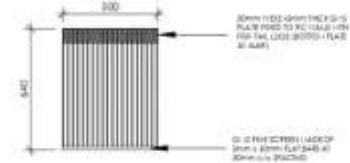
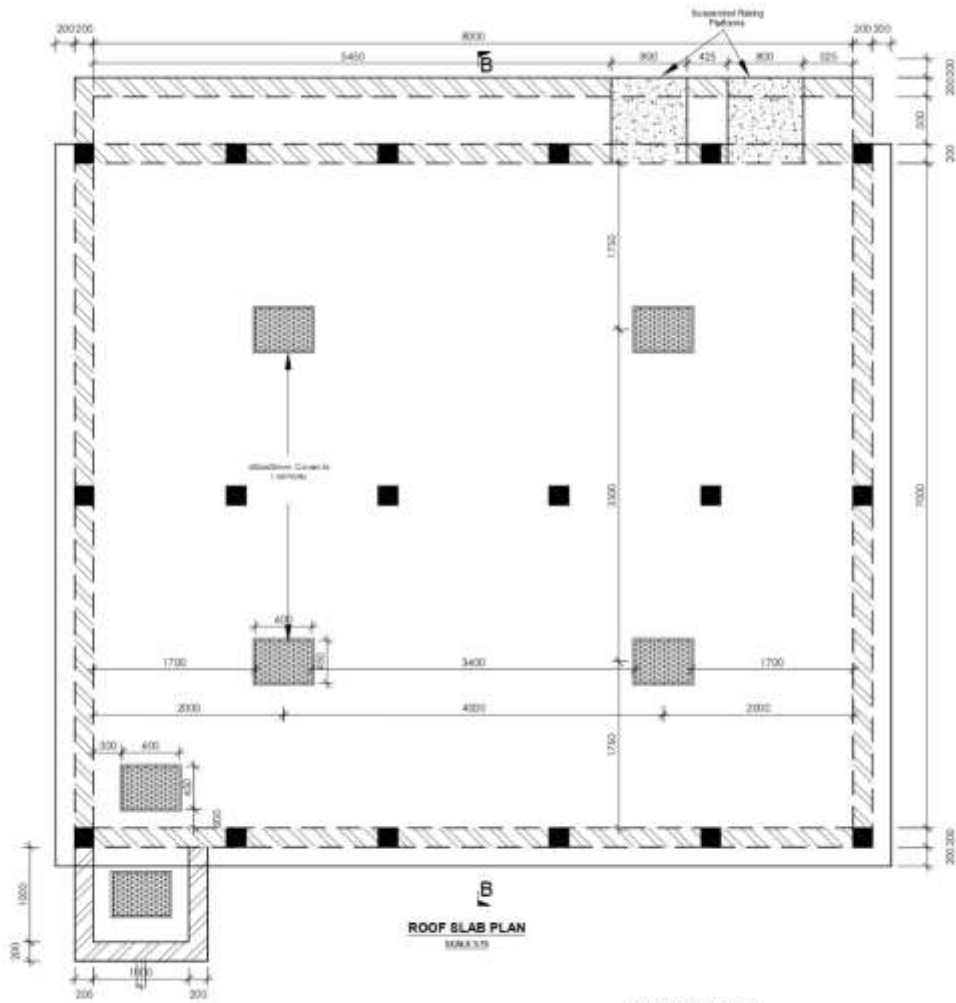




