

Tender No.: 1 of 2023-2024

**OFFICE OF THE CHIEF ENGINEER, ZONE – I,
PUBLIC HEALTH ENGINEERING DEPARTMENT**

**TENDER DOCUMENT, VOLUME – I
FOR
SURVEY, DESIGN,
SUPPLY, INSTALLATION, TESTING & COMMISSIONING OF
*SEWERAGE & SEPTAGE TREATMENT WORKS FOR ZONE 7,
AIZAWL CITY SMALL BORE SEWER, TUIKUAL LUI***

(UNDER AMRUT 2.0)



Tender amount	Rs. 39,22,00,000
Earnest money	Rs. 49,22,000
Last date of sale of tender	Dt 12.01.2024
Last date of submission of tender	Dt 16.02.2024
Date of opening	Dt 19.02.2024
Cost of tender document	Rs. 5,000
Time allowed for execution of work	24 months

PRESS TENDER NOTICE
PUBLIC HEALTH ENGINEERING DEPARTMENT
TENDER NOTICE

The Chief Engineer, Zone – I, PHED, Aizawl. on behalf of the Governor of Mizoram invites bids in two envelope system with sealed item rate tender in prescribed form affixing court fee stamp worth not less than **Rs. 7.50/-** (non refundable) for non tribal and up-to-date House Tax Payee Certificate for tribal from reputed contractors experienced in similar type of works. The tender will be received in the office of the undersigned upto **12:00 hours on 16/02/2024**. The tender so received will be opened on **19/02/2024 at 14:00 hours** in presence of the intending tenderer or his authorized representative.

Notice No.	Name of work	Approximate value of work	Earnest Money	Time of Completion	Cost of Tender
NIT No. 1 of 2023-2024	Survey, design, supply, installation, testing and commissioning of Sewerage & Septage Treatment Works for Zone 7, Aizawl City Small Bore Sewer, Tuikual Lui (Under AMRUT 2.0)	Rs. 39,22,00,000	Rs. 49,22,000	24 months	Rs 5,000

Tender document may be obtained from the office of the undersigned on any working days from **14/12/2023** to **12/01/2024** on application and on payment of tender cost as mentioned above (non-refundable) without which, the tender shall be summarily rejected. Details can be obtained from the website phed.mizoram.gov.in The undersigned reserves the right to reject any or all of the tenders without assigning any reason thereof.

Sd/ LALROTHANGA
Chief Engineer, Zone-I, PHED
Aizawl, Mizoram.

Dated Aizawl the 13th December. 2023

Memo No.M-11011/44/2019-CE/PHE/Z-I/48

Copy to-

1. PS to Honourable Minister, PHED, Mizoram for favour of kind information.
2. The Secretary, PHED, Govt of Mizoram for favour of kind information.
3. The Engineer-in-Chief, PHED, for favour of kind information.
4. The Chief Engineer Zone-II, PHED, for favour of kind information.
5. The Superintending Engineer, PHED, Sewerage & Sanitation Circle, for information.
6. The Executive Engineer, PHED, Sewerage & Drainage Division, for information.
7. The Director, Information and Public Relation Department, Govt. of Mizoram for information and necessary action with a request to publish the tender notice in two issues of two local news papers.
8. Concerned file.
9. Office notice board.



Chief Engineer, Zone-I, PHED
Aizawl, Mizoram.

Section 1 - Instructions to Bidders

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Section 1 - Instructions to Bidders

A. General

1. **Scope of Bid** **Survey, design, supply, installation, testing and commissioning & maintenance of Sewerage & Septage Treatment Works for Zone 7, Aizawl City Small Bore Sewer, Tuikual Lui (Under AMRUT 2.0)**
2. **Source of Funds** AMRUT 2.0
3. **Amount** The work is estimated to cost Rs. 39,22,00,000.00
4. **Fraud and Corruption** Bidders, suppliers, and contractors under this contracts are required to observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, the Department will reject a proposal for award if it determines that the bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract.
5. **Eligible Bidders** A Bidder may be a natural person, private entity, government-owned entity or any combination of them with a formal intent to enter into an agreement or under an existing agreement in the form of a Joint Venture (JV). In the case of a JV:
 - (a) all partners shall be jointly and severally liable, and
 - (b) the JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the parties of the JV during the bidding process and, in the event the JV is awarded the Contract, during contract execution.Tenders will be issued to reputed CPWD/MPHED, contractors with definite proof from the appropriate authority, which shall be to the satisfaction of the PHE Department. Standing order for eligibility of different classes of contractor corresponding on the tendered amount will be followed.

The enlistment of the contractors should be valid on the last date of sale of tenders. In case the last date of sale of tender is extended, the enlistment of contractor should be valid on the original last date of sale of tenders. In case both the last date of receipt of application for issue of tenders and sale of tenders are extended, the enlistment of contractor should be valid on either of the two dates i.e. original date of sale of tender or on the extended date of sale of tenders.

Tender documents will be issued from Chief Engineer, Zone-I, PHED Office, during the hours specified above, on payment of Rs. 5,000/- (Rupees Five thousand only) in cash.

No tender will be considered for acceptance unless the detailed tender papers are duly purchased by the intending tenderer. A copy of the receipt for the money deposited against purchase of the tender document shall have to be submitted along with the tender as a proof of purchasing the same.

Bidder shall have to submit copies of GST registration number issued by appropriate authority.

Rate quoted by tenderers should include all kind of taxes, GST, Cess, insurance, royalty for forest product, etc.

Tenderer has to read all terms and conditions of this tender documents carefully. Tenderer has to accept and comply with all terms and conditions of this tender. Overwriting in the proforma of schedules is not acceptable and corrections if any should be initialled and dated by the tenderer.

If any contradiction arises in any clauses of this NIT and clauses in CPWD Form-8, clauses in this NIT will supersede clauses in CPWD Form-8. If any clauses of the NIT are not mentioned clearly, then CPWD Works Manual will be referred and applied.

6. Clarification of Bidding Document, Site Visit, Pre-Bid Meeting

A prospective Bidder requiring any clarification of the Bidding Document shall raise his inquiries during the pre-bid meeting. Should the Employer deem it necessary to amend the Bidding Document as a result of a request for clarification it shall do so by issuing addenda.

6.2 The Bidder is advised to visit and examine the Site of Works and its surroundings and obtain for itself, on its own risk and responsibility, all information that may be necessary for preparing the bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Bidder's own expense.

6.3 The Bidder's designated representative is invited to attend a pre-bid meeting which will be held on **15.01.2024 at 14:00 hours**. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

6.4 Nonattendance at the pre-bid meeting will not be a cause for disqualification of a Bidder.

B. Preparation of Bids

7. Documents Comprising the Bid

7.1 The Bid shall comprise two envelopes submitted simultaneously, one called the Technical Bid and the other the Financial Bid, both envelopes enclosed together in an outer single envelope.

The Technical Bid shall comprise the following:

- i. Form of technical bid
- ii. Bid Security
- iii. Technical Proposal
- iv. Bidders Qualificaion
- v. Subcontractor
- vi. Miscellaneous

The Financial Bid shall comprise the following:

- i. Form of financial bid
- ii. Completed Price Schedules

7.4 In addition to the requirements, bids submitted by a JV shall include a copy of the Joint Venture Agreement entered into by all partners. Alternatively, a Letter of Intent to execute a Joint Venture Agreement in the event of a successful bid shall be signed by all partners and submitted with the bid, together with a copy of the proposed agreement.

8. Documents Comprising

8.1 The Bidder shall furnish, as part of the Technical Bid, a Technical Proposal including a statement of work methods,

- the Technical Proposal** equipment, personnel, schedule and any other information as stipulated in Bidding Forms, in sufficient detail to demonstrate the adequacy of the Bidders' proposal to meet the work requirements and the completion time.
- 9. Documents Establishing the Qualifications of the Bidder** 9.1 To establish its qualifications to perform the Contract in accordance with Evaluation and Qualification Criteria. The Bidder shall provide the information requested in the corresponding information sheets included in Bidding Forms.
- 10. Period of Validity of Bids** 10.1 The tender for the works shall remain open for acceptance for a period of 75 days from the last date of receipt of tender. If any tenderer withdraws his tender before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms and conditions of the tender which are not acceptable to the department, then the Governor of Mizoram shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid. Further the tenderer shall not be allowed to participate in the retendering process of the work
- 11. Bid Security/ Earnest Money** 11. Tender must be accompanied by earnest money of Rs. 49,22,000 in the form of Banker's Cheque / Demand Draft / Fixed Deposit Receipt of a commercial bank in Aizawl, Mizoram, issued in favour of the Chief Engineer, Zone-I, PHED, Aizawl, which shall have to be valid for a period of 180 days from the date of submission of the tender.
- 12. Bid Prices** 12.1 All prevailing duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 28 days prior to the deadline for submission of bids, shall be included in the rates and prices and the total Bid Price submitted by the Bidder.
- 13. Format and Signing of Bid** 13.1 Any amendments such as interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the bid.

C. Submission and Opening of Bids**14. Sealing and Marking of Bids**

14.1 The tender document along with supporting documents and designs shall be placed in one sealed (transparent tape accepted) envelope mark as technical bid, the financial bid may be placed in one sealed (transparent tape accepted) envelope and both the envelopes shall be submitted together in another sealed (by wax only) envelope with the name of work and due date of opening written on the envelope.

14.2 If all envelopes are not sealed and marked as required, the Employer will assume no responsibility for the misplacement or premature opening of the bid.

15. Deadline for Submission of Bids

Issue of tender shall be stopped by 11:00 hours on 12/01/2024.
Receipt of tender shall be stopped by 12:00 hours on 16/02/2024.

16. Bid Opening

The opening of the Technical Bid shall take place at/on:

Address: CE Zone –I Office Chamber, Khatla Aizawl

Floor: 1st Floor

City: Aizawl, Mizoram

ZIP Code: 796001

Country: India

Date: 19.02.2024

Time: 14:00 hrs

D. Award of Contract

- 17. Award Criteria** 17.1 The Employer shall award the Contract to the Bidder whose offer has been determined to be the lowest evaluated bid and is substantially responsive to the Bidding Document, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.
- 18. Notification of Award** 18.1 Prior to the expiration of the period of bid validity, the Employer shall notify the successful Bidder, in writing, via the Letter of Acceptance that its bid has been accepted.
- 19. Signing of Contract** 19.1 Promptly after notification, the Employer shall send the successful Bidder the Contract Agreement which should be signed within 10 days from issue of letter of intent.
- 20. Performance Security** 20.1 The bidder whose tender is accepted will be required to furnish performance guarantee of 5% (five percent) of the tendered amount within 7 days from issue of letter of intent. This guarantee shall be in the form of Banker's Cheque or Demand Draft or Fixed Deposit Receipt of a commercial bank in Aizawl, Mizoram.

Section 2 - Bidding Forms & Qualification Criteria

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FORM OF TECHNICAL BID

Name of Work: _____

Tender No: _____

To

_____ [Employer]

_____ [Address]

Sir,

We, the undersigned, declare that:

1. We have examined and have no reservations to the bidding document, etc.
2. We offer to execute the works described above and remedy any defects therein in conformity with the Conditions of Contract, Specifications, Drawings, Bill of Quantities, etc.
3. We undertake, if our bid is accepted, to commence the work as stipulated in this contract, and to complete the whole work comprised in the contract within the time stated in the contract document.
4. We agree to abide by this bid for the period of 60 days from the date fixed for receiving the same, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
5. We undertake that unless and until a formal agreement is prepared and executed, this bid, together with your written notification of Letter of Acceptance shall constitute a binding contract between us.
6. We understand that you are not bound to accept the lowest or any tender you may receive.
7. I/We do hereby submit our Technical Bid, complete with all the required information as stipulated in your bidding documents.

Signature of authorized signatory

Name.....

Title

Date

**RECEIPT
FOR
PURCHASE OF TENDER DOCUMENT**

- (A) Item rate tender
- (B) Tender No: 1 of 2023-2024
- (C) For the work of :- Survey, design, supply, installation, testing and commissioning of Sewerage & Septage Treatment Works for Zone 7, Aizawl City Small Bore Sewer, Tuikual Lui (Under AMRUT 2.0)
 - (i) To be submitted by 12:00 hours on Dt. 16/02/2024 to the Office of the Chief Engineer, Zone-I, PHED, Aizawl, Mizoram.
 - (ii) To be opened at 14:00 hours on Dt 19/02/2024 at the Office of the Chief Engineer, Zone-I, PHED, Aizawl, Mizoram.
- (D) Issued to :

Signature of officer issuing the documents

Designation :

Date of issue :

TECHNICAL PROPOSAL

a) Functional Design – which include

(i) calculations and dimensions of each unit for 3.5 MLD Sewage Treatment Plant and 30 KLD Feecal Sludge Treatment Plant.

(ii) Layout Drawing Plan for 3.5 MD Sewag Treatment Plan and 30 KLD Feecal Sludge Treatment Plant. (Structural Design and Drawings may not be included at this stage)

b) Personnel

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

No.	Position	Nos.	Total Work Experience	Experience In execution of Sewerage or water supply Works
1	Graduate Civil / Public Health Engineer (Project Manager)	One	15 years	10 years
2	Graduate Civil Engineers (Project Engineers)	Three	7 years	5 years
3	Diploma Civil / Public Health Engineering (With knowledge of local language)	Two	5 years	3 years

	(Site Supervisors)			
4	Graduate Mechanical Engineer	One	5 years	2 years
5	Graduate Electrical Engineer	One	5 years	2 years
6	Diploma in Mechanical Engineer	One	3 years	
7	Diploma in Electrical Engineer	One	3 years	
8	Surveyor	One	5 years	
Any two among personnel mentioned in item 1 to 3 above shall have specific experience in laying sewerage system.				

Bidders should provide the names of suitably qualified personnel to meet the requirements specified in above table. The data on their experience should be supplied using the Form below for each candidate.

Form PER – 1: Proposed Personnel

1.	Title of position*
	Name
2.	Title of position*
	Name
3.	Title of position*
	Name
4.	Title of position*
	Name

Form PER – 2: Resume of Proposed Personnel

Position		
Personnel information	Name	Date of birth
	Professional qualifications	
Present employment	Name of employer	
	Address of employer	
	Telephone	Contact (manager / personnel officer)
	Fax	E-mail
	Job title	Years with present employer

Summarize professional experience in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

From	To	Company / Project / Position / Relevant technical and management experience

c) Equipment

The Bidder must demonstrate that it has the key equipment listed hereafter:

Sl. No.	Equipment Type and Characteristics	Min. Number Required	Yes / No	Owned / Hired
1	Leveling instrument auto level of best sophisticated make	3 Nos.		
2	Concrete mixer	3 Nos.		
3	Needle vibrator	3 Nos.		
4	Portable compressor on wheels	2 Nos.		
5	Grab for lifting & removing spoil bank from trenches/wet wells	3 Nos.		
6	Open impeller mud pump with adjustable speed of required capacity	4 Nos.		
7	Excavator with required size arm for pipe trenches / wet wells	2 Nos.		
8	Tipper lorry	5 Nos.		
9	Well point dewatering system set combining perforated Pipes, manifold etc. complete for at least 50 meters at one stretch including suitable dewatering pumps etc.	2 sets		
10	Sheet piling accessories required for both sides of not less than seven meters, with monkey sheer leg pulley, driving machine etc.	2 Sets		
11	Required equipment/machinery for soil compaction, ramming etc.	2 Sets		
12	Wooden shoring with all post, beams, struts, planks etc complete for a stretch of 50 m to use where sheet piling is not required.	2 Sets		
13	Diesel generator set (portable) of suitable capacity	1 No.		
14	Dewatering pump sets	5 sets		
15	Excavator cum Loader	1 Nos		
16	Rock cutter	1 Nos		
17	Metal detector	3 Nos		

Note: The owner must demonstrate either ownership or confirmed lease agreement of the required equipment.

d) **Site Organization Chart**

e) **Method Statement**

f) Mobilization Schedule

g) Construction Schedule

BIDDER'S QUALIFICATION

To establish its qualifications to perform the contract. The Bidder shall provide the information requested in the corresponding Information Sheets included hereunder.

Form ELI - 1: Bidder's Information Sheet

Bidder's Information	
Bidder's legal name	
In case of JV, legal name of each partner	
Bidder's country of constitution	
Bidder's year of constitution	
Bidder's legal address in country of constitution	
Bidder's authorized representative (name, address, telephone numbers, fax numbers, e-mail address)	
<p>Attached are copies of the following original documents.</p> <p><input type="checkbox"/> 1. In case of single entity, articles of incorporation or constitution of the legal entity named above.</p> <p><input type="checkbox"/> 2. Authorization to represent the firm or JV named in above.</p> <p><input type="checkbox"/> 3. In case of JV, letter of intent to form JV or JV agreement.</p> <p><input type="checkbox"/> 4. In case of a government-owned entity, any additional documents not covered under 1 above required to comply.</p>	

Form ELI - 2: JV Information Sheet

Each member of a JV must fill in this form

JV / Specialist Subcontractor Information	
Bidder's legal name	
JV Partner's or Subcontractor's legal name	
JV Partner's or Subcontractor's country of constitution	
JV Partner's or Subcontractor's year of constitution	
JV Partner's or Subcontractor's legal address in country of constitution	
JV Partner's or Subcontractor's authorized representative information (name, address, telephone numbers, fax numbers, e-mail address)	
<p>Attached are copies of the following original documents.</p> <p><input type="checkbox"/> 1. Articles of incorporation or constitution of the legal entity named above.</p> <p><input type="checkbox"/> 2. Authorization to represent the firm named above.</p> <p><input type="checkbox"/> 3. In the case of government-owned entity, documents establishing legal and financial autonomy and compliance with commercial law.</p>	

Form LIT - Pending Litigation

CRITERIA - All pending litigation shall be treated as resolved against the Bidder and so shall in total not represent more than 80 Percent of the Bidder’s net worth.

Each Bidder or member of a JV must fill in this form

Pending Litigation			
Year	Matter in Dispute	Value of Pending Claim in Rupees	Value of Pending Claim as a Percentage of Net Worth

Form FIN - 1: Financial Situation

CRITERIA - Submission of audited balance sheets and income statements for the last . 3 years to demonstrate the current soundness of the Bidders financial position and its prospective long-term profitability. As a minimum, an Applicant’s net worth calculated as the difference between total assets and total liabilities should be positive.

Each Bidder or member of a JV must fill in this form

Financial Data for Previous 3 Years [In Rupees]		
Year 1:	Year 2:	Year 3:

Information from Balance Sheet

Total Assets			
Total Liabilities			
Net Worth			
Current Assets			
Current Liabilities			

Information from Income Statement

Total Revenues			
Profits Before Taxes			
Profits After Taxes			

- Copies of financial statements (balance sheets including all related notes, and income statements) for the last three years, as indicated above must be attached, complying with the following conditions.
- All such documents reflect the financial situation of the Bidder or partner to a JV, and not sister or parent companies.
 - Historic financial statements must be audited by a chartered accountant.
 - Historic financial statements must be complete, including all notes to the financial statements.
 - Historic financial statements must correspond to accounting periods already completed and audited (no statements for partial periods shall be requested or accepted).

Form FIN - 2: Average Annual Construction Turnover

CRITERIA - Minimum average annual turnover of INR 40 Crore Calculated as total certified payments received for contracts in progress or completed, within the last 3 years.

Each Bidder or member of a JV must fill in this form

Annual Turnover Data for the Last 3 Years (Construction only)	
Year	Amount (In Rupees)

Average Annual Construction Turnover

Form FIN – 3: Financial Resources

Using Forms FIN – 3 and FIN - 4 , the Bidder must demonstrate access to, or availability of, financial resources such as liquid assets, unencumbered real assets, lines of credit, and other financial means, other than any contractual advance payments to meet:

- (1) The following cash flow requirement, INR 6.5 crore and**
- (2) The overall cash flow requirements for this contract and its current works commitment.**

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contract or contracts.

Financial Resources		
No.	Source of financing	Amount (In Rupees)
1		
2		
3		

Form FIN- 4: Current Contract Commitments / Works in Progress

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

Current Contract Commitments					
No.	Name of Contract	Employer's Contact Address, Tel, Fax	Value of Outstanding Work [Rs]	Estimated Completion Date	Average Monthly Invoicing Over Last Six Months [Rs per month]
1					
2					
3					
4					
5					

Form FIN -5: Sample Form of Letter of ASSURED LINE OF CREDIT*(To be submitted by a Reputed Bank on the Bank's Letterhead)***Date:** _____**To: The Chief Engineer, Zone- I**
Public Health Engineering Department

Aizawl, Mizoram

ZIP Code: _____

Subject:

Letter of Assurance for: _____

Dear Sir,

WHEREAS _____ [name and address of Bidder] intends to submit a bid for Providing, Laying, Jointing, Testing and Commissioning of pipes for sewerage system at Aizawl Mizoram, including construction of Manholes and restoration of roads as per detailed specification under the AMRUT 2.0 in response to the Invitation for Bids issued by the The Chief Engineer, PHED vide _____ for contract package no. _____ and

WHEREAS the Bidder has requested that an assured revolving line of credit be provided to it for executing the works under: Providing, Laying, Jointing, Testing and Commissioning of pipes for sewerage system at Aizawl Mizoram, including construction of Manholes and restoration of roads as per detailed specification under contract package no. _____ in the event that the Contract is awarded to it; then

KNOW ALL THESE PEOPLE by these presents that We _____ [name of Bank] of _____ [name of Country] having our registered office at _____ [address of registered office] are willing to provide to _____ (the Bidder) a sum of up to _____ [amount of guarantee in figures and words] as an assured revolving line of credit for executing the Works under the : : _____ should the Bidder be awarded the contract based on its bid prices.

We understand that this assurance may be taken into consideration by the Employer during evaluation of the Bidder's financial capabilities, and further assure that we intend to maintain this revolving line of credit until such time as the Works are completed and taken over by the Employer.

SEALED with the Common Seal of the said Bank on the ____ day of _____, 2008.