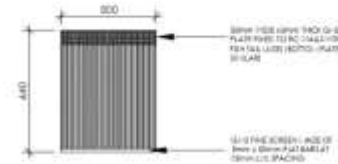








**COARSE SCREEN DETAILS**  
WALL



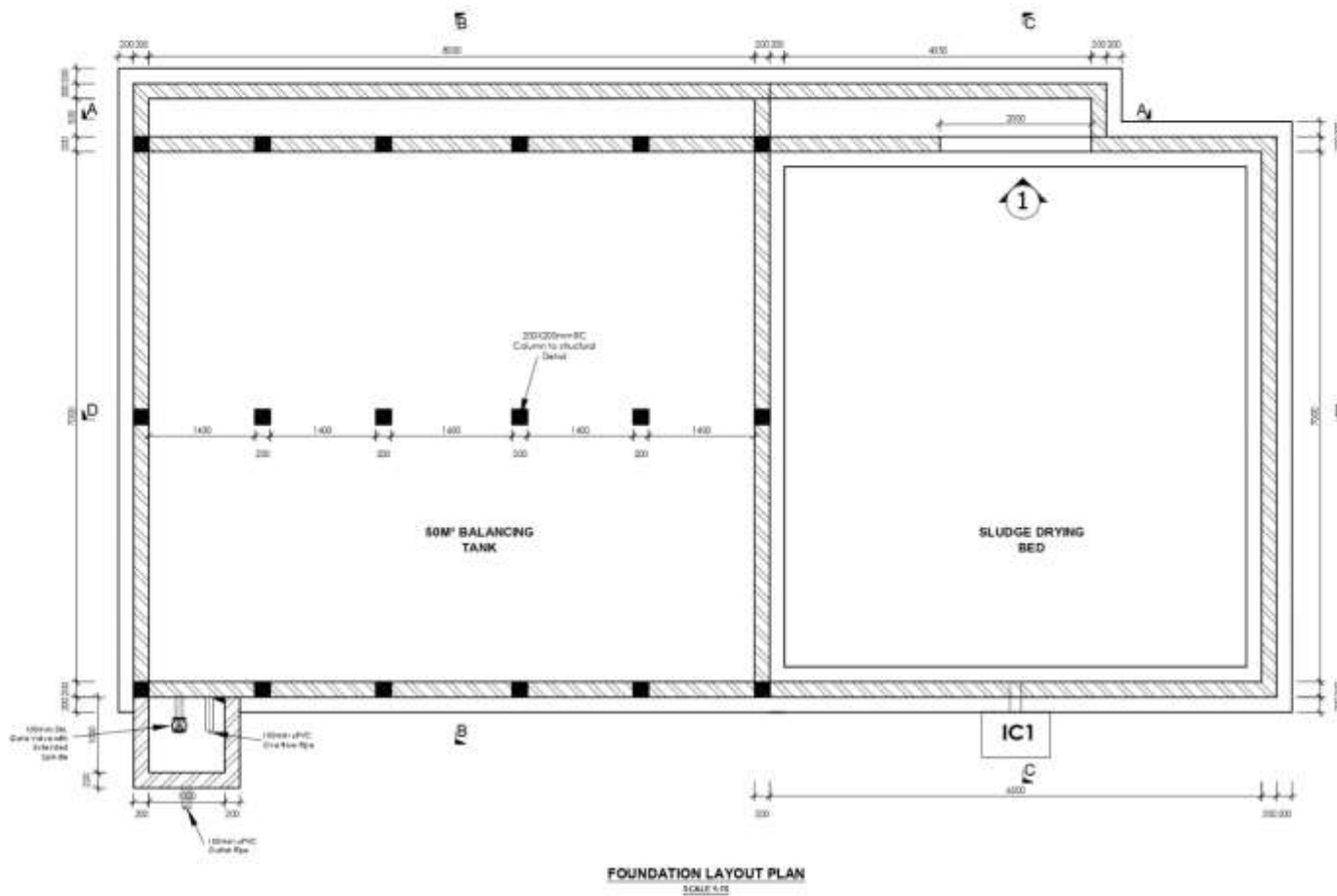
**COARSE SCREEN DETAILS**  
SLAB

- NOTES**
1. GENERAL
    - a) STRUCTURE TO BE BUILT IN ACCORDANCE WITH THE S.D. 11
    - b) CONCRETE TO BE SUPPLIED TO THE S.D. 11
    - c) CONCRETE TO BE SUPPLIED TO THE S.D. 11
    - d) CONCRETE TO BE SUPPLIED TO THE S.D. 11
    - e) CONCRETE TO BE SUPPLIED TO THE S.D. 11
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    - z) CONCRETE TO BE SUPPLIED TO THE S.D. 11
  2. REINFORCEMENT
    - a) REINFORCEMENT TO BE SUPPLIED TO THE S.D. 11
    - b) REINFORCEMENT TO BE SUPPLIED TO THE S.D. 11
    - c) REINFORCEMENT TO BE SUPPLIED TO THE S.D. 11
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    - z) REINFORCEMENT TO BE SUPPLIED TO THE S.D. 11
  3. LOADS
    - a) DEAD LOAD TO BE SUPPLIED TO THE S.D. 11
    - b) DEAD LOAD TO BE SUPPLIED TO THE S.D. 11
    - c) DEAD LOAD TO BE SUPPLIED TO THE S.D. 11
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    - z) DEAD LOAD TO BE SUPPLIED TO THE S.D. 11
  4. FINISHES
    - a) FINISHES TO BE SUPPLIED TO THE S.D. 11
    - b) FINISHES TO BE SUPPLIED TO THE S.D. 11
    - c) FINISHES TO BE SUPPLIED TO THE S.D. 11
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    - z) FINISHES TO BE SUPPLIED TO THE S.D. 11
  5. THE DRAWING TO BE USED IN CONNECTION WITH THE S.D. 11