Date: _____ Signature of the Bank: _____

Witness: _____ Seal: _____

[Signature, name and address]

Form EXP – 1: General Construction Experience

Experience under contracts in the role of contractor, subcontractor, or management contractor for at least the last 5 Years prior to the bid submission deadline.

Each Bidder or member of a JV must fill in this form

General Construction Experience				
Starting Month Year	Ending Month Year	Years	Contract Identification and Name Name and Address of Employer Brief Description of the Works Executed by the Bidder	Role of Bidder

Form EXP – 2(a): Specific Construction Experience

Participation in at least one contract that has been successfully or substantially completed within the last 10 (ten) yrs and that is similar to the proposed works. The similarity of the Bidder's participation shall be based on the physical size, nature of works, complexity, methods, technology. Within the last 10 yrs, the Bidder should satisfy any one of the following minimum requirements:

- (i) Three similar completed works costing not less than Rs 1568 lakh each
- (ii) Two similar completed works costing not less than Rs 2353 lakh each
- (iii) One similar completed work costing not less than 3137 lakh.

Fill up one (1) form per contract.

Contract of Similar Size and Nature		
Contract No of	Contract Identification	
Award Date		Completion Date
Role in Contract	<input type="checkbox"/> Contractor	<input type="checkbox"/> Management Contractor
	<input type="checkbox"/> Subcontractor	
Total Contract Amount (INR)		
If partner in a JV or subcontractor, specify participation of total contract amount	Percent of Total	Amount
Employer's Name Address Telephone/Fax Number E-mail		
Description of the similarity		

Form EXP - 2(b): Specific Construction Experience in Key Activities

For the above or other contracts executed during the period stipulated above, a minimum experience in the following key activities: 1MLD sewerage treatment plant

Fill up one (1) form per contract

Contract with Similar Key Activities		
Contract No of	Contract Identification	
Award Date	Completion Date	
Role in Contract	<input type="checkbox"/> Contractor	<input type="checkbox"/> Management Contractor <input type="checkbox"/> Subcontractor
Total Contract Amount	INR	
If partner in a JV or subcontractor, specify participation of total contract amount	Percent of Total	Amount
Employer’s Name Address Telephone Number Fax Number E-mail		
Description of the key activities		

Form SC-1: Schedule of Subcontractors

(The bidder shall enter in this Schedule a list of the sections and appropriate value of the work for which he proposes to use subcontractors, together with the names and addresses of the proposed subcontractors. The bidder shall also enter a statement of similar works previously executed by the proposed subcontractors, including description, location and value of work, year completed, and name and address of the Employer/Employer's Representative. Notwithstanding such information the bidder, if awarded the contract, shall remain entirely and solely responsible for the satisfactory completion of the Works.)

Elements of Work	Approximate Value	Name and Address of Subcontractor	Statement of Similar Works Previously Executed (within last 5 years)

Form SC-2: Details of Sub-contractor

1. Name of Sub-contractor:
2. Year of Establishment/Registration:
3. Annual Turnover from construction activities in the last 3 years (attach balance sheets or any other authentic documents):

Financial Year 1 :

Financial Year 2 :

Financial Year 3 :

4. Similar Work Experience in past 10 years (attach work orders and completion certificates from clients):
5. Details (including estimated cost) of work proposed to be sub-contracted:
6. Technical/Managerial manpower proposed to be made available by the sub-contractor for the work (attach CV's including qualification and experience of personnel):
7. Materials & equipments proposed to be supplied by the Contractor to the sub-contractor.
8. Materials & equipments proposed to be made available by sub-contractor for the work:
9. Responsibility of sub-contractor for carrying out the work:
10. Quality Assurance / Quality Control System proposed to be established for the work:

Salient Features of MOU or Agreement between Contractor and the Sub-contractor (Copy of MOU or Agreement to be enclosed):

Form MISC-1: Statement of Compliance with the Bidding Documents

Bidder shall provide a complete statement of any proposed deviations from the Conditions of Contract that are stipulated in the various Sections in Volume 1, General Requirements, giving reference to the Section Number and Clause Number, along with a description of the proposed deviation and the reason for proposing such deviation.

Section & Clause Number	As Mentioned in Bid Document	As Proposed by the Bidder	Reasons for Deviation

The Bidder hereby certifies that the above mentioned deviations are the only deviations proposed to the various Sections of Volume 1, General Requirements, and that he agrees with all remaining conditions.

SECTION 3 – WORKS REQUIREMENT

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SECTION-3

WORKS REQUIREMENTS / SPECIFICATIONS

General

All the designs will generally conform to the 'Manual of Sewerage and Sewage Treatment' published by the CPHEEO of the Government of India.

1. Design Period

The design, preparation of detailed estimates and award of contract are expected to be completed in 2023 and it is estimated that the execution of the Project will be completed in 2025. Also as mentioned in the Terms of Reference, the base design year will be 2025 and ultimate design period 2055. Population projection has been done based on the above.

Design Period	-	30 Years
Base design Year	-	2025
Intermediate design Year	-	2040
Ultimate design Year	-	2055

As per the CPHEEO guidelines the design period for various components of the proposed Under Ground Sewerage Scheme will be adopted as below:

The following are proposed design periods for various components of this project.

Table 1: Design Period for Project Components

Sl.No.	Components	Design Period
a)	Civil Structures for pump house	30 years
b)	Electrical motors and pumps	15 years with space to expand
c)	Pumping mains	30 years
d)	Sewage Treatment Plant	15 years with layout to expand for 30 years capacity
e)	Sewer Collection System	30 years.

2. Projection of Future Population

Expected population for the Intermediate year (15 years) and ultimate year (30 years) will be worked out adopting the census population of 2011 year and past decades up to 1981 by following 4 different methods.

- Arithmetic Increase.
- Geometric Increase.
- Incremental Increase.
- Graphical method – Least Square
- Geometric method based on annual growth rate

Recommendation will be made regarding Intermediate year and ultimate year population to be adopted for the design based on the population adopted in water supply improvement scheme.

3. Per Capita Sewage Contribution

The sewage contribution from the project area will be as given below:

Sewage Contribution including infiltration - 40 lpcd
(Septage System)

4. Design of Sewer System

Design Formula for Sewers

Manning's Formula as given below shall be used for designing the sewage collection system.

$$V = 1/n r^{2/3} s^{1/2}$$

Where:

V = Velocity in pipe in m/sec

n = Manning's coefficient of roughness

r = Hydraulic radius in m

s = Slope of hydraulic gradient

Design Depth of Flow

Sewers have been designed for full flow condition to carry estimated peak flows generated in the ultimate design year to run at full. As per the CPHEEO Manual the Small-Bore sewers shall be designed to run 100% full.

Peak Factor

Peak factors are applied to the average sewage flow during the day to estimate the flow during peak hours. Peak factor will be a function of the contributory population. The following peak factors as recommended by the CPHEEO Manual adopted in the design of the UGSS. Peak factor is 2.0 for Small Bore System.

Minimum and Maximum Velocity

A self-cleansing velocity should be achieved in sewers at peak flow to flush out solids, which may have settled out during low flow periods. The sewers are primarily designed for a minimum velocity as 0.6 m/s for present stage peak flows and checked for a velocity of 0.8 m/s for ultimate stage peak flows. However, in the initial reaches of the network, these velocities may rarely be achieved because of the low connected population. The velocity norms will be relaxed in the head reaches of the sewers to prevent the network going excessively deep. During the operation and maintenance of sewers, the head reaches should be flushed periodically to clear out settled solids.

Maximum velocity has been restricted to 3.0 m/s as recommended in the CPHEEO Manual to avoid erosion in the pipes. However for HDPE pipe the velocity upto 5m/s is allowable as per HDPE Handbook, since abrasion factor is less.

Minimum Pipe Diameter

The minimum pipe diameter would be 110 mm as recommended in the CPHEEO Manual for Small Bore System

Minimum Cover

To facilitate connection of house sewers to branch sewers and provide protection to sewers from external loads, the minimum depth of cover on any proposed sewers will be 1.0 m. However, in some starting laterals cover is restricted to 0.85 m to avoid uneconomical depth of cut in subsequent reaches. As the traffic over this header areas are limited and tonnage is less, this will not cause any problem in system operation.

Pipe Materials

The pipes that shall be used for the gravity up to 315mm to any depth shall be PN 4 class HDPE pipe in PE 80 Material as per IS: 14333:1996.

Bedding for Sewers

The type of bedding proposed is Granular Bedding with carefully compacted backfill.

Trenching for open excavation

The trench width for laying of sewer should be sufficient enough as per norms mentioned in CPHEEO manual with due consideration for bedding.

Shoring

Adequate shoring shall be provided to prevent caving in of trench walls of subsidence of areas adjacent to the trench. In narrow trenches of limited depth, shoring shall be required to be done in accordance to the relevant IS code.

Continuous sheeting shall be provided outside the wall plates to maintain stability of the trench walls. The number and size of the wall plates shall be fixed considering the depth of trench and type of soil. Cross struts shall be fixed in a manner to maintain pressure against the wall plates which in turn shall be kept pressed against the timber sheeting by means of timber wedges or dog spikes.

Hydraulic Testing

After the work of laying and jointing HDPE pipes is completed, the pipes line shall be subjected to hydraulic test at work site as per Standard Specifications. The pipe line should be tested within four days' time after laying of pipe line.

Each section of sewer shall be tested for water tightness preferably between manholes. To prevent change in alignment and disturbances after the pipes have been laid, it is desirable to backfill the pipes up to the top keeping at least 90cm length of the pipe open at the joints. The testing shall be done as laid down in the CPHEEO Manual

The leakage or quantity of water to be supplied to maintain the test pressure during the period of 10 minutes shall not exceed 0.2 litres per mm diameter of pipes per kilometer length per day.

Manholes

Manholes will be provided at the junction of sewers, deviations in alignment, change in the diameter of sewer, change in gradient, at drops and depending upon the size of sewers, at regular intervals in straight reaches to facilitate system maintenance. The maximum spacing between manholes shall be about 30 m. Manhole cover and frame shall be in Fibre Reinforced Concrete (FRC). Provision shall be made in each manhole to receive 3 – 4 service connections from properties along the alignment of the sewers.

Size & Shape of Manholes

Manholes are provided at all junctions, change of sewer size, gradient and direction. The spacing and sizes of manholes adopted shall be generally in line with the recommendations of CPHEEO Manual for Sewerage and sewage treatment. In general to facilitate the house connections and cleaning and maintenance the Manhole spacing shall be kept at 30m or less. The clear opening at the top in case of ordinary manholes will be kept as 560 mm. The manhole frame and cover shall be of Steel Fibre Reinforced Concrete (SFRC) capable of withstanding heavy-duty loads class AA, conforming to the relevant IS codes.

The street manholes shall be circular in shape with 900mm internal diameter. It is proposed to use mechanical equipments for cleaning of sewer lines.

Ventilating Shaft

Ventilating shafts shall be provided on the street sewers at head reaches and at 500m intervals in long stretches. It shall also be provided judiciously at drop manholes. The vent shaft will be provided as per CPHEEO Manual.

The work is inclusive of constructing an inspection chamber which shall be connected to the street manhole. Connection from each interceptors (septic tanks) to sewer pipelines shall be made through the inspection chamber. An average house connection length of 20m has been (6m length for each households) considered for estimation which shall be inclusive of connection from each houses to inspection chamber into the nearest manhole. However payment to contractor will be made as per actual work measured at site. Construction of individual interceptors and pipe connection beyond 6m length shall be borne by the property owners.

It is proposed to use HDPE pipes up to dia 315mm for sewer network. The total length of small bore sewer line proposed is 31.41 km. In small bore sewer system, the sewage is tapped from septic tank outlet, so that the solid particle is retained and prevented from entering into the sewer line.

Manholes / Cleanout are proposed to be provided at 30 mtr or more spacing as per prevalent practice & specifications. The summary of manhole/cleanout as per the diameter for and depth are given below

5. House Service Connection

Each Inspection chamber will collect sewage from 3-4 nos of individual household Interceptors,, which will then collect to a manhole. The total number of House Service

connection is 3194 nos and connection per length is 20 m of 110mm HDPE PN-4, which comes up to a total length of 63880m.

No. of House Service connections point = 3194

Total Households Covered = 3194 x 3 = 9582 Nos

Present Sewerage generation population

6 No of Souls consider/Houses

Total Population covered = 57492 Souls

So, the present population has been covered in this system.

The details of HSC connection proposed are given below

Table 2 : Details of House Service connection

Property Connection Line (Initial Stage)	110 mm HDPE PN4 Pipe = 20 mtr / Household Total Length of Property Line = 63880m
No. of Property Connection Point	3194 Nos

Proposed Sewerage System

In this project it proposed adopt Small Bore Sewer System in the zone 7 area of “Master Plan for Aizawl - Vision 2030 prepared by Aizawl Development Authority.

6. Small Bore Sewer System

Small bore sewer systems are designed to receive only the liquid portion of household wastewater for off-site treatment and disposal. Grit, grease and other troublesome solids which might cause obstruction in the sewers are separated from the waste flow in interceptor tanks (existing household septic tank); the solids which accumulate in the tanks are removed periodically for safe disposal.

Collecting only settled wastewater in this manner has four principal advantages:

a. Reduced water requirements.

Since the sewers are not required to carry solids, large quantities of water are not needed for solids transport. Thus, unlike conventional sewers, small bore sewers can be employed without fear of blockages where domestic water consumption is low, where water-saving plumbing fixtures and appliances are widely used, or where long flat runs with few connections are necessary.

b. Reduced excavation costs.

With the troublesome solids removed, the sewers do not need to be designed to maintain a minimum flow velocity for self-cleansing. Therefore, rather than being installed on a straight path with a uniform gradient, they may be laid with curvilinear alignment with a variable or inflective gradient. This reduces excavation costs, since the sewer can follow the natural topography more closely than conventional sewers and avoid most obstructions within its path.

c. Reduced materials costs.

Peak flows which the small-bore sewers must be designed to handle are lower than those experienced with conventional sewers because the interceptor tanks provide some surge

storage which attenuates peak flows. Therefore, the sewer and any pumping equipment can be reduced in size (and pumps handling only liquids are simpler). In addition, expensive manholes can be replaced with much less costly cleanouts or flushing points, since mechanical cleaning equipment is not necessary to maintain the sewers in a free-flowing condition.

d. **Reduced treatment requirements.**

Screening, grit removal and primary sedimentation or treatment in anaerobic ponds are not needed at the treatment works, since these unit processes are performed in the interceptor tanks.

Thus, small bore sewer systems provide an economical way to upgrade existing sanitation facilities to a level of service comparable to conventional sewers. Because of the lower costs of construction and maintenance and the ability to function with little water, small bore sewers can be used where conventional sewerage would be inappropriate. Small bore sewers therefore offer an opportunity of improving sanitation in areas which otherwise might not be upgraded.

Disadvantage: The principal disadvantage of the small bore sewer system is the need for periodic evacuation and disposal of solids from each interceptor tank in the system.

Experience with the system is limited and mixed. Consequently, in spite of its obvious advantages it must be used judiciously and adopted only in situations where there is sufficient provision to ensure a strong organization for maintenance. This organization must also be able to exercise effective control over connections to the system. Special precautions should be taken to prevent illegal connections, since it is likely that interceptor tanks would not be installed in such connections, thereby introducing solids into a system which is not designed to handle solids. This could create serious operational problems.

7. Components of Small-Bore Sewer System

Small bore sewer systems consist of: (a) House connections; (b) interceptor tanks; (c) the sewers and their appurtenances; and (d) a sewage treatment plant.

a. **House connection**

The house connection is made from the outlet of the existing interceptor tank. All household wastes, except for garbage and trash which must be removed for disposal else-where, enter the system at this point. Storm water must be excluded.

b. **Interceptor tank**

Here, the existing household septic tank will function as an interceptor.. It is designed to detain the liquid flow for 12 to 24 hours and to remove both floating and settle able solids from the liquid stream. Ample volume is also provided for storage of the solids, which are periodically removed through an access port. Typically, a single-chamber septic tank is used as an interceptor tank.

c. **Sewers**

The sewers are small bore plastic pipe (minimum diameter of 100 mm) which are trenched into the ground at a depth sufficient to collect the settled wastewater from most connections by gravity. Unlike conventional sewers, small bore sewers are not necessarily laid on a uniform gradient with straight alignment between manholes or cleanouts. The sewer may have an inflective gradient; that is to say, the sewer may have dips so that sections of it remain full under static conditions. Also, the alignment may curve to avoid natural or manmade obstacles. The objective in the design and construction of small bore sewers is to utilize to the maximum extent the energy resulting from the difference in elevation between the upstream and downstream ends.

d. **Cleanouts and manholes**

Cleanouts and manholes provide access to the sewers for inspection and maintenance. In most circumstances, cleanouts are preferable to manholes because they cost less and can be more tightly sealed to eliminate most infiltration and grit which commonly enter through the lids and walls of manholes. Also, they can be easily concealed to prevent tampering. They function as flushing points during sewer cleaning operations.

e. Vents

The sewers must be ventilated to maintain free-flowing conditions. Vents within the household plumbing are sufficient, except where inflective gradient sewers are installed. In such cases, the High points of the sewer should be ventilated either by locating the high points at connections or by installing a clean out with a ventilated cap.

8.Raw Sewage Characteristics

Characteristics of the raw sewage o arrive at the inlet of the sewage treatment plant were collected from the outlet of existing septic tank. Typical value ranges for major pollution parameters are presented in Table 6.1 below:

Table 3: Raw Sewage Characteristic

<i>S.No.</i>	<i>Parameter</i>	<i>Units</i>	<i>Values</i>
1.	<i>pH</i>	-	8.94
2.	<i>Biological Oxygen Demand (BOD₅)</i>	<i>mg/l</i>	250
3.	<i>Chemical Oxygen Demand</i>	<i>mg/l</i>	500
4.	<i>Total Suspended Solids</i>	<i>mg/l</i>	400
5.	<i>Total Kjeldahl Nitrogen</i>	<i>mg/l</i>	30
6.	<i>Total Phosphorus</i>	<i>mg/l</i>	8
7.	<i>Faecal Coliforms</i>	<i>MPN / 100 ml</i>	1×10^6
8.	<i>Total coliforms</i>	<i>MPN /100 ml</i>	1×10^7

The expected quality of treated effluent and standards for inland surface water discharge includes 5 day BOD at 20° C as 10 mg/l and suspended solids of 10 mg/l and below.

The discharge standards prescribed by Central Pollution Control Board (CPCB) for disposal of treated sewage into inland water course are given in Table 6.2 below:

Table 4 : CPCB Standard for Disposal of Treated Sewage into Inland Surface

Sl. No.	Parameter	Unit	CPCB standard
1	pH	-	5.5 to 9.0
2	Biochemical Oxygen Demand (BOD) – 5 days 20°C	mg/l	30
3	Chemical Oxygen Demand (COD)	mg/l	250
4	Total Suspended Solids (TSS)	mg/l	200
5	Total Nitrogen (as N)	mg/l	<10.0
6	Ammoniacal Nitrogen (as N)	mg/l	<5.0
7	Total Phosphorus	mg/l	< 2.0
8	Oil and Grease	mg/l	10

Sl. No.	Parameter	Unit	CPCB standard
8	Fecal Coliform	MPN/100 ml	<1000

9. STP cum FSTP capacity calculation

The treatment facility is proposed to be located in Tuikual Lui which is part of Aizwal City in the State of Mizoram. It would have the capacity to treat 3.5 MLD of STP water and 30 KLD of septage. The calculations supporting this are shown below:

a) Estimation of STP Capacity

The capacity of proposed STP will be based on Intermediate year (2040) design population

Projected population (2040): 79230 Soul

The unit rate of wastewater considered for design is 40 lpcd including infiltration which is over overflow from septic tanks transported through small bore sewer network

Total flow = $79230 \times 40 \text{ lpcd} = 3.169 \text{ MLD}$

The capacity of STP proposed is **3.5 MLD**

b) Estimation of Fecal sludge Treatment Plant Capacity

The capacity of proposed FSTP will be based on design population of 120000 Soul

Population served: 120000 Soul

Sludge accumulation: 0.00021 m³/per capita /day

Number of days of Desludging per year: 300 days

Capacity required = (Population served x sludge accumulation) / Number of days facility receives sludge in a year = $(120000 \times 0.00021 \times 365)/300 = 29.386 \text{ KLD}$

The capacity of FSTP proposed is **30 KLD**

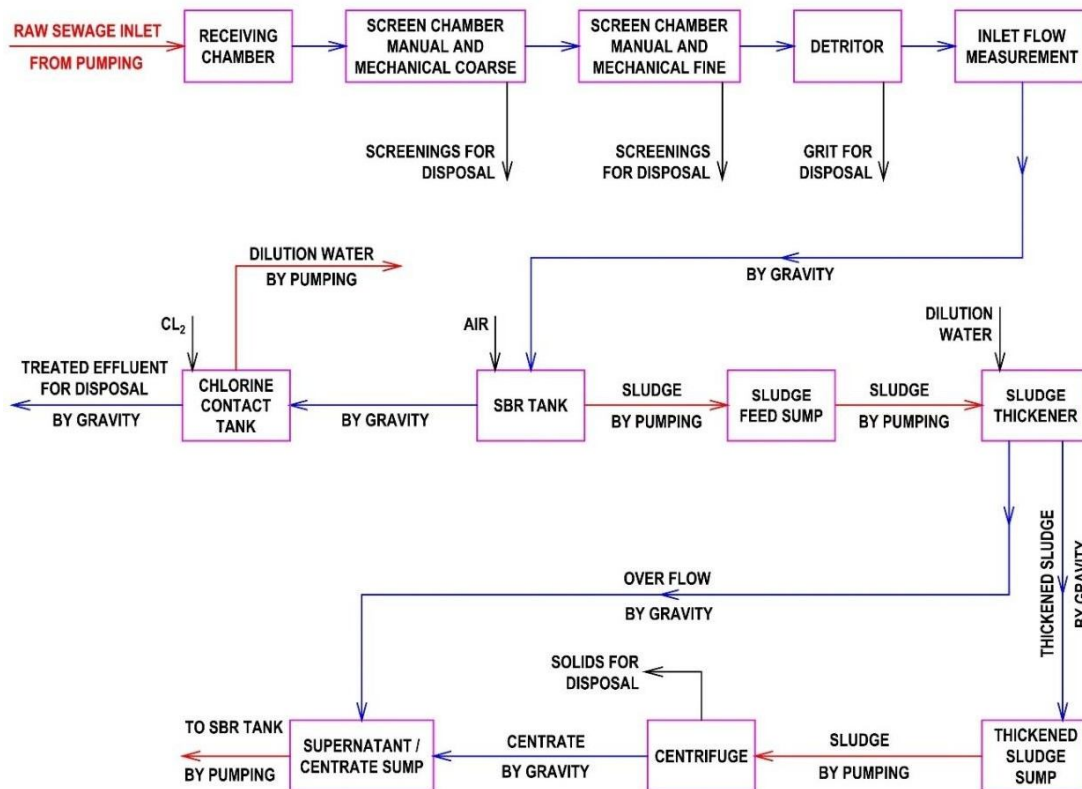
10. Sewage Treatment Plant (STP) Design Concept