<b>Project Title</b> Up-scaling Basic Sanitation for Urban Poor (UBSUP)	<b>Project Area</b>	<b>Designed and drawn by:</b> UBSUP Technical team <b>Checked by:</b> Programme Manager Urban Investments <b>Approved by:</b> CEO MSIF	<b>Note:</b> See Above	<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:10%;">Index No.</th> <th style="width:80%;">Description</th> <th style="width:10%;">Date</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	Index No.	Description	Date													<b>Scale</b> As shown  <b>Page</b>
Index No.	Description	Date																		







- NOTES**
- CONCRETE TO BE ORDINARY PORTLAND CEMENT TO B.S. 12
  - CONCRETE AGGREGATE TO COMPLY WITH B.S. 882
  - CONCRETE AGGREGATE TO COMPLY WITH B.S. 588
  - CONCRETE CLASS TO BE AS FOLLOWS:
    - WALLS CONCRETE CLASS AND REINFORCING WIRE CLASS FIVE
    - REINFORCED CONCRETE CLASS 25/28
    - REINFORCING WIRE TO BE 40mm UNLESS OTHERWISE SPECIFIED
  - REINFORCEMENT:
    - WALLS - 12mm
    - SLABS - 12mm
    - COLUMNS - 12mm
    - REINFORCING WIRE - 6mm
  - WALLS/COLUMNS SHOULD BE FINISHED, IF POSSIBLE, IN A FULL FINISH STATE AS SOON AS POSSIBLE AFTER THE GRADE HAS BEEN COMPLETED (1 TO 2 DAYS)
  - REINFORCEMENT:
    - TO BE HIGH YIELD SQUARE TIEED BARS TO STANDARD SPECIFICATION TO B.S. 4446
    - THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL BRACKETS, CHAIRS AND TIES BARS
    - REINFORCEMENT TO BE 12mm UNLESS OTHERWISE SPECIFIED TO OTHER SPECIFICATION
  - FINISH:
    - ON THE FINISH AND NUMBER OF FINISHES, REFER TO BE AS DIRECTED BY THE ENGINEER OR AS STATED IN THE SPECIFICATION
    - FINISHES TO BE AS FOLLOWS:
      - WALLS - 12mm UNLESS OTHERWISE SPECIFIED TO OTHER SPECIFICATION
      - THE SURFACE SHALL BE FINISHED WITH A FINISH AS SPECIFIED IN THE SPECIFICATION
      - FINISHES TO BE 12mm UNLESS OTHERWISE SPECIFIED TO OTHER SPECIFICATION
    - ALL FINISHES TO BE FINISHED AS SPECIFIED
    - THE FINISHES TO BE FINISHED AS SPECIFIED
    - THE FINISHES TO BE FINISHED AS SPECIFIED
    - THE FINISHES TO BE FINISHED AS SPECIFIED
  - REVISIONS:
    - T - TOP
    - B - BOTTOM
    - W.F. - WORK FACE
    - F.F. - FINISH FACE
    - E.F. - EXIST. FACE
    - S.F. - EXIST. FACE
  - FOR CHANGES TO BE MADE IN CONSULTATION WITH DRAWING NO. 10/1/11