A sewage treatment plant based on Sequential Batch Reactor technology is proposed to be constructed of capacity 3.5 MLD. In addition, 30 KLD capacity of FSTP with Anaerobic treatment is proposed for the area not cover under this project area. The under flow from Anaerobic reactor tank will be conveyed to centrifuge of proposed STP and overflow will be pumped to inlet chamber of STP

Sewerage Treatment Plant	3.5 MLD (Intermediate Stage)
STP Technology	SBR Technology

Process Design of Sequential Batch Reactor:

The following units are considered for the treatment plant:



11. Faecal Sludge Treatment Plant

Proposed Small Bore Sewer and Sewage treatment facilities will not be catering to entire population, it will only be serving one water shed area. The use of septic tanks and soak pits will be continuing till entire city is covered by sewerage system. In most of the cases in densely populated area, because of paucity of land undersize septic tanks are provided which requires frequent cleaning, Also sludge and septage from these septic tanks are not fully stabilized and highly odorous. It is proposed that a centralized facility is created for further treatment of Septic Tank contents before disposal. Hence, Faecal Sludge Treatment facility will be installed at eastern and western part of Aizawl City. Faecal Sludge Treatment facility will be installed for 30 KLD Capacity with Anerobic Treatment System. The brief description of the process with process flow is detailed below

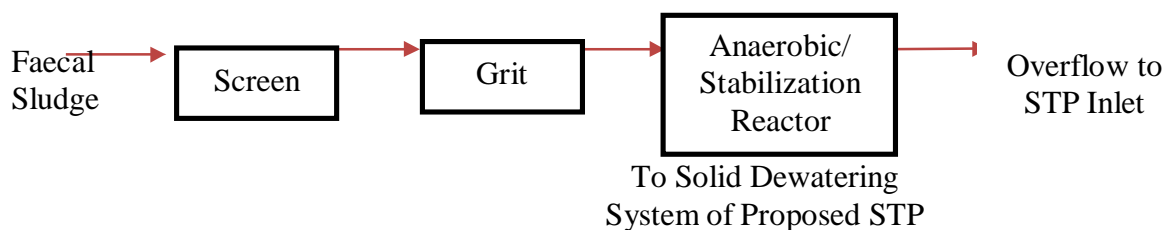


Figure: Process Flow Diagram of proposed FSTP

Process Flow

Steps involved in the selected STP cum FSTP process is detailed below:

Step 1: The septage is received in the septage receiving station via screen, where the floatables are separated from the septage. The grit settles in the SRS, and the septage flows to the storage tank.

Step 2: The septage homogenises in the stabilization reactor with baffles. The 10-day retention time in the collection tank is designed to address the incoming fresh septage from community toilets and public toilets too.

Step 3: Submersible sludge pumps are placed in the stabilization reactor, to pump the settled sludge from the stabilization reactor to the sludge holding tank. Each section having one working pump and one stand by pump.

Step 4: The sludge from the sludge holding tank is pumped to the dewatering unit. The dewatering unit consists of:

Polymer mixing system

Polymer maturation tank

Polymer dosing system

Dewatering – volute press

The system is designed to handle the varying solids % in the sludge, and hence one volute press is provided.

Step 5: The dewatered solids fall into the EV trailer placed on the ground and is taken away to the composting yard for further composting with the MSW organic fraction. The filtrate from the Dewatering unit flows to Inlet of proposed STP.

No.	Description	Quantity	Specifications	Remark
Basic Electro-Mechanical System Required for Fecal Sludge Receiver Tank and Sludge Separation				
1	Inlet connection piping of plant	As per site condition	All piping shall be made of uPVC SCH 40 / PVC 4 kg/cm ² or 6 kg/cm ² with fittings. Air piping shall be made of SS 304 with epoxy painting.	For WW, no metallic pipe shall be used.
2	Screen System – Coarse	1	All wetted part shall be non – corrosive type preferably SS-304 / FRP. Type: - Bar Rack type	Screen spacing – 10 mm
3	Screen System – Fine	1	All wetted part shall be non – corrosive type preferably SS-304 / FRP. Type: - Bar Rack type	Screen spacing – 5 mm
4	Sludge transfer pump	2 (1w +1S)	Pump to handle Sewage, Drain water & Dirty wastewater. To handle Solid Particles up to 50 mm Size Double Mechanical Seal. High Energy Efficient Motor. Maximum Delivery – 2 m ³ per Hour @ 18 m head, Minimum 2 HP	

5	Solid Dewatering system	1 system	MOC of shaft & screw: - SS – 304 Feed rate: upto 3cum/hr at 4% TS, Screw- 2Nos, MOC: SS304, Motors make: SEW/Nord/Equivalent, Power:2.3KW, 3phase	
6	Semi-automatic type panel	1 System	For semi-automatic type float level base operating system with required Relay..	----
7	Semi-automatic type panel	1 System	For semi-automatic type float level base operating system with required Relay..	----
8	Weather protection shed /canopy	At various location	Shed for storage area of composted sludge, Shed for Rotary composter.	----
9	Cabling work	1 Job	For plant cabling work in copper flexible / Armored wiring work as per standard	-----

SECTION-4

Conditions of Contract

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Conditions of Contract

A. General

- 1. Signing of contract** 1.1 The successful tenderer/contractor, on acceptance of his tender by the accepting authority, shall, within 10 days from the date of issue of letter of intent, sign a contract agreement.
- 2. Performance Guarantee** The contractor shall submit an irrevocable performance guarantee of 5% (five percent) of the tendered value within 7 (seven) days from the date of issue of letter of intent, in the form of Banker's Cheque / Demand Draft / Fixed Deposit Receipt of a commercial bank in Aizawl, Mizoram, issued in favour of the Chief Engineer, Zone-I, PHED, Aizawl.
- The performance guarantee shall be valid up to the stipulated date of completion plus 60 days beyond that. In case the time for completion of work gets extended, the contractor shall get the validity of performance guarantee extended to cover such extended time for completion of work.
- In the event of the contract being terminated or rescinded, the performance guarantee shall stand forfeited in full and shall be absolutely at the disposal of the Governor of Mizoram.
- 3. Security deposit** 3.1 An amount of 5% from each running bill and final bill shall be deducted as a security deposit till the sum deducted will amount to 5 % of the tendered value of the work. This amount shall be released in single installment after 2 (two) years operation and maintenance period is satisfactorily carried out to the satisfaction of Engineer-in-Charge. After this satisfactory 2 (two) year operation and maintenance, this security deposit will be released on written recommendation of concerned Sub-Divisional Officer and on written approval of concerned Executive Engineer.
- 4. Mobilization Advance** 4.1 Mobilization advance not exceeding 10 % of the tendered value may be given at simple interest of 10% per annum, if requested by the contractor in writing within one month of the order to commence the work. In such a case, the contractor shall furnish a bank guarantee bond from a scheduled nationalized bank as specified by the Engineer-in-Charge for the full amount of mobilization advance before such advance is released. Such advance shall be in two or more installments to

be determined by the Engineer-in-Charge at his sole discretion. The first installment of such advance shall be released by the Engineer-in-Charge to the contractor on a request made by the contractor to the Engineer-in-Charge in this behalf. The second and subsequent installments shall be released by the Engineer-in-Charge only after the contractor furnishes a proof of the satisfactory utilization of the earlier installment to the entire satisfaction of the Engineer-in-Charge.

5. Program chart

The contractor shall prepare an integrated program chart in appropriate computer software for the execution of work, showing clearly all activities from the start of work to completion, with details of manpower, equipment and machinery required for the fulfillment of the program within the stipulated period.

The program chart should include the following:

- (a) Descriptive note explaining sequence of the various activities.
- (b) Network (PERT/CPM/Bar chart).
- (c) Program for procurement of materials by the contractor.

6. Designs by Contractor and Approval by the Engineer -In-Charge

The Contractor shall execute the basic and detailed design and the engineering work in compliance with the provisions of the Contract, or where not so specified, in accordance with good engineering practice.

The Contractor shall promptly submit to the Engineer-In-Charge all designs prepared by him. Within 14 days of receipt, the Engineer-In-Charge shall notify any comments. The Contractor shall not construct any element of the permanent work designed by him within 14 days after the design has been submitted to the Engineer-In-Charge or where the design for that element has been rejected. Design that has been rejected shall be promptly amended and resubmitted. The Contractor shall resubmit all designs commented on taking these comments into account as necessary.

The Contractor (successful tenderer) shall be responsible for design of Sewer Network system and Sewage Treatment Plant. The Contractor shall submit Specifications and Drawings showing the proposed network system to the Engineer-In-Charge, who is to approve them if found satisfactory.

The Engineer-In-Charge approval shall not alter the Contractor's responsibility for design of the network system.

The Contractor shall obtain approval of third parties to the design of the network system, where required.

All Drawings prepared by the Contractor for the execution of the Works, are subject to prior approval by the Engineer-In-Charge before his use.

7. Work to be executed as per the approval of Engineer-in-Charge

7.1 All works to be executed under the contract shall be executed under the direction and subject to the approval of the Engineer-in-Charge who shall be entitled to direct at what point or points and in what manner they are to be commenced, and from time to time carried on.

8. Work to be executed in accordance with specifications, drawings, orders, etc

The contractor shall execute the whole and every part of the work in the most substantial and workman like manner both as regards materials and otherwise in every respect in strict accordance with relevant Indian Standard Specifications. The contractor shall also conform exactly, fully and faithfully to the design, drawings and instructions in writing in respect of the work signed by the Engineer-in-Charge and the contractor shall be furnished free of charge one copy of the contract documents together with specifications, designs, drawings and instructions as are not included in the standard specifications of Central Public Works Department or in any Bureau of Indian Standard or any other, published standard or code or Schedule of Rates.

The contractor shall comply with the provisions of the contract and with due care and diligence execute and maintain the works and provide all labor and materials, tools and plants including for measurements and supervision of all works, structural plans and other things of temporary or permanent nature required for such execution and maintenance in so far as the necessity for providing these, is specified or is reasonably inferred from the contract. The contractor shall take full responsibility for adequacy, suitability and safety of all the works and methods of construction.

9. Contractor to supply tools & plants etc

9.1 The contractor shall provide at his own cost all materials machinery, tools & plants required for work execution and maintenance.

10. Materials to be provided by the contractor

10.1 The contractor shall, at his own expense, provide all materials, required for the works other than those which are stipulated to be supplied by the Government.
Plants, machineries and other Construction materials should go through third party inspection before dispatching at the cost of

the contractor.

The contractor shall, at his own expense and without delay; supply to the Engineer-in-Charge samples of materials to be used on the work and shall get these approved in advance. All such materials to be provided by the contractor shall be in conformity with relevant Indian Standard Specifications. The contractor shall, if requested by the Engineer-in-Charge, furnish proof to the satisfaction of the Engineer-in-Charge that the materials so comply. The Engineer-in-Charge shall, within thirty days of supply of samples or within such further period as he may require, intimate to the contractor in writing whether samples are approved by him or not. If samples are not approved, the contractor shall forthwith arrange to supply to the Engineer-in-Charge for his approval, fresh samples complying with the specifications laid down in the contract. When materials are required to be tested in accordance with specifications, approval of the Engineer-in-Charge shall be issued after the test results are received.

The contractor shall at his risk and cost submit the samples of materials to be tested or analyzed and shall not make use of or incorporate in the work any materials represented by the samples until the required tests or analysis have been made and materials finally accepted by the Engineer-in-Charge. The contractor shall not be eligible for any claim or compensation either arising out of any delay in the work or due to any corrective measures required to be taken on account of and as a result of testing of materials.

The contractor shall, at his risk and cost, make all arrangements and shall provide all facilities as the Engineer-in-Charge may require for collecting, and preparing the required number of samples for such tests at such time and to such place or places as may be directed by the Engineer-in-Charge and bear all charges and cost of testing unless specifically provided for otherwise elsewhere in the contract or specifications. The Engineer-in-Charge or his authorized representative shall at all times have access to the works and to all workshops and places where work is being prepared or from where materials, manufactured articles or machinery are being obtained for the works and the contractor shall afford every facility and every assistance in obtaining the right to such access.

The Engineer-in-Charge shall have full powers to cause the removal of all materials from the premises which in his opinion are not in accordance with the specifications and in case of

default, the Engineer-in-Charge shall be at liberty to employ at the expense of the contractor, other persons to remove the same without being answerable or accountable for any loss or damage that may happen or arise to such materials. The Engineer-in-Charge shall also have full powers to require other proper materials to be substituted thereof and in case of default, the Engineer-in-Charge may cause the same to be supplied and all costs which may attend such removal and substitution shall be borne by the contractor. The contractor shall, at his own expense, provide a material testing lab at the site for conducting routine field tests.

11. Foreclosure of contract due to abandonment or reduction in scope of work

- 11.1 If at any time after acceptance of the tender, Government shall decide to abandon or reduce the scope of the works for any reason whatsoever and hence not require the whole or any part of the works to be carried out, the Engineer-in-Charge shall give notice in writing to that effect to the contractor and the contractor shall act accordingly in the matter. The contractor shall have no claim to any payment of compensation or otherwise whatsoever, on account of any profit or advantage which he might have derived from the execution of the works in full but which he did not derive in consequence of the foreclosure of the whole or part of the works.

The contractor shall be paid at contract rates, full amount for works executed at site.

12. Site Investigation Reports

The Contractor/Tenderer, in preparing the Bid, shall rely on any Site Investigation Reports supplemented by any information available to the Bidder.

- (i) The Contractor shall be deemed to have inspected and examined the Site and its surroundings and collected information available in connection with the work of all components and to have satisfied himself before submitting the bid, as to;
- (a) the form and nature thereof, including the subsurface conditions.
 - (b) the hydrological and climatic conditions
 - (c) the extent and nature of work and materials necessary for the execution and completion of the works and the remedying of any defects therein, and the means and access to the site and the accommodation he may require, and in general deemed to have obtained all necessary information, subject as above mentioned, as

to risks, contingencies and all other circumstances which may influence or affect his Bid.

- 13. Subcontracting** 13.1 The Contractor may subcontract in the amount of 30 % with the approval of the Engineer-In-Charge, but may not assign the Contract without the approval of the Employer in writing. Subcontracting shall not alter the Contractor's obligations, duties or responsibilities under the Contract.
- 14. Inspection and supervision by Department** 14.1 All works under or in course of execution or executed in pursuance of the contract, shall at all times be open and accessible to the inspection and supervision of the Engineer-in-charge, his authorized subordinates in charge of the work and all the superior Officers or any organization engaged by the Department for Quality Assurance and the contractor shall, at all times, during the usual working hours and at all other times at which reasonable notice of the visit of such officers has been given to the contractor, either himself be present to receive orders and instructions or have a responsible agent duly accredited in writing, present for that purpose. Orders given to the contractor's agent shall be considered to have the same force as if they had been given to the contractor himself.
- 15. Labor laws to be complied by the contractor** 15.1 The contractor shall obtain a valid license under the Contract Labour (R&A) Act, 1970, and the Contract Labour (Regulation and Abolition) Central Rules, 1971, before commencement of the work, and continue to have a valid license until the completion of the work. The contractor shall also abide by the provisions of the Child Labour (Prohibition and Regulation) Act, 1986.
- The contractor shall also comply with the provisions of the building and other Construction Workers (Regulation of Employment & Conditions of Service) Act, 1996 and the building and other Construction Workers Welfare Cess Act, 1996.
- Any failure to fulfill these requirements shall attract the penal provisions of this contract arising out of the resultant non-execution of the work.
- 15.2 No labour below the age of eighteen years shall be employed on the work.
- 15.3 The Engineer-in-Charge may require the contractor to dismiss or remove from the site of the work any person or persons in the contractors' employ upon the work who may be incompetent or misconduct himself and the contractor shall forthwith comply with such requirements. In respect of maintenance/

repair or renovation works etc. where the labour have an easy access to the individual houses, the contractor shall issue identity cards to the laborers, whether temporary or permanent and he shall be responsible for any untoward action on the part of such labour.

16. Settlement of disputes & arbitration

16.1 All questions and disputes relating to the meaning of the specifications, design, drawings and instructions here-in before mentioned and as to the quality of workmanship or materials used on the work or as to any other question, claim, right, matter or thing whatsoever in any way arising out of or relating to the contract, designs, drawings, specifications, estimates, instructions, orders or these conditions or otherwise concerning the works or the execution or failure to execute the same whether arising during the progress of the work or after the cancellation, termination, completion or abandonment thereof shall be dealt by a Dispute Redressal Committee duly constitute by the State Government.

17. Safety

17.1 The Contractor shall be responsible for the safety of all activities on the Site.

18. Access to the Site

18.1 The Contractor shall allow the Engineer-In-Charge and any person authorized by the Engineer-In-Charge 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.

19. Contractor's Supervision

19.1 The Contractor shall give or provide all necessary superintendence during the installation of the Facilities, and the Construction Manager or its deputy shall be constantly on the Site to provide full-time superintendence of the installation. The Contractor shall provide and employ only technical personnel who are skilled and experienced in their respective callings and supervisory staff who are competent to adequately supervise the work at hand..

B. Time Control

21. Compensation for delay

If the contractor fails to maintain required progress or fails to complete the work or an item of work or group of items of work due to negligence, poor management, etc, he shall, without prejudice to any other right or remedy available under the law on account of such breach, pay to the Government a compensation @ 1.5% per month of the tendered value of work or of the value of the item or group of items of work until his progress of that work item(s) is found satisfactory by Engineer-in-Charge. The amount paid as compensation to the Government for delay of contract work is irrevocable and at the disposal of the Governor of Mizoram from the day it is paid by the contractor.

The amount of compensation may be adjusted or set-off against any sum payable to the contractor under this or any other contract with the Government of Mizoram.

22. Time and extension for delay

22.1 The time allowed for execution of the works as specified or the extended time in accordance with these conditions shall be the essence of the contract. If the contractor commits default in commencing the execution of the work as aforesaid, the Governor of Mizoram shall, without prejudice to any other right or remedy available in law, be at the liberty to forfeit the performance guarantee absolutely.

23. Compensation in case of delay of supply of material by Govt.

The contractor shall not be entitled to claim any compensation from Government for the loss suffered by him on account of delay by Government in the supply of materials where such delay is covered by the difficulties relating to the supply of wagons, force majeure or any reasonable cause beyond the control of the Government.

This will not be applicable for works where no material supply is stipulated.

24. The Works to Be Completed by the Intended Completion Date

24.1 The Contractor may commence execution of the Works on the Start Date and shall carry out the Works in accordance with the Program submitted by the Contractor, as updated with the approval of the Engineer-In-Charge, and complete them by the Intended Completion Date.

C. Quality Control

- 25. Identifying Defects** 25.1 The Engineer-in-Charge shall check the Contractor's work and notify the Contractor of any Defects that are found. Such checking shall not affect the Contractor's responsibilities. The Engineer-in-Charge may instruct the Contractor to search for a Defect and to uncover and test any work that the Engineer-in-Charge considers may have a Defect.
- 26. Tests** 26.1 If the Engineer-in-Charge instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a Defect and the test shows that it does, the Contractor shall pay for the test and any samples.
- 27. Correction of Defects** 27.1 The Engineer-in-Charge shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at Completion. The Defects Liability Period is 2 years from the date of satisfactory completion of trial run after commissioning.
- 28. Uncorrected Defects** 28.1 If the Contractor has not corrected a Defect within the time specified in the Engineer-in-Charge notice, the Engineer-in-Charge shall assess the cost of having the Defect corrected, and the Contractor shall pay this amount.
- 29. Defect Liability** 29.1 Defect liability period of the contract shall be 2 (two) years from the date of commissioning. Any defect noticed in the system during construction as well as defect liability period shall have to be rectified by the contractor at his/their own cost and risk.
- 30. Contractor liable for damages, defects, etc** 30.1 If the contractor, his working people, servants, machines, materials, debris, spoils or refuses, etc shall break, deface, injure, destroy, damage or cause loss of value, etc to any person, building, road, road kerb, fence, enclosure, water pipe, cables, drains, electric post, telephone post or wires, trees, grass, crops, pond or cultivated ground, etc or if any damage shall happen while in progress, from any cause whatever or if any defect or other faults appear in the work, the contractor shall upon receipt of a notice in writing on that behalf make the same good at his own expense or pay compensation money to the owner of such property.

D. Cost Control

31. Contract Price 31.3 The Contract Price shall be a firm, fixed and Price escalation shall not be allowed.

32. Payments 32.1 **A) SEWER NETWORKS**
 1. Payment will be made to the contractor in time on submission of bills based on progress of the work and subject to availability of fund.
 2. The contractor shall be at liberty to submit bills for payment every month during the completion period as mentioned earlier, and payment on such bills may be made by the government after recovering or adjusting the mobilization advance , if any, upto 10% on each such bill.