**Project Title:**  
Up-scaling Basic Sanitation  
for Urban Poor  
(UBSUP)

**Project Area:**

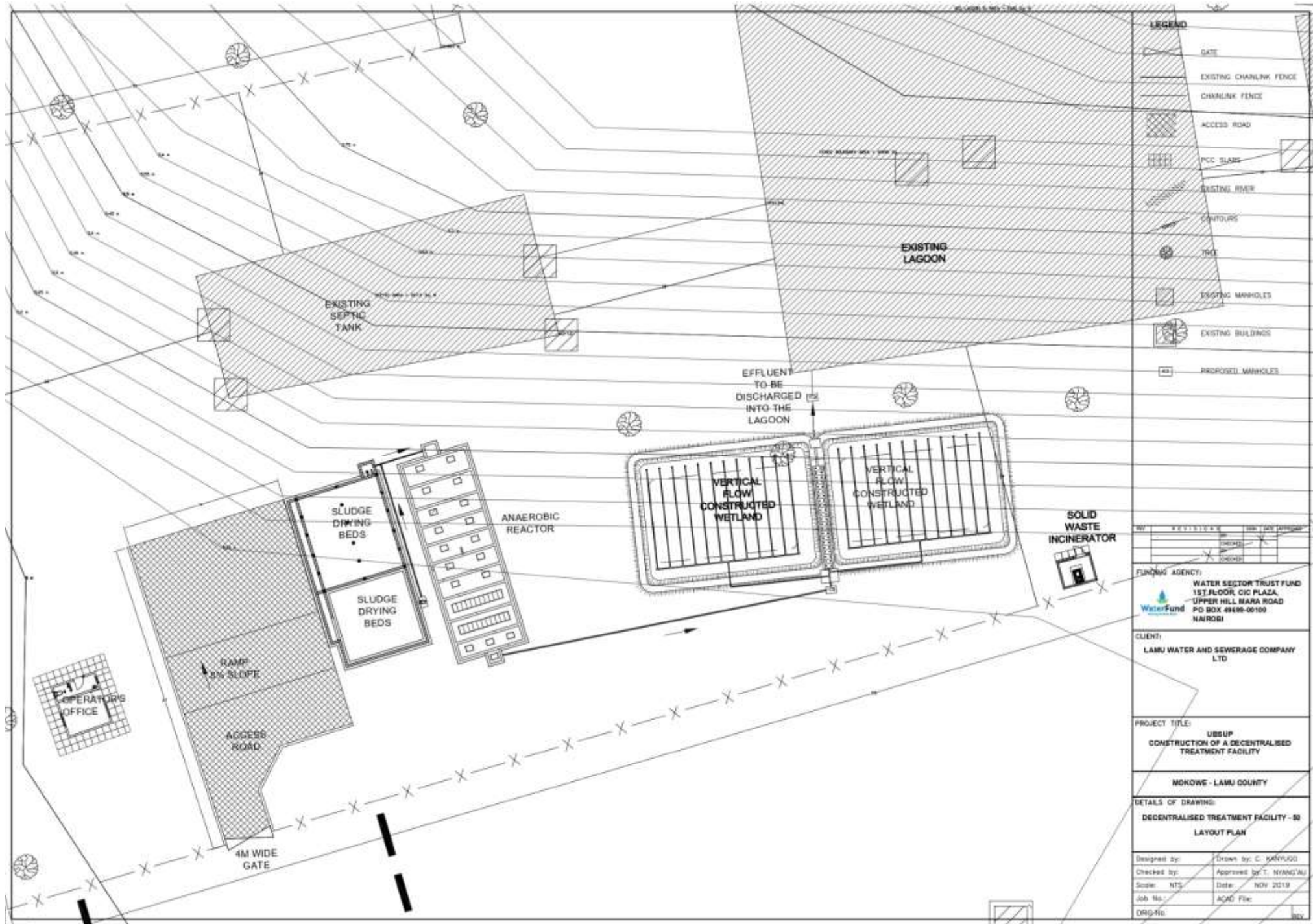
**Designed and drawn by:** UBSUP technical team  
**Checked by:** Programme Manager Urban Investments  
**Approved by:** CEO WGF

**Notes:**  
See Above

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**page:**





**LEGEND**

[Symbol]	DATE
[Symbol]	EXISTING CHAINLINK FENCE
[Symbol]	CHAINLINK FENCE
[Symbol]	ACCESS ROAD
[Symbol]	PCC SLAB
[Symbol]	EXISTING RIVER
[Symbol]	CONTOURS
[Symbol]	TREE
[Symbol]	EXISTING MANHOLES
[Symbol]	EXISTING BUILDINGS
[Symbol]	PROPOSED MANHOLES

BY	REVISED	DATE	REVISION

FUNDING AGENCY:  
 WATER SECTOR TRUST FUND  
 1ST FLOOR, CIC PLAZA,  
 UPPER HILL BARRA ROAD  
 PO BOX 49698-0100  
 NAIROBI

CLIENT:  
 LAMU WATER AND SEWERAGE COMPANY LTD

PROJECT TITLE:  
 USSUP  
 CONSTRUCTION OF A DECENTRALISED  
 TREATMENT FACILITY

MOKOWE - LAMU COUNTY

DETAILS OF DRAWING:  
 DECENTRALISED TREATMENT FACILITY - 50  
 LAYOUT PLAN

Designed by:	Drawn by: C. KARIKIO
Checked by:	Approved by: T. NYANG'AU
Scale: NTS	Date: NOV 2019
Job No.:	ACID File:
DRG No.:	