Civil Works

In respect of civil works, payments shall be made as below:

Progressive payment on pro-rata basis, after deduction of advance and retention, based on progress of works.

In the case of pipelines valves and specials payments shall be made as below

60% of contract amount of each item on prorata basis.	On delivery to the site and verification of quality based on specifications including third party inspection if required.
30% of contract amount of each item on prorata basis	After laying & jointing.
10% of contract amount of each item	On successful completion of defects liability/ performance guarantee period.

32.2 **B) SEWAGE TREATMENT PLANT**

In the case of Plant and equipment payments shall be made as below

60% of contract amount of each item on prorated basis.	On delivery to the site and verification of quality based on specifications including third party inspection if required.
10% of Contract amount of each item on prorated basis.	On completion of erection and installation
15% of contract amount of each item on prorated basis.	On successful completion of testing and commissioning.
5% of contract amount of each item	On successful completion of trial run period for three months.
10 % of contract amount of each item	On successful completion of defects liability/ performance guarantee period.

The list of Detailed payments are mentioned in Appendix- I

33. Levy /Taxes payable by contractor

Sales Tax/VAT/ GST, Building and other Construction Workers Welfare Cess or any other tax or Cess, etc in respect of this contract shall be payable by the contractor and Government shall not entertain any claim whatsoever in this respect.

The department shall deduct Cess & GST, etc as admissible on the value of work done from each bill of the contractor as per prevailing government's instructions/orders. In lieu of this, the department shall issue a certificate of deduction of the tax at source to the contractor.

E. Finishing the Contract

34. Commissioning and Operational Acceptance

34.1 The contractor will be responsible for operation and maintenance of the whole system for 2 (Two) years from the date of commissioning. During this period, training on operation should be given to the department who will be responsible for operation of the whole system after the expiry of this 2 (Two) year. Handing over of the system shall take place between the department and the contractor after completion of this period and agreement should be signed at the time of handing over.

35. Suspension of work

The contractor shall, on receipt of the order in writing of the Engineer-in-Charge, (whose decision shall be final and binding on the contractor) suspend the progress of the works or any part thereof for such time and in such manner as the Engineer-in-Charge may consider necessary so as not to cause any damage or injury to the work already done or endanger the safety thereof.

The contractor shall, during such suspension, properly protect and secure the works to the extent necessary and carry out the instructions given in that behalf by the Engineer-in-Charge.

36. Termination

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

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

- (a) the Contractor stops work for 28 days when no stoppage of work is shown on the current Program and the stoppage has not been authorized by the Engineer-in-Charge;
- (b) the Engineer-in-Charge instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within 28 days;
- (c) the Employer or the Contractor is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation;
- (d) a payment certified by the Engineer-in-Charge is not paid by the Employer to the Contractor within 84 days of the date of the Engineer-in-Charge certificate;
- (e) the Engineer-in-Charge gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Project Manager;
- (f) the Contractor does not maintain a Security, which is required; and
- (g) the Contractor has delayed the completion of the Works by the number of days for which the maximum amount of liquidated damages can be paid, i.e, 100 days
- (h) if the Contractor, in the judgment of the Employer has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

37. Payment upon Termination

37.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Engineer-In-Charge shall issue a certificate for the value of the work done and Materials ordered less advance payments received up to the date of the issue of the certificate and less 20 % which is the percentage to apply to the value of the work not completed. Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be a debt payable to the Employer.

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

38. Property

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

SECTION- 5

Contract Forms

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Notification of Award
Letter of Acceptance
[Employer's letter head]

Date: _____

To: _____

This is to notify you that your Bid dated _____ for execution of the **Survey, design, supply, installation, testing and commissioning of Sewerage & Septage Treatment Works for Zone 7, Aizawl City Small Bore Sewer, Tuikual Lui (Under AMRUT 2.0)** for the Contract Price in the aggregate of Rs. 39,22,00,000.00 as corrected and modified in accordance with the Instructions to Bidders is hereby accepted by our Agency.

You are requested to furnish the Performance Security within 7 days in accordance with the Conditions of Contract, using for that purpose one of the Performance Security Forms included in Section 5 (Contract Forms) of the Bidding Documents .

The Chief Engineer, Zone-I
PHED, Aizawl

Attachment: Draft Contract Agreement

Contract Agreement (Works)

THIS AGREEMENT made the _____ day of _____,

BETWEEN

(1) The Chief Engineer, Zone-I, a corporation incorporated under the laws of India and having its principal place of business at The Chief Engineer, Zone-I Office, Khatla, Aizawl, Mizoram and
(2) _____, a corporation incorporated under the laws of _____ and having its principal place of business at _____.

WHEREAS the Employer desires to engage the Contractor to design, manufacture, test, deliver, install, complete and commission certain Facilities, viz. _____ and the Contractor have agreed to such engagement upon and subject to the terms and conditions hereinafter appearing.

NOW IT IS HEREBY AGREED as follows:

Article 1 Contract Documents

Contract Documents

The following documents shall constitute the Contract between the Employer and the Contractor, and each shall be read and construed as an integral part of the Contract:

- (a) This Contract Agreement and the Appendices hereto
- (b) Letter of Bid
- (c) Employers requirement
- (d) Price Schedules submitted by the Contractor
- (e) Special Conditions
- (f) General Conditions
- (g) Other completed Bidding Forms submitted with the Letter of Bid
- (h) Standard specifications
- (i) Quality assurance / Quality control manual
- (j) Schedule of Rates

Order of Precedence

In the event of any ambiguity or conflict between the Contract Documents listed above, the order of precedence shall be the order in which the Contract Documents are listed in Article 1.1 (Contract Documents) above.

Definitions Capitalized words and phrases used herein shall have the same meanings as are ascribed to them in the General Conditions.

Article 2 Contract Price and Terms of Payment

2.1 Contract Price

The Employer hereby agrees to pay to the Contractor the Contract Price in consideration of the performance by the Contractor of its obligations hereunder. The Contract Price shall be the aggregate of: Thirty Nine Crore, Twenty two lakhs only

[Rs. 39,22,00,000.00] or such other sums as may be determined in accordance with the terms and conditions of the Contract.

2.2 Terms of Payment

The terms and procedures of payment according to which the Employer will reimburse the Contractor are given in the Appendix (Terms and Procedures of Payment) hereto.

The Employer shall instruct its bank to issue an irrevocable confirmed documentary credit made available to the Contractor in a bank in the country of the Contractor. The credit shall be for an amount of _____ and shall be subject to the Uniform Customs and Practice for Documentary Credits 1993 Revision, ICC Publication No. 500. In the event that the amount payable under Schedule No. 1 is adjusted or with any of the other terms of the Contract, the Employer shall arrange for the documentary credit to be amended accordingly

**Article 3
Effective Date**

Effective Date

The Effective Date upon which the period until the Time for Completion of the Facilities shall be counted from is the date when all of the following conditions have been fulfilled:

- (a) This Contract Agreement has been duly executed for and on behalf of the Employer and the Contractor;
- (b) The Contractor has submitted to the Employer the performance security;

Each party shall use its best efforts to fulfill the above conditions for which it is responsible as soon as practicable.

If the conditions listed fewer than 3.1 are not fulfilled within two months from the date of this Contract notification because of reasons not attributable to the Contractor, the parties shall discuss and agree on an equitable adjustment to the Contract Price and the Time for Completion and/or other relevant conditions of the Contract.

**Article 4
Communications**

The address of the Employer for notice purposes, pursuant to The Chief Engineer, Zone-I Office, Khatla, Aizawl, Mizoram

The address of the Contractor for notice purposes, pursuant to

**Article 5.
Appendices**

5.1 The Appendices listed in the attached List of Appendices shall be deemed to form an integral part of this Contract Agreement.

5.2 Reference in the Contract to any Appendix shall mean the Appendices attached hereto, and the Contract shall be read and construed accordingly.

IN WITNESS WHEREOF the Employer and the Contractor have caused this Agreement to be duly executed by their duly authorized representatives the day and year first above written.

Signed by, for and on behalf of the Employer

The Chief Engineer, Zone-I
PHED, Aizawl

In the presence of

Signed by, for and on behalf of the Contractor

in the presence of

Performance Security

.....*Bank's Name, and Address of Issuing Branch or Office*.....

Beneficiary: *Name and Address of Employer*

Date:.....

Performance Guarantee No.:

We have been informed that _____ has entered into Contract No _____ dated _____ with you, for the execution of **Survey, design, supply, installation, testing and commissioning of Sewerage & Septage Treatment Works for Zone 7, Aizawl City Small Bore Sewer, Tuikual Lui (Under AMRUT 2.0).**

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

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

This guarantee shall expire, no later than the _____ Day _____, and any demand for payment under it must be received by us at this office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458, except that subparagraph (ii) of Sub-article 20(a) is hereby excluded.

.....
Seal of Bank and Signature(s)

Advance Payment Security

.....*Bank's Name, and Address of Issuing Branch or Office*.....

Beneficiary: *Name and Address of Employer*

Date:

Advance Payment Guarantee No.:

We have been informed that _____ has entered into Contract No _____ dated _____ with you, for the execution of **Survey, design, supply, installation, testing and commissioning of Sewerage & Septage Treatment Works for Zone 7, Aizawl City Small Bore Sewer, Tuikual Lui (Under AMRUT 2.0).**

Furthermore, we understand that, according to the Conditions of the Contract, an advance payment in the sum _____ (_____) is to be made against an advance payment guarantee.

At the request of the Contractor, we _____ hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of . _____ (_____) upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract because the Contractor used the advance payment for purposes other than the costs of mobilization in respect of the Works.

It is a condition for any claim and payment under this guarantee to be made that the advance payment referred to above must have been received by the Contractor on its account number . _____ at _____

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as indicated in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that eighty (80) percent of the Contract Price has been certified for payment, or on the _____ day of _____ whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date..

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458.

.....
Seal of Bank and Signature(s)

Appendix 1 - Terms and Procedures of Payment for STP

I. Payment against Works (against Monthly Running Bills)

Sr. No.	Items	Release of Payments
1.0	Approval of Drawings and Documentation	Shall not exceed 5% of the Total Contract Value Excluding O & M
	Approval of Basic Engineering Package	30 %
	Approval of Detailed Engineering Package	70 %

2. Civil Works

A. Primary Treatment Units

(Receiving Chamber, fine Screen Channel, Distribution Chamber Treated Sewage Pipeline from chlorination tank to proposed treated sewage U.G. Sump).

Sr. No.	Items	Release of Payments Shall not exceed 1% of the Total Contract Value Excluding O & M
1	Up to Bottom slab/ Raft	30%
2	Walls	
	a. Half Stage	25%
	b. Full Stage	25%
3	Platform, Handrail and Other Miscellaneous	15 %
4	On successful Testing & Commissioning	5%
	Total	100%

Signature of Contractor

B. Cyclic Activated Sludge Basins/ SBR Basins Chlorination tank & Sludge sump & Pump House Centrifuge house

Sr. No.	Items	Release of Payments Shall not exceed 20% of the Total Contract Value Excluding O & M
1	Up to Bottom slab/ Raft	25%
2	Walls	
	a. Half Stage	25%
	b. Full Stage	25%
3	Platform, Handrail and Other Miscellaneous Works	20 %
4	On successful Testing & Commissioning	5%
	Total	100%

C. Buildings - (Single Storey) - Blower Room etc.

Sr. No.	Items	Release of Payments Shall not exceed 3% of the Total Contract Value Excluding O & M
1	RCC Work up to Bottom Slab	25%
2	Up to Roof Slab	25%
3	Brickwork, Internal & External Plastering	15%
4	Flooring, Painting , waterproofing & other	30 %
5	On successful Testing & Commissioning	5%
	Total	100%

D. Buildings - (G+1) - MCC Control Room cum Administrative Office etc.

Sr. No.	Items	Release of Payments Shall not exceed 5% of the Total
1	RCC Work up to Bottom Slab	15%
2	Up to First Floor Slab	15%
	Up to Roof Slab	15
3	Brickwork, Internal & External Plastering	20%
4	Flooring, Painting , waterproofing & other	30 %
5	On successful Testing & Commissioning	5%
	Total	100%

Signature of Contractor

Mechanical works –

Sr. No.	Items	Release of Payments Shall not exceed 53% of the Total Contract Value Excluding O & M
1	Procurement / Delivery at site	80%
2	Installation & Testing	15%
3	On successful Testing & commissioning	5%
	Total	100%

Electrical & Instrumentation Works -

Sr. No.	Items	Release of Payments Shall not exceed 13% of the Total Contract Value Excluding O & M
1	Procurement / Delivery at site	80%
2	Installation & Testing	15%
3	On successful Testing & commissioning	5%
	Total	100%

II. Payment against O & M Works -

Sr. No.	Items	Release of Payment
1	Against Quarterly Running Bills	100 % of Running bill Value

Note: - In case for any item / Unit the schedule of payment is not mentioned above. It shall be decided by The Executive Engineer during execution and his decision shall be final and binding.

O & M Payment shall be on monthly basis as mentioned in the technical specification detail.

Contract Agreement (Operation and Maintenance)

Contract No.:

BID No.:

This Agreement made this _____ day of _____, 20__, between the _____ represented by _____ of the one part and _____ of _____ of the other part.

Whereas the Employer desires that the permanent Plant, Equipment and all other facilities incorporated into the Works known as the “**Design, Construction, Supply, Erection, Testing, Commissioning and two years operation and maintenance of Sewage Treatment Plant 3.5 MLD (SBR Process) near----- village including all Civil, Electrical, Mechanical, Pumping and other allied works at Aizwal Town**”, and Operation & Maintenance of Sewage Treatment plant 3.5 MLD capacity for 2 years should be properly operated and maintained for the purposes for which they are intended by the Contractor after completion of construction, and has accepted a Bid by the Contractor for the operation and maintenance of such plant and equipment for a period of 24 (Twenty four) months after completion and acceptance of the Works.

The Employer and the Contractor agree 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 be read and construed as part of this Agreement:
 - (a) The Letter of Acceptance dated _____
 - (b) The Employer's Requirements
 - (c) The Addenda nos. _____
 - (d) The Bid dated _____
 - (e) The Conditions of Contract (Parts I and II)
 - (f) The Completed Schedules, and
 - (g) The Contractor's Proposal.
3. In consideration of the payments to be made by the Employer, or his legal successors or assignees, to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to operate and maintain the Works at its rated capacity, including maintaining the Plant and equipment in good operating condition, normal wear and tear excepted, and remedying any defects therein in conformity in all respects with the provisions of the Contract.
4. The Employer, or his legal successors or assignees, hereby covenants to pay the Contractor, in consideration of the operation and maintenance of the Works and the remedying of defects therein, the **O&M 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 hereto have caused this Agreement to be executed the day and year first before written in accordance with their respective laws.

Authorized signature of Contractor

SEAL (if any)

in the presence of:

Name _____

Signature _____

Address _____

Authorized signature of Employer

SEAL (if any)

in the presence of:

Name _____

Signature _____

Address _____

On Rs. 100 Stamp Paper

Memorandum of Understanding for JOINT VENTURE

This Memorandum of Understanding (hereinafter referred to as "MOU") is made and entered into this -
----- ("Effective Date").

BETWEEN

M/s. _____, a company incorporated, and having its registered office at_____.
(Hereinafter referred to as the "**First Party**"/ "**One Partner**");

M/s. _____) a company incorporated, and having Registered office at_____. (Hereinafter referred to as the "**Second Party**"/ "**Each Partner**");

M/s. _____) a company incorporated, and having Registered office at_____. (Hereinafter referred to as the "**Third Party**"/ "**Each Partner**");

Hereinafter jointly referred to as the "**Parties**" and individually as "**Each Party**" or "**a Party**" as the case may be.

WHEREAS,

A) The **CE, Zone-I, PHED Mizoram** (hereinafter referred to as the **CE, Zone-I, PHED** or "**Employer**") invited bid for

_____.

(B) The **Parties** hereto formed a Joint Venture or will form a joint venture (hereinafter referred to as the "**JV**") to jointly execute the above project in all respect

NOW THEREFORE IT IS HEREBY AGREED as follows

ARTICLE 1: JOINT VENTURE:

The Parties hereto agree to form the Joint Venture with_____designated as the **One Partner and First Partner**.

_____shall be the **Second Member – or Second Partner**

_____shall be the **Third Member – or Third Partner** (insert more lines if more partners)

ARTICLE 2: JOINT VENTURE NAME:

2. The JV shall do business in the name of “ **Joint Venture**”.

ARTICLE 3: JOINT AND SEVERAL LIABILITY:

3 The **Parties** hereto shall, for the above-referred **Projects**, be jointly and severally liable to the **Employer** for the execution of the **Projects** in accordance with the **Contract** till the actual completion of **Contract** including defect liability period and operation & maintenance as per bid conditions.

ARTICLE 4: PROPORTIONATE SHARE:

Each member of the Joint Venture agrees to place at the disposal of the Joint Venture, the benefit of all its experience, technical knowledge and skill, and shall in all respects bear its share of responsibility and burden of completing the contract. The parties herein shall be responsible for physical and financial distribution of work as under.

Lead Partner: Financial responsibility: -----

Physical responsibility: -----

Other Partners: Financial responsibility: -----

Physical responsibility: -----

All rights, interests, liabilities, obligations, risks, costs, expenses and pecuniary obligations and all net profits or net losses arising out of the **Contract** shall be shared or borne by the **Parties** in the above **Proportions**.

The members in the proportion as mention in article 4.1 shall contribute sufficient Initial fixed capital for timely execution of the project including commissioning & operating period as per the contract.

ARTICLE 5: JOINT EFFORT AND MANAGEMENT:

The **Parties** shall participate as a **JV** in the submission of bids and further negotiations with the **Employer** and shall co-operate and contribute their respective expertise and resources to secure and execute the **Projects**.

On award of **Projects**, the **First Partner** in consultation with the other members of **JV** will decide on the final management structure for the successful execution of the **Projects** as per the terms of **Contract**.

All the **Parties** hereby agree to pool in their financial, administrative, managerial, technical and material resources for execution of the **Projects**, including commissioning & operation for the period as stipulated in the contract. The share of interest of the **JV** shall be as per the mutual understanding for the successful completion of the project.

ARTICLE 6: EXCLUSIVITY

The co-operation between the **Parties** hereto shall be mutually exclusive i.e. none of them shall without the other **Party's** consent & prior approval of **CE, Zone-I, PHED**, approach or cooperate with any other parties in respect of the Project.

In the course of working as associates, the parties to the **JV** will be sharing information with each other which may be proprietary /confidential information /knowledge acquired by each other. It is hereby agreed that the parties will maintain complete secrecy

regarding such information / knowledge and will not divulge to any party for any other purpose except for the success of the joint execution of the contract. All parties will also indemnify each other against any claim that may arise out of using information, which are being claimed proprietary.

ARTICLE 7: Memorandum of Understanding:

This **Memorandum of Understanding** shall be terminated:-

- a. if the **Parties** mutually confirm that the **JV's** bid proposal has not been finally accepted by **Employer** and all rights and obligations of the **Parties** under or in connection with this **Memorandum of Understanding** have ceased, or
- b. after successful completion of the project including commissioning & operation and defect liability period from the date of this **Memorandum of Understanding** unless extended for a further period on demand of **CE, Zone-I, PHED** & mutual consent of the Parties, or

The **Memorandum of Understanding** can be modified by mutual consent of the Parties to suit the efficient and expeditious execution of Projects including commissioning & operation of Plant or to make this agreement more meaningful to suit the requirements of Employer **after the consent of the Employer.**

ARTICLE 8: ARBITRATION:

- 8.1 Any dispute resulting from this Agreement shall be settled amicably by mutual Consultation by the Managing Directors/Chairman of _____ & _____. In the event that an amicable settlement is not reached within 60 days in any particular case, the dispute shall be referred to arbitration and shall be resolved in accordance with and subject to the provisions of the _____ and any statutory modifications and enactment hereof for the time being in force. The decision of the arbitrators shall be final and binding upon both parties. The venue of arbitration will be _____.

ARTICLE 9: GOVERNING LAWS:

- 9.1 This Agreement shall in all respects be governed by and interpreted in accordance with the _____ Laws.

ARTICLE 10: CONFIDENTIALITY:

No Party hereto shall disclose to any other party any information of a confidential nature including but not limited to trade secrets, know-how acquired from any Party in connection with the subject matter of this Agreement.

ARTICLE 11: ADDRESS OF CONSORTIUM:

- Any and all correspondence from the Employer to the **JV** shall be addressed to **(name of JV)** at the address stated herein below—(any one of the partners). The address of the Consortium office of the partner companies will be deemed to be the address for the purpose of communication.
- The notice, if any required to be served on the party by the other party, will be deemed to be served, if the said notice / communication is delivered by Registered Post at the respective address
-

(Name of JV)

ARTICLE 12: Authorized Representative:

- The JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the parties of the JV during the bidding process and, in the event the JV is awarded the Contract, during contract execution.
- Authorized Representative of JV : _____

ARTICLE 13: ASSIGN ABILITY:

13.1 The interests and rights of a Party in the Contract and as a Party of the Joint Venture shall not be transferable or assignable without the written consent of the Employer & other party.

ARTICLE 14: INTERPRETATION OF HEADINGS:

14. The headings of each of the Articles herein contained are inserted merely for convenience of reference and shall be ignored in the interpretation and construction of any of the provisions herein contained.

ARTICLE 15: OTHERS

15.1 Any other matters not contained in this Agreement shall be discussed and amicably agreed upon by the Parties in the spirit of mutual trust and cooperation for timely completion of project including commissioning & operation of project. Notwithstanding anything above all the Parties are severally and jointly responsible to the Employer for execution of the Contract:

IN WITNESS WHEREOF the Parties hereto have caused this Agreement to be executed by each of the duly authorized representatives as appearing below:-

Signed by)

For and on behalf of

_____)

in the presence of:)

Name:

Designation:

Name :

Designation:

Signed by)

For and on behalf of)

_____.

in the presence of:)

_____)

Name :

Designation:

Name:

Designation:
