

**Government of Rajasthan**  
**Local Self Government Department**  
**(Directorate of Local Bodies, Rajasthan, Jaipur)**  
G-3, Rajmahal Residency, Near Civil lines, Railway Crossing, Jaipur

Tel No.: +91 141 2222469

Fax No.: +91 141 2222403

web site : [www.lsg.urban.rajasthan.gov.in](http://www.lsg.urban.rajasthan.gov.in)

No: F 55 ( ) PA/CE/DLB/BA/ARC FSTP/2022/ 54219-227

Date 23/06/2022


**Notice Inviting Bids (NIB)**

(For publication in the Newspapers)

Online Technical and Financial Bids in Single Stage two envelopes are invited on behalf of Governor of Rajasthan by Directorate of Local Bodies for Rate Contract for Design, Supply, Construction, Testing, Trial run and commissioning of 5 KLD, 10 KLD, 15 KLD, 20 KLD, 25 KLD and 35 KLD FSTPs towards Faecal Sludge & Septage Management (FSSM) with 10 years operation and maintenance including supply, testing of vehicle mounted suction machine for faecal sludge desludging up to 25.07.2022.

Other particulars of the bid may be visited on the Procurement Portal (<http://sppp.rajasthan.gov.in> , <http://eproc.rajasthan.gov.in> ) of the State, and LSG Department website. The approximate value of the procurement is **Rs 405 Cr.**

U/B No: \_\_\_\_\_

  
(Hridesh Kumar Sharma)  
Director cum Joint Secretary

No: F 55 ( ) PA/CE/DLB/BA/ARC FSTP/2022/ 54219-227

Date 23/06/2022

Copy in following for information:

1. SA to Hon'ble Minister UDH&LSG, GoR
2. PS to Secretary LSG, GoR
3. PS to Director cum Joint Secretary, LSG
4. FA, DLB
5. Concerned Officer with the request to upload on <http://sppp.rajasthan.gov.in> , <http://eproc.rajasthan.gov.in> websites.
6. JD (PR), DLB with the request for publication of NIB in One leading Regional daily newspaper, one State level leading daily newspapers having circulation of 50,000 copies or more, One all India level daily English newspaper with wide circulation
7. ACP, DLB with the request for uploading on LSG website
8. Notice Board \_\_\_\_\_

  
Chief Engineer

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**Notice Inviting Bids (NIB)**

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Online Technical and Financial Bids in Single Stage two envelopes are invited on behalf of Governor of Rajasthan by Directorate of Local Bodies for Rate Contract for Design, Supply, Construction, Testing, Trial run and commissioning of 5 KLD, 10 KLD, 15 KLD, 20 KLD, 25 KLD and 35 KLD FSTPs towards Faecal Sludge & Septage Management (FSSM) with 10 years operation and maintenance including supply, testing of vehicle mounted suction machine for faecal sludge desludging.

Cost of Bid Document (non-refundable)	Rs 5000/- (Rupees Five Thousand)
Cost of RISL processing fee (non-refundable)	Rs 1000/- (Rupees one Thousand)
Bid Security (refundable)	Bid security 2% of estimated cost
Publishing Date & Time	24.06.2022 at 14:00 Hrs
Bid Document Download start Date & Time	24.06.2022 at 16:00 Hrs
Pre-bid meeting Date & Time	05.07.2022 at 15:00 Hrs
Websites for downloading bid document	<a href="http://sppp.rajasthan.gov.in">http://sppp.rajasthan.gov.in</a> , <a href="http://eproc.rajasthan.gov.in">http://eproc.rajasthan.gov.in</a>
Bid Document submission end Date & Time	25.07.2022 15:00 Hrs on <a href="http://eproc.rajasthan.gov.in">http://eproc.rajasthan.gov.in</a>
Technical Bid Opening Date & Time	26.07.2022 at 15:00 Hrs

- The interested bidder may submit their proposals online along with a Non-refundable Rs 5000/- (Rupees Five Thousand Only) drawn in favour of Director Local Bodies, Raj. Jaipur payable at Jaipur, towards the cost of Bid Document & RISL processing fee Rs 1000/- (Rupees One Thousand Only) drawn in favour of MD, RISL payable at Jaipur from any Scheduled Commercial Bank. Bid document fee and processing fee shall be deposited through e-Grass system as detailed below:

S.No	Description	Detail
1.	District	Jaipur
2.	Office name	2371-Directorate Local Bodies
3.	Treasury	Secretariat, Jaipur
4.	Deptt. ID Name	56-Local Bodies Department
5.	Bid Document Fee A/c No	0075-00-800-52-01
6.	RISL Processing Fee A/c No	8658-00-102-16-01

- Bid Document may be visited at or obtained from website <http://sppp.rajasthan.gov.in> or <http://eproc.rajasthan.gov.in>
- Bidder, who procured digital certificate as per IT Act 2000 to sign their electronic bids, shall submit their technical and financial offer on-line on above mentioned web site up to time and date mentioned herein above.
- In case of the any bidder fails to deposit bid document fee, processing fee on e-Grass and challan copy with their technical bid, the bid of the respective bidder shall not be accepted.
- Bid security shall be in form of Bank Guarantee in favor of Director Local Bodies, Raj. Jaipur and submitted with technical proposal.
- The Bidders shall have to submit copies of a valid "GST" certificate and the Permanent Account Number (PAN).
- The procuring Entity is not bound to accept the lowest Bid and may reject any or all Bids without assigning any reason thereof.
- DLB reserves the right to accept any bid, or reject any or all bids, without assigning any reason thereof and without incurring any liability, whatsoever in favour of the Bidder(s).
- The "Rajasthan Transparency in Public Procurement Act 2012 & Rule 2013" shall be applicable, if there is any discrepancy between the provisions of the Act and the Rules and bidding document, the provisions of the Act and the Rules shall prevail.

  
(Hridesh Kumar Sharma)  
Director cum Joint Secretary

**Local Self Government Department  
Government of Rajasthan**

**BIDDING DOCUMENT**

**Name of Work: Rate Contract for Design, Supply, Construction, Testing, Trial run and commissioning of 5 KLD, 10 KLD, 15 KLD, 20 KLD, 25 KLD and 35 KLD FSTPs towards Faecal Sludge & Septage Management (FSSM) with 10 years operation and maintenance including supply, testing of vehicle mounted suction machine for faecal sludge desludging**

**Under Open Competitive Bidding**

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## SECTION I: Instruction to Bidders

**Important Instruction:-** The Law relating to procurement “The Rajasthan Transparency in Public Procurement Act, 2012” [hereinafter called the Act] and the “Rajasthan Public Procurement Rules, 2013” [hereinafter called the Rules] under the said Act have come into force which are available on the website of State Public Procurement Portal <http://sppp.rajasthan.gov.in>. Therefore, the Bidders are advised to acquaint themselves with the provisions of the Act and the Rules before participating in the Bidding process. If there is any discrepancy between the provisions of the Act and the Rules and this Bidding Document, the provisions of the Law shall prevail.

### 1 General

1.1	Scope of Bid	1.1.1	In support of the Invitation to Bid indicated in the Bid Data Sheet (BDS), the Procuring Entity as indicated in the BDS, issues this Bidding Document for the procurement of works as named in the BDS and as specified in Section V, Procuring Entity's Requirements.
1.2	Interpretation	1.2.1	Throughout this Bidding Document:  the term “in writing” means communicated in written form through letter, fax, e-mail etc. with proof of receipt.  if the context so requires, singular means plural and vice versa; and  “Day” means calendar day
1.3	Code of Integrity	1.3.1	Any person participating in the procurement process shall,-  A. not offer any bribe, reward or gift or any material benefit either directly or indirectly in exchange for an unfair advantage in procurement process or to otherwise influence the procurement process; B. not misrepresent or omit that misleads or attempts to mislead so as to obtain a financial or other benefit or avoid an obligation; C. not indulge in any collusion, bid rigging or anti-competitive behaviour to impair the transparency, fairness and progress of the procurement process; D. not misuse any information shared between the Procuring Entity and the Bidders with an intent to gain unfair advantage in the procurement process; E. not indulge in any coercion including impairing or harming or threatening to do the same, directly or indirectly, to any party or to its property to influence the procurement process; F. not obstruct any investigation or audit of a procurement process; G. disclose conflict of interest, if any; and H. disclose any previous transgressions with any Entity in India or any other country during the last three years or any debarment by any other

## SECTION I: Instruction to Bidders

			Procuring Entity.
		1.3.2	<p>Conflict of Interest: A conflict of interest is considered to be a situation in which a party has interests that could improperly influence that party's performance of official duties or responsibilities, contractual obligations, or compliance with applicable laws and regulations.</p> <p>A Bidder may be considered to be in conflict of interest with one or more parties in this bidding process if, including but not limited to:</p> <ul style="list-style-type: none"> <li>A. have controlling partners/ share holders in common; or</li> <li>B. receive or have received any direct or in direct subsidy from any of them ;or</li> <li>C. have the same legal representative for purposes of this Bid; or</li> <li>D. have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the Bid of another Bidder, or influence the decisions of the Procuring Entity regarding this bidding process; or</li> <li>E. the Bidder participates in more than one Bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all Bids in which the Bidder is involved. However, this does not limit the inclusion of the same subcontractor, not otherwise participating as a Bidder, in more than one Bid; or</li> <li>F. the Bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the Works that are the subject of the Bid; or</li> <li>G. the Bidder or any of its affiliates has been hired (or is proposed to be hired) by the Procuring Entity as Engineer-in-charge/ consultant for the Contract.</li> </ul>
		1.3.3	The Bidder shall have to give a declaration regarding compliance of the Code of Integrity prescribed in the Act, the Rules and stated above in this Clause along with its Bid, in the format specified in Section IV, Bidding Forms.
		1.3.4	Breach of Code of Integrity by the Bidder: - Without prejudice to the provisions of Chapter IV of the Rajasthan Transparency in Public Procurement Act, in case of any breach of the Code of Integrity by a Bidder or prospective Bidder, as the case may be, the Procuring Entity may take appropriate action in accordance with the provisions of sub-section (3) of section 11 and section 46 of the Act.

## SECTION I: Instruction to Bidders

1.4	Eligible Bidders	1.4.1	A Bidder may be a natural person, private Entity, government-owned Entity or, where permitted in the Bidding documents.
		1.4.2	A Bidder, and all parties constituting the Bidder, shall have the nationality of India.
		1.4.3	A Bidder should not have a conflict of interest in the procurement in question as stated in the Rule 81 and this Bidding document.
		1.4.4	A Bidder debarred under section 46 of the Act shall not be eligible to participate in any procurement process undertaken by any Procuring Entity, if debarred by the State Government; and a Procuring Entity, if debarred by such Procuring Entity.
		1.4.5	The Bidder must be a registered Contractor in appropriate class with the Department/ Organization. He shall furnish necessary proof for the same. PSU can be participate in tender without registration.
		1.4.6	<p>i Any change in the constitution of the firm, etc., shall be notified forth with by the Bidder in writing to the Procuring Entity and such change shall not relieve any former partner/ member of the firm, etc from any liability under the Contract.</p> <p>ii No new partner/partners shall be accepted in the firm by the Bidder in respect of the contract unless he/they agree to abide by all its terms, conditions and deposit with the Procuring Entity a written agreement to this effect. The Bidder's receipt for acknowledgement or that of any partners subsequently accepted as above shall bind all of them and will be sufficient discharge for any of the purpose of the Contract.</p>
To		1.4.7	Bidders shall provide such evidence of their continued eligibility satisfactory to the Procuring Entity, should the Procuring Entity request.
		1.4.8	In case a prequalification or empanelment or registration process has been conducted prior to the bidding process, this bidding shall be open only to the pre-qualified, empanelled or registered Bidders.
		1.4.9	Each Bidder shall submit only one Bid except in case of alternative bids, if permitted.
		1.4.10	<p>Bidder who is not registered under the Sales Tax Act prevalent in the State of Rajasthan can bid, however selected bidder shall have to be got registered with the Sales Tax department of the state government and submit the proof of registration before signing the Contract agreement.</p> <p>He is also required to provide proof of Permanent</p>

## SECTION I: Instruction to Bidders

			Account Number (PAN) given by Income Tax Department.
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## 2 Contents of Bidding Document

2.1	Sections of the Bidding Document	2.1.1	<p>The Bidding Document consists of Parts I, II, and III, which include all the Sections indicated below, and should be read in conjunction with any Addenda issued in accordance with ITB Clause 2.3 [Amendment of Bidding Document].</p> <p>Part I: Bidding Procedures</p> <p>Section I. Instructions to Bidders (ITB)</p> <p>Section II. Bid Data Sheet (BDS)</p> <p>Section III. Evaluation and Qualification Criteria</p> <p>Section IV. Bidding Forms</p> <p>Part II: Requirements</p> <p>Section V. Procuring Entity's Requirements.</p> <p>Part III: Contract</p> <p>Section VI A. General Conditions of Contract [GCC]</p> <p>Section VI B. Special Conditions of Contract [SCC]</p> <p>Section VI C. Contract Forms</p>
		2.1.2	The Invitation for Bids (NIB) issued by the Procuring Entity is also part of the Bidding Document.
		2.1.3	i. The Bidding Document shall be uploaded on the e-procurement portal, <a href="http://eproc.raj.nic.in">eproc.raj.nic.in</a> along with the Notice Inviting Bids. The complete Bidding Document shall also be placed on the State Public Procurement Portal, <a href="http://sppp.raj.nic.in">sppp.raj.nic.in</a> . The prospective Bidders may download the bidding document from these portals. The price of the Bidding Document and processing fee of e-bid shall have to be paid to the Procuring Entity in the amount and manner as specified in Bid Data Sheet and e-procurement portal.
		2.1.4	The Procuring Entity is not responsible for the completeness of the Bidding Document and its addenda, if they were not downloaded correctly from the e-procurement portal or the State Public Procurement Portal.
		2.1.5	The Bidder is expected to examine all instructions, forms, terms and specifications in the Bidding Document. Failure to furnish all information or authentic documentation required by the Bidding Document may result in the rejection of the Bid.

## SECTION I: Instruction to Bidders

2.2	Clarification of Bidding Document and Pre-Bid Conference	2.2.1	The Bidder shall be deemed to have carefully examined the conditions, specifications, size, make and drawings, etc. of the Works and Related Services to be provided. If any Bidder has any doubts as to the meaning of any portion of the conditions or of the specifications, drawings etc., it shall, before submitting the Bid, refer the same to the Procuring Entity and get clarifications. A Bidder requiring any clarification of the Bidding Document shall contact the Procuring Entity in writing or e-mail at the Procuring Entity's address indicated in the BDS. The Procuring Entity will respond in writing or e-mail to any request for clarification, within seven days provided that such request is received no later than Ten (10) days prior to the deadline for submission of Bids as specified in ITB Sub-Clause 4.2.1[Deadline for Submission of Bids]. The clarification issued, including a description of the inquiry but without identifying its source shall also be placed on the State Public Procurement Portal and should the Procuring Entity deem it necessary to amend the Bidding Document as a result of a clarification, it shall do so following the procedure under ITB Clause 2.3 [Amendment of Bidding Document] through an addendum which shall form part of the Bidding Document..
		2.2.2	The Bidder or his authorized representative is invited to attend the Pre- Bid Conference, if provided for in the BDS. The purpose of the Pre- Bid Conference will be to clarify issues and to answer questions on any matter related to this procurement that may be raised at that stage. If required, a conducted site visit may be arranged by the Procuring Entity.
		2.2.4	Minutes of the Pre-Bid Conference, including the text of the questions raised, and the responses given, without identifying the source, will be transmitted promptly to all Bidders who attended the Pre-Bid Conference and shall also be placed on the State Public Procurement Portal and the e-procurement portal. Any modification to the Bidding Document that may become necessary as a result of the Pre-Bid Conference shall be made by the Procuring Entity exclusively through the issue of an addendum (part of Bid document) and not through the minutes of the Pre-Bid Conference.
		2.2.5	At any time prior to the deadline for submission of the Bids, the Procuring Entity, suomotto, may also amend the Bidding Document, if required, by issuing an addenda which will form part of the Bidding Document.
		2.2.6	Non-attendance at the Pre-Bid Conference will not be a cause for disqualification of a Bidder.

## SECTION I: Instruction to Bidders

2.3	Amendment of Bidding Document	2.3.1	Any addendum issued shall be part of the Bidding Document and shall be uploaded on the State Public Procurement Portal and the e-procurement portal.
		2.3.2	To give prospective Bidders reasonable time in which to take an addendum into account in preparing their Bids, the Procuring Entity may, at its discretion, extend the deadline for the submission of the Bids, pursuant to ITB Sub-Clause 4.2 [Deadline for Submission of Bids], under due publication on the State Public Procurement Portal and the e-procurement portal and newspapers.

### 3 Preparation of Bids

3.1	Cost of Bidding	3.1.1	The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the Procuring Entity shall not be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.
		3.1.2	<p>The Bidder shall furnish the scanned attested copies of following documents with its Bid:-</p> <ul style="list-style-type: none"> <li>i. Partnership Deed and valid registration certificate with the Registrar of Firms in case of Partnership Firms. Power of Attorney in favour of the partner signing/submitting the Bid, authorizing him to represent all partners of the firm.</li> <li>ii. VAT/ Sales Tax registration certificate and VAT/Sales Tax clearance certificate from the concerned Commercial Taxes Officer and Permanent Account Number (PAN) given by the Income Tax Department.</li> <li>iii. Address of residence and office, telephone numbers e-mail address in case of sole Proprietorship.</li> <li>iv. Certificate of Registration and Memorandum of Association issued by Registrar of Companies in case of a registered company and in case of any other statutory or registered body, certificate of incorporation or registration issued by concerned authorities. Power of attorney in favour of the person signing the Bid.</li> </ul>
3.2	Language of Bid	3.2.1	The Bid, as well as all correspondence and documents relating to the Bid exchanged by the Bidder and the Procuring Entity, shall be written in English/ Hindi or a language specified in the BDS. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages duly accepted by the Bidder in English/ Hindi or the language specified in the BDS, in which case, for purposes of interpretation of the Bid, such translation shall govern.

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3.3	Documents Comprising the Bid	3.3.1	<p>The Bid shall comprise of two covers, one containing the Technical Bid/ Proposal and the other the Financial or Price Bid/ Proposal.</p> <p>One more cover containing scanned copies of proof of payment in form specified in Bid Data Sheet, of the price of Bidding Document, processing fee and Bid Security/ Bid Securing Declaration shall be enclosed separately.</p>
		3.3.2	<p>The Technical Bid/ Proposal shall contain the following :</p> <ul style="list-style-type: none"> <li>i. Technical Bid/ Proposal Submission Sheet and Technical Bid containing the filled up Bidding Forms and Declarations related to Technical Bid and Code of Integrity given in Section IV [Bidding Forms];</li> <li>ii. proof of payment of price of Bidding Document, processing fee, Bid Security, in accordance with ITB Clause 3.10;</li> <li>iii. written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB Clause 3.11;</li> <li>iv. documentary evidence in accordance with ITB Clause 3.7 establishing the Bidder's eligibility to bid;</li> <li>v. documentary evidence in accordance with ITB Clause 3.8 establishing the Bidder's qualifications to perform the contract if its Bid is accepted;</li> <li>vi. Drawings/ designs in support of the Works to be executed;</li> <li>vii. the Notice Inviting Bids;</li> <li>viii. any other document required in the BDS; and</li> <li>ix. others considered necessary to strengthen the Bid submitted.</li> </ul>
		3.3.3	<p>The Financial Bid/ Price Proposal shall contain the following :</p> <p>Financial Bid/ Price Proposal Submission Sheet and the applicable Price Schedules, in accordance with ITB Clauses 3.4, 3.5;</p> <p>Any other document required in the BDS.</p>
3.4	Bid Submission Sheets and Price Schedules	3.4.1	<p>The Bidder shall submit the Technical Bid and Financial Bid using the Bid Submission Sheets provided in Section IV [Bidding Forms]. These forms must be completed without any alterations to their format, and no substitutes shall be accepted. All blank spaces shall be filled in with the information requested.</p>



## SECTION I: Instruction to Bidders

		3.4.2	The Bidder shall submit as part of the Financial Bid, the Price Schedules for Works, using the forms provided in Section IV [Bidding Forms].
3.5	Bid Prices	3.5.1	<p>i. In case of Item Rate Contracts, the Bidder shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by the Bidder will not be paid for by the Procuring Entity but will have to be executed and shall be deemed covered by the rates for other items and prices in the Bill of Quantities.</p> <p>ii. In case of Percentage Rate Contracts, combined single percentage above or below must be quoted by the Bidder for all items of the Bill of Quantities.</p> <p>iii. In case of Lump Sum Contracts, only Total Price which the Bidder wants to charge for the entire Works with all its contingencies in accordance with drawings and specifications shall be quoted by the Bidder. A Schedule of Rates shall be specified in the Bid Data Sheet in order to regulate the amount to be added to or deducted from the fixed sum on account of additions and alterations not covered by the Contract. Payments shall be linked to various stages of completion of the Works specified in Activity Schedule given in Bid Data Sheet.</p>
		3.5.2	Prices quoted by the Bidder shall be fixed during the Bidder's Performance of the Contract and not subject to variation on any account, unless otherwise specified in the BDS. A Bid submitted with an adjustable price quotation shall be treated as non-responsive and shall be rejected, pursuant to ITB Clause 5.7 [Responsiveness of Bids]. However, if in accordance with the BDS, prices quoted by the Bidder shall be subject to adjustment during the performance of the Contract, a Bid submitted with a fixed price quotation shall not be rejected, but the price adjustment shall be treated as zero.
		3.5.3	All duties, taxes and other levies payable by the Bidder under the contract, or for any other cause, shall be included in the rates and prices, and the total Bid Price submitted by the Bidder.
3.6	Currencies of Bid.	3.6.1	The unit rates and the prices shall be quoted by the Bidder entirely in Indian Rupees unless otherwise specified in BDS. All payments shall be made in Indian Rupees only, unless otherwise specified in the BDS.
3.7	Documents Establishing the Eligibility of the Bidder	3.7.1	<p>To establish their eligibility in accordance with ITB Clause 1.4 [Eligible Bidders], Bidders shall:</p> <p>complete the eligibility declarations in the Bid Submission Sheet and Declaration Form included in Section IV</p>

## SECTION I: Instruction to Bidders

			[Bidding Forms];
3.8	Documents Establishing the Qualifications of the Bidder	3.8.1	To establish its qualifications to perform the Contract, the Bidder shall submit as part of its Technical Proposal the documentary evidence indicated for each qualification criteria specified in Section III, [Evaluation and Qualification Criteria].
3.9	Period of Validity of Bids	3.9.1	Bids shall remain valid for 90 days or the period specified in the BDS after the Bid submission deadline date as specified by the Procuring Entity. A Bid valid for a shorter period shall be rejected by the Procuring Entity as non-responsive.
		3.9.2	In exceptional circumstances, prior to the expiration of the Bid validity period, the Procuring Entity may request Bidders to extend the period of validity of their Bids. The request and the responses shall be made in writing. The Bid Security or a Bid Securing Declaration in accordance with ITB Clause 3.10 [Bid Security] shall also be got extended for thirty days beyond the dead line of the extended validity period. A Bidder may refuse the request without forfeiting its Bid Security or a Bid Securing Declaration. A Bidder granting the request shall not be permitted to modify its Bid.
3.10	Bid Security	3.10.1	Unless otherwise specified in the BDS, the Bidder shall furnish as part of its Bid, a Bid Security for the amount specified in the BDS.
		3.10.2	Bid Security shall be 3.15 Cr.
		3.10.3	The Bid Security may be given in the form of a banker's Cheque or demand draft or bank guarantee of a Scheduled Bank in India, in specified format, or deposited through eGRAS/ net banking, if permitted.
		3.10.5	Hard copy of Scanned copy of Bid Security instrument or a Bid Securing Declaration shall necessarily accompany the sealed Bid. Any Bid not accompanied by Bid Security shall be liable to be rejected.
		3.10.6	Bid Security of a Bidder lying with the Procuring Entity in respect of other Bids awaiting decision shall not be adjusted towards Bid Security for the this Bid.  The Bid Security originally deposited may, however be taken into consideration in case Bids are re-invited.
		3.10.7	The issuer of the Bid Security and the confirmer, if any, of the Bid Security, as well as the form and terms of the Bid Security, must be acceptable to the Procuring Entity.

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		3.10.8	Prior to submitting its Bid, a Bidder may request the Procuring Entity to confirm the acceptability of a proposed issuer of a Bid Security or of a proposed confirmer, if different than as specified in ITB Clause 3.10.3. The Procuring Entity shall respond promptly to such a request.
		3.10.9	The bank guarantee presented as Bid Security shall be got confirmed from the concerned issuing bank. However, the confirmation of the acceptability of a proposed issuer or of any proposed confirmer does not preclude the Procuring Entity from rejecting the Bid Security on the ground that the issuer or the confirmer, as the case may be, has become insolvent or is under liquidation or has otherwise ceased to be creditworthy.
		3.10.10	The Bid Security of unsuccessful Bidders shall be refunded soon after final acceptance of successful Bid and signing of Contract Agreement and submitting Performance Security by successful Bidder pursuant to ITB Clause 6.4 [Performance Security].
		3.10.11	<p>The Bid Security taken from a Bidder shall be forfeited in the following cases, namely:-</p> <ul style="list-style-type: none"> <li>A. when the Bidder withdraws or modifies his Bid after opening of Bids; or</li> <li>B. when the Bidder does not execute the agreement in accordance with ITB Clause 6.3 [Signing of Contract] after issue of letter of acceptance/ placement of Work order within the specified time period; or</li> <li>C. when the Bidder fails to commence the Works as per Work Order within the time specified; or</li> <li>D. when the Bidder does not deposit the Performance Security in accordance with ITB Clause 6.4 [Performance Security]; in the prescribed time limit after the work order is placed;</li> <li>E. if the Bidder breaches any provision of the Code of Integrity prescribed for Bidders in the Act and Chapter VI of the Rules or as specified in ITB Clause 1.3 [Code of Integrity]; or</li> <li>F. if the Bidder does not accept the correction of its Bid Price pursuant to ITB Sub-Clause 5.5 [Correction of Arithmetical Errors].</li> </ul>
		3.10.12	In case of the successful bidder, the amount of Bid Security may be adjusted in arriving at the amount of the Performance Security, or refunded if the successful bidder furnishes the full amount of Performance Security. No interest will be paid by the Procuring Entity on the amount of Bid Security.
		3.10.13	The Procuring Entity shall promptly refund the Bid Security of the Bidders at the earliest of any of the

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			<p>following events, namely:-</p> <ul style="list-style-type: none"> <li>the expiry of validity of Bid Security;</li> <li>the execution of agreement for procurement and Performance Security is furnished by the successful bidder;</li> <li>the cancellation of the procurement process; or</li> <li>the withdrawal of Bid prior to the deadline for presenting Bids, unless the Bidding Document stipulates that no such withdrawal is permitted.</li> </ul>
3.11	Format and Signing of Bid	3.11.1	All pages of the Technical and Financial Bid shall be digitally signed by the Bidder or authorised signatory on behalf of the Bidder. This authorisation shall consist of a written confirmation as specified in the BDS and shall be attached to the Bid.

### 4 Submission and Opening of Bids

4.1	Sealing and Marking of Bids	4.1.1	Bidders shall submit their Bids to the Procuring Entity electronically only on the e-procurement portal, eproc.raj.nic.in. In submission of their Bids, the Bidders should follow the step by step instructions given on the e-procurement portal.
		4.1.2	The Bidder shall enclose the Technical Bid and the Financial Bid in separate covers. The proof of payment of price of Bidding Document, processing fee and Bid Security shall be enclosed in third cover. The price of Bidding Document and Bid Security shall be paid in the name of the Procuring Entity and the processing fee shall be paid in the name of RISL.
4.2	Deadline for Submission of Bids	4.2.1	Bids shall be submitted electronically only upto the time and date specified in the Notice Inviting Bids and BDS or an extension issued thereof.
4.3	Withdrawal, Substitution and Modification of Bids	4.3.1	A Bidder may withdraw, substitute or modify its Bid after it has been submitted by submitting electronically on the e-procurement portal a written Withdrawal/ Substitutions/ Modifications etc. Notice on the e-procurement portal, duly digitally signed by the Bidder or his authorised representative, and shall include a copy of the authorisation in accordance with ITB Sub-Clause 3.11.1 [Format and Signing of Bid]. The corresponding Withdrawal, Substitution or Modification of the Bid must accompany the respective written Notice. All Notices must be received by the Procuring Entity on the e-procurement portal prior to the deadline specified for submission of Bids in accordance with ITB Sub-Clause 4.2. [Deadline for Submission of Bids].

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		4.3.2	No Bid shall be withdrawn, substituted or modified in the interval between the deadline for submission of the Bid and the expiration of the period of Bid validity specified in ITB Clause 3.9.[Period of Validity of Bids] or any extension there of.
4.4	Bid Opening	4.4.1	The electronic Technical Bids shall be opened by the Bids opening committee constituted by the Procuring Entity at the time, date and place specified in the Bid Data Sheet in the presence of the Bidders or their authorised representatives, who choose to be present.
		4.4.2	The Bids opening committee may co-opt experienced persons in the committee to conduct the process of Bid opening.
		4.4.3	The Bidders may choose to witness the electronic Bid opening procedure online.
		4.4.4	The Financial Bids shall be kept unopened until the time of opening of the Financial Bids. The date, time, and location of electronic opening of the Financial Bids shall be intimated to the bidders who are found qualified by the Procuring Entity in evaluation of their Technical Bids.
		4.4.5	The Bids opening committee shall prepare a list of the Bidders or their representatives attending the opening of Bids and obtain their signatures on the same. The list shall also contain the representative's name and telephone number and corresponding Bidders' names and addresses. The authority letters brought by the representatives shall be attached to the list. The list shall be signed by all the members of Bids opening committee with date and time of opening of the Bids.
		4.4.6	<p>First, covers marked as "WITHDRAWAL" shall be opened, read out, and recorded and the covers containing the corresponding Technical Bids and Financial Bids shall not be opened. No Bid shall be permitted to be withdrawn unless the corresponding withdrawal notice contains a valid authorisation to request the withdrawal and is readout and recorded at Bid opening. If the withdrawal notice is not accompanied by the valid authorisation, the withdrawal shall not be permitted and the corresponding Technical Bid shall be opened.</p> <p>Next, covers marked as "SUBSTITUTION Technical Bid" shall be opened, read out, recorded. The covers containing the Substitution Technical Bids and/ or Substitution Financial Bids shall be exchanged for the corresponding covers being substituted. Only the Substitution Technical Bids shall be opened, read out, and recorded. Substitution Financial Bids will remain unopened in accordance with ITB Sub-Clause 4.4.4. No</p>

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			<p>Bid shall be substituted unless the corresponding substitution notice contains a valid authorisation to request the substitution and is read out and recorded at Bid opening.</p> <p>Covers marked as “MODIFICATION Technical Bid” shall be opened thereafter, read out and recorded with the corresponding Technical Bids. No Technical Bid and/ or Financial Bid shall be modified unless the corresponding modification notice contains a valid authorisation to request the modification and is read out and recorded at opening of Technical Bids. Only the Technical Bids, both Original as well as Modification, are to be opened, read out, and recorded at the opening. Financial Bids, both Original as well as Modification, will remain unopened in accordance with ITB Sub-Clause 4.4.4.</p>
		4.4.7	<p>All other covers containing the Technical Bids shall be opened one at a time and the following read out and recorded-</p> <ul style="list-style-type: none"> <li>(i) the name of the Bidder;</li> <li>(ii) whether there is a modification or substitution;</li> <li>(iii) whether proof of payment of Bid Security or if required, payment of price of the Bidding Document and processing fee have been enclosed;</li> <li>(iv) any other details as the Bids opening committee may consider appropriate.</li> </ul> <p>After all the Bids have been opened, their hard copies shall be printed and shall be initialed and dated on the first page and other important papers of each Bid by the members of the Bids opening committee.</p>
		4.4.8	<p>Only Technical Bids shall be read out and recorded at the bid opening and shall be considered for evaluation. No Bid shall be rejected at the time of opening of Technical Bids except Alternative Bids (if not permitted) and Bids not accompanied with the proof of payment of the required price of Bidding Document, processing fee and Bid Security.</p>
		4.4.9	<p>The Bids opening committee shall prepare a record of opening of Technical Bids that shall include, as a minimum: the name of the Bidder and whether there is a withdrawal, substitution, modification, or alternative offer (if they were permitted), any conditions put by Bidder and the presence or absence of the price of Bidding Document, processing fee and Bid Security. The Bidders or their representatives, who are present, shall sign the record. The members of the Bids opening committee shall</p>

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			also sign the record with date.
		4.4.10	After completion of the evaluation of the Technical Bids, the Procuring Entity shall invite Bidders who have submitted substantially responsive Technical Bids and who have been determined as being qualified to attend the electronic opening of the Financial Bids. The date, time, and location of the opening of Financial Bids will be intimated in writing by the Procuring Entity. Bidders shall be given reasonable notice of the opening of Financial Bids.
		4.4.11	The Procuring Entity shall notify Bidders in writing whose Technical Bids have been rejected on the grounds of being substantially non-responsive and not qualified in accordance with the requirements of the Bidding Document.
		4.4.12	The Bids opening committee shall conduct the electronic opening of Financial Bids of all Bidders who submitted substantially responsive Technical Bids and have qualified in evaluation of Technical Bids, in the presence of Bidders or their representatives who choose to be present at the address, date and time specified by the Procuring Entity.
		4.4.13	<p>All covers containing the Financial Bids shall be opened one at a time and the following read out and recorded-</p> <ul style="list-style-type: none"> <li>A. the name of the Bidder;</li> <li>B. whether there is a modification or substitution;</li> <li>C. the Bid Prices;</li> <li>D. any other details as the Bids opening committee may consider appropriate.</li> </ul> <p>After all the Bids have been opened, their hard copies shall be printed and shall be initialed and dated on the first page of the each Bid by the members of the Bids opening committee. All the pages of the Price Schedule and letters, Bill of Quantities attached shall be initialed and dated by the members of the committee. Key information such as prices, completion period, etc. shall be encircled and unfilled spaces in the Bids shall be marked and signed with date by the members of the Bids opening committee.</p>
		4.4.14	The Bids opening committee shall prepare a record of opening of Financial Bids that shall include as a minimum: the name of the Bidder and whether there is a withdrawal, substitution, or modification, the Bid Price, any conditions, any discounts and alternative offers (if they were permitted). The Bidders or their representatives, who are

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			present, shall sign the record. The members of the Bids opening committee shall also sign the record with date.
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### 5 Evaluation and Comparison of Bids

5.1	Confidentiality	5.1.1	Information relating to the examination, evaluation, comparison, and post-qualification of Bids, and recommendation of contract award, shall not be disclosed to Bidders or any other persons not officially concerned with such process until information on Contract award is communicated to all Bidders.
		5.1.2	Any attempt by a Bidder to influence the Procuring Entity in its examination of qualification, evaluation, comparison of the Bids or Contract award decisions may resulting in the rejection of its Bid, in addition to the legal action which may be taken by the Procuring Entity under the Act and the Rules.
		5.1.3	Notwithstanding ITB Sub-Clause 5.1.2 [Confidentiality], from the time of opening the Bid to the time of Contract award, if any Bidder wishes to contact the Procuring Entity on any matter related to the Bidding process, it shall do so in writing.
		5.1.4	In addition to the restrictions specified in section 49 of the Act, the Procuring Entity, while procuring a subject matter of such nature which requires the procuring Entity to maintain confidentiality, may impose condition for protecting confidentiality of such information.
5.2	Clarification of Technical or Financial Bids	5.2.1	To assist in the examination, evaluation, comparison and qualification of the Technical or Financial Bids, the Bid evaluation committee may, at its discretion, ask any Bidder for a clarification regarding his Bid. The committee's request for clarification and the response of the Bidder shall be in writing.
		5.2.2	Any clarification submitted by a Bidder with regard to his Bid that is not in response to a request by the Bid evaluation committee shall not be considered.
		5.2.3	No change in the prices or substance of the Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetical errors discovered by the Bid evaluation committee in the evaluation of the financial Bids.
		5.2.4	No substantive change to qualification information or to a submission, including changes aimed at making an unqualified Bidder, qualified or an unresponsive submission, responsive shall be sought, offered or permitted.



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5.3	Deviations, Reservations and Omissions in Technical or Financial Bids	5.3.1	<p>During the evaluation of Technical or Financial Bids, the following definitions apply:</p> <p>i. "Deviation" is a departure from the requirements specified in the Bidding Document;</p> <p>ii. "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Document; and</p> <p>iii. "Omission" is the failure to submit part or all of the information or documentation required in the Bidding Document.</p>
5.4	Nonmaterial Non conformities in Technical or Financial Bids	5.4.1	<p>Provided that a Technical or Financial Bid is substantially responsive, the Procuring Entity may waive any nonconformities (with recorded reasons) in the Bid that do not constitute a material deviation, reservation or omission.</p>
		5.4.2	<p>Provided that a Technical or Financial Bid is substantially responsive, the Procuring Entity may request the Bidder to submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities or omissions in the Bid related to documentation requirements. Request for information or documentation on such nonconformities shall not be related to any aspect of the Financial Proposal of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.</p>
		5.4.3	<p>* Provided that a Technical or Financial Bid is substantially responsive, the Procuring Entity will rectify nonmaterial nonconformities or omissions (with recorded reasons). To this effect, the Bid Price shall be adjusted during evaluation of Financial Proposals for comparison purposes only, to reflect the price of the missing or non-conforming item or component. The adjustment shall be made using the method indicated in Section III, Evaluation and Qualification Criteria.</p> <p>* [This ITB Sub-Clause should be kept only when considered necessary]</p>
5.5	Correction of Arithmetical Errors in Financial Bid	5.5.1	<p>Provided that a Financial Bid is substantially responsive, the Bid evaluation committee shall correct arithmetical errors during evaluation of Financial Bid on the following basis:</p> <p>i. if there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Procuring Entity there is an obvious misplacement of the</p>

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			<p>decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected;</p> <p>ii. if there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and</p> <p>iii. if there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (i) and (ii) above.</p>
		5.5.2	If the Bidder that submitted the lowest evaluated Bid does not accept the correction of errors, its Bid shall be disqualified and its Bid Security shall be forfeited or its Bid Securing Declaration shall be executed.
5.6	Preliminary Examination of Technical or Financial Bids	5.6.1	The Procuring Entity shall examine the Technical or Financial Bids to confirm that all documents and technical documentation requested in ITB Sub-Clause 3.3 [Documents Comprising the Bid] have been provided, and to determine the completeness of each document submitted.
		5.6.2	<p>The Procuring Entity shall confirm, following the opening of the Technical or Financial Bids, that the following documents and information have been provided :</p> <ul style="list-style-type: none"> <li>a. Bid is signed, as per the requirements listed in the Bidding documents;</li> <li>b. Bid has been sealed as per instructions provided in the Bidding documents;</li> <li>c. Bid is valid for the period, specified in the Bidding documents;</li> <li>d. Bid is accompanied by Bid Security or Bid securing declaration;</li> <li>e. Bid is unconditional and the Bidder has agreed to give the required performance Security;</li> <li>f. Price Schedules in the Financial Bids are in accordance with ITB Clause 3.4 [Bid Submission Sheets and Price Schedules];</li> <li>g. written confirmation of authorization to commit the Bidder;</li> <li>h. Declaration by the Bidder in compliance of Section 7 and 11 of the Act; and</li> <li>i. other conditions, as specified in the Bidding Document are fulfilled.</li> </ul>

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5.7	Responsiveness of Technical or Financial Bids	5.7.1	The Procuring Entity's determination of the responsiveness of a Technical or Financial Bid is to be based on the contents of the Bid itself, as defined in ITB Sub-Clause 3.3 [Documents Comprising the Bid].
		5.7.2	<p>A substantially responsive Technical or Financial Bid is one that meets without material deviation, reservation, or omission to all the terms, conditions, and specifications of the Bidding Document. A material deviation, reservation, or omission is one that:</p> <p>(a) if accepted, would-</p> <ul style="list-style-type: none"> <li><b>A.</b> affect in any substantial way the scope, quality, or performance of the Goods and Related Services specified in Section V, Schedule of Supply; or</li> <li><b>B.</b> limits in any substantial way, inconsistent with the Bidding Document, the Procuring Entity's rights or the Bidder's obligations under the proposed Contract; or</li> </ul> <p>(b) if rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive Bids.</p>
		5.7.3	The Procuring Entity shall examine the technical aspects of the Bid in particular, to confirm that requirements of Section V, Procuring Entity's Requirements have been met without any material deviation, reservation, or omission.
		5.7.4	If a Technical or Financial Bid is not substantially responsive to the Bidding Document, it shall be rejected by the Procuring Entity and may not subsequently be made responsive by the Bidder by correction of the material deviation, reservation, or omission.
5.8	Examination of Terms and Conditions of the Technical or Financial Bids	5.8.1	The Procuring Entity shall examine the Bids to confirm that all terms and conditions specified in the GCC and the SCC have been accepted by the Bidder without any material deviation or reservation.
		5.8.2	The Procuring Entity shall evaluate the technical aspects of the Bid submitted in accordance with ITB Clauses 3.3 [Documents Comprising the Bid] and to confirm that all requirements specified in Section V [Procuring Entity's Requirements] of the Bidding Document and all amendments or changes requested by the Procuring Entity in accordance with ITB Clause 2.3 [Amendment of Bidding Document] have been met without any material deviation or reservation.

## SECTION I: Instruction to Bidders

5.9	Evaluation of Qualification of Bidders in Technical Bids	5.9.1	The determination of qualification of a Bidder in evaluation of Technical Bids shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB Clause 3.8 [Documents Establishing the Qualifications of the Bidder] and in accordance with the qualification criteria indicated in Section III [Evaluation and Qualification Criteria]. Factors not included in Section III, shall not be used in the evaluation of the Bidder's qualification.
5.10	Evaluation of Financial Bids	5.10.1	The Procuring Entity shall evaluate each Financial Bid, the corresponding Technical Bid of which has been determined to be substantially responsive
		5.10.2	To evaluate a Financial Bid, the Procuring Entity shall only use all the criteria and methodologies defined in this Clause and in Section III, Evaluation and Qualification Criteria. No other criteria or methodology shall be permitted.
		5.10.3	To evaluate a Financial Bid, the Procuring Entity shall consider the following: <ul style="list-style-type: none"> <li><b>A.</b> the Bid Price quoted in the Financial Bid;</li> <li><b>B.</b> price adjustment for correction of arithmetical errors in accordance with ITB Clause 5.5 [Correction of Arithmetical Errors];</li> <li><b>C.</b> adjustment of bid prices due to rectification of nonmaterial nonconformities or omissions in accordance with ITB Sub Clause 5.4.3 [Nonmaterial Nonconformities in Bids], if applicable.</li> </ul>
5.11	Comparison of Bids	5.11.1	The Procuring Entity shall compare all substantially responsive Financial Bids to determine the lowest-evaluated Financial Bid in accordance with ITB Sub-Clause 5.10 [Evaluation of Financial Bids].
5.12	Negotiations	5.12.1	To the extent possible, no negotiations shall be conducted after the pre-Bid stage. All clarifications needed to be sought shall be sought in the pre-Bid stage itself.
		5.12.2	Negotiations may, however, be undertaken only with the lowest Bidder under the following circumstances- <ul style="list-style-type: none"> <li><b>A.</b> when ring prices have been quoted by the Bidders for the subject matter of procurement; <b>or</b></li> <li><b>B.</b> when the rates quoted vary considerably and considered much higher than the prevailing market rates.</li> </ul>

## SECTION I: Instruction to Bidders

		5.12.3	The Bid evaluation committee shall have full powers to undertake negotiations. Detailed reasons and results of negotiations shall be recorded in the proceedings.
		5.12.4	The lowest Bidder shall be informed about negotiations in writing either through messenger or by registered letter and e-mail (if available). A minimum time of seven days shall be given for calling negotiations. In case of urgency, the Bid evaluation committee, after recording reasons, may reduce the time, provided the lowest Bidder has received the intimation and consented to holding of negotiations.
		5.12.5	Negotiations shall not make the original offer made by the Bidder inoperative. The Bid evaluation committee shall have option to consider the original offer in case the Bidder decides to increase rates originally quoted or imposes any new terms or conditions.
		5.12.6	In case of non-satisfactory achievement of rates from lowest Bidder, the Bid evaluation committee may choose to make a written counter offer to the lowest Bidder and if this is not accepted by him, the committee may decide to reject and re-invite Bids or to make the same counter-offer first to the second lowest Bidder, then to the third lowest Bidder and so on in the order of their initial standing in the bid evaluation and work order be awarded to the Bidder who accepts the counter-offer.
		5.12.7	In case the rates even after the negotiations are considered very high, fresh Bids shall be invited.
5.13	Procuring Entity's Right to Accept Any Bid, and to Reject Any or All Bids	5.13.1	The Procuring Entity reserves the right to accept or reject any Bid, and to annul the Bidding process and reject all Bids at any time prior to Contract award without assigning any reasons thereof and without there by incurring any liability to the Bidders.
5.14	Procuring Entity's Right to have Price Safety Mechanism	5.14.1	Price fall clause is a price safety mechanism in rate contracts and it provides that if the rate contract holder quotes / reduces its price to render similar goods, works or services at a price lower than the rate contract price to anyone in the State at any time during the currency of the rate contract, the rate contract price shall be automatically reduced with effect from the date of reducing or quoting lower price, for all delivery of the subject matter of procurement under that rate contract and the rate contract shall be amended accordingly. The firms holding parallel rate contracts shall also be given opportunity to reduce their price by notifying them the reduced price giving them fifteen days time to intimate their acceptance to the

## SECTION I: Instruction to Bidders

			revised price. Similarly, if a parallel rate contract holding firm reduces its price during currency of the rate contract, its reduced price shall be conveyed to other parallel rate contract holding firms and the original rate contract holding firm for corresponding reduction in their prices. If any rate contract holding firm does not agree to the reduced price, further transaction with it, shall not be conducted.
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### 6 Award of Contract

6.1	Procuring Entity's Right to Vary Quantities	6.1.1	If the Procuring Entity does not procure any subject matter of procurement or procures less than the quantity specified in the Bidding Document due to change in circumstances, the Bidder shall not be entitled for any claim or compensation except otherwise provided in the Bidding Document.
		6.1.2	As per prevailing RTPP Rules 2013
6.2	Acceptance of the successful Bid and award of contract	6.2.1	The Procuring Entity after considering the recommendations of the Bid Evaluation Committee and the conditions of Bid, if any, financial implications, samples, test reports, etc., shall accept or reject the successful Bid.
		6.2.2	Before award of the Contract, the Procuring Entity shall ensure that the price of successful Bid is reasonable and consistent with the required specifications.
		6.2.3	A Bid shall be treated as successful only after the competent authority has approved the procurement in terms of that Bid.
		6.2.4	The Procuring Entity shall award the contract to the Bidder whose offer has been determined to be the lowest in accordance with the evaluation criteria set out in the Bidding Document if the Bidder has been determined to be qualified to perform the contract satisfactorily on the basis of qualification criteria fixed for the Bidders in the Bidding Document for the subject matter of procurement.
		6.2.5	Prior to the expiration of the period of validity of Bid, the Procuring Entity shall inform the successful Bidder in writing, by registered post or email, that its Bid has been accepted.
		6.2.6	If the issuance of formal letter of acceptance (LOA) is likely to take time, in the meanwhile a Letter of Intent (LOI) may be sent to the Bidder. The acceptance of an offer is complete as soon as the letter of acceptance or letter of intent is posted and/ or sent by email (if available) to the address of the Bidder given in the Bidding

## SECTION I: Instruction to Bidders

			Document.
6.3	Signing of Contract	6.3.1	In the written intimation of acceptance of its Bid sent to the successful Bidder, it shall also be requested to execute an agreement in the format given in the Bidding Document on a non-judicial stamp of requisite value at his cost and deposit the Performance Security or a Performance Security Declaration, if applicable, within a period specified in the BDS or where the period is not specified in the BDS, then within fifteen days from the date on which the LOA or LOI is dispatched to the Bidder.
		6.3.2	If the Bidder, whose Bid has been accepted, fails to sign a written procurement contract or fails to furnish the required Performance Security or Performance Security Declaration within the specified time period, the Procuring Entity shall forfeit the Bid Security of the successful bidder / execute the Bid Securing Declaration and take required action against it as per the provisions of the Act and the Rules.
		6.3.3	The Bid Security, if any, of the Bidders whose Bids could not be accepted shall be refunded soon after the contract with the successful Bidder is signed and his Performance Security is obtained. Until a formal contract is executed, LOA or LOI shall constitute a binding contract.
6.4	Performance Security	6.4.1	Performance Security shall be solicited from the successful Bidder except State Govt. Departments and undertakings, corporations, autonomous bodies, registered societies, co-operative societies which are owned or controlled or managed by the State Government and undertakings of Central Government. However, a Performance Security Declaration shall be taken from them. The State Government may relax the provision of Performance Security in particular procurement.
		6.4.2	<p>(i) The amount of Performance Security shall be ten percent, or as specified in the BDS, of the amount of the Work Order. The currency of Performance Security shall be Indian Rupees, if otherwise not specified in BDS.</p> <p>(ii) If the Bid, which results in the lowest evaluated bid price, is seriously unbalanced or front loaded in the opinion of the Procuring Entity, the Procuring Entity may require the Bidder to produce detailed price analysis for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analysis, taking into consideration the schedule of estimated Contract payments, the Procuring Entity may require that the amount of the</p>

## SECTION I: Instruction to Bidders

			performance security be increased (to a maximum of 20% of the bid value of such items) at the expense of the Bidder to a level sufficient to protect the Procuring Entity against financial loss in the event of default of the successful Bidder under the Contract.
		6.4.3	<p>Performance Security shall be furnished in one of the following forms as applicable-</p> <p>(a) Deposit through eGRAS; or</p> <p>(b) Bank Draft or Banker's Cheque of a Scheduled Bank in India; or</p> <p>(c) National Savings Certificates and any other script/ instrument under National Savings Schemes for promotion of small savings issued by a Post Office in Rajasthan, if the same can be pledged under the relevant rules. They shall be accepted at their surrender value at the time of Bid and formally transferred in the name of the Procuring Entity with the approval of Head Post Master; or</p> <p>(d) Bank guarantee. It shall be got verified from the issuing bank. Other conditions regarding bank guarantee shall be same as specified in ITB Sub-Clause 3.10 [Bid Security]; or</p> <p>(e) Fixed Deposit Receipt (FDR) of a Scheduled Bank. It shall be in the name of the Procuring Entity on account of Bidder and discharged by the Bidder in advance. The Procuring Entity shall ensure before accepting the Fixed Deposit Receipt that the Bidder furnishes an undertaking from the bank to make payment/ premature payment of the Fixed Deposit Receipt on demand to the Procuring Entity without requirement of consent of the Bidder concerned. In the event of forfeiture of the Performance Security, the Fixed Deposit shall be forfeited along with interest earned on such Fixed Deposit.</p> <p>(f) The successful Bidder at the time of signing of the Contract agreement, may submit option for deduction of Performance Security from his each running and final bill @ 10% of the amount of the bill.</p>
		6.4.4	Performance Security furnished in the form of a document mentioned at options (a) to (e) of Sub-Clause 6.4.3 above, shall remain valid for a period of sixty days beyond the date of completion of all contractual obligations of the Bidder, including operation and / or maintenance and defect liability period, if any.



## SECTION I: Instruction to Bidders

		6.4.5	Failure of the successful Bidder to submit the above-mentioned Performance Security or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security. In that event the Procuring Entity may either cancel the procurement process or if deemed appropriate, award the Contract at the rates of the lowest Bidder, to the next lowest evaluated Bidder whose offer is substantially responsive and is determined by the Procuring Entity to be qualified to perform the Contract satisfactorily.
		6.4.6	<p>Forfeiture of Performance Security: Amount of Performance Security in full or part may be forfeited in the following cases:-</p> <ul style="list-style-type: none"> <li><b>A.</b> when the Bidder does not execute the agreement in accordance with ITB Clause 6.3 [Signing of Contract] within the specified time; after issue of letter of acceptance; or</li> <li><b>B.</b> when the Bidder fails to commence the Works as per Work order within the time specified; or</li> <li><b>C.</b> when the Bidder fails to complete Contracted Works satisfactorily within the time specified; or</li> <li><b>D.</b> when any terms and conditions of the contract is breached; or</li> <li><b>E.</b> to adjust any established dues against the Bidder from any other contract with the Procuring Entity; or</li> <li><b>F.</b> if the Bidder breaches any provision of the Code of Integrity prescribed for the Bidders specified in the Act, Chapter VI of the Rules and this Bidding Document.</li> <li><b>G.</b> Notice of reasonable time will be given in case of forfeiture of Performance Security. The decision of the Procuring Entity in this regard shall be final.</li> </ul>

## 7 Redressal of Grievances during Procurement Process (Appeals)

7	Grievance handling procedure during procurement process	7.1	Any grievance of a Bidder pertaining to the procurement process shall be by way of filing an appeal to the First or Second Appellate Authority, as the case may be, as specified in the BDS, in accordance with the provisions of chapter III of the Act and chapter VII of the Rules and as given in Appendix A to these ITB.
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## SECTION II: BIDDING DATA

The following specific data for the works shall complement, amend, or supplement the provisions in Instructions to Bidders – Section I. Whenever there is a conflict, the provisions herein shall prevail over those in the Instructions to Bidders.

### 1 INSTRUCTIONS TO BIDDERS CLAUSE REFERENCE

#### 1.1 Introduction

ITB 1.1.1	<p>The Number of the Invitation for Bids (NIB) is:</p> <p>The Procuring Entity is: Director cum Joint Secretary, DLB Rajasthan</p> <p>Name of the works: <b>Rate Contract for Design, Supply, Construction, Testing, Trial run and commissioning of 5 KLD, 10 KLD, 15 KLD, 20 KLD, 25 KLD and 35 KLD FSTPs towards Faecal Sludge &amp; Septage Management (FSSM) with 10 years operation and maintenance including supply, testing of vehicle mounted suction machine for faecal sludge desludging.</b></p> <p>(Work shall be executed at various ULBs in Rajasthan. Detailed Scope of work has been defined in Section V)</p>
ITB 1.1.2	<p><b>Period of Completion:</b></p> <p>The Physical Works shall be completed in its entirety within <b>250 days including trial run period</b> from the Start Date, which shall be the date of issue of the Notice to proceed or such other Start Date as may be specified in the Notice to proceed. The O&amp;M period shall be of 10 years including one year defect liability period.</p>
ITB 1.1.3	<p><b>Estimated Cost of work is as under:</b></p> <p>As per various works allotted to empanelled contractors time to time</p>
ITB 1.4.1	JV is strictly not allowed.
ITB 1.4.2	<b>“Bidders of Indian Nationality”</b> are permissible.
ITB 1.4.5	Not applicable for Firms/Manufactured Suppliers
ITB 1.4.8	The bidding process is open to bidders who fulfil the prescribed eligibility criteria.
ITB 1.4.9	Bidder shall upload on-line / submit only one bid. A bidder who submits or participates in more than one bid will be disqualified.

#### 1.2 Bidding Documents

ITB 2.1.2	The Invitation for Bids (NIB) issued by DLB is also part of the Bidding Document.
ITB 2.1.3	This is an “on-line tender”. Therefore, tender documents in physical form shall

## SECTION II: BIDDING DATA

	<p>not be available for sale but can be downloaded from the website. The bidder shall pay the cost of the bidding document of INR 5,000/- in the form of DD in favour of Director and Joint Secretary, Local Self Government at Jaipur and processing fee of INR 1,000/- in form of DD in favour of MD, RISL, Jaipur.</p> <p>The bidder should submit, by date &amp; time specified in bid document, in original, hard copies of:</p> <ul style="list-style-type: none"> <li>(i) Cost of the bidding document of INR 5,000/- in the form of DD/Banker's Cheque of a scheduled bank (as per list of RBI) in the name of Director and Joint Secretary, Local Self Government payable at Jaipur.</li> <li>(ii) Bid processing fee of INR 1,000/- in the form of DD/Banker's Cheque of a scheduled bank (as per list of RBI) in the name of MD, RISL, Jaipur payable at Jaipur</li> <li>(iii) Bid Security as per ITB 3.10.2 and ITB 3.10.3.</li> <li>(iv) Letter of Technical Bid;</li> <li>(v) Power of Attorney; and</li> </ul>
ITB 2.1.4	The Procuring Entity or the Representative is not responsible for the completeness of the Bidding Document and its addenda, if they were not downloaded correctly from the e-procurement portal or the State Public Procurement Portal.
ITB 2.1.5	RTPP Act 2012 & rules, 2013 with all amendment will also be applicable.
ITB 2.2.1	<p><b>For Clarification purposes only, the Representative of Procuring Entity's address is:</b></p> <p><b>Attention: Director cum Joint Secretary,</b>  <b>Directorate of Local Bodies, G-3 Rajmahal Residency Area, Civil Lines</b>  <b>Railway crossing, C Scheme JAIPUR – 302017,</b>  <b>Country: India.</b>  <b>Telephone: +91 141 2222403</b>  <b>Fax: +91 141 2222403</b>  <b>E-mail address: <u><a href="mailto:dlbrajasthan@gmail.com">dlbrajasthan@gmail.com</a></u>, <u><a href="mailto:cedlbjp@gmail.com">cedlbjp@gmail.com</a></u>.</b>  <b>The Employer shall publish its response at e-proc website.</b></p>
ITB 2.2.2	<p>Pre bid meeting will be held on: 05.07.2022 at 15.00 hrs Conference hall Swayat shasan Bhawan (DLB), G-3 Rajmahal Residency Area, Civil Lines Railway crossing, C Scheme JAIPUR – 302017</p> <p>No Site visit shall be organised by the procuring entity. However, bidders are advised to visit the sites at their own expenses and if any support is required, shall be provided by the Commissioner/Executive Engineer of the concerned ULB.</p>
ITB 2.2.3	The Bidders are requested, to submit questions in writing or by fax letter to Director and Joint Secretary or by e-mail to <a href="mailto:dlbrajasthan@gmail.com">dlbrajasthan@gmail.com</a> <a href="mailto:cedlbjp@gmail.com">cedlbjp@gmail.com</a> , to reach the Procure Entity preferably not later than 10

## SECTION II: BIDDING DATA

	days before the end date of submission.
ITB 2.2.4	Reply of the clarifications, including the text of the questions raised, and the responses given, without identifying the source, will be transmitted promptly to all Bidders and shall also be placed on the State Public Procurement Portal and the e-procurement portal. Any modification to the Bidding Document that may become necessary as a result of the clarifications shall be made by the procuring entity through the issue of an addendum (part of Bid document).
ITB 2.2.5	At any time prior to the deadline for submission of the Bids, the Procuring Entity or Representative, suo motto, may also amend the Bidding Document, if required, by issuing an addenda, which will form part of the Bidding Document.
ITB 2.3.1	All clarifications, any addendum/corrigendum issued shall be part of the Bidding Document and shall be uploaded on the State Public Procurement Portals <a href="http://sppp.rajasthan.gov.in/">http://sppp.rajasthan.gov.in/</a> and <a href="http://eproc.rajasthan.gov.in">http://eproc.rajasthan.gov.in</a>
ITB 2.3.2	To give prospective Bidders reasonable time in which to take an addendum into account in preparing their Bids, the Procuring Entity may, at its discretion, extend the deadline for the submission of the Bids, pursuant to ITB Sub-Clause 4.2 [Deadline for Submission of Bids], under due intimation to the Bidders by uploading it on the State Public Procurement Portal and its e-procurement portal.

### 1.3 Preparation of Bids

ITB 3.2.1	The language of the bid shall be: <b>English</b>
ITB 3.3.1	The online Bid shall comprise of two parts submitted simultaneously, one containing the Technical Bid/ Proposal and the other the Financial or Price Bid/ Proposal.
ITB 3.3.2	The Bidder shall submit the forms, declarations and documents, as specified in section IV of Bid Document with the Technical Bid. The bidder shall upload copy of all addendum and corrigendum.
ITB 3.3.3	The Bidder shall upload the following documents with its Financial Bid: <ul style="list-style-type: none"> <li>a. Financial Proposal Submission Sheet/BOQ</li> <li>b. Preamble to BOQ</li> </ul>
ITB 3.5.1	Deleted para 3.5.1 (ii) and 3.5.1 (iii)
ITB 3.5.2	Provision of Price escalation shall be as per Conditions of Contract except Lump Sum Items.
ITB 3.5.3	All variations in taxes and duties including GST shall be borne by the contractor.
ITB 3.7.1	To establish their eligibility in accordance with ITB Clause 1.4 [Eligible Bidders], Bidders shall:

## SECTION II: BIDDING DATA

	complete the eligibility declarations in the Bid Submission Sheet and Declaration Form included in Section IV [Bidding Forms];
ITB 3.9.1	The Bid validity period shall be <b>120 (One hundred and twenty days)</b> days from deadline for submission of bids.
ITB 3.10.2	Add following: Bid security shall be <b>Rs. 810.00 Lacs for all bidders.</b>
ITB 3.10.3	<p>The bid security shall be, at the Bidder's option, in any of the following forms:</p> <ol style="list-style-type: none"> <li>an unconditional and irrevocable bank guarantee in the name of Director and Joint Secretary, Directorate of Local Bodies payable at Jaipur; or</li> <li>fixed deposit receipt pledged in favor of Director and Joint Secretary, Directorate of Local Bodies; or</li> <li>Demand draft in favor of Director and Joint Secretary, Directorate of Local Bodies, payable at Jaipur</li> <li>Through E Gras system as per detailed guidelines given in Annexure A.</li> </ol> <p>all from a reputable source either Bank or government Financial Institution from an eligible country.</p> <p>In the case of a bank guarantee, the bid security shall be submitted using the Bid Security Form included in Section 4 (Bidding Forms). The bid security shall be valid for a period of thirty days (30) beyond the original validity period of the bid, or beyond any period of extension if requested.</p> <p>The bank guarantee shall be issued by a reputable bank located in the Employer's country, which may include scheduled banks or nationalized banks, or by a foreign reputable bank outside the Employer's country, through a correspondent bank located in the Employer's country. All such bank guarantee must necessarily be payable at Jaipur.</p>
ITB 3.10.6	Bid Security of a Bidder lying with the Representative of Procuring Entity's in respect of other Bids awaiting decision shall not be adjusted towards Bid Security for the this Bid.
ITB 3.11.1	Only Digital signed Bids shall be submitted through e-procurement website.
ITB 3.11.2	The written confirmation of authorization to sign on behalf of the Bidder shall consist of: Power of Attorney

### 1.4 Submission and Opening of Bids

ITB 4.1.1	<p>Bidders shall submit their Bids to "Procuring Entity" on-line only. "Procuring Entity's" address for bid submission is:</p> <p>Director and Joint Secretary, Directorate of Local BodiesG-3 Rajmahal Residency Area,Civil Lines Phatak, C Scheme JAIPUR – 302017, Country: India. Telephone: +91 141 2222403 Fax: +91 141 2222403</p>
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## SECTION II: BIDDING DATA

	<p>E-mail address: <a href="mailto:dlbrajasthan@gmail.com">dlbrajasthan@gmail.com</a>, <a href="mailto:cedlb@gmail.com">cedlb@gmail.com</a> <b>Bidders shall submit their bids electronically only.</b></p> <p>The Bidders shall submit the Bid online with all pages numbered serially and by giving an index of submissions. Each page of the submission shall be initialled by the Authorised Representative of the Bidder as per the terms of the tender. The Bidder shall be responsible for documents accuracy and correctness as per the Bid Document uploaded by the Representative and shall ensure that there are no changes caused in the content of the downloaded document. The bidder shall follow the following instructions for online submission:</p> <ul style="list-style-type: none"><li>• Bidder who wants to participate in bidding will have to procure digital certificate as per IT Act to sign their electronic bids. Offers which are not digitally signed will not be accepted. Bidder shall submit their offer in electronic format on above mentioned website after digitally signing the same.</li><li>• The interested bidder may submit their proposals online along with a Non-refundable Rs 5000/- (Rupees Five Thousand Only) drawn in favour of Director Local Bodies, Raj. Jaipur payable at Jaipur, towards the cost of Bid Document &amp; RISL processing fee Rs 1000/- (Rupees One Thousand Only) drawn in favour of MD, RISL payable at Jaipur from any Scheduled Commercial Bank. Bid document fee and processing fee shall be deposited through e-Grass system as detailed below:</li></ul> <table><tr><th>S.No</th><th>Description</th><th>Detail</th></tr><tr><td>1.</td><td>District</td><td>Jaipur</td></tr><tr><td>2.</td><td>Office name</td><td>2371-Directorate Local Bodies</td></tr><tr><td>3.</td><td>Treasury</td><td>Secretariat , Jaipur</td></tr><tr><td>4.</td><td>Deptt. ID Name</td><td>56-Local Bodies Department</td></tr><tr><td>5.</td><td>Bid Document Fee A/c No</td><td>0075-00-800-52-01</td></tr><tr><td>6.</td><td>RISL Processing Fee A/c No</td><td>8658-00-102-16-01</td></tr></table> <ul style="list-style-type: none"><li>• Bid security shall be in form of Bank Guarantee in favor of Director Local Bodies, Raj, Jaipur and submitted with technical proposal.</li><li>• The Procuring Entity or Representative will not be responsible for any mistake occurred at the time of uploading of bid or thereafter.</li><li>• If holiday is declared on physical submission (depositing documents in hard copy) &amp; opening date of tender the scheduled activity will take place on next working day.</li><li>• Bids are required to be submitted on-line, it shall be submitted/uploaded on the e-procurement portal of state government:<a href="http://eproc.rajasthan.gov.in">http://eproc.rajasthan.gov.in</a>. The Bid security shall be paid in the name of “the Procuring Entity” as stipulated in tender document.</li></ul>	S.No	Description	Detail	1.	District	Jaipur	2.	Office name	2371-Directorate Local Bodies	3.	Treasury	Secretariat , Jaipur	4.	Deptt. ID Name	56-Local Bodies Department	5.	Bid Document Fee A/c No	0075-00-800-52-01	6.	RISL Processing Fee A/c No	8658-00-102-16-01
S.No	Description	Detail																				
1.	District	Jaipur																				
2.	Office name	2371-Directorate Local Bodies																				
3.	Treasury	Secretariat , Jaipur																				
4.	Deptt. ID Name	56-Local Bodies Department																				
5.	Bid Document Fee A/c No	0075-00-800-52-01																				
6.	RISL Processing Fee A/c No	8658-00-102-16-01																				
ITB 4.2.1	<p>The Deadline for online Bid submission is</p> <p>Date: 25.07.2022</p> <p>Time: 15:00 Hrs</p>																					

## SECTION II: BIDDING DATA

ITB 4.4.1	<p>The on-line Technical Bids shall be opened by the Bids opening committee constituted by <b><u>the Procuring Entity</u></b> in the presence of the Bidders or their authorized representatives, who choose to be present. The online Bid opening shall take place <b><u>on 26.07.2022 at 15:00 Hrs</u></b> at:</p> <p>OFFICE OF THE Director and Joint Seretary, Directorate of Local BodiesG-3 Rajmahal Residency Area,Civil Lines Railway crossing, C SchemeJAIPUR – 302017,Country: India. Telephone: +91 141 2222403Fax: +91 141 2222403</p> <p>The tendering process shall be conducted on-line only; DD/BC for the tender fee processing fee and Bid Security shall be submitted physically up to deadline described in tender document.</p>
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### 1.5 Award of Contract


ITB 6.2.4, 6.2.5 and 6.2.6	<p><b><u>ADD</u></b></p> <p><b><u>The Procuring entity will finalise the Rate Contract for 5 KLD, 10 KLD, 15 KLD, 20 KLD, 25 KLD and 35 KLD FSTPs on the lowest rate quoted by the successful L-1 bidder or most advantageous bid as per rule 29 RTPP Rule 2013.</u></b> Rate contracts may be entered with more than one bidder as parallel rate contracts in the order of their standing in final evaluation, by giving them counter offer of prices of the lowest or most advantageous bidder, in order to secure prompt delivery of goods or services or execution of works.</p> <p><b><u>Rate Contract will be valid up to 31.3.2024.</u></b></p> <p>In case it is not possible to conclude the new rate contracts due to unavoidable reasons, the existing rate contracts may be extended on same price, terms and conditions for a period not exceeding 3 months.</p>
ITB 6.3.1	<p><b><u>ADD</u></b></p> <p>The period within which the Performance Security is to be submitted by the successful Bidder and the Contract Agreement is to be signed by him from the date of issue of Letter of Acceptance is 15 Days.</p> <p>Work order may be issued to the rate contracted agencies as per requirement after getting the approval from competent authority.</p> <p>The contract shall be monitored individually for each work order for its performance. The relevant clauses of VII Special Conditions of Contract may be referred for details.</p>
ITB 6.3.3	<p>“The Procuring Entity” shall promptly return the bid security after the earliest of the following events, namely:</p> <ol style="list-style-type: none"> <li>1. The expiry of validity of bid security</li> <li>2. The execution of agreement for procurement and performance security is furnished by the successful bidder;</li> <li>3. The cancellation of the procurement process; or</li> <li>4. The withdrawal of bid prior to the deadline for presenting bids, unless the bidding documents stipulate that no such withdrawal is permitted.</li> </ol>
ITB 6.4.2,	Performance Security amounting to total 3% of contract value shall be

## SECTION II: BIDDING DATA

<p>6.4.3, 6.4.4</p> <p>Replace with following</p>	<p>submitted / deducted as follows:</p> <p>A. Contractor shall submit Performance Security @ <b>3%*</b> in advance at the time of signing of agreement in form of Bank Guarantee as per latest rules under RTPP act (or) contractor may opt for deduction of performance security from his each running and final bill @ 3% of the amount of the bill.</p> <p>B. The Bank Guarantee should be issued by any nationalized/ schedule bank and shall remain valid up to 60 days beyond defect liability period. Bank Guarantee submitted against the performance guarantee, shall be unconditional and en-cashable/invokable at Town for which tenders are invited or at Jaipur.</p> <p>C. If there is no reason to retain the Performance Security, it shall be returned back to the contractor within 60 days after the satisfactory completion of the defect liability period, subject to submission of fresh Performance Security valid for the entire O&amp;M period, of an amount 1.5% of total contract value or 50% of the total O&amp;M cost, whichever is higher.</p> <p>D. Refer clause 4.3.1 of Special conditions of contract.</p> <p>*Provided that during the period commencing from the date of commencement of the RTPP second amendment rules, 2020 to 31.03.2021. As per FD Notification dated 22-10-2021</p>
<p>ITB 7.1</p>	<p>First Appellate Authority shall be: Secretary, LSGD, Rajasthan Second Appellate Authority shall be: Finance Department, Govt of Rajasthan</p>



## 2 Annexure-A

  
 राजस्थान सरकार  
 वित्त (जीएण्डटी) विभाग

Annex-1  
 E-grass पर विभागीय ID  
 56-local Bodies

क्रमांक: प. 6 (5) वित्त / साविलेनि / 2018

जयपुर, दिनांक : 27.04.2020

## परिपत्र

विषय: ई-ग्रास पर ई-प्रोक्योरमेंट प्रक्रिया हेतु एक ही चालान से बोली दस्तावेज मूल्य, बिड सिक्योरिटी एवं RISL फीस जमा कराने एवं RISL फीस को कोषालय सचिवालय में संधारित पी.डी. खाते में हस्तान्तरित किये जाने की प्रक्रिया।

लोक उपापन प्रक्रिया में पारदर्शिता स्थापित करने के उद्देश्य से ई-प्रोक्योरमेंट पोर्टल पर ई-निविदाओं के प्रेषण के लिए एक ही चालान से बोली दस्तावेज मूल्य, बिड सिक्योरिटी एवं RISL फीस को ऑनलाइन ई-ग्रास सिस्टम के माध्यम से जमा करवाया जाना आवश्यक है। इसके अन्तर्गत ई-ग्रास पर एक ही चालान से बोली दस्तावेज मूल्य, बिड सिक्योरिटी राशि एवं RISL फीस जमा कराने एवं RISL फीस को कोषालय सचिवालय में संधारित पी.डी. खाते में हस्तान्तरित किये जाने की प्रक्रिया विधि निम्नानुसार है :-

1. बिडर द्वारा ई-ग्रास पर प्रोफाइल बनाने के बाद ई-प्रोक्योरमेंट हेतु बोली दस्तावेज मूल्य, बिड सिक्योरिटी एवं RISL फीस का भुगतान एक ही चालान से ऑनलाइन जमा करवाया जायेगा। इस राशि में से बोली दस्तावेज मूल्य एवं RISL फीस रिफण्ड योग्य नहीं होगी। बिड सिक्योरिटी हेतु बजट मद 8443-103, 108 एवं 109 में जमा राशि नियमानुसार संबंधित विभाग द्वारा रिफण्ड किये जाने हेतु सिस्टम में व्यवस्था की गयी है। RISL फीस (i) सिविल विभागों की निविदाओं हेतु बजट मद 8658-00-102-(16)-[01] (सिविल विभाग), (ii) निर्माण विभागों की निविदाओं हेतु बजट मद 8658-00-102-(16)-[02] (निर्माण विभाग) (iii) वन विभाग की निविदाओं हेतु बजट मद 8658-00-102-(16)-[03] (वन विभाग) के अन्तर्गत जमा की जायेगी। बोली दस्तावेज मूल्य हेतु निर्धारित राजस्व मद में बिडर द्वारा राशि जमा कराने हेतु ई-ग्रास पर प्रावधान उपलब्ध रहेगा।
2. बिड सिक्योरिटी जमा कराने के लिए सभी विभागों हेतु बजट मद 8443-103 जबकि निर्माण कार्यों हेतु बिड सिक्योरिटी बजट मद 8443-108 (निर्माण विभागों) एवं 8443-109 (वन विभाग) में जमा कराने की दशा में डिविजन कोड का चयन ई-ग्रास पर किया जाना अनिवार्य होगा।

  
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OPR:Ratna-nch

3. इस प्रक्रिया से जमा राशि का लेखांकन ई-कोषालय के स्तर पर किया जायेगा। ई-ग्रास पर उपलब्ध विभागवार/कार्यालयवार रिपोर्ट्स में जमा राशि से संबंधित रिपोर्ट्स प्रदर्शित की जायेगी।
4. ई-कोषालय में बिन्दु संख्या 1 में वर्णित बजट मद 8658-00-102-(16)-[01], [02], [03] के अन्तर्गत जमा RISL फीस को माह में दो बार बजट मद 8782-101 (Inter Treasury Transfer) के माध्यम से कोषालय (सचिवालय) जयपुर में RISL के पी.डी. खाते में जमा किये जाने हेतु समायोजन बिल के माध्यम से हस्तान्तरित किया जायेगा। जिसे कोषालय (सचिवालय) जयपुर द्वारा उसी माह में मद 8782-101 को माईनस क्रेडिट करते हुए RISL के पी.डी. खाते में अलग-अलग समायोजन बिलों के माध्यम से हस्तान्तरित किया जाना अनिवार्य होगा। यह सूचना ई-ग्रास से वॉम पर Seamless Data Sharing की व्यवस्था से हस्तांतरित की जायेगी। सिस्टम पर उपलब्ध रिपोर्ट्स के माध्यम से संबंधित निर्माण खण्ड ई-ग्रास पर जमा राशि व रिफण्ड राशि का स्टेटस भी देख सकते हैं।
5. निर्माण कार्यों से संबंधित बिड हेतु उक्त चालान से संबंधित राशि निर्माण लेखों में फॉर्म 80 में प्रदर्शित होने पर कोषालयों द्वारा चालान की प्रति प्रत्येक मद में जमा राशि के लेखों के साथ महालेखाकार कार्यालय को उपलब्ध करवायी जायेगी।
6. उक्त प्रक्रिया के अन्तर्गत बिडर को प्रारम्भ में ई-प्रोक्योरमेन्ट पोर्टल पर बिड भरने के साथ-साथ ई-ग्रास पर एक चालान के माध्यम से ई-भुगतान का चयन करते हुए अपेक्षित राशि जमा करवाया जाना अनिवार्य होगा। इस प्रक्रिया को एन.आई.सी. द्वारा ई-प्रोक्योरमेन्ट पोर्टल से ई-ग्रास का इन्टीग्रेशन करते हुए अविलम्ब लिंक करने की व्यवस्था सुनिश्चित की जायेगी। व्यवस्था स्थापित होने तक बिडर को ई-ग्रास पर भुगतान होने के उपरान्त चालान CIN नम्बर के साथ जनरेट कर ई-प्रोक साईट पर स्कैन कर अपलोड करना होगा। ई-ग्रास एवं ई-प्रोक्योरमेन्ट का लिंक स्थापित होने के उपरान्त अपलोड किए जाने की आवश्यकता नहीं रहेगी तथा ई-ग्रास सिस्टम ई-प्रोक्योरमेन्ट पोर्टल से बिडर का नाम लेने के स्थान पर सिस्टम जनरेटेड कोड फेंच करेगा तथा बिड फाइनल होने के बाद बिडर का नाम पूर्व के कोड से फ्लेग करते हुए किया जाना सुनिश्चित करेगा जिससे बिडर को होने वाले रिफण्ड भुगतान में असुविधा न हो। उपापन संस्था द्वारा ई-ग्रास पर कार्यालयवार उपलब्ध रिपोर्ट्स एवं ई-कोषालय के TY-33 से जमाओं का मिलान भी सुनिश्चित किया जावेगा।
7. ई-प्रोक्योरमेन्ट पोर्टल के ई-ग्रास पोर्टल से इन्टीग्रेशन के उपरान्त ई-प्रोक्योरमेन्ट पोर्टल पर निर्माण कार्यों से संबंधित बिड भरने हेतु बजट मद 8443-108,109 में बनाये गये चालान की राशि निर्माण लेखों में सम्मिलित किये जाने के उद्देश्य से प्रविष्टि एक कोड के साथ एन.आई.सी. वॉम को उपलब्ध करायी जावेगी। बिड खुलने के बाद उक्त प्रविष्टि हेतु संवेदक का नाम एवं अन्य विवरण एन. आई. सी. (वॉम) को उपलब्ध कराया जायेगा।

एनआईसी (वॉम) द्वारा तदानुसार ही प्रविष्टि को निर्माण लेखों में सम्मिलित किया जावेगा, जिसके पश्चात ही बिड सिक्योरिटी राशि रिफण्ड किये जाने हेतु उपलब्ध होगी। इस हेतु ई-ग्रास व ई-प्रोक पोर्टल का इन्टीग्रेशन व लिंक किया जायेगा। ई-प्रोक पोर्टल से भुगतान हेतु संवेदक को ई-ग्रास पर आने का लिंक तथा ई-ग्रास पर भुगतान करने के तुरन्त पश्चात् ई-प्रोक पोर्टल पर जाने का लिंक भी दिया जायेगा।

8. ई-प्रोक्योरमेन्ट हेतु बोली दस्तावेज मूल्य, बिड सिक्योरिटी एवं RISL फीस का भुगतान एक ही चालान से ई-ग्रास के माध्यम से जनरेट किये जाने पर संबद्ध एजेन्सी बैंक को तीनों बजट मदों की कुल राशि एवं जीआरएन नम्बर के साथ प्रेषित किया जायेगा तथा बैंक द्वारा जमा राशि के स्कॉल दिये जाने पर सिस्टम पर ई-कोषालय को पृथक-पृथक उक्त तीनों मदों में जमा राशि के अनुसार चालान नम्बर जनरेट करने, लेखा सूचियां तैयार करने एवं लेखांकन करने हेतु व्यवस्था की जायेगी।
9. ई-कोषालय के स्तर पर उक्त जमा राशि का पूर्ण लेखांकन तथा मिलान दैनिक आधार पर अनिवार्य रूप से किया जाना सुनिश्चित किया जायेगा।
10. ई-प्रोक पोर्टल के अतिरिक्त की जाने वाली बिड हेतु (जिनमें RISL Fees जमा नहीं होती) भी बिड सिक्योरिटी हेतु बजट मद 8443-103, 108, 109 व बोली दस्तावेज मूल्य राशि निर्धारित राजस्व बजट मद में जमा कराने हेतु सिंगल चालान से उक्त माध्यम से बिडर/कार्यालय द्वारा जमा करवायी जा सकेगी। इस व्यवस्था में मेन्यूअल एवं ई-मोड उपलब्ध रहेंगे।
11. यह आदेश तुरन्त प्रभाव से लागू होगा।  
अतः उक्त दिशा-निर्देशों की अक्षरशः पालना की जावे।

*(Signature)*  
27/4/2020  
(हेमन्त कुमार गेरा)  
शासन सचिव,  
वित्त (बजट) विभाग

- प्रतिलिपि-निम्नांकित को सूचनार्थ व आवश्यक कार्यवाही एवं अपने अधीनस्थ कार्यालयों को सूचित करने हेतु प्रेषित है:-
1. निजी सचिव, राज्यपाल/मुख्यमंत्री/समस्त मंत्रीगण/राज्य मंत्रीगण।
  2. निजी सचिव, मुख्य सचिव/समस्त प्रमुख शासन सचिव/समस्त शासन सचिव/समस्त विशिष्ट शासन सचिव।
  3. प्रधान महालेखाकार (सिविल लेखा परीक्षा)/(ए एण्ड ई) राजस्थान, जयपुर।
  4. महालेखाकार (फ्रांट एवं वाणिज्यिक लेखा परीक्षा)/(ए एण्ड ई) राजस्थान, जयपुर।
  5. समस्त विभागाध्यक्ष/जिला कलेक्टर/संभागीय आयुक्त।
  6. निदेशक, कोष एवं लेखा विभाग, राजस्थान, जयपुर को सिस्टम पर एन.आई.सी. के माध्यम से पूर्ण कार्यवाही सुनिश्चित करने हेतु।
  7. समस्त वित्तीय सलाहकार/मुख्य लेखाधिकारी समस्त विभाग को पालना सुनिश्चित करने हेतु।
  8. समस्त कोषाधिकारी को पालना सुनिश्चित करने हेतु।
  9. राज्य सूचना विज्ञान अधिकारी, एन.आई.सी. सचिवालय, जयपुर को सिस्टम में उक्त प्रावधान सुनिश्चित करने हेतु।
  10. निदेशक (तकनीकी), वित्त विभाग को प्रेषित कर लेख है कि परिपत्र को वित्त विभाग की वेबसाइट पर प्रकाशित करवाने का श्रम कराएँ।
  11. रक्षित पत्रावली।

*(Signature)*  
27/4/2020  
(विमल कुमार गुप्ता)  
संयुक्त शासन सचिव

(GF&AR 5/2020)



## SECTION III: EVALUATION AND QUALIFICATION CRITERIA

### 1 Evaluation Criteria

1.1 The successful Bid will be the lowest evaluated responsive Bid, which qualifies technical evaluation.

1.2 Adequacy of Technical Proposal

Evaluation of the Bidder's Technical Proposal will include an assessment of the Bidder's technical capacity to mobilize key equipment and personnel for the contract consistent with its proposal regarding work methods, scheduling, and material sourcing in sufficient detail.

1.3 Quantifiable Nonconformities, Errors and Omissions.

The evaluated cost of quantifiable non-conformities, errors and/or omissions is determined as follows:

"Pursuant to ITB Clause 5.4, the cost of all quantifiable nonmaterial nonconformities or omissions shall be evaluated. The Procuring Entity will make its own assessment of the cost of any nonmaterial nonconformities and omissions for the purpose of ensuring fair comparison of bids."

*[For guidance: The cost of minor omissions or missing items should be added to the Bid Price to allow for bid comparison on an equal basis. The price adjustment should be based on a reasonable estimate of the cost by the executing agency, engineer, consultant or bid evaluation committee, taking into consideration the corresponding quoted prices from other conforming bids. The price adjustment may be based on the price of the item quoted by the next lowest qualified bidder].*

### 2 Qualification Criteria

#### 2.1 Eligibility

	Criteria	Documents	
	Requirement	Single Entity	Submission Requirements
<b>i) Nationality</b>	Nationality in accordance with ITB Sub-clause 1.4.2	Must meet requirement	As per forms ELI1, ELI2 with attachments
<b>ii) Conflict of Interest</b>	No conflicts of interest in accordance with ITB Sub-clause 1.4.3	Must meet requirement	Letter of bid

## SECTION III: EVALUATION AND QUALIFICATION CRITERIA

<b>iii) Debarment/ Transgression by any Procuring Entity in Rajasthan.</b>	Must declare	Must meet requirement	Declaration form given in the bidding document.
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### 2.2 Pending Litigation:

	Criteria	Documents	
	Requirement	Single Entity	Submission Requirements
<b>Pending Litigation</b>	All pending litigation shall be treated as resolved against the Bidder and so shall in total not represent more than <b>50</b> percent of the Bidder's net worth.	Must meet requirement by itself	Form LIT-1

### 2.3 Financial

Criteria	Documents	
Requirement	Single Entity	Submission Requirements
<b>3.1 Historical Financial Performance</b>		
Submission of audited accounts for the last 3 years (Financial Year 2018-19 to 2020-21)(2021-22) provisional if any to demonstrate the current soundness of the Bidders financial position and its prospective longterm profitability. As a minimum, a Bidder's net worth calculated as the difference between total assets and total liabilities must be positive and shall be atleast 5 crores or more.	Must meet requirement	Form FIN-1 with attachments
<b>3.2 Average Annual Turnover</b>		
Minimum Average Annual Turnover shall be atleast <b>Rs. 30 Crores</b> calculated in three consecutive financial Year 2018-19 to 2020-21( 2021-22 Provisional if any )  The calculation sheet for annual average turnover shall be certified by a Chartered Accountant.	Must meet requirement	Form FIN-2

## SECTION III: EVALUATION AND QUALIFICATION CRITERIA

*NOTE: for 3.2 Only –*

The present price level for turnover, the previous years' value shall be given weight age as follows:

Sr. No	Financial Year	Weight age
(i)	2020-21	1.00
(ii)	2019-20	1.08
(iii)	2018-19	1.17

### 2.4 Experience

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
4.1 General Experience					
Experience of contracts in the role of contractor, subcontractor, or Supplier for at least two years with government agencies in the last 3 Years(2018-19,2019-20 and 2021-21 (2021-22 Provisional if any ) prior to the Bid submission deadline	Must meet requirement	N/A	N/A	N/A	Form EXP-1
4.2 Contracts of similar size and nature					
Participation as contractor, subcontractor, or Supplier with government agencies, <b>TWO contract</b> where the value of the completed and commissioned or substantially completed work exceeds <b>INR 22 Crores</b> within the Last 3 Years from bid submission deadline. Bidder's participation shall be based on Sewerage/Sanitation/ Machineries Works.	Must meet requirement	N/A	N/A	N/A	Form EXP-2 (a)

## SECTION III: EVALUATION AND QUALIFICATION CRITERIA

### **Note: For 4.2 –**

- i) *The bidder shall submit copies of work orders, completion and satisfactory performance certificates in support of their experience claims. Only works of Govt. bodies under government sector of Indian country shall be considered.*
- ii) *The works, which have been completed during the period, mentioned above, though may have commenced earlier, shall be considered for experience purposes.*

Substantially completed means at least 90% of the contract amount work completed

## **1.6 Organizational Environmental, Health and Safety System**

### **1.6.1 Environmental, Health and Safety Certification**

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
Availability of a valid ISO certification or internationally recognized equivalent (equivalency to be demonstrated by the Bidder), and applicable to the worksite:  a. Quality management certificate ISO 9001:2015  b. Environmental management certificate ISO 14001:2016 or Health and Safety management certificate ISO 45001:2018	Must meet requirement	N/A	N/A	N/A	Form EXP – 3
Availability of a valid ISO certification or internationally recognized equivalent (equivalency to be demonstrated by the Bidder), and applicable to the worksite:  Efficient use of energy Certification ISO 50001 and “CE” Certification	Must meet requirement	N/A	N/A	N/A	Form EXP – 4

**SECTION IV: BIDDING FORMS**

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## **1 TECHNICAL PROPOSAL [WITH REFERENCE TO SECTION III] CHECK LIST**

In addition to the forms given in this section, a Technical Proposal must necessarily contain the following; otherwise, the bid shall be considered incomplete and may lead to non-responsive.:

1. Letter of Technical Bid
2. Details of Registration/ Incorporation of the Bidder as firm/ company/ society etc. Including complete address, telephone/ fax/ mobile numbers, e-mail address etc. (enclose copies of certificate of registration/ incorporation issued by concerned authority like Registrar of Firms, Registrar of Companies, Registrar of Societies, etc., Memorandum of Association/ Partnership Deed/ By-laws/ others
3. Power of Attorney/ Authority authorizing the person signing the Bid
4. Permanent Account Number (PAN) Card issued by Income Tax Department
5. VAT Registration Certificate and VAT Clearance Certificate issued by concerned Commercial Taxes Authority of Rajasthan, valid up to ..... (Mention the required date).
6. Instrument of Bid Security
7. Receipt/ instrument of cost of Bidding Document
8. Receipt/ instrument of bid processing fee.
9. Audited Statements of Accounts for the past 3 Financial Years
10. CA's certificates
11. Bank's letter as required in Tender Document (if applicable).
12. Completion / substantial completion Certificates of works which have been cited in support of fulfillment of eligibility criteria as specified in Tender Document.
13. Work orders of works which have been cited in support of fulfillment of eligibility criteria as specified in Tender Document.
14. Drawings / designs / technical documents (if required) in support of works to be
15. Declaration by the Bidder regarding Code of Integrity, Conflict of Interest, Qualification and Eligibility.
16. Any modifications, substitutions, or withdrawal in the Bid
17. List of laboratory equipment and personnel
18. Qualifying works experience
19. All Technical Bidding forms duly completed and digitally signed.
20. Others considered necessary to strengthen the bid.

## 2 Letter of Technical Bid

### Technical Bid Submission Sheet

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

NIT No.: \_\_\_\_\_

To:

**Executive Engineer, Directorate of Local Body**

We, the undersigned, declare that:

(a) We have examined and have no reservation to the Bidding Document, including Addenda No. \_\_\_\_\_

(b) We declare that we fulfill the eligibility and qualification criteria in conformity with the Bidding Document and offer to execute the following Works as per designs, drawings, specifications, terms and conditions:

**“Rate Contract for Design, Supply, Construction, Testing, Trial run and commissioning of 5 KLD, 10 KLD, 15 KLD, 20 KLD, 25 KLD and 35 KLD FSTPs towards Faecal Sludge & Septage Management (FSSM) with 10 years operation and maintenance including supply, testing of vehicle mounted suction machine for faecal sludge desludging”**

(c) Our Bid shall be valid for a period of 120 days from the date fixed for the bid submission deadline in accordance with the Bidding Document, and it shall remain binding upon us and may be accepted at any time before the expiration of that period

(d) If our Bid is accepted, we commit to obtain a Performance Security in the amount of 3% percent of the Contract Price or get it deducted from our running and final bills, or shall submit a Performance Security Declaration, as the case may be, for the due performance of the Contract;

(e) Our firm, including any subcontractors or suppliers for any part of the Contract, have nationalities of India or other eligible countries;

(f) We are not participating, as Bidder, in more than one Bid for this work in this bidding process, other than alternative offers, if permitted, in the Bidding Document;

(g) Our firm, its affiliates or subsidiaries, including any subcontractors or suppliers for any part of the Contract, have not been debarred by the State Government or the Procuring Entity;

(h) We understand that this Bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal Contract is prepared and executed;

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

#### SECTION IV: BIDDING FORMS

(j) We agree to permit Government of Rajasthan or the Procuring Entity or their representatives to inspect our accounts and records and other documents relating to the bid submission and to have them audited by auditors appointed by them;

(k) We declare that we have complied with and shall continue to comply with the provisions of the Code of Integrity including Conflict of Interest as specified for Bidders in the Rajasthan Transparency in Public Procurement Act, 2012, the Rajasthan Transparency in Public Procurement Rules, 2013 and this Bidding Document during this procurement process and execution of the Works as per the Contract;

(l) Other comments, if any:

Name/ address: \_\_\_\_\_

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

Signed: \_\_\_\_\_

Duly authorised to sign the Bid for and on behalf of: \_\_\_\_\_

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

Tel: \_\_\_\_\_ Fax: \_\_\_\_\_

E-mail: \_\_\_\_\_

### 3 Bid Security (Bank Guarantee Unconditional)\*

#### Form of Bid Security

***[insert Bank's Name, and Address of Issuing Branch or Office]***

**Beneficiary:** *[Director and Joint Secretary, Directorate of Local Bodies, RAJSATHAN]*

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

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

We have been informed that *[insert name of the Bidder]* (hereinafter called "the Bidder") has submitted to you its bid dated *[insert date]* (hereinafter called "the Bid") for the execution of "Rate Contract for Design, Supply, Construction, Testing, Trial run and commissioning of 5 KLD, 10 KLD, 15 KLD, 20 KLD, 25 KLD and 35 KLD FSTPs towards Faecal Sludge & Septage Management (FSSM) with 10 years operation and maintenance including supply, testing of vehicle mounted suction machine for faecal sludge desludging" under Notice Inviting Tender No. *[DLB/OCB/FSSTP/Budget Announcement 22-23/01]* ("the NIT").

Furthermore, we understand that, according to your conditions, bids must be supported by a bid guarantee.

At the request of the Bidder, we *[insert name of Bank]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of ----- *[insert amount in figures]* *[insert amount in words]* payable at Jaipur upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s) under the bid conditions, because the Bidder:

- (a) has withdrawn its Bid during the period of bid validity specified by the Bidder in the Letter of Technical Bid; or
- (b) having been notified of the acceptance of its Bid by the *Procuring Entity/ "The Representative"* during the period of bid validity,
  - (i) fails or refuses to execute the Contract Agreement,
  - (ii) fails or refuses to furnish the performance security, in accordance with the Instructions to Bidders (hereinafter "the ITB"),
- (c) has not accepted the correction of mathematical errors in accordance with the ITB, or
- (d) has breached a provision of the Code of Integrity specified in the TB;

This guarantee will expire: (a) if the Bidder is the successful Bidder, upon our receipt of copies of the contract signed by the Bidder and the performance security issued to you upon the instruction of the Bidder; and (b) if the Bidder is not the successful Bidder, upon the earlier of (i) our receipt of a copy of your notification to the Bidder of the name of the successful Bidder; or (ii) thirty days after the expiration of the validity of the Bidder's bid.

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

Signed: \_\_\_\_\_

***[Insert signature of person whose name and capacity are shown]***

#### SECTION IV: BIDDING FORMS

**NOTE: \* - Scheduled Bank Only**

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

***[insert complete name of person signing the Bid Security]***

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

***[insert legal capacity of person signing the Bid Security]***

Duly authorized to sign the Bid Security for and on behalf of \_\_\_\_\_

***[insert name of the Bank]***

Dated on \_\_\_\_\_ day of \_\_\_\_\_,

***[insert date of signing]***

Bank's Seal \_\_\_\_\_

***[affix seal of the Bank]***

## SECTION IV: BIDDING FORMS

### 4 Bidder's Qualification

To establish its qualifications to perform the contract in accordance with Section III (Evaluation and Qualification Criteria) the Bidder shall provide the information requested in the corresponding Information Sheets included hereunder.

#### 4.1 (a) Form ELI - 1: Bidder's Information Sheet

<b>BIDDER'S INFORMATION</b>	
Bidder's legal name	
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)	
Attached are self attested copies of the following original documents:  1. In case of single entity, certificate of registration/ incorporation and memorandum of association or constitution of the legal entity named above.	

Signature of Authorised Representative

## SECTION IV: BIDDING FORMS

### 4.2 Form LIT 1- Pending Litigation Each Bidder must fill in this form

(To be certified by the statutory auditors of the bidder)

Pending Litigation			
<ul style="list-style-type: none"><li>○ No pending litigation in accordance with Section III (Evaluation and Qualification Criteria).</li><li>○ Pending litigation in accordance with Section III (Evaluation and Qualification Criteria)</li></ul>			
Year	Matter in Dispute	Value of Pending Claim in INR	Value of Pending Claim as a Percentage of Net Worth

**NOTE:** CA certificate clearly mention with calculation that pending litigation in total not more than 50% of Bidder's net worth.

*Signature of the statutory auditors*

*Signature of Authorised Signatory*

## SECTION IV: BIDDING FORMS

### 4.3 Form FIN - 1: Financial Situation

**Each Bidder must fill in this form.**

**(To be certified by the statutory auditors of the bidder)**

#### Financial Data for Previous 3 Years in Rs

##### Information from Balance Sheet in Rupees

	Year 1	Year 2	Year 3
<b>Total Assets</b>			
<b>Total Liabilities</b>			
<b>Net Worth</b>			
<b>Current Assets</b>			
<b>Current Liabilities</b>			
<b>Working Capital</b>			
<b>Others as required</b>			

##### Information from Profit & Loss Account/ Income & Expenditure Statement

<b>Total Operating Revenues/ Income</b>			
<b>Profit/ Excess of Income over Expenditure before Taxes</b>			
<b>Profit/ Excess of Income over Expenditure after Taxes</b>			
<b>Others as required</b>			

*Signature of the statutory auditors*

*Signature of Authorised Signatory*



## SECTION IV: BIDDING FORMS

### 4.4 Form FIN - 2: Average Annual Turnover

**Each Bidder must fill in this form.**

**(To be certified by the statutory auditors of the bidder)**

**Annual Turnover Data for the any three consecutive financial years from Financial Year 2018-19 to 2020-21, 2021-22( Provisional if any )**

<b>Year</b>	<b>Amount In Rupees</b>
Year 1	
Year 2	
Year 3	
<b>Average Annual Turnover</b>	

*Signature of the statutory auditors*

*Signature of Authorised Signatory*

## SECTION IV: BIDDING FORMS

### 4.5 Form EXP – 1: General Experience

**Each Bidder must fill in this form**

GENERAL EXPERIENCE				
Starting Month Year	Ending Month Year	Years	Contract Identification and Name Name and Address of Procuring Entity Brief Description of the Works Executed by the Bidder	Role of Bidder

*Signature of Authorised Signatory*

## SECTION IV: BIDDING FORMS

### 4.6 Form EXP – 2(a): Specific Experience

**Note:** Please fill up one sheet per contract

CONTRACT OF SIMILAR SIZE AND NATURE	
Contract No. . . . . of. . . . . .	Contract Identification
Award Date	Completion Date
Role in Contract	Contractor / Management Contractor / Subcontractor
Total Contract Amount	INR
Procuring Entity's Name, Address, Telephone Number, Fax Number, E-mail address	

Bidder Must Enclose:

1. Work order.
2. Experience certificate as per relevant clause from an officer not below the rank of executive Engineer or Equivalent.

*Signature of Authorised Signatory*

## SECTION IV: BIDDING FORMS

### 4.7 Form EXP – 3: **Environmental, Health and Safety Certification**

Please provide the following information: Availability of the following valid ISO certification or internationally-recognized equivalent (equivalency to be demonstrated by the Bidder), and applicable to the worksite: - Quality management certificate ISO 9001 - Environmental management certificate ISO 14001 or Health and Safety management certificate ISO 45001

### 4.8 Form EXP – 4: **Environmental, Health and Safety Certification**

Please provide the following information: Availability of the following valid ISO certification or internationally-recognized equivalent (equivalency to be demonstrated by the Bidder), and applicable to the worksite: - Efficient use of Energy Management System certificate ISO 50001 and “CE” Certification.

## 5 Evidence of Availability of Credit Line Financial Resources

[Each Bidder must fill out this form to demonstrate financial resources comprising credit line statements or overdraft facilities.]

Project Name:

Bidding Package Name and Identification Number: ..... (to be filled in as indicated in ITB 1.1) ...

### BANK CERTIFICATE

This is to certify that M/s ..... is a reputed company with a good financial standing.

If the contract for the work, namely..... is awarded to the above firm, we shall be able to provide overdraft / credit facilities to the extent of Rs ..... to meet their working capital requirements for executing the above contract.

\_\_\_\_Sd.\_\_\_\_

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

Senior Bank Manager\_\_\_\_\_

Address of the Bank

[Signature, name and address]

Note: The credit line letter should be on bank's letter head.

## 6 Declaration by the Bidder in compliance of Section 7 & 11 of the Act

### Declaration by the Bidder

In relation to our Bid submitted to Executive Engineer, Directorate of Local Body for procurement of

**“Rate Contract for Design, Supply, Construction, Testing, Trial run and commissioning of 5 KLD, 10 KLD, 15 KLD, 20 KLD, 25 KLD and 35 KLD FSTPs towards Faecal Sludge & Septage Management (FSSM) with 10 years operation and maintenance including supply, testing of vehicle mounted suction machine for faecal sludge desludging”** in response to their Notice Inviting Bids No..... Dated ..... we hereby declare under Section 7 and 11 of the Rajasthan Transparency in Public Procurement Act, 2012, that;

1. We possess the necessary professional, technical, financial and managerial resources and competence required by the Bidding Document issued by the Procuring Entity;
2. We have fulfilled our obligation to pay such of the taxes payable to the Central Government or the State Government or any local authority, as specified in the Bidding Document;
3. We are not insolvent, in receivership, bankrupt or being wound up, not have my/our affairs administered by a court or a judicial officer, not have my/our business activities suspended and are not the subject of legal proceedings for any of the foregoing reasons;
4. We do not have, and our directors and officers not have, been convicted of any criminal offence related to our professional conduct or the making of false statements or misrepresentations as to our qualifications to enter into a procurement contract within a period of three years preceding the commencement of this procurement process, or not have been otherwise disqualified pursuant to debarment proceedings;
5. We do not have a conflict of interest as specified in the Rajasthan Transparency in Public Procurement Act, the Rajasthan Transparency in Public Procurement Rules and this Bidding Document, which materially affects fair competition;
6. We have complied and shall continue to comply with the Code of Integrity as specified in the Rajasthan Transparency in Public Procurement Act, the Rajasthan Transparency in Public Procurement Rules and this Bidding Document, till completion of all our obligations under the Contract.

Date:

Signature of Bidder

Place:

Name:

Designation:

Address:

## 7 Letter of Financial Bid

### Financial Bid Submission Sheet

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

NIT No.: \_\_\_\_\_

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

We, the undersigned, declare that:

(a) We have examined and have no reservation to the Bidding Document, including Addenda No.: \_\_\_\_\_

(b) We offer to execute in conformity with the Bidding Document the following Works:

\_\_\_\_\_

(c) The total Price for our Bid, excluding any discount offered, if permitted, in item (d) below is:

\_\_\_\_\_

(d) The discount offered, if permitted, and the methodologies for their application are:

\_\_\_\_\_

(e) We understand that this Bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal Contract is prepared and executed.

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

(g) Other comments, if any:

Name/ address: \_\_\_\_\_

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

Signed: \_\_\_\_\_

Duly authorised to sign the Bid for and on behalf of: \_\_\_\_\_

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

Tel: \_\_\_\_\_ Fax: \_\_\_\_\_

E-mail: \_\_\_\_\_

## SECTION IV: BIDDING FORMS

### 8 Power of Attorney

#### Power of Attorney for Authorized Representative

The firm M/s.....authorize the following Representative to sign and submit the tender document, negotiate terms and conditions for the contract, to sign the contract, to deal with the \_\_\_\_\_, to issue and receive correspondence related to all matters of the tender "-----". We / M/s \_\_\_\_\_ undertake the responsibility due to any act of the representative appointed hear by.

#### For Partnership Firm's

S. No.	Name of the All Partner	Signature of Partner with Seal
1.		
2.		
3		
4	Name and Designation of the person Authorized	
5	Attested Signature of the Authorized Representative	

#### For Limited Firm's

Name and Designation of the person Authorized	
Firm	
Address	
Telephone No.	
Fax No.	
Telex No.	
Authority By which the Powers is delegated	
Attested Signature of the Authorized Representative	
Name and Designation of person attesting the signatures	



## 9 Check List for Technical bid preparation

### 1. List of Physical Submission documents

1.1	Letter of Technical Bid as per ITB 2.1.3	Yes / No
1.2	Power of Attorney as per ITB 2.1.3	Yes / No
1.3	Cost of the bidding document of INR 5,000/- in the form of DD/Banker's Cheque of a scheduled bank (as per list of RBI) in the name of Director and Joint Secretary, DLB, payable at Jaipur as per ITB 2.1.3	Yes / No
1.4	Bid processing fee of INR 1,000/- in the form of DD/Banker's Cheque of a scheduled bank (as per list of RBI) in the name of Managing Director, RISL, Jaipur payable at Jaipur as per ITB 2.1.3	Yes / No
1.5	Bid Security as per ITB 2.1.3	Yes / No

### Confirmation for Each submission

1.1	Have you submitted the Letter of Technical Bid as per ITB 2.1.3		Yes / No
1.1.1	Have you used the Format given in Section IV of bid document		Yes / No
1.1.2	Whether the Format is completely filled		Yes / No
1.1.2	Is authorised signatory has signed the Letter of Technical Bid		Yes / No
1.1.2.1	If bidder is Sole Bidder		Yes / No
	In case of Proprietorship firm	Who is signatory	Prop./Authorised representative
	In case of Partnership Firm	Who is signatory	All the partners/Authorised representative
	In case of Limited Company, LLC, Pvt Ltd	Who is signatory	Authorised representative
1.2	Have you submitted Power of Attorney for authorised signatory as per ITB 2.1.3		Yes / No
1.2.1	In case of Proprietorship firm	Is POA signed by Proprietor (No power of attorney required, if bid is signed by proprietor)	Yes / No
	In case of Partnership Firm	Is POA signed by All the partners of firm	Yes/ No

## SECTION IV: BIDDING FORMS

	<table border="1"> <tr> <td>In case of Limited Company, LLC, Pvt Ltd</td> <td>Is POA Signed by all the directors or any director who has power of authority delegation as per Board Resolution</td> </tr> <tr> <td></td> <td></td> </tr> </table>	In case of Limited Company, LLC, Pvt Ltd	Is POA Signed by all the directors or any director who has power of authority delegation as per Board Resolution			Yes/ No
In case of Limited Company, LLC, Pvt Ltd	Is POA Signed by all the directors or any director who has power of authority delegation as per Board Resolution					
		Yes/ No				
<b>1.3</b>	Have you submitted the Cost of Bid document in form of Demand Draft (DD) for INR 5000 /-issued in favour of – Director and Joint Secretary, DLB, payable at Jaipur as per ITB 2.1.3	Yes / No				
<b>1.3.1</b>	Is the amount of DD Rs. 5000/-	Yes / No				
<b>1.3.2</b>	Is DD in favour of “ Director and Joint Secretary, DLB ”, payable at Jaipur	Yes / No				
<b>1.4</b>	Have you submitted the RISL Fee in form of DD for Rs. 1000/- in favour of MD, RISL payable at Jaipur as per ITB 2.1.3	Yes / No				
<b>1.4.1</b>	Is the amount of DD - Rs. 1,000/-	Yes / No				
<b>1.4.2</b>	Is DD in favour of “ <b>MD, RISL</b> ”, payable at Jaipur	Yes / No				
<b>1.5</b>	Have you submitted Bid Security as per ITB 2.1.3	Yes / No				
<b>1.5.1</b>	In which manner of the Bid security is submitted 1. Demand Draft 2. Bank Guarantee 3. Fixed deposit receipt 4. E Gras	Yes / No Yes / No Yes / No Yes / No				
<b>1.5.2</b>	Is it demand draft	Yes / No				
<b>a)</b>	Is amount of DD same as specified in Section II of bid document? (Rs.-----)	Yes / No				
<b>b)</b>	Is the DD in favour of “-----”, payable at Jaipur Address- Office of the -----	Yes / No				
<b>1.5.3</b>	Is it Fixed deposit receipt	Yes / No				
<b>a)</b>	Is amount of Fixed deposit receipt same as specified in Section II of bid document? (Rs.-----)	Yes / No				
<b>b)</b>	Is the Fixed deposit in favour of “----- payable at Jaipur	Yes / No				
<b>1.5.4</b>	Is it through E Gras payment system					
<b>a)</b>	Is amount of E Gras Challan receipt same as specified in Section II of bid document? (Rs.-----	Yes / No				

## SECTION IV: BIDDING FORMS

<b>b)</b>	Is the E Gras payment is deposited in respective head as per annexure A	Yes / No
<b>1.5.5</b>	Is it Bank Guarantee	Yes / No
<b>a)</b>	Have you used Format given in Section IV of bid document	Yes / No
<b>b)</b>	Have you made any changes in bank guarantee format	Yes / No
<b>c)</b>	Whether the Format is completely filled	Yes / No
<b>d)</b>	Is Bank Guarantee unconditional and irrevocable	Yes / No
<b>e)</b>	Is the Bank guarantee in favour of "-----"	Yes / No
<b>f)</b>	Is the amount same as specified in Section II of bid document. (Rs.-----)	Yes / No
<b>g)</b>	Have you submitted the bank guarantee : i. Is it issued by a reputable bank located in the India, which may include scheduled banks or nationalized banks, or ii. Is it issued by a foreign reputable bank outside the India, through a correspondent bank located in the India.	Yes / No Yes / No Yes / No
<b>h)</b>	In case of no corrigendum (for date extension) was issued- Is the Bank Guarantee valid upto 150 days beyond from the date of bid submission deadline? Or In case of corrigendum for date extension) was issued- Is the Bank Guarantee valid upto 150 days beyond from the date of extended bid submission deadline?	Yes / No/NA   Yes / No/NA
<b>i)</b>	Is Bank guarantee stamped, signed and dated?	Yes / No
<b>j)</b>	Is Project Name mentioned in the bank guarantee	Yes/ No

## 2. Online Submission

<b>S. NO.</b>	<b>Description of Document</b>	<b>Uploaded</b>	<b>Page No.</b>
<b>1.1</b>	Have you attached the Letter of Technical Bid as per ITB 2.1.3	Yes / No	
<b>1.1.1</b>	Have you uploaded the Scan copy of Physical Submission	Yes / No	
<b>1.2</b>	Have you attached the Power of Attorney as per ITB 2.1.3	Yes / No	
<b>1.2.1</b>	Have you uploaded the Scan copy of POA of Physical Submission	Yes / No	

## SECTION IV: BIDDING FORMS

S. NO.	Description of Document	Uploaded	Page No.
1.2.2	Is Company registration certificate attached	Yes / No	
1.2.3	Is Article of Association with list of directors/ partners attached	Yes / No	
1.2.4	Is Board resolution in case of partnership firm / limited company to provide sufficient proof of person who is delegating the power attached	Yes / No	
1.3	Have you attached the Cost of Bid document in form of Demand Draft (DD) for INR 5,000/-issued in favor of Director and Joint Secretary, DLB, payable at Jaipur as per ITB 2.1.3	Yes / No	
1.3.1	Have you uploaded the Scan copy of DD of Physical Submission	Yes / No	
1.4	Have you attached the RISL Fee in form of DD for Rs. 1000/- in favor of MD, RISL payable at Jaipur as per ITB 2.1.3	Yes / No	
1.4.1	Have you uploaded the Scan copy of DD of Physical Submission	Yes / No	
1.5	Have you attached the Bid Security	Yes / No	
1.5.1	Have you uploaded the Scan copy of Physical Submission	Yes / No	
1.6	Have you attached scan Copy addendum and clarifications uploaded	Yes / No	
1.7	Have you attached the ELI -1: Bidder's Information Sheet	Yes / No	
a)	Have you used Format given in Section IV of bid document	Yes / No	
b)	Has authorised signatory (as per power of attorney) signed it.	Yes / No	
1.8	Have you attached Declaration by the Bidder under Sections 7 and 11 of the Act	Yes / No	
a)	Have you used Format given in Section IV of bid document	Yes / No	
b)	Has authorised signatory (as per power of attorney) signed it.	Yes / No	
1.9	Have you attached the Form LIT-1 -Pending Litigation as per clause 2, Section III of bid document	Yes / No	
a)	Is separate form (given in Section IV) filled by single bidder	Yes / No	

## SECTION IV: BIDDING FORMS

S. NO.	Description of Document	Uploaded	Page No.
b)	Is details of disputes mentioned in the prescribed format which comes under the category otherwise mention "NIL"	Yes / No	
c)	Is the amount of disputes/arbitration mentioned	Yes / No	
d)	Is Percentage of Net worth mentioned	Yes / No	
e)	Has authorised signatory (as per power of attorney) signed it.	Yes / No	
f)	Is the total pending litigation is less than 50% of Net worth	Yes/ No	
g)	Do you meet the bid requirements?	Yes/ No	
2.0	Have you attached the Submission of complete audited financial statements (balance sheets including all related notes, income statements) <b>(to be submitted by Single Bidder)</b> as per clause 3.1, Section III of bid document	Yes / No	
a)	Is balance sheet of Financial Year 2020-21(audited) attached?/ (Year 2021-22 provisional if any )	Yes / No	
b)	Is balance sheet of Financial Year 2019-20 (audited) attached?	Yes / No	
c)	Is balance sheet of Financial Year 2018-19 (audited) attached?	Yes / No	
2.1	Have you attached the Form FIN-1: Financial Situation <b>(to be submitted by Single Bidder)</b>	Yes / No	
a)	Have you used format given in Section IV filled completely	Yes / No	
b)	Whether the Format is completely filled	Yes / No	
c)	Has authorised signatory (as per power of attorney) signed it?	Yes / No	
d)	Is the Net worth of last year calculated as the difference between total assets and total liabilities positive?	Yes / No	
e)	Do you meet the bid requirements?	Yes/ No	
2.2	Have you attached the Form FIN-2: Average Annual Turnover <b>(to be submitted by Bidder/</b> as per clause 3.2, Section III of bid document	Yes / No	
a)	Have you used format given in Section IV using weightage (along with calculations)	Yes / No	
b)	Has authorised signatory (as per power of attorney) signed it?	Yes / No	
c)	Has Chartered Accountant certificate clearly	Yes / No	

## SECTION IV: BIDDING FORMS

S. NO.	Description of Document	Uploaded	Page No.
	mentioned the turnover?		
d)	In case of Sole bidder Is the Value of Average Annual Turnover is equal or more than the requirement mentioned in Section III of bid document.	Yes / No	
f)	Do you meet the bid requirements?	Yes/ No	
2.3	Experience of contracts in the role of contractor, subcontractor, or Supplier for at least two years in the last 3 Years(2018-19,2019-20 and 2021-21) (2021-22 if any ) prior to the Bid submission deadline <b>(to be submitted by Single Bidder)</b>	Yes/ No	
a)	Have you used format EXP-1 given in Section IV	Yes / No	
b)	Whether the Format is completely filled	Yes / No	
c)	Has authorised signatory (as per power of attorney) signed it.	Yes / No	
d)	Supporting document i.e. Work order/ experience certificate attached.	Yes / No	
2.4	Participation as contractor, subcontractor, or Supplier with government agencies,  TWO contract where the value of the completed and commissioned or substantially completed work exceeds INR 22 Crores within the  Last 3 Years from bid submission deadline.  Bidder's participation shall be based on Sewerage/Sanitation/ Machinerries Works.		
a)	Is Form EXP-2 (a) filled?	Yes / No	
b)	Has Authorised representative (as per power of attorney) signed Form EXP-2 (a)?	Yes / No	
c)	Is Copy of Experience certificate enclosed?	Yes / No	
(i)	Is work similar to clauses of bid document?	Yes / No	
ii)	Is work is successfully completed or substantially completed mentioned in the experience certificate	Yes / No	
iii)	Is Value of completed and commissioned Work mentioned in the certificate?	Yes / No	
iv)	In case of substantially completed contract, Is amount of completed and commissioned works mentioned in the experience certificate?	Yes / No	

## SECTION IV: BIDDING FORMS

S. NO.	Description of Document	Uploaded	Page No.
iv)	Is Letter no and date available on experience certificate?	Yes / No	
d)	Is work completion date within from within two years in any of last3 years from Bid <b>submission</b> deadline?	Yes / No	
e)	Is Copy of Work order enclosed?	Yes / No	
f)	Do you meet the bid requirements?	Yes/ No	
2.5	<p>Availability of a valid ISO certification or internationally recognized equivalent (equivalency to be demonstrated by the Bidder), and applicable to the worksite:</p> <p>a. Quality management certificate ISO 9001</p> <p>b. Environmental management certificate ISO 14001 or Health and Safety management certificate ISO 45001</p>		
a)	Is Form EXP-3 attached?	Yes / No	
b)	Is ISO certificate 9001, 14001 or 45001 are vaild upto bid submission date	Yes / No	
2.6	<p>Availability of a valid ISO certification or internationally recognized equivalent (equivalency to be demonstrated by the Bidder), and applicable to the worksite:</p> <p>Efficient use of energy Certification ISO 50001 and "CE" Certification</p>	Yes / No	
a)	Is Form EXP-4 attached?	Yes / No	
b)	Is ISO certificate 50001 & "CE" certification are vaild upto bid submission date	Yes / No	

## SECTION V: EMPLOYER'S REQUIREMENT

### A. General Considerations

#### 1 INTRODUCTION& BACKGROUND

1. Rajasthan is the largest state in India, accounting for 10% of total geographical area of the country. It is located in the north-western part of India and its capital city is Jaipur. With the current urbanization rate around 25% in the state, municipal bodies (which number 213 at present) are rapidly urbanizing at a high growth rate of 2.9% per annum. The GoR has successfully implemented three Faecal Sludge and Septage Treatment Plants through Rajasthan Urban Infrastructure Development Project (RUIDP) under Bill & Melinda Gates Foundation (BMGF) at Lalsot (Dausa), Khandela (Sikar) and Sambhar-Phulera (Jaipur) towns. These FSTPs are under successful operation. These investments have made substantial improvements in the living standards of the residents of these towns.
2. Government of Rajasthan (GoR) under Budget Announcement in financial year 2021-22 has launched a mission with a goal of achieving total sanitation in urban local bodies where sewerage system does not exist. With concerted efforts in year 2018, the GoR declared its urban areas Open Defecation Free (ODF) through provision of individualhousehold toilets as well as community/public toilets.
3. However, sanitation is more than just having access to toilets and better hygienic practices, and it covers the management of faecal sludge and septage from the point of generation to its treatment for reuse or safe disposal.
4. Accordingly, the State of Rajasthan is now accelerating towards the status of ODF + which is a step ahead of being ODF, it also includes wastewater management and treatment of faecal sludge and septage.
5. Further, Government of India (GoI) through the Ministry of Housing and Urban Affairs (MoHUA) has launched a National Policy onFaecalSludge and Septage Management (FSSM) in 2017 and encouraged States to set up systems towards the safe collection, treatment and disposal of all human waste that is collected from on-site sanitation systems.
6. In accordance with this, Local Self Government Department of GoR has notified the guidelines for Faecal Sludge and Septage Management (FSSM) in Urban Local Bodies in year 2018.
7. To comprehensively establish improved sanitation practices andsystems, the GoRhas decidedto set upFaecal Sludge and Septage Treatment Plant (the "FSTP") in each of the Urban Local Bodies to tackle the health and environmental hazardcausedwhenhumanexcretaisddisposedinopen areas andwater bodies due tolackoftreatmentfacilities.It is to be noted that pollution load of septage is much higher vis-à-vis sewage and needs immediate attention.
8. Under Budget Announcement 2022-23, which is starting phase of establishing Faecal Sludge and Septage Management Plans in State of Rajasthan 73 ULBs has been selected.
9. To achieve the vision of making urban areas ODF+, the Government of Rajasthan has decided to establish FSTPs with 10 years operation and maintenance in 73 (Seventy Three-) ULBs through state government funding on Design, Build, Operate on Turnkey basis.
10. With the implementation of FSTPs and the previous FSTP projects, Rajasthan will



## SECTION V: EMPLOYER'S REQUIREMENT

aim to have a 100 % coverage of all its towns with either Sewage Treatment plant or FSTPs.

### 2 OUTCOME AND BENEFITS FROM PROJECT

1. The project aimed at improvising a sanitation solution to the areas where conventional sewerage system is not feasible and improve sanitation condition of the area. The implementation of this project would ensure fecal sludge treatment plant which would treat fecal sludge to bring down major parameters below permissible level for safe reuse and disposal. The project also includes providing operations and maintenance of the plant for a period defined in relevant section of the document.
2. Supply and operation of Desludging Equipment/ vehicle will render completeness to the system from septage collection to disposal and treatment.
3. IEC activities will also bring integrity and cohesiveness between technical and social aspects.
4. The results are intended to facilitate demand for sanitation solutions.

### 3 PROJECT TOWN

Sl.No.	District	Town	Projected Population (2053)	Capacity in KLD
1	Ajmer	Sarwar	45212	15
2	Alwar	Kherli	39129	15
3	Alwar	Rajgarh	59093	20
4	Alwar	Kishangarhbas	27579	10
5	Baren	Mangrol	55636	20
6	Bikaner	Deshnok	40984	15
7	Bharatpur	Bhusawar	44260	15
8	Bharatpur	Kumher	52235	20
9	Bharatpur	Nadbai	58605	20
10	Bharatpur	Nagar	56744	20
11	Bharatpur	Weir	43014	15
12	Bhilwara	Jahajour	45680	15
13	Bundi	Kaprain	46039	15
14	Bundi	Keshoraipatan	54647	20
15	Bundi	Nainwa	43237	15
16	Bundi	Indragarh	16518	5
17	Chittorgarh	Begun	45944	15
18	Chittorgarh	Kapasan	46308	15
19	Churu	Chhapar	43811	15
20	Sri Ganganagar	Padampur	40874	15

## SECTION V: EMPLOYER'S REQUIREMENT

21	Sri Ganganagar	Karanpur	47258	15
22	Sri Ganganagar	Sri Vijainagar	71283	25
23	Jaipur	Viratnagar	45640	15
24	Jodhpur	Phalodi	110759	35
25	Jhunjhunu	Bissau	51540	20
26	Jhunjhunu	Mukundgarh	40982	15
27	Jhunjhunu	Surajgarh	48076	15
28	Kota	Sangod	48476	15
29	Nagaur	Kuchera	52076	20
30	Nagaur	Mundwa	37436	10
31	Nagaur	Nawa	49013	15
32	Pali	Bali	44114	15
33	Pali	Falna	55117	20
34	Pali	Takhatgarh	37121	15
35	Sirohi	Pindwara	54336	20
36	Sikar	Reengus	58003	20
37	Sikar	Khatu Shyam Ji	29954	10
38	Tonk	Deoli	48962	15
39	Tonk	Malpura	65005	20
40	Tonk	Todaraisingh	52277	20
41	Banswara	Partapur Garhi	23872	10
42	Dausa	Mahwa	55133	20
43	Jaisalmer	Pokaran	52266	20
44	Jhalawar	Aklara	58226	20
45	Karauli	Todabhim	50986	15
46	Pratapgarh	Chhoti Sadri	40740	15
47	Rajsamand	Amet	38466	15
48	Rajsamand	Deogarh	39063	15

Note:-

1. No. of FSTPs may increase/ decrease as per the availability of fund or as per the administrative decision.
2. Capacities of FSTPs are tentative and actual will be finalised after preparation of detailed projects inspection report.
3. Overall saving if any, shall be utilised for construction of additional/ new FSTPs.

#### 4 SCOPE OF THE PROJECT

1. The scope of FSTP includes, design, procure, manufacture, supply, construction/ installation, commissioning, and trial run. Operation and maintenance for a period of 10 years.
2. Preparation of Detailed Project Report, detailed layout, working drawings for process layout plan and hydraulics, general arrangement; civil, electrical, mechanical, instrumentation and structural design drawings; electrical, mechanical, instrumentation system, Process and Instrumentation Diagrams (P&IDs), control philosophy, cause and effect diagrams, detailed structural steel fabrication drawings; data sheets of equipment and cable schedules.
3. The infrastructure shall include the following:
  - a. Excellence Center.
  - b. Office Room
  - c. Plant Building
  - d. Weigh Bridge
  - e. Toilets
  - f. Approach and Interior roads within FSTP premises 7.0 m width of CC road.
  - g. Interlocking pavers with pedestrian access ways shall be constructed to provide a network of logical routes interlinking plant areas.
  - h. Boundary /Compound of wall thickness of 230 mm width and 1.50m height above finished ground level all around the plot boundary with lockable gates.
  - i. Facility to store Sludge after drying.
  - j. Drainage facility inside the FSTP premises and drainage outfall into rainwater harvesting structure – As per design and layout.
  - k. Provision for rainwater harvesting
  - l. Green space development with drip irrigation
  - m. Reuse of treated water
4. Design, procure and manufacture, transportation to site, installation, testing and commissioning of all pumps, piping work & valves, mechanical, electrical, instrumentation & control equipment, and systems.
5. Design, procure, manufacture and supply of all machinery, equipment for FSTP, instrumentation & control, lighting systems, Earthing and lightening protection system, materials, articles, fittings and accessories, electrical switchyard, ancillary works, enabling works of all kind and nature required for installations of the highest possible operative standards and for compliance with the standards prescribed and with the particulars and guarantees.
6. The FSTPs will be designed and constructed for all-weather operation and be able to handle variable input loads of varying characteristics. Arrangements for buffer-storage and/or pre- treatment as necessary, will be provided.
7. All units of FSTPs will be designed to cater the peak flow.
8. Online monitoring equipment to monitor the quality of the treated wastewater along with centralisd dash board.
9. Campus development works, landscaping, including boundary wall with earth filling, plantation to maintain green belt of tall growing with good leaf area native trees, internal road, drains, road lighting and water harvesting measures in the premises.
10. Power supply for FSTP shall be provided by the Employer up to the nearby premises of the plant location.
11. Grid connected solar power plant.
12. Installation of required capacity DG set in FSTP campus.
13. Installation of required capacity Transformer and all other allied equipment's.
14. To install and operate CCTVs in each of the FSTPs, one covering the tankers/trucks

## SECTION V: EMPLOYER'S REQUIREMENT

- unloading area and the other covering treatment facility area;
15. To install and operate biometric access control system and entry into the Project sites be regulated through biometric access for all the staff working at the treatment facility and the unloading tanker/truck drivers.
  16. Trial runs for a period of 1 month, testing, commissioning, and conducting of performance guarantee tests of complete FSTP.
  17. Scheduled Desludging of faecal sludge through suction machines

### 4.1 Supporting Activities to Scope of Work

1. Submission of implementation plan with schedule (detailed activity schedule along with milestones) and timelines, macro (Monthly) and micro (weekly) work program monitoring of progress of work. Plan should also include the timeline envisaged for obtaining various Government approvals if required.
2. Submission of Design Project Report for FSTP including Salient features of the proposed technology and Plant & Equipment's with proposed technology, process flow-chart with design values for inputs and outputs at each stage, with plan for implementation and operation of the FSTP to achieve Key Performance indicators. One core report shall be prepared for the technology being proposed and individual report for each site will be prepared with the proposed layout and specific changes adopted for the site. Process flow-chart shall include following things briefly:
  - a. Volume & Solid Balance calculations for each unit indicating loading rates/retention period and efficiency of unit treatment.
  - b. Dimensioned layout of treatment components within Site plan.
  - c. Hydraulic profile of treatment components.
  - d. Equipment/ machinery proposed.
  - e. Energy consumption.
3. The Specifications and Standards will comprise the approach and methodology for treatment and disposal and/or reuse of Faecal Sludge & Septage.
4. Detailed design and drawings of all mechanical, electrical and instrumentation systems and all other equipment based on the approved design process, layout etc.
5. The detailed Architectural & Structural designs and drawings for all civil works, including those for plant components, buildings, building services, water supply, plant & yard lighting, storm water drainage etc. as per the requirement of the system.
6. All preparatory work, including required topographical survey, clearing out trees, shrubs, debris, levelling and dressing of the site, excavation in wet saturated soil and disposal of surplus excavated earth within the site to the extent possible and proper disposal of the extra surplus excavated earth to a suitable location as decided by the Employer's Representative. Pumping of sub soil water may be required during execution along with special treatment of foundation and avoid FSTP from flooding in rainy season.
7. Carry out topographical survey, HFL, flooding potential of FSTP site capturing all features to develop contour map, layout, Hydraulic Flow diagram (HFD) of FSTP.
8. Carrying out necessary site surveys and soil investigations (Standard Penetration Test, Plate Load Test etc) as directed by Employer's Representative as deemed necessary by the Contractor for the purpose of designs / drawings.
9. Preparation and submission of "as-built drawings" and "Operation and Maintenance Manual" for the plant.
10. Training of Employer's designated personnel in operation and maintenance of FSTPs and its facilities.

## 5 PROJECT DEVELOPMENT WITH THE PROPOSED TECHNOLOGY

1. The employer will describe the technology to be deployed under the contract.
2. The contractor must deploy the technology as approved by the Employer.

## SECTION V: EMPLOYER'S REQUIREMENT

3. The Employer shall have the right to recommend improvements in the technology based on actual operations of processing facility to meet Key Performance Indicators and other provisions of the contract.
4. Components / equipment / instruments to be installed at the treatment plant shall comply with technical standards.

### **6 RESPONSIBILITY OF THE EMPLOYER**

1. Provision of land to set up FSTP to an extent of 1200 – 1350 sqm. The land shall be ideally rectangular. The site shall be unencumbered, cleaned and levelled with out encroachment. The employer shall ensure that there is no hindrance in construction and operation of the plant.
2. Handing Over of Project Site to Contractor: The sites will be made available on the date of the issuance of the Letter to Proceed and the Contractor can plan his work accordingly. The Employer will make the individual work sites available to the Contractor so that he will have space available for him to carry out his work for the project period.
3. Employer shall provide Electricity connection to site during construction and operation. The user charges shall be paid by the contractor.
4. Employer shall provide water to site for plant operations.
5. Employer shall provide paved access road to the site.
6. Land will be made available to the contractor with no cost and no taxes.
7. All insurance required for the project shall be paid by the Employer.
8. Registration cost, initial and annual road tax, and insurance for the desludging vehicle shall be paid by the employer.
9. Any additional development, infrastructure or other requirements beyond scope of work during the execution and O&M phase sought by the employer shall be paid in addition to the bid price.

### **7 CONSTRUCTION PROGRAM**

1. Contractor shall prepare Construction Program. Construction Program shall be in the form of a Critical Path Method (CPM) Diagram showing sequences, dependencies, durations and dates for execution of all major items including sectional completion for the execution of the Works within the periods stated in the Contract. It shall be supported by:
  - i. Construction Methodology and Data of the construction methods
  - ii. Equipment Utilization Schedule
  - iii. Manpower Utilization Schedule
  - iv. Subcontracting Schedule
  - v. Mobilization/Demobilization Schedule
2. The CPM diagram incorporating the construction activities shall be prepared using Microsoft Project, or similar project management software, and shall be presented in hard copy and electronic form to the Employer's Representative.
3. In carrying out the works due attention shall be paid to all measures which can reasonably be taken to diminish the inconvenience which the work may cause to services and access to property.

### **8 CONTRACT REVIEW MEETINGS**

1. The DLB/ULB shall conduct regular contract review meeting once in a month or more frequently, if necessary, in order to discuss the progress of the Project, including but

## SECTION V: EMPLOYER'S REQUIREMENT

not limited to the following:

- i. the indicators and information reported using the approved construction program.
- ii. any problems or issues in the implementation of the Project and solutions to the same, including preventive or remedial actions which should be taken.
- iii. lessons learned from the monitoring and management of the Project and, based on such lessons, the necessary adjustments that can be made in the implementation of the Project in order to improve Project outcomes and completion on time.

### **9 RIGHT OF AUTHORITY TO MONITOR**

1. The DLB/ULB shall be entitled to inspect, check, test and monitor the Project and the Facilities during the construction period and the Operating Period. The purpose of such monitoring shall be to determine whether the Facilities are being designed, constructed, tested, commissioned, operated and maintained in accordance with the terms of this Agreement.
2. The Contractor shall allow the DLB/ULB or its duly authorized representatives to conduct such inspection and monitoring during normal business hours upon reasonable prior written notice to the Contractor. The monitoring and review shall be conducted in the presence of a duly designated representative of the Contractor.
3. However, the Authority may also authorize the Independent Consultant/ 3rd party to do random, unscheduled inspection and monitoring of the quality of treated effluent and bio-solids.
4. The contractor shall use all reasonable efforts to minimize any disruption to the delivery of the Services during a Service inspection.
5. The Contractor shall ensure that the DLB/ULB or its agent or representative is given sufficient access to any part of the Facilities to carry out a Service inspection. For this purpose, the Contractor shall:
  - a. provide assistance and make available equipment or materials as may be reasonably required.
  - b. not make any part of the Facilities inaccessible; and
  - c. promptly correct any deficiency identified by the Authority or its agent during such Service inspection.

### **10 RAW SEPTAGE SOURCE AND QUALITY**

1. The Septage Treatment Plant is basically intended to accept raw septage only from septic tanks/community toilets/Public toilets/pits receiving wastes from domestic sources. Other sources such as commercial, industrial, hospital sources, etc. can only be accepted if they have CPCB-approved on- site primary treatment facilities prior to septage collection.

#### **10.1 Raw Septage Quality**

1. Aside from sewage, Raw Septage contains silts, grits, plastics, rags, hair, grease, scum, and "uncommon" material such as cans, sanitary napkins and dead animals. Septage is highly malodorous due to its low reduction-oxidation (i.e., anaerobic conditions) coupled with the presence of methane, sulphur compounds (hydrogen sulphide) and volatile fatty acids.

#### **10.2 Characteristics of Septage**

1. The factors which influence the characteristics of septage are the design of the OSS (On Site Sanitation), food habits of users, the performance of septic tanks, tank-emptying technology and pattern, the intrusion of groundwater, temperature,

## SECTION V: EMPLOYER'S REQUIREMENT

admixtures to septage like grease, kitchen, or solid waste, and the storage duration, which can last from months to years. These characteristics have practical implications for treatment. For example, septage which is still rich in organic matter and has not undergone significant degradation is difficult to dewater. Conversely, septage that has undergone significant anaerobic degradation such as from septic tanks or anaerobic baffled reactors (ABRs) - in other words, which is stabilized - is more easily dewatered. All these factors influence the characteristics of faecal sludge. Septage is a very variable material. Consequently, management systems need to be designed on a case-by-case basis. The Table given below compares characteristics of septage from onsite sanitation facilities and wastewater sludge. Inflow Faecal Sludge Characteristics- FSTP shall be capable to handle the physical and chemical characteristics of Septage are summarized in the Table below (CPHEEO Manual-2013, Table-9.5)

*Table 1: Raw Septage Characteristics*

Source	Type-A	Type-B
	Public Toilet or Bucket latrine sludge	Septage
Characteristics	Highly concentrated, mostly fresh FS; stored for days or weeks only	FS of low concentration; usually stored for several years; more stabilized than Type "A"
COD (mg/l)	20,000 to 50,000	<15,000
COD/BOD	5:1 to 10:1	5:1 to 10:1
NH <sub>4</sub> -N (mg/l)	2,000 to 5,000	< 1000
TS (%)	>3.5%	< 3%
SS (mg/l)	>30,000	7,000
Helminth Eggs	20,000 60,000	4,000

## 11 TREATMENT KEY PERFORMANCE INDICATORS

The contractor shall ensure that the FSTP facilities to convey, accept and treat the Faecal Sludge and Septage up to its Design Capacity except during Force Majeure during the period of operation and maintenance period of 10 years. The FSTP shall comply with 95% of every month for the Design outlet parameter. The contractor shall guarantee for following discharge characteristics.

- i. **For treatment Effluent**– Following are the characteristics for treated effluent:

*Table 2: Treated Effluent Characteristics*

Parameters	Values
pH	6.5-9
Temperature (°C)	25 -35
BOD at 5 days (mg/L)	<10
COD (mg/L)	<50
Total suspended solids (mg/L)	<10
Fecal coliform per 100 mL	<100

## SECTION V: EMPLOYER'S REQUIREMENT

Total Nitrogen (mg/L)	< 10
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- ii. **For Bio solid/Sludge:** Biosolids are dried sludge from mechanical drying system and are stored for a period of 3 months for further re-use. Biosolids can be used as a soil conditioner for farming as they are a rich source of Nitrogen, carbon and phosphorous. Following are characteristics of treated bio-solids.

*Table 3: Treated Bio-solids/sludge Typical Characteristics*

Parameters	Characteristics
pH	6.5-9
Moisture	9%
Organic carbon	10 – 25
Organic Nitrogen	2-5%
Phosphorous	0.2 – 1
Bulk Density(Specific gravity)	0.65– 0.9

Dewatered septage to be used as a fertilizer it should satisfy the following criteria of Class A Bio-solids of US EPA (CEPT, 2015).

1. Faecal coliform density < 1000 MPN/g total dry solids
  2. Salmonella sp. Density < 3 MPN/ 4 g of total dry solids
  3. Helminth egg concentration of < 1/g total solids (WHO, 2006)
  4. E coli of 1000/g total solids (WHO, 2006).
- iii. **For Bio char:** Biocharis pyrolyzed sludge available from the pyrolysis unit. Biochar can be used as a soil conditioner for farming. Following are characteristics of biochar.

*Table 4: Treated Bio-solids/sludge Typical Characteristics*

Parameters	Characteristics
pH	5.5-9
Moisture	<10%
Carbon	>25%
Faecal coliform density	0
Salmonella sp. Density	0
Helminth egg concentration	0
E coli	1000/g total solids

## 12 RE-USE OF END PRODUCTS

Reuse of all end products from the plant is in the scope of contractor.

### 12.1 Biochar/ Bio solids

1. Biochar can be used as the soil conditioner for better water retention, nutrient retention and improving the micro flora of the soil.
2. In case there is availability of uncharred biosludge it can be used for lawns and for growing deep-rooted cash crops and fodder grasses where direct contact with the edible part is minimum. It can also be used as manure/soil conditioners.



### 12.2 Treated Effluent

Water from liquid treatment modules is stored in a collection tank from where it can be reused for watering of vegetation within FSTP premises or irrigating plantations in nearby farmlands or can be discharged into a nearby drain.

## 13 PROPOSED PROCESS

### 13.1 Process Flow

The philosophy for design approach is as follows:

1. The FSTP must be able to perform to its peak design capacity at all times of the year
2. The operations of the system must be simple.

The process flow of the proposed system is given in Figure below.

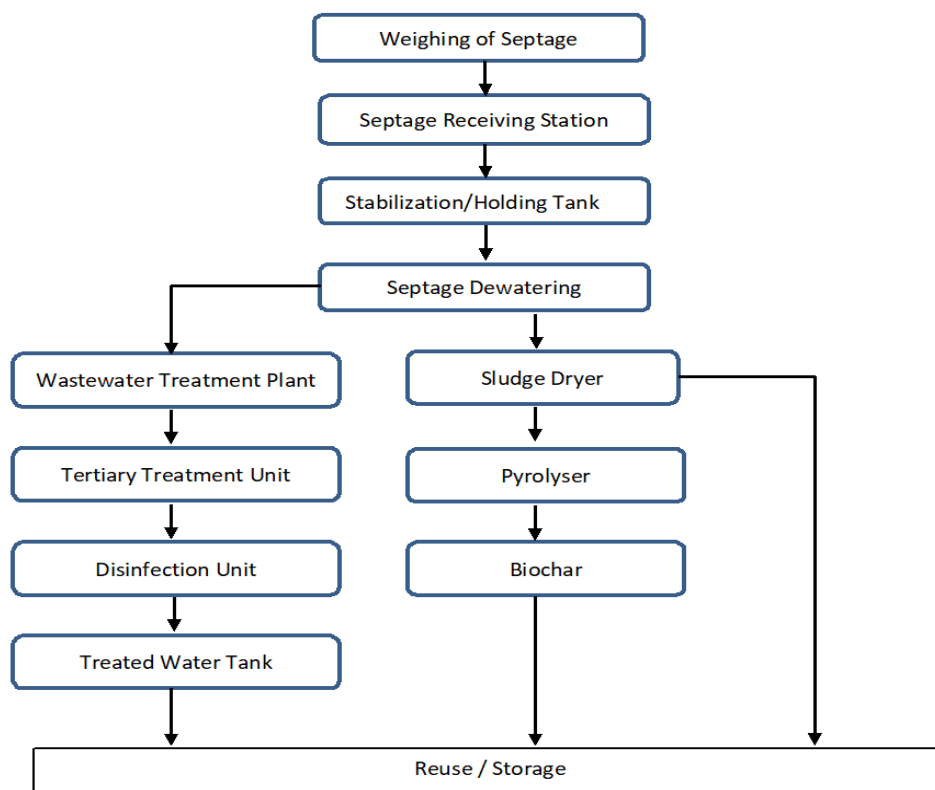


Figure 1 Process flow of proposed system

### 13.2 Process Description

1. **Septage Collection:** The septage collected from the town in desludging vehicles will be transported to the faecal sludge treatment plant. The septage can be collected on demand or scheduled desludging process. The concessioner shall maintain a call centre and app for booking desludging vehicles and managing any grievance redressal.
2. **Weighing of Septage:** Desludging vehicles will be weighed in the weighbridge. Gross weight and tare weight of the vehicle will be measured before and after unloading respectively. The weight of the septage received will be recorded. Each vehicle will have RFID tag for monitoring. An online data management system will be developed by concessioner to get the volume of faecal sludge collection.
3. **Septage receiving unit:** Septage will be unloaded into the receiving unit. This

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contains automated fine Bar screen which will separate unwanted floatable and trash in septage. Rejects collected will be transported to a trolley using a conveyor belt. Septage after screening flows into the Stabilization/Holding tank.

4. **Stabilization/Holding Tank:** Septage will be stored in stabilization/holding tank prior to the treatment. Septage will be homogenized using agitators and pumped to the dewatering equipment using sludge pump.
5. **Septage Dewatering:** Polymer will be prepared in the polymer dosing system and measured quantity of polymer will be dosed to flocculate septage. Flocculated septage is then passed through a mechanical dewatering equipment. The dewatered solids will have not less than 80% moisture, solids will be transported to the dryer and the dewatered liquids will be taken to wastewater treatment plant.
6. **Sludge dryer:** Sludge will be transferred to heat pump-based sludge drier which operates at 60-75°C and moisture is removed by evaporation. Dewatered sludge cakes from the dewatering unit are transferred to the dryer. The drier is designed to accept sludge with 80% moisture and dries it to bring down the moisture level to less than 30%. Dried solids are formed into chips/strips at the inlet of the dryer. Dried sludge can be bagged and stored in the sludge storage area or they can be further processed in the pyrolyzer to produce biochar. The treated solids shall meet US-EPA Class A standards.
7. **Pyrolyzer:** Dried sludge from the dryer is transferred to the pyrolyzer. Pyrolysis of sludge is achieved under controlled oxygen. This is done to retain the carbon in the biochar. The flue gases generated in the process are passed through heat exchanger and the thermal energy is reused for any thermal disinfection application.
8. Filtrate from dewatering unit will be sent to filtrate tank. Here it will be stored for 12 hrs and will be sent to Wastewater Treatment Plant. The filtrate is treated in MBBR and then transferred to pressure sand and activated carbon filter and then disinfected using UV treatment and stored in treated water tank. The treated water shall meet the PCB standards.
9. Reuse: Treated water, biochar, and bio sludge will be reused.

### B. Project Setup Requirements

#### 14 PROJECT COMPONENTS

The Components and Specifications of the FSTP are given in Tables below.

*Table 5: Components and Specifications of 5 KLD and 10 KLD FSTPs*

Sr No	Component	Specifications
A	Civil	
1	Plant Building + Excellence Room	The plant building has been conceptualized to hold all the equipment's and operations of the FSTP. This would improve the aesthetics, reduce environmental and other concerns. The plant building consists of the closed shed, canopy area, and the structures inside the shed such as Mezzanine floor for dewatering, excellence room, office and store. The plant building will be used to house the equipment like dewatering machine, dryer, pyrolyzer, DG set, electrical panel, including lighting, electrical plumbing & instrumentation, storage for biochar & dry sludge and if required weigh bridge panel. The details of the construction required are

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		<p>given below.</p> <p>a) Plant shed and canopy area – Area- Plant Building 350.00 Sqm + Canopy 78.75 Sqm.</p> <p>1.The closed shed is constructed using steel columns with roofing system of PEB/conventional truss with galvalume roofing sheets. The minimum ridge height shall not be less than 6.0m.The sides are covered with brick/block wall up to a height of 3.0m from ground level and above with galvalume/PPGI sheets.Minimum of 4 turboventilator and 6 skylight shall be provided. Adequate no of downtake pipe shall be provided. There will be 2 openings to the shed with rolling shutter of dimension 3.0m X 4.0m &amp; 2.4m X 3.0m.Adequate UPVC/aluminium windows shall be provide on the brick wall of typical 1.50m X 1.0m. The walls shall be plaster on both sides with interior /exterior emulsion of colour as per employer choice.The flooring of the plant shed shall be as per site condition but subject to a minimum of Murrum 125mm thick, lean concrete 100mm thick &amp; Un-reinforced dowel jointed plain cement concrete-M30 grade 125mm thick. The column foundation shall be as per site condition subject to minimum RCC isolated footings at depth 1.50m of size 1.05m X 1.05m X 0.45m, suitable sized RCC pedestal and RCC tie beams of minimum 300mm width and 450mm height connecting the pedestal.</p> <p>2.The canopy area shall be extension to the plant shed.The roof shall be cantilevered from closed shed.The flooring shall be as per site condition but subject to a minimum of lean cement concrete 100mm thick &amp; Un-reinforced dowel jointed plain cement concrete-M30 grade 125mm thick.The are no side walls to the canopy area.</p> <p>3. Dewatering mezzanine floor shall be placed at a height of 3.0m to ensure that the dewatered sludge would fall down and can be collected easily for drying. The filtrate will go by gravity to the MBBR. The mezzanine floor shall be minimum of 5.0m X 5.0 and shall have a minimum 2.40m clear to the roof. The mezzanine shall be designed to take care of machine load and other live loads. The mezzanine shall be of steel columns and suitable platform with MS staircase. MS railing of 1.0m height detachable type all round the mezzanine floor with provision for unloading the dewatering machine if required.</p> <p>4. Excellence room shall be located within the plant building of minimum size 25.0 Sqm. It shall be brick/aluminium partition with adequate natural &amp; artificial lighting with false roofing. The excellence room shall have minimum facilities of AC, projector with screen, sound system, mic, seating arrangement</p>
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		<p>such as tables, chairs etc.,</p> <p>5. Office, spares &amp; storage shall be located within the plant building of minimum size 12.0 Sqm each. It shall be brick/aluminium partition with adequate natural &amp; artificial lighting with false roofing. The office shall have facilities of seating arrangement such as tables, chairs minimum 5 nos etc. The spares &amp; stores shall have racks to store tools, spares &amp; other materials etc.,</p>
2	Weigh Bridge	<p>To monitor the daily quantum of septage arriving site. The weighbridge shall be of 9.0mx3.0 platform , 50 tones capacity with 6 load cells,pitless typeincludes civil works including ramp,electrical &amp; electromechanical works.</p>
3	Road with Drain	<p>Road with kerb is provided for the movement of vehicles.</p> <p>Drain is provided to collect the surface runoff and discharge to rain water harvesting pits or outside the plant. Suitable connection between road kerb and the drain shall be provided to avoid water stagnation on the road. The road shall provide access to all areas ,give adequate turning radius for the desludging vehicles and shall be designed as per site condition but subject to a minimum of lean cement concrete 100mm thick &amp; Un-reinforced dowel jointed plain cement concrete-M30 grade 125mm thick with kerb wall of 150mm height above road level. If required walkways of 1.0m wide shall be provided for access to specific areas. It is estimated that about 525.0 Sqm road will be required.</p> <p>25.0m Precast/RCC drain of 0.45m internal width and suitable depth shall be provided. The drain shall be covered with precast slabs or FRP gratings with top matching the road.</p>
4	Boundary /Compound Wall	<p>It is built to secure the plant. The compound wall shall be of about 150.0m or as per site condition, with RR masonry/Isolated footings as per site condition with 230mm thick brick wall of 1.50m height with 75mm thick coping concrete. The walls shall be plaster on both sides along with waterproof cement paint of colour as per employer choice.</p> <p>MS gate of 5.0m wide with side pillars with adequate foundation .The gate shall have name of the FSTP in its design. The gate shall be coated with 1 coat of primer and 2 coats enamel paint of colour as per employer choice.</p>
5	Rainwater harvesting	<p>Adequate no of rain water harvesting pit shall be provided in the plant area subject to minimum of 5 nos. RWH pit shall be constructed of about 1.20m diameter and depth not less than 2.0m with minimum</p>

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		5 equal layers of boulders, 40mm aggregate, 20mm aggregate 12mm aggregate, coarse sand with top covered of precast slab. The rain should be directed to the RWH pits. .
6	Stabilization Reactor	This tank is used to store septage prior to treatment. The tank will have a capacity of 3 days retention period. Submersible sludge pump will be placed in the tank to pump septage to the dewatering equipment. The tank capacity for 5Kld & 10Kld plant shall not be less than 15kl & 30kl respectively. It shall have a minimum free board of 300mm.
7	Filtrate Tank	Filtrate from dewatering unit will be sent to filtrate tank. Here it will be stored for 12 hrs and will be sent to Wastewater Treatment Plant. The filtrate is treated in MBBR and then transferred to pressure sand and activated carbon filter and then disinfected using UV treatment and stored in treated water tank. The treated water shall meet the PCB standards. The tank capacity for 5Kld & 10Kld plant shall not be less than - 2.8kl & 5kl respectively. It shall have a minimum free board of 300mm.
8	Treated Water Tank	Disinfected water from the UV system will be stored in tank. Treated effluent will be used for in-house gardening, agriculture, horticulture, development of urban forestry etc. The treated water tank will have the capacity to store water for 24 hours. The quality of treated water will be monitored in online monitoring system, parameters monitored are pH, BOD, COD, TN, TSS, Flowrate and Total forward flow. The tank capacity for 5Kld & 10Kld plant shall not be less than - 5kl & 10kl respectively. It shall have a minimum free board of 300mm.
9	Overhead tank and Sump	Minimum 2000 L HDPE or similar make tank placed on top of Toilet block with all necessary plumbing and fittings. Minimum 5000 litres RCC underground tanks shall be constructed of minimum M25 grade concrete and Fe 500 TMT bars as per structural design with a minimum free board of 300mm with necessary plumbing, pumps and fittings.
10	Toilet Block	3 toilets shall be provided. The toilet internal dimension shall be of 1.80m x 1.20m it shall have western commode, space for dress changing and ceramic flooring and wall tiles to a minimum height of 2.10m. Adequate lighting, ventilators, doors with inside bolting and outside locking arrangement, provision for tap, mirror. The outlet of the toilet block will be connected to the sludge stabilization reactor. The superstructure of the toilet block may be either in

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		masonry or prefabricated containerized unit. Suitable access to the toilet shall be provided. The substructure shall be designed as per site condition and the masonry/containerized option selected.
11	Power and water connection	Power line/connection to the input of transformer shall be provided by ULB. If technically feasible the municipal water line shall be provided by ULB to the site.
<b>B</b>	<b>Electro-Mechanical</b>	
1	Septage Screening Unit	Two numbers of automated septage screening unit with flow channels shall be provided to remove all contraries, transfer them mechanically to a conveyor belt which would then transfer it to a holding container for disposal.  Septage Screening Unit shall be finebar screen, Screen size-6mm, Size:0.4x1.5mwith maximum liquid depth of 0.6 m, Inclination:70 degrees, Flowrate: 800LPM, Debris Discharge height above liquid level: 0.9 m, , Max. Power: 0.75kw, 3ph, MOC-SS304/Engineering plastic.
2	Septage Screenings Conveyor	The septage screenings conveyor shall be provided to receiving the contraries from screening unit and transfer it to the holding container.  The Conveyor shall have a capacity of 160kg/hour, Belt speed: 5m/min, Power-0.75KW, 3phase, MOC: For all waste contact parts of SS304 with plastic belt.
3	Sludge pump	The sludge pump shall be used for transfer of septage from stabilisation pond to dewatering unit. It shall have one base unit and one standby.  The sludge pump shall be Submersible pump with cutter, MOC of pump and cutter-SS304, flow rate min..12000 LPH @5 m head, float sensor with auto cut off. Continuous duty (S1), Power- Max. 1.3kw, 1ph, IP68. Pulley with frame and SS wire for Lifting.
4	Ultrasonic level sensor	Ultrasonic level sensor shall be provided to monitor the septage level in the sludge stabilisation reactor.  The Ultrasonic Level Sensor shall have the following specifications 2-450cm Range, 5V DC Powered (Power supplied through AC power source). 1.3" OLED Display. 30metre 2-Core Shielded cable. Online system. Communication: Either Wi-Fi or GSM based Device management: Web app/mobile

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		app + physical display
5	Polymer Mixing and Dosing System	<p>Polymer mixing tank with dosing pump shall be provided to inject polymer into septage for flocculation. Polymer tank shall be adequate for holding the polymer solution for at least 4 hours of operation.</p> <p>The specification of the Polymer mixing, and dosing systems shall be Tank: Volume:&gt;500L, Shell thickness: 2mm,Dia:1.1 m, MOC: SS304, Agitator: Multistage- Turbine type, Power- 0.75kw, 3ph, Helical worm Geared Motor, Final RPM: 80 Dosing pump: Plunger type, Flow rate: 10-300LPH, Pressure:3-5kg/cm2, Control knob, 0.75kw, 3ph</p>
6	Dewatering Unit	Mechanical Dewatering unit shall be provided for solid liquid separation. The dewatering unit shall be able to achieve a minimum of 18 % solids in the dewatered sludge. The capacity of the dewatering unit shall be 60-80kgdry solids separation/hr, Screw: 1Nos, Screw speed: 3-6 rpm, Power: 2.2 kw, 3 phase, MOC-SS304.
7	Solids Conveyor	Solids Conveyor is provided to transfer the dewatered solids from the dewatered unit to the inlet hopper of the sludge dryer. The Conveyor capacity shall be150kg/hour, Belt speed: 5m/min, Power-0.75KW, 3phase, MOC for parts in contact with the solids SS304 with plastic belt.
8	Dryer	A Dryer shall be provided for reducing the moisture of solids from 80 % to less than 30 %. The dryer shall be electric / thermal dryer. The dryer shall have Moisture removal rate: gross 50kg/hr. The incoming sludge shall be shaped using a slitler prior to drying. Power:15kw, 3 pH, Touchscreen PLC controller, MOC: SS304, Belt: PP plastic mesh belt, Drying Temperature: 60-75°C, Dry sludge moisture: not more than 30%.
9	Dryer hopper	The dried sludge from the dryer shall be transferred to the dryer hopper. The dryer hopper shall have a conveyor unit to transfer the dried material either to conveyor to the bagging or the conveyor to the pyrolysis. The Hopper volume shall be of suitable capacity, MOC: SS304. The attached conveyor shall be screw type.
10	Conveyor for bagging	When there is a need for storage of dried sludge the material from the dryer hopper will be transferred to the bagging conveyor. The bagging conveyor shall transfer the material at a height of 1.5 m to enable the

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		<p>holding the bag to collect the dried sludge in a suitable bag.</p> <p>The capacity of conveyor shall be 95kg/hour, power-0.75KW, 3phase, Speed Control-VFD.</p>
11	Conveyor to pyrolyzer	<p>When dried sludge is to be pyrolyzed, the material from the dryer hopper will be transferred to the conveyor to pyrolyzer. The conveyor shall transfer the material to the pyrolyzer inlet.</p> <p>The Conveyor capacity shall be 95kg/hour, power-0.75KW, 3phase, Speed Control-VFD.</p>
12	Pyrolyzer	<p>The pyrolysis unit shall pyrolyze the dried sludge and convert it into biochar and eliminate all pathogen in the material. Minimum temperature of 350°C and above shall be maintained in the pyrolyzer. The flue from the unit shall meet the PCB norms.</p> <p>The Feed rate: upto 50 Kg/h, Maximum feed moisture: upto 30%, Power-2kw, 3P, Operating Temperature: Max. 750°C, Temperature Display, biochar generated should have min. 25% carbon.</p>
13	Filter feed pump	<p>The filter feed pumps are used to pump the water treated in the MBBR to ACF, PCK and UV disinfection system. 1 operating + 1 standby pump shall be provided.</p> <p>The pump shall be Submersible type with cutter, MOC-SS304, flow rate-min. 4000 LPH @30 m head, float sensor with auto cut off. Continuous duty (S1), Power- Max. 1.5kw, 1ph, IP68. Pulley with frame and SS wire for Lifting.</p>
14	WWTP	<p>Moving Bed Bioreactor (MBBR) type wastewater treatment plant shall be provided for filtrate recovered from the dewatering unit. The MBBR may be of RCC / plastic / metal tank type. It shall have a minimum hydraulic retention time of 30 hours. Adequate media shall be as per manufacturer and made of plastic. The holding capacity for 5Kld &amp; 10Kld plant shall not be less than 6.25kl &amp; 12.5kl respectively. It shall have a minimum free board of 300mm.</p> <p>MOC-RCC, Minimum Blower capacity: 0.75kw, 3ph, 0.22Kg/cm<sup>2</sup>, 85cum/hr. Recirculation pump shall be provided of minimum specification: 0.75kw, 3ph, Media capacity: 1.6 Cu.m</p>
15	Tertiary treatment	<p>Tertiary treatment system consisting of Activated carbon filter (ACF), pressure sand filter (PSF) shall be provided. The system shall be designed for the flow</p>



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		rate of 5000LPH. The specifications of the unit shall be Vessel MOC-FRP/MS with epoxy coating, Dia minimum 600 mm, Height-1500 mm, standard Media shall be used.
16	UV Disinfection	The treated water post tertiary treatment shall be disinfected in UV disinfection system suitable for wastewater treatment plants. The UV disinfection system shall be capable of flowrate:4cum/hr, UV dose-60,000uW-sec/cm2, UV transmission- 65%, power-425W, 1ph, Reactor MOC-SS316, Qty:1.
17	Three phase Stabilizer	A 3-phase stabilizer shall be provided to ensure all the plant equipment have good quality power at all times. The stabilizer specifications shall be of capacity 30kVA, air-cooled, microcontroller based digital servo stabilizer. Incomer: 63AMCB, Outgoing: 50A contactor, COS for bypass, Input: 295-465V, Output 415V AC. Protection: high-low voltage, overload, short-circuit, phase reversal, neutral failure.
18	Electrical panel	Provision of all electrical panels as required for the plant including the incomer panel and individual panel for the different sections of the plant as per bidder requirements. The minimum requirements of the main incomer panel to the plant is given below:  415V LTAC Panel, 3 phase- 4 wire system, COS 120A, 600V, 5KA, IS375, 25x10mm for Phase and 25x5mm for neutral, IS8828 MCBs, Multifunction meter, Phase failure-reversal alarm,
19	Weighing scales	Provision of one weighing scales is required in the to weigh biochar, sludge. Minimum requirement shall be Digital 0-200kg, Digital 0 - 3000gm.
20	Plant Operation Spares	The bidder shall provide the minimum spare requirement for one year of plant operations. It shall include but not be limited to the following:  Pumps, Blowers, Motors, Float switch, Air filter, Fire Cement, augers, Bearings, Gear box oil, Grease, Thermocouples and other sensors as required, Valves, switchgears, wires, pipes and fittings.
21	Grid connected solar power plant	A 15 kW grid connected solar system shall be provided at roof top or ground mounted with panels, under structure, junction boxes and wiring, grid tie inverter and interconnection to the grid. All the systems shall meet the MNRE / Local DISCOM.
<b>C</b>	<b>Environmental</b>	
1	Online Quality Monitoring	pH, BOD, COD, TN, TSS, Flowrate and Total forward flow. Web based dashboard to access data.

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		Interlinking with State and central pollution control board website. Robust data feeding mechanism both by app and website. Detailed formats and architecture will be decided in consultation with Employer.
2	Landscaping	Minimum 33 % area to be utilized for garden and green cover
<b>D</b>	<b>Others</b>	
1	RFID access control System	RFID access control system shall be provided for all desudging vehicles. The RFID shall be long distance UHF card reader, Connectivity: RS485 range: 0-6m, Controller: GPRS/Wi-Fi. Data access software. RFID tagging of tankers. The data shall be connected to the online monitoring system.
2	Biometric Attendance.	Biometric attendance shall be established for the staff of the FSTP. It shall be of RFID card + fingerprint and shall be connected to the online monitoring system.
3	CCTV	Adequate CCTV coverage shall be provided at the gate, major areas of the plant including the plant building. The camera shall be of 8MP HD Day/Night vision cameras, 4TB seagate hard disk, 8CH DVR system with mobile networking, 24" Display.
4	Broadband Connectivity	A broadband connectivity shall be provided at the FSTP such that there is sustained connection for the online monitoring and communication. The ideal broadband shall be of 100Mbps speed, FPU limit 500GB, Wi-Fi enabled.
5	Plant Dashboard	Each FSTP will be connected to the online data monitoring system consisting of web application and mobile app. There shall be a dashboard for viewing the data. The Cloud hosted dashboard for FSTP operations & performance data logging and monitoring with Mobile application shall be Integration with online monitoring system, RFID access control system and CCTV. This data should be connected to the central command centre and any other access point as required by the employer.
6	DG set	A DG set to meet all the operating power requirement of the plant shall be provided. The DG set shall be housed in a soundproof container and meet all PCB norms. It shall be of minimum 20kva, 3Ph, 415V, 50Hz, 0.8Ppf.
7	Cables	All cables used in the project shall be from reputed makes and be as per standards. Electrical works includes design, drawings, conduit piping, lighting, cables LV power and control cables shall be of 600/1100V grade, stranded Aluminium/ copper, PVC

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		insulated, armoured/unarmoured, colour coded, PVC inner sheathed, and PVC jacketed over all, confirming to IEC: 227 or BS:6346 standards.
8	Earthing	Adequate number of earthing shall be provided. Major electrical equipment and structure shall have individual earthing and where required with backup earthing. Lightning arrestors shall be provided. Earthing shall be in conformity with the provision of rules shall be as per electrical drawings.
9	Pipes and Fittings	All plumbing shall be done as per approved plumbing drawings. Plumbing Works includes design, drawing, pipes and fittings CPVC pipes from 15 mm to 50 mm confirming to BIS standard IS- 15778 that is Class 1 (SDR 11), All the PVC pipes & fittings to meet the IS:4985 standards. Pipes with diameter range 20-80mm to meet Class-5, 80mm or more to meet Class-3.
10	Bio char storage Bins	Biochar produced shall be stored in SS bins prior to use, sale. All efforts to avoid recontamination of biochar shall be undertaken. The biochar bins shall be Stainless steel, 35L volume, With handle and Lid.
11	Storage racks	Adequate storage racks shall be provided for storing the spares, chemicals, supplies, biochar etc., the storage racks shall be suitable for safe handling of the various materials. The minimum requirements of the storage racks shall be MOC: MS, Powder coated. Multi-shelf, 10'Lx1.5'Wx6'H,
12	Bore well	Supply of ISI mark 165 mm nominal bore, plain end steel casing pipe confirming to IS 4270:2001, electric resistance welded steel tube material and confirming to IS 1387/1993, pump shall confirm to IS 8034/2002 and motor conforming to IS 9283/1995 Providing and fixing PVC pipes 10 Kg/Sq.cm 250mm outer dia. The borewell shall be of suitable depth to access the sustainable aquifer at site. If no bore water is found at site municipal water shall be used for operations.
13	Biochar Trolley	Trolleys for movement of biochar and other material shall be provided as per the requirement of the plant. The typical trolley shall be of 200L capacity, Platform 100cm x 60cm, 5" Rubber wheel.
14	Screening Trolley	Trolleys for movement of screenings from septage screening unit shall be provided as per the requirement of the plant. The typical trolley shall be Bucket type with Tipping handle, Bucket size 100x50cm, Volume 100lts. 10" rubber tyre.

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15	Eye wash and drench shower	An eye wash shall be provided at suitable location. It shall be Push Plate operated Eye/Face Wash fountain and pull rod operated Drench Shower, made using "C" class GI pipes and cyoclac fittings.
16	Fire Extinguisher	Adequate number of fire extinguisher shall be provided as per standard practice. The minimum specification of the fire extinguishers is as follows: ABC Type Fire Extinguisher Stored Pressure Type Fire Extinguisher (ABC Dry Chemical Powder) (IS: 15683)
17	Waste segregation Bin	Separate bins for Organic, inorganic, and hazardous waste shall be provided. The capacity of the bins shall be 35L
18	First set of PPE Kit	First set of PPE kit to meet the requirement of trial run, commissioning and one month of operation shall be supplied. The minimum items in the PPE kit shall be: Safety Shoes, Gum boots, Safety goggles, 3M mask, Rubber Gloves, Heat resistant hand gloves, Disposable 3ply mask, Surgical gloves.
19	Computer	A computer shall be provided at each FSTP for monitoring and communication. The system shall be a PC with windows 10, MS office 365 installed and additional software as required for the plant operations
20	Lab instrumentation @ plant level	The following hand held / table top lab equipment shall be provided at FSTP. pH& ORP meter, EC meter, Bactoscope. sampling kit and Weighing scale.
21	First aid Kit	A standard first aid kit of reputed Make shall be provided.
22	Tools and tackles	The bidder shall supply adequate tools and tackles required for operation and maintenance of the plant. This shall include but not be limited to Open spanner set (6-32), Ring spanner set (6-32), Ratchet box Set 1, Allen key box, Steel measuring tape- 5m, Hacksaw frame, Hacksaw blade, Knife, Screw driver, Mini Screw driver set, Tester, Plier, Wire cutter, Grease gun, Silicon & silicon gun, Lub oil dispenser, Hammer, Claw hammer, Mallet, Pipe wrench, Chain wrench, Clamp meter, Circlip plier, Hammer drilling, Cutting machine, Aluminium Ladder (10'). Megger
23	Transformer	A transformer to cover the full requirement of plant operation shall be provided. It shall not be less than 20 kva. The supply oif transformer would include power utility shifting, supporting poles, required panel boards and all other instrumentation etc.,as per the

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		power requirement.
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*Table 6: Components and Specifications of 15 KLD, 20 KLD and 25 KLD FSTPs*

Sr No	Component	Specifications
A	Civil	
1	Plant Building + Excellence Room	<p>The plant building has been conceptualized to hold all the equipment's and operations of the FSTP. This would improve the aesthetics, reduce environmental and other concerns.</p> <p>The plant building consists of the closed shed, canopy area, and the structures inside the shed such as Mezzanine floor for dewatering, excellence room, office and store. The plant building will be used to house the equipment like dewatering machine, dryer, pyrolyzer, DG set, electrical panel, including lighting, electrical plumbing &amp; instrumentation, storage for biochar &amp; dry sludge and if required weigh bridge panel. The details of the construction required are given below.</p> <p>a) Plant shed and canopy area – Area- Plant Building 350.00 Sqm + Canopy 78.75 Sqm.</p> <p>1. The closed shed is constructed using steel columns with roofing system of PEB/conventional truss with galvalume roofing sheets. The minimum ridge height shall not be less than 6.0m. The sides are covered with brick/block wall up to a height of 3.0m from ground level and above with galvalume/PPGI sheets. Minimum of 4 turboventilator and 6 skylight shall be provided. Adequate no of downtake pipe shall be provided. There will be 2 openings to the shed with rolling shutter of dimension 3.0m X 4.0m &amp; 2.4m X 3.0m. Adequate UPVC/aluminium windows shall be provide on the brick wall of typical 1.50m X 1.0m. The walls shall be plaster on both sides with interior /exterior emulsion of colour as per employer choice. The flooring of the plant shed shall be as per site condition but subject to a minimum of Murrum 125mm thick, lean concrete 100mm thick &amp; Un-reinforced dowel jointed plain cement concrete-M30 grade 125mm thick. The column foundation shall be as per site condition subject to minimum RCC isolated footings at depth 1.50m of size 1.05m X 1.05m X 0.45m, suitable sized RCC pedestal and RCC tie beams of minimum 300mm width and 450mm height connecting the pedestal.</p> <p>2. The canopy area shall be extension to the plant shed. The roof shall be cantilevered from closed</p>

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		<p>shed. The flooring shall be as per site condition but subject to a minimum of lean cement concrete 100mm thick &amp; Un-reinforced dowel jointed plain cement concrete-M30 grade 125mm thick. There are no side walls to the canopy area.</p> <p>3. Dewatering mezzanine floor shall be placed at a height of 3.0m to ensure that the dewatered sludge would fall down and can be collected easily for drying. The filtrate will go by gravity to the MBBR. The mezzanine floor shall be minimum of 5.0m X 5.0 and shall have a minimum 2.40m clear to the roof. The mezzanine shall be designed to take care of machine load and other live loads. The mezzanine shall be of steel columns and suitable platform with MS staircase. MS railing of 1.0m height detachable type all round the mezzanine floor with provision for unloading the dewatering machine if required.</p> <p>4. Excellence room shall be located within the plant building of minimum size 25.0 Sqm. It shall be brick/aluminium partition with adequate natural &amp; artificial lighting with false roofing. The excellence room shall have minimum facilities of AC, projector with screen, sound system, mic, seating arrangement such as tables, chairs etc.,</p> <p>5. Office, spares &amp; storage shall be located within the plant building of minimum size 12.0 Sqm each. It shall be brick/aluminium partition with adequate natural &amp; artificial lighting with false roofing. The office shall have facilities of seating arrangement such as tables, chairs minimum 5 nos etc. The spares &amp; stores shall have racks to store tools, spares &amp; other materials etc.,</p>
2	Weigh Bridge	<p>To monitor the daily quantum of septage arriving site. The weighbridge shall be of 9.0mx3.0 platform, 50 tones capacity with 6 load cells, pitless type includes civil works including ramp, electrical &amp; electromechanical works.</p>
3	Road with drain	<p>Road with kerb is provided for the movement of vehicles.</p> <p>Drain is provided to collect the surface runoff and discharge to rain water harvesting pits or outside the plant. Suitable connection between road kerb and the drain shall be provided to avoid water stagnation on the road. The road shall provide access to all areas, give adequate turning radius for the desludging vehicles and shall be designed as per site condition but subject to a minimum of lean cement concrete 100mm thick &amp; Un-reinforced dowel jointed plain cement concrete-M30 grade 125mm thick with kerb wall of 150mm height above road level. If required walkways of 1.0m wide shall be provided for access to specific areas. It is estimated that about 525.0 Sqm road will be required.</p> <p>25.0m Precast/RCC drain of 0.45m internal width and suitable depth shall be provided. The drain shall be</p>

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		covered with precast slabs or FRP gratings with top matching the road.
4	Boundary /Compound Wall	It is built to secure the plant. The compound wall shall be of about 150.0m or as per site condition, with RR masonry/Isolated footings as per site condition with 230mm thick brick wall of 1.50m height with 75mm thick coping concrete. The walls shall be plaster on both sides along with waterproof cement paint of colour as per employer choice. MS gate of 5.0m wide with side pillars with adequate foundation .The gate shall have name of the FSTP in its design. The gate shall be coated with 1 coat of primer and 2 coats enamel paint of colour as per employer choice.
5	Rainwater harvesting	Adequate no of rain water harvesting pit shall be provided in the plant area subject to minimum of 5 nos. RWH pit shall be constructed of about 1.20m diameter and depth not less than 2.0m with minimum 5 equal layers of boulders,40mm aggregate, 20mm aggregate 12mm aggregate ,coarse sand with top covered of precast slab. The rain should be directed to the RWH pits. .
6	Stabilization Reactor	This tank is used to store septage prior to treatment. The tank will have a capacity of 3 days retention period. Submersiblesludge pump will be placed in the tank to pump septage to the dewatering equipment. The tank capacity for 15Kld,20 Kld &25Kld plant shall not be less than 45kl, 60kl &75Kl respectively. It shall have a minimum free board of 300mm.
7	Filtrate Tank	Filtrate from dewatering unit will be sent to filtrate tank. Here it will be stored for 12 hrs and will be sent to Wastewater Treatment Plant. The filtrate is treated in MBBR and then transferred to pressure sand and activated carbon filter and then disinfected using UV treatment and stored in treated water tank. The treated water shall meet the PCB standards.The tank capacity for 15Kld, 20Kld &25Kld plant shall not be less than 7.5kl, 10kl &12.5Kl respectively. It shall have a minimum free board of 300mm.
8	Treated Water Tank	Disinfected water from the UV system will be stored in tank. Treated effluent will be used for in-house gardening, agriculture, horticulture, development of urban forestry etc. The treated water tank will have the capacity to store water for 24 hours. The quality of treated water will be monitored in online monitoring system, parameters monitored are pH, BOD, COD, TN, TSS, Flowrate and Total forward flow. The tank capacity for 15Kld,20Kld &25Kld plant shall not be less than 15kl, 20kl &25Kl respectively. It shall have a minimum free board of 300mm.
9	Overhead tank and	Minimum 2000 L HDPE or similar make tank placed on top of Toilet block with all necessary plumbing and

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	Sump	fittings. Minimum 5000 litres RCC underground tanks shall be constructed of minimum M25 grade concrete and Fe 500 TMT bars as per structural design with a minimum free board of 300mm with necessary plumbing, pumps and fittings.
10	Toilet Block	3 toilets shall be provided. The toilet internal dimension shall be of 1.80m x 1.20m it shall have western commode, space for dress changing and ceramic flooring and wall tiles to a minimum height of 2.10m. Adequate lighting, ventilators, doors with inside bolting and outside locking arrangement, provision for tap, mirror. The outlet of the toilet block will be connected to the sludge stabilization reactor. The superstructure of the toilet block may be either in masonry or prefabricated containerized unit. Suitable access to the toilet shall be provided. The substructure shall be designed as per site condition and the masonry/containerized option selected.
11	Power and water connection	Power line/connection to the input of transformer shall be provided by ULB. If technically feasible the municipal water line shall be provided by ULB to the site.
<b>B</b>	<b>Electro-Mechanical</b>	
1	Septage Screening Unit	Two numbers of automated septage screening unit with flow channels shall be provided to remove all contraries, transfer them mechanically to a conveyor belt which would then transfer it to a holding container for disposal. Septage Screening Unit shall be fine bar screen, Screen size-6mm, Size:0.4x1.5m with maximum liquid depth of 0.6 m, Inclination:70 degrees, Flowrate: 800LPM, Debris Discharge height above liquid level: 0.9 m, Max. Power: 0.75kw, 3ph, MOC-SS304/Engineering plastic.
2	Screen Conveyor	The septage screenings conveyor shall be provided to receiving the contraries from screening unit and transfer it to the holding container.  The Conveyor shall have a capacity of 160kg/hour, Belt speed: 5m/min, Power-0.75KW, 3phase, MOC: For all waste contact parts of SS304 with plastic belt.
3	Sludge pump	The sludge pump shall be used for transfer of septage from stabilisation pond to dewatering unit. It shall have one base unit and one standby.  The sludge pump shall be Submersible pump with cutter, MOC of pump and cutter -SS304, flow rate-min. 12000 LPH @5 m head, float sensor with auto cut off. Continuous duty (S1), Power- Max. 1.3kw, 1ph, IP68. Pulley with frame and SS wire for Lifting.



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4	Ultrasonic level sensor	<p>Ultrasonic level sensor shall be provided to monitor the septage level in the sludge stabilisation reactor.</p> <p>Ultrasonic Level Sensor shall have the following specifications            2-450cm Range, 5V DC Powered            (Power supplied through AC power source). 1.3" OLED Display. 30metre            2-Core Shielded cable.            Online system.            Communication: Either Wi-Fi or GSM based            Device management: Web app/mobile app + physical display</p>
5	Polymer Mixing and Dosing System	<p>Polymer mixing tank with dosing pump shall be provided to inject polymer into septage for flocculation. Polymer tank shall be adequate for holding the polymer solution for at least 4 hours of operation.</p> <p>The specification of the Polymer mixing, and dosing systems shall be Tank: Volume:&gt;1000L, Shell thickness: 2mm,. Dia:1.1 m, MOC: SS304, Agitator: Multistage- Turbine type, Power- 0.75kw, 3ph, Helical worm Geared Motor, Final RPM: 80 Dosing pump: Plunger type, Flow rate: 10-300LPH, Pressure:3-5kg/cm2, Control knob, 0.75kw, 3ph</p>
6	Dewatering Unit	<p>Mechanical Dewatering unit shall be provided for solid liquid separation. The dewatering unit shall be able to achieve a minimum of 18 % solids in the dewatered sludge. The capacity of the dewatering unit shall be 60-80kgDs/hr, Screw: 1Nos, Screw speed: 3-6 rpm, Power: 2.2 kw, 3 phase, MOC-SS304.</p>
7	Solids Conveyor	<p>Solids Conveyor is provided to transfer the dewatered solids from the dewatered unit to the inlet hopper of the sludge dryer. The Conveyor capacity shall be 150kg/hour, Belt speed: 5m/min, Power-0.75KW, 3phase, MOC: SS304</p>
8	Dryer	<p>A Dryer shall be provided for reducing the moisture of solids from 80 % to less than 30 %. The dryer shall be electric / thermal dryer. The dryer shall have Moisture removal rate: gross 100kg/hr, Power:15kw, 3 pH, Touchscreen PLC controller, MOC: SS304, Belt: PP plastic mesh belt, Drying Temperature: 60-75°C, Dry sludge moisture: not more than 30%, Shaping method: slitting.</p>
9	Dryer hopper	<p>The dried sludge from the dryer shall be transferred to the dryer hopper. The dryer hopper shall have a conveyor unit to transfer the dried material either to</p>

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		conveyor to the bagging or the conveyor to the pyrolysis. The Hopper volume-150L, MOC: SS304.
10	Conveyor for bagging	<p>When there is a need for storage of dried sludge the material from the dryer hopper will be transferred to the bagging conveyor. The bagging conveyor shall transfer the material at a height of 1.5 m to enable the holding the bag to collect the dried sludge in a suitable bag.</p> <p>The capacity of conveyor shall be 95kg/hour, power-0.75KW, 3phase, Speed Control-VFD.</p>
11	Conveyor to pyrolyzer	<p>When dried sludge is to be pyrolyzed, the material from the dryer hopper will be transferred to the conveyor to pyrolyzer. The conveyor shall transfer the material to the pyrolyzer inlet.</p> <p>The capacity of conveyor shall be 95kg/hour, power-0.75KW, 3phase, Speed Control-VFD.</p>
12	Pyrolyzer	<p>The pyrolysis unit shall pyrolyze the dried sludge and convert it into biochar and eliminate all pathogen in the material. Minimum temperature of 350°C and above shall be maintained in the pyrolyzer. The flue from the unit shall meet the PCB norms.</p> <p>The Feed rate: upto 75 Kg/h, Maximum feed moisture: upto 30%, Power-3kw, 3P, Operating Temperature: Max. 750°C, Hot air/hot water heat recovery system, Temperature Display, biochar generated should have min. 25% carbon</p>
13	Filter feed pump	<p>The filter feed pumps are used to pump the water treated in the MBBR to ACF, PCK and UV disinfection system. 1 operating + 1 standby pump shall be provided.</p> <p>The pump shall be Submersible type with cutter, MOC-SS304, flow rate-min. 4000 LPH @30 m head, float sensor with auto cut off. Continuous duty (S1), Power- Max. 1.5kw, 1ph, IP68. Pulley with frame and SS wire for Lifting.</p>
14	WWTP	<p>Moving Bed Bioreactor (MBBR) type wastewater treatment plant shall be provided for filtrate recovered from the dewatering unit. The MBBR may be of RCC / plastic / metal tank type. It shall have a minimum hydraulic retention time of 30 hours. Adequate media shall be as per manufacturer and made of plastic. The holding capacity for 15Kld, 20 Kld &amp; 25Kld plant shall not be less than 18.75kl, 25kl &amp; 31.25Kl respectively. It shall have a minimum free board of 300mm.</p>

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		MOC-RCC, Blower: 0.75kw, 3ph, 0.22Kg/cm <sup>2</sup> , 85cum/hr, Recirculation pump-0.75kw, 3ph, Media capacity: 2.0 Cu.m
15	Tertiary treatment	Tertiary treatment system consisting of Activated carbon filter (ACF), pressure sand filter (PSF) shall be provided. The system shall be designed for the flow rate of 5000LPH. The specifications of the unit shall be Vessel MOC-FRP/MS with epoxy coating, Dia minimum 600 mm, Height-1500 mm, standard Media shall be used.
16	UV Disinfection	The treated water post tertiary treatment shall be disinfected in UV disinfection system suitable for wastewater treatment plants. The UV disinfection system shall be capable of flowrate:4cum/hr, UV dose-60,000uW-sec/cm <sup>2</sup> , UV transmission- 65%, power-425W, 1ph, Reactor MOC-SS316, Qty:1.
17	Three phase Stabilizer	A 3-phase stabilizer shall be provided to ensure all the plant equipment have good quality power at all times. The stabilizer specifications shall be of capacity 30kVA, air-cooled, microcontroller based digital servo stabilizer. Incomer: 63AMCB, Outgoing: 50A contactor, COS for bypass, Input: 295-465V, Output 415V AC. Protection: high-low voltage, overload, short-circuit, phase reversal, neutral failure.
18	Electrical panel	A 3-phase stabilizer shall be provided to ensure all the plant equipment have good quality power at all times. The stabilizer specifications shall be of capacity 415V LTAC Panel, 3 phase- 4 wire system, COS 120A, 600V, 5KA, IS375, 25x10mm for Phase and 25x5mm for neutral, IS8828 MCBs, Multifunction meter, Phase failure-reversal alarm,
19	Weighing scales	Provision of one weighing scales is required in the to weigh biochar, sludge. Minimum requirement shall be Digital 0-200kg, Digital 0 - 3000gm.
20	Spares	The bidder shall provide the minimum spare requirement for one year of plant operations. It shall include but not be limited to the following:  Pumps, Blowers, Motors, Float switch, Air filter, Fire Cement, augers, Bearings, Gear box oil, Grease, Thermocouples, Valves, switchgears, wires, pipes and fittings.
21	Grid connected Solar Power Plant	A 20 kwp grid connected solar system shall be provided with panels, under structure, junction boxes and wiring, grid tie inverter and interconnection to the grid. All the systems shall meet the MNRE / Local

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		DISCOM.
<b>C</b>	<b>Environmental</b>	
1	Online Quality Monitoring	pH, BOD, COD, TN, TSS, Flowrate and Total flow. Web based dashboard to access data. Interlinking with State and central pollution control board website. Robust data feeding mechanism both by app and website. Detailed formats and architecture will be decided in consultation with Employer.
2	Landscaping	33 % area shall be utilized for garden and green cover. The open areas leaving expansion requirements must either be covered by tree plantation or must be suitably grassed. The campus must be provided with gardens, with seasonal flower beds and decorative plants.
<b>D</b>	<b>Others</b>	
1	RFID access control System	RFID access control system shall be provided for all desludging vehicles. The RFID shall be long distance UHF card reader, Connectivity: RS485 range: 0-6m, Controller: GPRS/Wi-Fi. Data access software. RFID tagging of tankers. The data shall be connected to the online monitoring system.
2	Biometric Attendance.	Biometric attendance shall be established for the staff of the FSTP. It shall be of RFID card + fingerprint and shall be connected to the online monitoring system.
3	CCTV	Adequate CCTV coverage shall be provided at the gate, major areas of the plant including the plant building. The camera shall be of 8MP HD Day/Night vision cameras, 4TB seagate hard disk, 8CH DVR system with mobile networking, 24" Display,
4	Broadband Connectivity	A broadband connectivity shall be provided at the FSTP such that there is sustained connection for the online monitoring and communication. The ideal broadband shall be of 100Mbps speed, FPU limit 500GB, Wi-Fi enabled.
5	Plant Dashboard	Each FSTP will be connected to the online data monitoring system consisting of web application and mobile app. There shall be a dashboard for viewing the data. The Cloud hosted dashboard for FSTP operations & performance data logging and monitoring with Mobile application. Integration with online monitoring system, RFID access control system and CCTV, with connected to the central command centre and any other access point as required by the employer.
6	DG set	A DG set to meet all the operating power requirement of the plant shall be provided. The DG set shall be

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		housed in a soundproof container and meet all PCB norms. It shall be of minimum 20kva, 3Ph, 415V, 50Hz, 0.8Ppf for <b>15 &amp; 20 KLD FSTP</b> and 25kva, 3Ph, 415V, 50Hz, 0.8Ppf for <b>25KLD FSTP</b> .
7	Cables	All cables used in the project shall be from reputed makes and be as per standards. Electrical works includes design, drawings, 3D modelling, conduit piping, lighting, cables LV power and control cables shall be of 600/1100V grade, stranded Aluminium/copper, PVC insulated, armoured/unarmoured, colour coded, PVC inner sheathed, and PVC jacketed over all, confirming to IEC: 227 or BS:6346 standards.
8	Earthing	Adequate number of earthing shall be provided. Major electrical equipment and structure shall have individual earthing and where required with backup earthing. Lightning arrestors shall be provided. Earthing shall be in conformity with the provision of rules.
9	Pipes and Fittings	All plumbing shall be done as per approved plumbing drawings. Plumbing Works includes design, drawing, pipes and fittings CPVC pipes from 15 mm to 50 mm are also confirms to BIS standard IS-15778 that is Class 1 (SDR 11), All the PVC pipes & fittings to meet the IS:4985 standards. Pipes with diameter range 20-80mm to meet Class-5, 80mm or more to meet Class-3.
10	Bio char storage Bins	Biochar produced shall be stored in SS bins prior to use, sale. All efforts to avoid recontamination of biochar shall be undertaken. The biochar bins shall be Stainless steel, 35L volume, With handle and Lid.
11	Storage racks	Adequate storage racks shall be provided for storing the spares, chemicals, supplies, biochar etc., the storage racks shall be suitable for safe handling of the various materials. The minimum requirements of the storage racks shall be MOC: MS, Powder coated. Multi-shelf, 10'L x 1.5'W x 6'H,
12	Bore well	Supply of ISI mark 165 mm nominal bore, plain end steel casing pipe confirming to IS 4270:2001, electric resistance welded steel tube material and confirming to IS 1387/1993, pump shall confirm to IS 8034/2002 and motor conforming to IS 9283/1995 Providing and fixing PVC pipes 10 Kg/Sq.cm 250mm outer dia.
13	Biochar Trolley	Trolleys for movement of biochar and other material shall be provided as per the requirement of the plant. The typical trolley shall be of 200L capacity, Platform 100cm x 60cm, 5" Rubber wheel.

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14	Screening Trolley	Trolleys for movement of screenings from septage screening unit shall be provided as per the requirement of the plant. The typical trolley shall be Bucket type with Tipping handle, Bucket size 100x50cm, Volume 100lts. 10" rubber tyre.
15	Eye wash and drench shower	An eye wash shall be provided at suitable location. It shall be Push Plate operated Eye/Face Wash fountain and pull rod operated Drench Shower, made using "C" class GI pipes and cyoclac fittings.
16	Fire Extinguisher	Adequate number of fire extinguisher shall be provided as per standard practice. The minimum specification of the fire extinguishers is as follows: ABC Type Fire Extinguisher Stored Pressure Type Fire Extinguisher (ABC Dry Chemical Powder) (IS: 15683)
17	Waste segregation Bin	Separate bins for Organic, inorganic and hazardous waste. The capacity of the bins shall be 35L
18	First set of PPE Kit	First set of PPE kit to meet the requirement of trial run, commissioning and one month of operation shall be supplied. The minimum items in the PPE kit shall be: Safety Shoes, Gum boots, Safety goggles, 3M mask, Rubber Gloves, Heat resistant hand gloves, Disposable 3ply mask, Surgical gloves.
19	Computer	A computer shall be provided at each FSTP for monitoring and communication. The system shall be a PC with windows 10, MS office 365 installed.
20	Lab instrumentation @ plant lvl	The following hand held / table top lab equipment shall be provided at FSTP. pH& ORP meter, EC meter, , Bactoscope. sampling kit and, Weighing scale.
21	First aid Kit	A standard first aid kit of Reputed Make shall be provided.
22	Tools and tackles	The bidder shall supply adequate tools and tackles required for operation and maintenance of the plant. This shall include but not be limited to Open spanner set (6-32), Ring spanner set (6-32), Ratchet box Set 1, Allen key box, Steel measuring tape- 5m, Hacksaw frame, Hacksaw blade, Knife, Screw driver, Mini Screw driver set, Tester, Plier, Wire cutter, Grease gun, Silicon & silicon gun, Lube oil dispenser, Hammer, Claw hammer, Mallet, Pipe wrench, Chain wrench, Clamp meter, Circlip plier, Hammer drilling, Cutting machine, Aluminium Ladder (10'). Megger
23	Transformer	A transformer to cover the full requirement of plant operation shall be provided. It shall not be less than

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		20 kva. The supply of transformer would Include power utility shifting , supporting poles, required panel boards and all other instrumentation etc.,as per the power requirement.
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*Table 7: Components and Specifications of 35 KLD FSTPs*

Sr No	Component	Specifications
A	Civil	
1	Plant Building + Excellence Room	<p>The plant building has been conceptualized to hold all the equipment's and operations of the FSTP.This would improve the aesthetics, reduce environmental and other concerns.</p> <p>The plant building consists of the closed shed, canopy area, and the structures inside the shed such as Mezzanine floor for dewatering, excellence room, office and store. The plant building will be used to house the equipment like dewatering machine, dryer, pyrolyzer, DG set, electrical panel, including lighting, electrical plumbing &amp; instrumentation, storage for biochar &amp; dry sludge and if required weigh bridge panel. The details of the construction required are given below.</p> <p>a) Plant shed and canopy area – Area- Plant Building 350.00 Sqm + Canopy 78.75 Sqm.</p> <p>1.The closed shed is constructed using steel columns with roofing system of PEB/conventional truss with galvalume roofing sheets. The minimum ridge height shall not be less than 6.0m.The sides are covered with brick/block wall up to a height of 3.0m from ground level and above with galvalume/PPGI sheets.Minimum of 4 turboventilator and 6 skylight shall be provided. Adequate no of downtake pipe shall be provided. There will be 2 openings to the shed with rolling shutter of dimension 3.0m X 4.0m &amp; 2.4m X 3.0m.Adequate UPVC/aluminium windows shall be provide on the brick wall of typical 1.50m X 1.0m. The walls shall be plaster on both sides with interior /exterior emulsion of colour as per employer choice.The flooring of the plant shed shall be as per site condition but subject to a minimum of Murrum 125mm thick, lean concrete 100mm thick &amp; Un-reinforced dowel jointed plain cement concrete-M30 grade 125mm thick. The column foundation shall be as per site condition subject to minimum RCC isolated footings at depth 1.50m of size1.05m X 1.05m X 0.45m, suitable sized RCC pedestal and RCC tie beams of minimum 300mm width and 450mm height connecting the pedestal.</p>

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		<p>2.The canopy area shall be extension to the plant shed.The roof shall be cantilevered from closed shed.The flooring shall be as per site condition but subject to a minimum of lean cement concrete 100mm thick &amp; Un-reinforced dowel jointed plain cement concrete-M30 grade 125mm thick.The are no side walls to the canopy area.</p> <p>3. Dewatering mezzanine floor shall be placed at a height of 3.0m to ensure that the dewatered sludge would fall down and can be collected easily for drying. The filtrate will go by gravity to the MBBR. The mezzanine floor shall be minimum of 5.0m X 5.0 and shall have a minimum 2.40m clear to the roof. The mezzanine shall be designed to take care of machine load and other live loads. The mezzanine shall be of steel columns and suitable platform with MS staircase. MS railing of 1.0m height detachable type all round the mezzanine floor with provision for unloading the dewatering machine if required.</p> <p>4. Excellence room shall be located within the plant building of minimum size 25.0 Sqm. It shall be brick/aluminium partition with adequate natural &amp; artificial lighting with false roofing. The excellence room shall have minimum facilities of AC, projector with screen, sound system, mic, seating arrangement such as tables, chairs etc.,</p> <p>5. Office, spares &amp; storage shall be located within the plant building of minimum size 12.0 Sqm each. It shall be brick/aluminium partition with adequate natural &amp; artificial lighting with false roofing. The office shall have facilities of seating arrangement such as tables, chairs minimum 5 nos etc. The spares &amp; stores shall have racks to store tools, spares &amp; other materials etc.,</p>
2	Weigh Bridge	<p>To monitor the daily quantum of septage arriving site. The weighbridge shall be of 9.0mx3.0 platform , 50 tones capacity with 6 load cells,pitless typeincludes civil works including ramp,electrical &amp; electromechanical works.</p>
3	Road with drain	<p>Road with kerb is provided for the movement of vehicles.</p> <p>Drain is provided to collect the surface runoff and discharge to rain water harvesting pits or outside the plant. Suitable connection between road kerb and the drain shall be provided to avoid water stagnation on the road. The road shall provide access to all areas ,give adequate turning radius for the desludging vehicles and shall be designed as per site condition but subject to a minimum of lean cement concrete 100mm thick &amp; Un-reinforced dowel jointed plain cement concrete-M30 grade 125mm thick with kerb wall of 150mm height above road level. If required walkways of 1.0m wide shall be provided for access to</p>



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		specific areas. It is estimated that about 525.0 Sqm road will be required. 25.0m Precast/RCC drain of 0.45m internal width and suitable depth shall be provided. The drain shall be covered with precast slabs or FRP gratings with top matching the road.
4	Boundary /Compound Wall	It is built to secure the plant. The compound wall shall be of about 150.0m or as per site condition, with RR masonry/Isolated footings as per site condition with 230mm thick brick wall of 1.50m height with 75mm thick coping concrete. The walls shall be plaster on both sides along with waterproof cement paint of colour as per employer choice. MS gate of 5.0m wide with side pillars with adequate foundation .The gate shall have name of the FSTP in its design. The gate shall be coated with 1 coat of primer and 2 coats enamel paint of colour as per employer choice.
5	Rainwater harvesting	Adequate no of rain water harvesting pit shall be provided in the plant area subject to minimum of 5 nos. RWH pit shall be constructed of about 1.20m diameter and depth not less than 2.0m with minimum 5 equal layers of boulders,40mm aggregate, 20mm aggregate 12mm aggregate ,coarse sand with top covered of precast slab. The rain should be directed to the RWH pits.
6	Stabilization Reactor	This tank is used to store septage prior to treatment. The tank will have a capacity of 3 days retention period. Submersiblesludge pump will be placed in the tank to pump septage to the dewatering equipment. The tank capacity for 35Kld plant shall not be less than 105kl . It shall have a minimum free board of 300mm.
7	Filtrate Tank	Filtrate from dewatering unit will be sent to filtrate tank. Here it will be stored for 12 hrs and will be sent to Wastewater Treatment Plant. The filtrate is treated in MBBR and then transferred to pressure sand and activated carbon filter and then disinfected using UV treatment and stored in treated water tank. The treated water shall meet the PCB standards.The tank capacity for 35Kld plant shall not be less than 17.5kl. It shall have a minimum free board of 300mm.
8	Treated Water Tank	Disinfected water from the UV system will be stored in tank. Treated effluent will be used for in-house gardening, agriculture, horticulture, development of urban forestry etc. The treated water tank will have the capacity to store water for 24 hours. The quality of treated water will be monitored in online monitoring system, parameters monitored are pH, BOD, COD, TN, TSS, Flowrate and Total forward flow. The tank capacity for 35Kld plant shall not be less than 35KI respectively. It shall have a minimum free board of 300mm.
9	Overhead tank and	Minimum 2000 L HDPE or similar make tank placed

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	Sump	on top of Toilet block with all necessary plumbing and fittings. Minimum 5000 litres RCC underground tanks shall be constructed of minimum M25 grade concrete and Fe 500 TMT bars as per structural design with a minimum free board of 300mm with necessary plumbing, pumps and fittings.
10	Toilet Block	3 toilets shall be provided. The toilet internal dimension shall be of 1.80m x 1.20m it shall have western commode, space for dress changing and ceramic flooring and wall tiles to a minimum height of 2.10m. Adequate lighting, ventilators, doors with inside bolting and outside locking arrangement, provision for tap, mirror. The outlet of the toilet block will be connected to the sludge stabilization reactor. The superstructure of the toilet block may be either in masonry or prefabricated containerized unit. Suitable access to the toilet shall be provided. The substructure shall be designed as per site condition and the masonry/containerized option selected.
1	Power and water connection	Power line/connection to the input of transformer shall be provided by ULB. If technically feasible the municipal water line shall be provided by ULB to the site.
<b>B</b>	<b>Electro-Mechanical</b>	
1	Septage Screening Unit	Two numbers of automated septage screening unit with flow channels shall be provided to remove all contraries, transfer them mechanically to a conveyor belt which would then transfer it to a holding container for disposal.  Septage Screening Unit shall be finebar screen, Screen size-6mm, Size:0.4x1.5mwith maximum liquid depth of 0.6 m, Inclination:70 degrees, Flowrate: 800LPM, Debris Discharge height above liquid level: 0.9 m, Rake speed: 5m/min, Max. Power: 0.75kw, 3ph, MOC-SS304/Engineering plastic.
2	Screen Conveyor	The septage screenings conveyor shall be provided to receiving the contraries from screening unit and transfer it to the holding container.  The Conveyor shall have a capacity of 160kg/hour, Belt speed: 5m/min, Power-0.75KW, 3phase, MOC: SS304
3	Sludge pump	The sludge pump shall be used for transfer of septage from stabilisation pond to dewatering unit. It shall have one base unit and one standby.  The sludge pump shall be Submersible pump with cutter, MOC-SS304, flow rate-max. 12000 LPH @5 m head, float sensor with auto cut off. Continuous duty

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		(S1), Power- Max. 1.3kw, 1ph, IP68. Pulley with frame and SS wire for Lifting.
4	Ultrasonic level sensor	<p>Ultrasonic Level Sensor shall be provided to monitor the septage level in the sludge stabilisation reactor.</p> <p>The Ultrasonic Level Sensor shall have the following specifications</p> <p>2-450cm Range, 5V DC Powered (Power supplied through AC power source). 1.3" OLED Display. 30metre 2-Core Shielded cable. Online system. Communication: Either Wi-Fi or GSM based Device management: Web app/mobile app + physical display</p>
5	Polymer Mixing and Dosing System	<p>Polymer mixing tank with dosing pump shall be provided to inject polymer into septage for flocculation. Polymer tank shall be adequate for holding the polymer solution for at least 4 hours of operation.</p> <p>The specification of the Polymer mixing, and dosing systems shall be a Tank of Volume:&gt;1500L, Shell thickness: 2mm, Dia:1.1 m, MOC: SS304, Agitator: Multistage- Turbine type, Power- 0.75kw, 3ph, Helical worm Geared Motor, Final RPM: 80 Dosing pump: Plunger type, Flow rate: 10-300LPH, Pressure:3-5kg/cm<sup>2</sup>, Control knob, 0.75kw, 3ph</p>
6	Dewatering Unit	Mechanical Dewatering unit shall be provided for solid liquid separation. The dewatering unit shall be able to achieve a minimum of 18 % solids in the dewatered sludge. The capacity of the dewatering unit shall be 140-160kg Ds/hr, Screw: 2Nos, Screw speed: 3-6 rpm, Power: 4.4 kw, 3 phase, MOC-SS304,
7	Solids Conveyor	Solids Conveyor is provided to transfer the dewatered solids from the dewatered unit to the inlet hopper of the sludge dryer. The Conveyor capacity: 150kg/hour, Belt speed: 5m/min, Power-0.75KW, 3phase, MOC: SS304
8	Dryer	A Dryer shall be provided for reducing the moisture of solids from 80 % to less than 30 %. The dryer shall be electric / thermal dryer. The dryer shall have Moisture removal rate: gross 200kg/hr, Power:30 kw, 3 pH, Touchscreen PLC controller, MOC: SS304, Belt: PP plastic mesh belt, Drying Temperature: 60-75°C, Dry sludge moisture: not more than 30%, Shaping method: slitting.

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9	Dryer hopper	The dried sludge from the dryer shall be transferred to the dryer hopper. The dryer hopper shall have a conveyor unit to transfer the dried material either to conveyor to the bagging or the conveyor to the pyrolysis. The Hopper volume shall be of suitable capacity,, MOC: SS304. The attached conveyor shall be screw type.
10	Conveyor for bagging	When there is a need for storage of dried sludge the material from the dryer hopper will be transferred to the bagging conveyor. The bagging conveyor shall transfer the material at a height of 1.5 m to enable the holding the bag to collect the dried sludge in a suitable bag.  The Conveyor capacity 95kg/hour, power-0.75KW, 3phase, Speed Control-VFD.
11	Conveyor to pyrolyzer	When dried sludge is to be pyrolyzed, the material from the dryer hopper will be transferred to the conveyor to pyrolyzer. The conveyor shall transfer the material to the pyrolyzer inlet.  The Conveyor capacity 95kg/hour, power-0.75KW, 3phase, Speed Control-VFD.
12	Pyrolyzer	The pyrolysis unit shall pyrolyze the dried sludge and convert it into biochar and eliminate all pathogen in the material. Minimum temperature of 350°C and above shall be maintained in the pyrolyzer. The flue from the unit shall meet the PCB norms.  Feed rate: upto 150 Kg/h, Maximum feed moisture: upto 30%, Power-6kw, 3P, Operating Temperature: Max. 750°C, Hot air/hot water heat recovery system, Temperature Display, biochar generated should have min. 25% carbon.
13	Filter feed pump	The filter feed pumps are used to pump the water treated in the MBBR to ACF, PCK and UV disinfection system. 1 operating + 1 standby pump shall be provided.  The pump shall be Submersible type with cutter, MOC-SS304, flow rate-min. 4000 LPH @30 m head, float sensor with auto cut off. Continuous duty (S1), Power- Max. 1.5kw, 1ph, IP68. Pulley with frame and SS wire for Lifting.
14	WWTP	Moving Bed Bioreactor (MBBR) type wastewater treatment plant shall be provided for filtrate recovered from the dewatering unit. The MBBR may be of RCC / plastic / metal tank type. It shall have a minimum hydraulic retention time of 30 hours. Adequate media

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		<p>shall be as per manufacturer and made of plastic. The holding capacity for 35Kld plant shall not be less than 43.75kl . It shall have a minimum free board of 300mm.</p> <p>MOC-RCC, Blower: 1.5kw, 3ph, 0.22Kg/cm<sup>2</sup>, 170cum/hr, Recirculation pump-1.5kw, 3ph, Media capacity: 4.0 Cu.m</p>
15	Tertiary treatment	<p>Tertiary treatment system consisting of Activated carbon filter (ACF), pressure sand filter (PSF) shall be provided. The system shall be designed for the flow rate of 5000LPH. The specifications of the unit shall be Vessel MOC-FRP/MS with epoxy coating, Dia minimum 600 mm, Height-1500 mm, standard Media shall be used.</p>
16	UV Disinfection	<p>The treated water post tertiary treatment shall be disinfected in UV disinfection system suitable for wastewater treatment plants. The UV disinfection system shall be capable of Flowrate:4cum/hr, UV dose-60,000uW-sec/cm<sup>2</sup>, UV transmission- 65%, power-425W, 1ph, Reactor MOC-SS316, Qty:1.</p>
17	Three phase Stabilizer	<p>A 3-phase stabilizer shall be provided to ensure all the plant equipment have good quality power at all times. The stabilizer specifications shall be of capacity 30kVA, air-cooled, microcontroller based digital servo stabilizer. Incomer: 63AMCB, Outgoing: 50A contactor, COS for bypass, Input: 295-465V, Output 415V AC. Protection: high-low voltage, overload, short-circuit, phase reversal, neutral failure.</p>
18	Electrical panel	<p>Provision of all electrical panels as required for the plant including the incomer panel and individual panel for the different sections of the plant as per bidder requirements. The minimum requirements of the main incomer panel to the plant is given below:</p> <p>415V LTAC Panel, 3 phase- 4 wire system, COS 120A, 600V, 5KA, IS375, 25x10mm for Phase and 25x5mm for neutral, IS8828 MCBs, Multifunction meter, Phase failure-reversal alarm,</p>
19	Weighing scales	<p>Provision of one weighing scales is required in the to weigh biochar, sludge. Minimum requirement shall be Digital 0-200kg, Digital 0 – 3000gm.</p>
20	Spares	<p>The bidder shall provide the minimum spare requirement for one year of plant operations. It shall include but not be limited to the following:</p> <p>Pumps, Blowers, Motors, Float switch, Air filter, Fire Cement, augers, Bearings, Gear box oil, Grease, Thermocouples, Valves, switchgears, wires, pipes</p>

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		and fittings.
21	Grid connected Solar Power Plant	A 20 kwp grid connected solar system shall be provided with panels, under structure, junction boxes and wiring, grid tie inverter and interconnection to the grid. All the systems shall meet the MNRE / Local DISCOM.
<b>C</b>	<b>Environmental</b>	
1	Online Quality Monitoring	pH, BOD, COD, TN, TSS, Flowrate and Total flow. Web based dashboard to access data. Interlinking with State and central pollution control board website. Robust data feeding mechanism both by app and website. Detailed formats and architecture will be decided in consultation with Employer.
2	Landscaping	33 % area shall be utilized for garden and green cover. The open areas leaving expansion requirements must either be covered by tree plantation or must be suitably grassed. The campus must be provided with gardens, with seasonal flowerbeds and decorative plants.
<b>D</b>	<b>Others</b>	
1	RFID access control System	RFID access control system shall be provided for all desudging vehicles. The RFID shall be Long distance UHF card reader, Connectivity: RS485 range: 0-6m, Controller: GPRS/Wi-Fi. Data access software. RFID tagging of tankers
2	Biometric Attendance.	Biometric attendance shall be established for the staff of the FSTP. It shall be of RFID card + fingerprint and shall be connected to the online monitoring system.
3	CCTV	Adequate CCTV coverage shall be provided at the gate, major areas of the plant including the plant building. The camera shall be of 8MP HD Day/Night vision cameras, 4TB 107eagate hard disk, 8CH DVR system with mobile networking, 24" Display,
4	Broadband Connectivity	A broadband connectivity shall be provided at the FSTP such that there is sustained connection for the online monitoring and communication. The ideal broadband shall be of 100Mbps speed, FPU limit 500GB, Wi-Fi enabled.
5	Plant Dashboard	Each FSTP will be connected to the online data monitoring system consisting of web application and mobile app. There shall be a dashboard for viewing the data. Cloud hosted dashboard for FSTP operations & performance data logging and monitoring with Mobile application. Integration with online monitoring system, RFID access control

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		system and CCTV, with connected to the central command centre and any other access point as required by the employer.
6	DG set	A DG set to meet all the operating power requirement of the plant shall be provided. The DG set shall be housed in a soundproof container and meet all PCB norms. It shall be of minimum 25kva, 3Ph, 415V,50Hz,0.8Ppf.
7	Cables	All cables used in the project shall be from reputed makes and be as per standards. Electrical works includes design, drawings,3D modelling, conduit piping, lighting, cables LV power and control cables shall be of 600/1100V grade, stranded Aluminium/copper, PVC insulated, armoured/unarmoured,colour coded, PVC inner sheathed, and PVC jacketed over all, confirming to IEC: 227 or BS:6346standards.
8	Earthing	Adequate number of earthing shall be provided. Major electrical equipment and structure shall have individual earthing and where required with backup earthing. Lightning arrestors shall be provided. Earthing shall be in conformity with the provision of rules.
9	Pipes and Fittings	All plumbing shall be done as per approved plumbing drawings. Plumbing Works includes design,drawing,pipes and fittings CPVC pipes from 15 mm " to 50 mm are also confirms to BIS standard IS-15778 that is Class 1 (SDR 11)All the PVC pipes & fittings to meet the IS:4985 standards. Pipes with diameter range 20-80mm to meet Class-5, 80mm or more to meet Class-3.
10	Bio char storage Bins	Biochar produced shall be stored in SS bins prior to use, sale. All efforts to avoid recontamination of biochar shall be undertaken. The biochar bins shall be Stainless steel, 35L volume, With handle and Lid.
11	Storage racks	Adequate storage racks shall be provided for storing the spares, chemicals, supplies, biochar etc., the storage racks shall be suitable for safe handling of the various materials. The minimum requirements of the storage racks shall be MOC: MS, Powder coated. Multi-shelf, 10'Lx1.5'Wx6'H,
12	Bore well	Supply of ISI mark 165 mm nominal bore, plain end steel casing pipe confirming to IS 4270:2001, electric resistance welded steel tube material and confirming to IS 1387/1993, pump shall confirm to IS 8034/2002 and motor conforming to IS 9283/1995 Providing and fixing PVC pipes 10 Kg/Sq.cm 250mm outer dia.

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13	Biochar Trolley	Trolleys for movement of biochar and other material shall be provided as per the requirement of the plant. The typical trolley shall be of 200L capacity, Platform 100cm x 60cm, 5" Rubber wheel.
14	Screening Trolley	Trolleys for movement of screenings from septage screening unit shall be provided as per the requirement of the plant. The typical trolley shall be Bucket type with Tipping handle, Bucket size 100x50cm, Volume 100lts. 10" rubber tyre.
15	Eye wash and drench shower	An eye wash shall be provided at suitable location. It shall be Push Plate operated Eye/Face Wash fountain and pull rod operated Drench Shower, made using "C" class GI pipes and cyoclac fittings.
16	Fire Extinguisher	Adequate number of fire extinguisher shall be provided as per standard practice. The minimum specification of the fire extinguishers is as follows: <div style="display: flex; justify-content: space-around; text-align: center;"> <div>ABC Stored (ABC (IS: 15683)</div> <div>Type Pressure Dry</div> <div>Fire Type Chemical</div> <div>Extinguisher Fire Extinguisher Powder)</div> </div>
17	Waste segregation Bin	Separate bins for Organic, inorganic and hazardous waste. The capacity of the bins shall be 35L
18	First set of PPE Kit	First set of PPE kit to meet the requirement of trial run, commissioning and one month of operation shall be supplied. The minimum items in the PPE kit shall be: Safety Shoes, Gum boots, Safety goggles, 3M mask, Rubber Gloves, Heat resistant hand gloves, Disposable 3ply mask, Surgical gloves.
19	Computer	A computer shall be provided at each FSTP for monitoring and communication. The system shall be a PC with windows 10, MS office 365 installed.
20	Lab instrumentation @ plant lvl	The following hand held / table top lab equipment shall be provided at FSTP. pH& ORP meter, EC meter, Bactoscope. Sampling kit and Weighing scale.
21	First aid Kit	A standard first aid kit of reputed Make shall be provided.
22	Tools and tackles	The bidder shall supply adequate tools and tackles required for operation and maintenance of the plant. This shall include but not be limited to Open spanner set (6-32), Ring spanner set (6-32), Ratchet box Set 1, Allen key box, Steel measuring tape- 5m, Hacksaw frame, Hacksaw blade, Knife, Screwdriver, Mini Screwdriver set, Tester, Plier, Wire cutter, Grease gun, Silicon & silicon gun, Lub oil dispenser, Hammer, Claw hammer, Mallet, Pipe wrench, Chain wrench, Clamp meter, Circlip plier, Hammer drilling, Cutting



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		machine, Aluminium Ladder (10'). Megger
23	Transformer	A transformer to cover the full requirement of plant operation shall be provided. It shall not be less than 20 kva. The supply of transformer would Include power utility shifting, supporting poles, required panel boards and all other instrumentation etc.,as per the power requirement.

## 15 SPECIFICATIONS OF CIVIL

### 15.1 Plant Building and Excellence Room

1. Area of the plant Building and Canopy shall be 350.00sqm and 78.75 sqm respectively.
2. The closed shed is constructed using steel columns with one coat of primer and with roofing system of PEB/conventional truss with galvalume roofing sheets. The minimum ridge height shall not be less than 6.0m. The sides are covered with brick/block wall up to a height of 3.0m from ground level and above with galvalume/PPGI sheets. Minimum of 4 turbo ventilator and 6 skylight shall be provided. Adequate no of down take pipe shall be provided. There will be 2 openings to the shed with rolling shutter of dimension 3.0m X 4.0m & 2.4m X 3.0m. Adequate UPVC/aluminium windows with grill shall be provide on the brick wall of typical 1.50m X 1.0m. The walls shall be plaster on both sides with primer 1 coat and distemper interior /exterior emulsion of colour as per employer choice. The flooring of the plant shed shall be as per site condition but subject to a minimum of Murrum 125mm thick, lean concrete 100mm thick & Un-reinforced dowel jointed plain cement concrete-M30 grade 125mm thick. The column foundation shall be as per site condition subject to minimum RCC isolated footings at depth of 1.50m of size 1.05m X 1.05m X 0.45m, suitable sized RCC pedestal and RCC tie beams of minimum 300mm width and 450mm height connecting the pedestal.
3. The canopy area shall be extension to the plant shed. The roof shall be cantilevered from closed shed. The flooring shall be as per road specifications. There are no side walls to the canopy area.
4. Dewatering mezzanine floor shall be placed at a height of 3.0m to ensure that the dewatered sludge would fall down and can be collected easily for drying. The filtrate will go by gravity to the MBBR. The mezzanine floor shall be minimum of 5.0m X 5.0 and shall have a minimum 2.40m clear to the roof. The mezzanine shall be designed to take care of machine load and other live loads. The mezzanine shall be of steel columns and suitable platform with MS staircase. MS railing of 1.0m height detachable type all round the mezzanine floor with provision for unloading the dewatering machine if required.
5. Excellence room shall be located within the plant building of minimum size 25.0 Sqm. It shall be brick/aluminium partition with adequate natural & artificial lighting with false roofing. The excellence room shall have minimum facilities of AC, projector with screen, sound system, mic, seating arrangement such as tables, chairs etc.,
6. Office, spares & storage shall be located within the plant building of minimum size 12.0 Sqm each. It shall be brick/aluminium partition with adequate natural & artificial lighting with false roofing. The office shall have facilities of seating arrangement such as tables, chairs minimum 5 nos etc. The spares & stores shall have racks to store

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tools, spares & other materials etc.

### 15.2 ROAD WORKS WITH DRAINAGE

- a. Cement concrete road 7.0m width for internal will be constructed as below: -
  - i. PCC (Base course): 1:4:8 100 mm over prepared sub grade with coarse and fine aggregate conforming to IS: 383, the size of coarse aggregate not exceeding 25 mm, aggregate cement ratio not to exceed 15:1, aggregate gradation after blending to be as per table 600-1, cement content not to be less than 150 kg/ cum, optimum moisture content to be determined during trial length construction, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant, laid manually, compacting with surface vibrator, finishing and curing complete as per clause 601, 112 of MoRT&H specification.
  - ii. Wearing course: Dowel jointed M-30 125 mm thick plain cement concrete mix in pavement over a prepared sub base with 43 grade cement, coarse and fine aggregate conforming to IS: 383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a batching and mixing plant as per approved mix design, laid with a fixed form or slip form paver, spread, compacted and finished in a continuous operation including provision of contraction, expansion, construction and longitudinal joints, joint filler, separation membrane, sealant primer, joint sealant, debonding strip, dowel bar, tie rod, admixtures (if required) as approved, curing compound, finishing to lines and grades complete as per drawing and as per clause 602, 112 of MoRT&H specification.
- b. Roadside drainage on one side will be provided with vibro-pressed precast cement concrete blocks in M-20 grade of U shape of minimum 0.45m internal width with 60 mm thickness as per approved drawing, design and strength as per IS:2185 (part I) of grade 'D' (5.00 N/mm<sup>2</sup>). These blocks will be laid on 50 mm thick PCC M-15 base course. Joints of the drain blocks will be fixed and jointed with C.M.1:4. Top of drain covered with precast grating.
- c. Pre-cast cement concrete Kerb stones shall be provided of cement concrete M-20 grade (Using mechanical Concrete Mixer) kerb stone top and bottom width 115 and 165 mm respectively, 250 mm high on 100 mm thick PCC M-10 grade foundation as per design, including fixing at site as per clause 408 of MoRT&H Specification including all material, labour, machinery, lighting, guarding and maintenance of diversion.

### 15.3 Boundary/Compound Wall

1. Construction of boundary wall along the periphery FSTP along with provision of 5.0m MS gate as per approval of Employer's Representative. The boundary wall height shall be 1.50m from FGL. Foundation of boundary wall shall be 1.05m below natural ground level. Construction up to plinth level shall be in RR masonry in 1:6 cement mortar with 100 mm thick PCC in 1:4:8 below masonry. First masonry section shall be 75 cm wide with 30 cm height, and above it, second section of masonry shall be 60 cm wide with 30 cm height, and above it, third section of masonry shall be 45 cm wide with 30 cm height. Above it, a brick (class-75) masonry wall of 230 cm thick with provision of columns of 45cm x 45 cm at an interval of 3 m along with suitable joints provisions shall be constructed in CM 1:6.
2. The gates shall be made of MS with duly painted (2 coats) over 1 primer coat. Width of gates shall be 5.0m at each place. The gate shall have name of FSTP in its design. The design of gates & wall shall be as per approval of the Employer's Representative. There shall be provision of 75mm DPC in 1:2:4 and coping of CC of

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75 mm thick in 1:2:4. The wall shall be plastered in CM 1:4 on both sides with waterproof cement paint of colour as per Employer's choice.

3. The section of the boundary wall, design of gates and approved from the Employer's Representative.

### 15.4 Rain Water Harvesting

RWH pit shall be constructed using precast rings of about 1.20m diameter and depth not less than 2.0m with minimum 5 equal layers of boulders, 40mm aggregate, 20mm aggregate 12mm aggregate, coarse sand with top covered of precast slab.

### 15.5 Stabilization Reactor

1. The stabilization reactor is used to store septage prior to treatment. The stabilization reactor will have 2 chambers and a capacity of 3 days retention period. Submersible sludge pump will be placed in the tank to pump septage to the dewatering equipment. It shall have a minimum free board of 300mm. Stabilization reactor will be of RCC construction of minimum M-30 grade with SRC cement grade and Fe 500 TMT bars as per structural design. Minimum wall thickness shall not be less than 200mm thick. All internal surfaces of RCC liquid retaining structures shall be plastered with waterproofing compound of 20mm thick in C.M 1:4. Suitable design Sludge submersible pumps shall be installed to pump the stabilized sludge to mechanical dewatering units. Valves etc. shall be installed on the top of platform. Stabilization reactor will be covered on top with RCC M-30 slabs and there will be opening on the top for each chamber to access from top.

*Table 8: Specification of Holding Tank*

Sr No.	Description	Requirement
1	Capacity of tank	3-day capacity
2	MOC of tank	RCC
3	Pump	Submersible cutter pump, flow rate-max. 12000 LPH @5 m head up to 4% solids. 2 nos
4	Pump Power	Max. 1.3kW
5	Pump lifting	Pulley with frame and SS wire for Lifting

### 15.6 Filtrate Tanks

Filtrate from dewatering unit will be sent to filtrate tank. Here it will be stored for 12 hours and will be sent to Wastewater Treatment Plant. Filtrate tank will be of RCC construction of minimum M-30 grade with SRC cement grade and Fe 500 TMT bars as per structural design. Minimum wall thickness shall not be less than 200mm thick. All internal surfaces of RCC liquid retaining structures shall be plastered with waterproofing compound of 20mm thick in C.M 1:4. The filtrate is treated in MBBR and then transferred to pressure sand and activated carbon filter and then disinfected using UV treatment and stored in treated water tank. The treated water shall meet the PCB standards. It shall have a minimum free board of 300mm.

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### 15.7 Treated Water Tanks

Disinfected water from UV system will be stored in treated water tank. Treated effluent will be used for use of agriculture, horticulture, development of urban forestry etc. and remaining treated effluent is proposed to be discharged into an open drain. Treated water tank will be of RCC construction of minimum M-30 grade with SRC cement grade and Fe 500 TMT bars as per structural design. Minimum wall thickness shall not be less than 200mm thick. All internal surfaces of RCC liquid retaining structures shall be plastered with waterproofing compound of 20mm thick in C.M 1:4. Suitable design submersible pumps shall be installed to pump the treated water. Tertiary treatment unit shall be installed on the top of platform. Treated water tank will be covered on top with RCC M-30 slabs and there will be opening on the top to access from top. This water shall also be first utilized in the FSTP for maintaining the plantation and gardening of the FSTP campus.

### 15.8 Overhead & Sump Tank

1. Minimum 2000 litres HDPE or similar make tank with manhole lid and suitable locking arrangement, making hole of suitable diameter for inlet, outlet and overflow pipe shall placed on top slab of toilet block with suitable and all necessary plumbing and fittings such as taps, valves, CPVC pipes,.
2. Minimum 5000 litres RCC underground tanks shall be constructed of minimum M-25 grade concrete and Fe 500 TMT bars as per structural design. Minimum wall thickness shall not be less than 200mm thick. All internal surfaces of RCC liquid retaining structures shall be plastered with waterproofing compound of 20mm thick in C.M 1:4. Suitable design submersible pumps shall be installed to pump the water. Sump tank will be covered on top with RCC M-25 slabs and there will be opening on the top to access from top. PVC foot rungs at a spacing not more than 300mm shall be provided inside the tank.

### 15.9 TOILET

- a. 3 toilets shall be provided. Each toilet of internal dimension shall be of 1.80m x 1.20m.
- b. The toilet building shall have Reinforced cement concrete work.
- c. 75 mm thick RCC Damp Proofing Course in M15 shall be provided to all building walls.
- d. All external and partition walls shall be 115mm thick brick masonry wall built in C.M 1:4
- e. All internal masonry surfaces shall be plastered in two coats with sand faced cement plaster in cement mortar (1:4) and shall have total thickness of 20 mm excluding tiles area.
- f. All external masonry surfaces shall be plastered in two coats with sand faced cement plaster in cement mortar (1:4) and shall have total thickness of 20 mm.shall.
- g. The floor of toilet area shall be 1st quality MAT finished ceramic tile size 300x300mm confirming to IS : 13755 and IS : 15622 colour such as white, grey, ivory, fume red brown, light green, light blue and other light shades in floors, steps, pillars etc. laid on a bed of neat cement slurry finished with flush pointing in the white cement mixed with pigment to match the shade of the tile complete.
- h. The walls of toilet area shall be shall be of ceramic tiles 1st quality MAT & GLOSSY finished ceramic tiles colour such as standard white, grey, ivory, fume, red brown, light green, light blue, and other light shades with water absorption less than or equal to 0.08% confirming to IS : 13753 & IS : 15622 laid on bed on neat cement slurry

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finished with flush pointing in the white cement mixed with pigment to match the shade of the tile complete up to a height of 2.10m from FFL .

- i. Adequate ventilators with necessary fittings, doors with inside bolting and outside locking arrangement and necessary fittings shall be provided.
- j. Complete electrical. internal water supply, sanitary requirement shall be provided.
- k. The reinforced concrete roofs shall be made waterproof by application of approved cement/ lime based waterproofing treatment. The finished roof surface shall have adequate slope to quickly drain the rainwater.
- l. Each toilet shall have facilities such as
  - i. Water closet with white porcelain EWC/Orissa pan minimum 580 mm long with PVC flushing cistern of 10 litres capacity.
  - ii. 1 No. Mirror of size 400 mm x 600 mm PVC moulding wall mounted type fitted over washbasins.
  - iii. All stopcocks, valves and pillar cocks shall be of chromium-plated brass, heavy duty
  - iv. All fittings such as 'P' or 'S' traps, floor traps, pipes, down-take pipes etc.1 No. Washbasin of size 510 mm x 400 mm in white Porcelain with inlet, outlet with bottle trap.
  - v. 1 No. Chromium plated brass towel rails minimum 750 mm long
- m. The outlet of the toilet block will be connected to the sludge stabilization reactor.
- n. Minimum 2000 L HDPE or similar make tank shall be placed on top of Toilet block with all necessary plumbing and fittings.

### 15.10 Green space development with drip irrigation system

#### a. General

- i. Horticulture and Landscaping shall be done according to the topography of the area and should be planned so as to make the campus a focal point. Plants shall be planted all around boundary of planation.
- ii. Horticulture operations shall be started on ground previously levelled and dressed to require formation levels and slopes. In case where unsuitable soil is met with, it shall be either removed or replaced or it shall be covered over to a thickness decided by Employer's Representative with good earth.

#### b. MATERIAL

The manure shall be well decayed free from grits and any other unwanted materials. The good earth to be used for gardening shall be free from kankar, Moorum, building rubbish and any other foreign matter. It shall have pH value ranging between 6 to 8.5.

#### c. TRENCHING

Trenching of soil in depth between 30 to 60 cm shall be done in order to loose the soil, and turn over and bury the top layer containing weeds etc. in the base and to bring up the lower layers of good earth to form proper medium for grassing, re-grassing, hedging, shrubbery.

#### d. SPREADING

The good earth shall be spread evenly over the surface with twisting motion to avoid segregation to the thickness as per the choice of Employer's Representative.

#### e. DIGGING PITS FOR PLANTING TREES

Pits of square or circular shape in ordinary soil shall be excavated to suitable dimensions and shall be manured with powered neem/castor oil cake at the specified rate along with farmyard manure or sludge shall be uniformly mixed with the excavated soil.

#### f. TYPE OF PLANTS

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Plant species such as Saraca Asoca (Ashok), Azadirachta indica (Neem), Ziziphus mauritiana (Ber), Bougainvillea, Cascabela Thevetia (Kaner), Commiphora (Guggual), Jatropha Carcas etc. can be grown at FSTP premises with approval of Employer's Representative.

### g. DRIP IRRIGATION SYSTEM

1. Drip irrigation is most efficient method of irrigation. It is 25% more efficient than sprinkler system and much less water is required as compared to other method of applying water to plants. Losses of water due to evaporation is also less. Following shall be minimum required basic parts of Drip irrigation system:

- i. Valves - Isolation, control
  - ii. Backflow preventor
  - iii. Pressure regulator
  - iv. Filter
  - v. Emitter (distance of emitters shall be 2 times of horizontal movement test of water in soil)
  - vi. Mainline & distribution line HDPE
  - vii. Drip tube and fittings
  - viii. Air vent
  - ix. Flush valve and End cap
2. Contractor will submit the drawing of Drip Irrigation system for the plant and will submit the layout and sizing of pipes, location of emitters, valves etc. complete in all respect. Design will include sizing of all parts of drip system. O&M of drip irrigation system is also in the scope of the contractor.

## 16 SPECIFICATIONS OF ELECTROMECHANICAL COMPONENTS& ELECTRICAL

### 16.1 Weighbridge

Weigh bridge installed in the FSTP will be used to weigh desludging vehicles entering the plant before unloading and after unloading to measure the quantity of septage received.

*Table 9 Specification of Weighbridge*

Sr No.	Description	Requirement
1	Weighbridge Type	Pitless type
2	Capacity	50MT
3	Size	9x3 meter
4	Load cells	6 Nos
5	Monitoring Box	Monitoring room to place printer, display and accessories
6	MOC	All Steel Material are ISI Approved & Confirms IS 2062 standard Grades
7	Stamping	Legal Metrology Stamping

### 16.2 Septage Receiving Station Screening Unit.

Automated fine Bar screen to separate unwanted floatable and trash in septage. Rejects collected will be transported to a trolley using a conveyor unit. Septage after screening flows into the Stabilization/Holding tank.

*Table 10 Specification of Screening Unit*

Sr No.	Description	Requirement
1	Type	Automated fine Bar screen
2	Capacity	800L/Min
3	Bar Spacing	6mm
4	MOC	SS304/Engineering plastic
5	Power	Max 0.75kw
6	Motor Protection	IP65

### 16.3 Septage Dewatering

Septage dewatering consists of two parts, polymer dosing and mechanical dewatering. Polymer dosing system consists of 500-1500L dosing tank with agitator for polymer preparation and dosing pump to dose measured quantity of polymer to flocculate septage. Flocculated septage is then passed through a mechanical dewatering equipment which can handle 60-160kg/hr of dry solids. The dewatered solids will have max. 80% moisture, solids will be transported to the dryer using a belt/screw conveyor and the dewatered liquids will be taken to wastewater treatment plant.

*Table 11 Specification of Septage dewatering*

Sr No.	Description	Requirement
	Septage dewatering machine	
1	Solid concentration handling range	0.1 to 4%
2	Output moisture of sludge cake	Max 80 % moisture content
3	Capacity	60-160 kg dry solids/hour
4	Type	Screw Press/ Belt Press
5	Power	<3 kW
6	Drive motors	SEW/Nord/Bonfiglioli/Equivalent
7	Feed Pump	Pump to handle solid concentration upto 4% with a minimum head of 10 meter
8	Operating hours	As per design capacity
	Polymer dosing system	
1	Number of tanks	1
2	Capacity of each tank	500-1500L
3	MOC of tank	SS-304/PPH
4	Polymer pump type	Diaphragm/Plunger type
5	No. of polymer pump	1 W + 1 SB
6	Flow rate	10-300LPH with control throttle

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7	Pressure	3Kg/cm <sup>2</sup>
8	Power	0.75kW, 3P, 415V, 50Hz
9	Polymer motor make	CGL/BBL/ABB/Equivalent
10	Agitator speed	70-120RPM
11	Agitator type	Multistage-Turbine type
12	No. agitator	1
13	Agitator MOC	SS-304
14	Agitator motor	0.75kW, 3P, 415V, 50Hz
15	Piping	CPVC/UPVC

### 16.4 Sludge Dryer

Heat pump-based sludge drier which operates at 60-75°C removes moisture by evaporation. The dehumidification capacity of the drier is 100kg gross moisture per hour. Dewatered sludge cakes from the dewatering unit is transferred to the dryer by belt/screw conveyor. The drier is designed to accept sludge with about max. 80% moisture and heats if for about 1hour to bring down the moisture level to less than 30%. Dried solids are formed into chips/strips at the inlet of the dryer. Dried sludge can be bagged and stored or taken to pyrolyzer to produce biochar.

*Table 12 Specification of Sludge Dryer*

Sr No.	Description	Requirement
1	Moisture content of input sludge	80%
2	Moisture content of Output sludge	<30%
3	Water removal rate	Gross 50-200kg/hr
4	Operating temperature	60-75°C
5	Operating power	15kW
6	Shaping method	Slitting
7	Control system	Touch screen + PLC based
8	MOC	SS 304, Belt PP Plastic Mesh

### 16.5 Pyrolyzer

Dried sludge from the dryer is converted to biochar in the pyrolyzer. Pyrolysis of sludge comprising of upto 30% moisture is achieved by combustion under controlled oxygen condition inside the pyrolyzer. This is done to retain the carbon in the output. The system can produce an output of Biochar depending on input septage characteristics. The flue gases generated in the process may be passed through heat exchanger and the thermal energy may be reused.

*Table 13 Specification of Pyrolyzer*

Sr No.	Description	Requirement
1	Moisture content of input sludge	<30%



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2	Capacity	25-150kg/ Hr
3	Carbon retention	>25%
4	Operating temperature	Upto 750°C
5	Operating power	3kW
6	Heat recovery system	Air to water/ Air to air
7	Control system	Temperature display + VFD speed controller
8	MOC	As per manufacturer

### 16.6 Wastewater Treatment Plant

MBBR of suitable design to treat the filtrate from dewatering. It should have space for separation of scum, aerobic zone with moving bed media, adequate aeration with a twin lobe or tri lobe side vane blowers of suitable capacity. A settling area with proven performance for removal of BOD, COD, nitrogen and phosphorus. The hydraulic retention time in the MBBR shall not be less than 30 hours. Safety railing shall be provided. MBBR will be of RCC construction of minimum M-30 grade with SRC cement grade and Fe 500 TMT bars as per structural design. Minimum wall thickness shall not be less than 200mm thick. All internal surfaces of RCC liquid retaining structures shall be plastered with waterproofing compound of 20mm thick in C.M 1:4. Suitable design submersible pumps shall be installed to pump the water to tertiary unit. MBBR will be covered on top with RCC M-30 slabs and there will be opening on the top for chamber to access from top.

### 16.7 Tertiary Treatment Unit

1. The treated water from MBBR is further treated using pressure sand and activated carbon filter. Surface loading rate will be 6 to 8 cum/sqm/hr. Pressure of the filter feed pumps will be as per the manufactures requirements for design surface loading. These filters shall be installed in a shed as per approved layout of FSTP.
2. Will be built in FRP/MS with internal EP and external enamel paint. Minimum shell thickness will be 6 mm. Working pressure minimum – 2.4 Kg/Cm<sup>2</sup>. Type of media Pebble-Gravel-Sand-Anthracite for Sand filter and for carbon filter media will be Pebble-Gravel-Sand-Activated Carbon.
3. The treated water shall meet the PCB standards. Any steps required to meet the PCB standards shall be implemented as required.

### 16.8 Disinfection Unit

1. Ultraviolet radiation is measured in dosages which is intensity multiplied by the exposure time. Design capacity of UV will be synchronized with sand and carbon filter to avoid the detention between two units i.e., should be inline point of entry. Energy consumption should be minimum w.r.t. flow. Transparent conduit type UV system with contact type UV lamps will be provided. Disinfection system will be of class-A type with intensity & saturation rating of at least 60,000uwsec/cm<sup>2</sup>. Bacteria may be shielded with particles in water therefore UV should be efficient to achieve guaranteed fecal coliform in outlet less than 100/100 ml.
2. UV system units will be equipped with properly calibrated UV emission detectors alert so that plant supervisor / ULB representative can know when the light intensity falls

## SECTION V: EMPLOYER'S REQUIREMENT

below a certain required level for disinfection.

3. Capacity of UV system should be designed for continuous operation and minimum idle time.
4. A flow control device will be installed to prevent the water from passing too quickly past the bulb, assuring appropriate radiation contact time with the flowing water.
5. A UV system housing should be of stainless steel-316 to protect any electronic parts from corrosion.
6. UV system will be equipped warning hooter or light to detect any malfunction with the UV system.

### 16.9 Electrical Specifications

#### 16.9.1 SOLAR SYSTEM

a. All electro-mechanical equipment of FSTP including plant lighting will run on the electricity generated by solar power and contractor shall provide the adequate solar system for the full load of FSTP.

##### 16.9.1.1 GENERAL

a. The PV modules used must qualify to the latest edition of IEC PV module qualification test or equivalent BIS standards Crystalline Silicon Solar Cell Modules IEC 61215/IS14286. In addition, the modules must confirm to IEC 61730 Part-2- requirements for construction & Part 2 – requirements for testing, for safety qualification or equivalent IS.

b. For the PV modules to be used in a highly corrosive atmosphere throughout their lifetime, they must qualify to IEC 61701/IS 61701.

c. The total solar PV array capacity should not be less than allocated capacity (KWP) and should comprise of solar crystalline modules of minimum 250 WP and above wattage. Module capacity less than minimum 250 watts should not be accepted.

d. Protective devices against surges at the PV module shall be provided. Low voltage drop bypass diodes shall be provided.

e. PV modules must be tested and approved by one of the IEC authorized test centers.

f. The module frame shall be made of corrosion resistant materials, preferably having anodized aluminum.

g. The bidder shall carefully design & accommodate requisite numbers of the modules to achieve the rated power in his bid. Owners shall allow only minor changes at the time of execution.

h. Other general requirement for the PV modules and subsystems shall be the Following:

i. The rated output power of any supplied module shall have tolerance of +/- 3%.

ii. The peak-power point voltage and the peak-power point current of any supplied module and any module string (series connected modules) shall not vary by more than 2 (two) percent (%) from the respective arithmetic means for all modules and/or for all module strings.

iii. The module shall be provided with a junction box with either provision of external screw terminal connection or sealed type and with arrangement for provision of bypass diode. The box shall have hinged, weatherproof lid with captive screws and cable gland entry points or may be of sealed type and IP-65 rated.

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i. Modules employed must use a RF identification tag. The following information must be mentioned in the RFID (Radio frequency identification device) used on each module (This can be inside or outside the laminate but must be able to withstand harsh environmental conditions): -

- i. Name of the manufacturer of the PV module.
- ii. Name of the manufacturer of Solar Cells.
- iii. Month & year of the manufacture (separate for solar cells and modules).
- iv. Country of origin (separately for solar cells and module).
- v. I-V curve for the module Wattage,  $I_m$ ,  $V_m$  and FF for the module.
- vi. Unique Serial No and Model No of the module.
- vii. Date and year of obtaining IEC PV module qualification certificate.
- viii. Name of the test lab issuing IEC certificate.
- ix. Other relevant information on traceability of solar cells and module as per ISO 9001 and ISO 14001.

### 16.9.1.2 WARRANTIES:

- i. Material Warranty: → Material Warranty is defined as: The manufacturer should warrant the Solar Module(s) to be free from the defects and/or failures specified below for a period not less than Ten (10) years from the date of sale to the original customer ("Customer") → Defects and/or failures due to manufacturing → Defects and/or failures due to quality of materials → Non-conformity to specifications due to faulty manufacturing and/or inspection processes. If the solar Module(s) fails to conform to this warranty, the manufacturer will repair or replace the solar module(s), at the Owners sole option
- ii. Performance Warranty: → The predicted electrical degradation of power generated not exceeding 20% of the minimum rated power over the 25-year period and not more than 10% after ten years period of the full rated original output.

### 16.9.1.3 ARRAY STRUCTURE

- a. Hot dip galvanized MS mounting structures may be used for mounting the modules/ panels/arrays. Each structure should have angle of inclination as per the site conditions to take maximum insolation. However, to accommodate more capacity the angle inclination may be reduced until the plant meets the specified performance ratio requirements.
- b. The Mounting structure shall be so designed to withstand the speed for the wind zone of the location where a PV system is proposed to be installed (wind speed of 250 km/ hour). It may be ensured that the design has been certified by a recognized Lab/ Institution in this regard and submit wind loading calculation sheet to Employer or their Representative. Suitable fastening arrangement such as grouting, and calming should be provided to secure the installation against the specific wind speed.
- c. The mounting structure steel shall be as per latest IS 2062: 1992 and galvanization of the mounting structure shall be complying of latest IS 4759.
- d. Structural material shall be corrosion resistant and electrolytic compatible with the materials used in the module frame, its fasteners, and nuts & bolts. Aluminium structures also can be used which can withstand the wind speed of respective wind zone. Necessary protection towards rusting shall be provided either by coating or anodization.
- e. The fasteners used should be made up of stainless steel. The structures shall be designed to allow easy replacement of any module. The array structure shall be so designed

## SECTION V: EMPLOYER'S REQUIREMENT

that it will occupy minimum space without sacrificing the output from the SPV panels.

f. Regarding civil structures the bidder need to take care of the load bearing capacity of the roof and need arrange suitable structures based on the quality of roof.

g. The total load of the structure (when installed with PV modules) on the terrace should be less than 60 kg/m<sup>2</sup>.

h. The minimum clearance of the structure from the roof level should be 300 mm.

### 16.9.1.4 JUNCTION BOXES (JBs)

a. The junction boxes are to be provided in the PV array for termination of connecting cables. The J. Boxes (JBs) shall be made of GRP/FRP/Powder Coated Aluminum /cast aluminum alloy with full dust, water & vermin proof arrangement. All wires/cables must be terminated through cable lugs. The JB's shall be such that input & output termination can be made through suitable cable glands.

b. Copper bus bars/terminal blocks housed in the junction box with suitable termination threads conforming to IP 67 standard and IEC 62208 Hinged door with EPDM rubber gasket to prevent water entry. Single/double compression cable glands shall be provided for earthing. It should be placed at 5 feet height or above for ease of accessibility.

c. Each Junction Box shall have High quality Suitable capacity Metal Oxide Varistor (MOVs) /suitable Reverse Blocking Diodes (SPDs). The Junction Boxes shall have suitable arrangement monitoring and disconnection for each of the groups.

d. Suitable markings shall be provided on the bus bar for easy identification and the cable ferrules must be fitted at the cable termination points for identification.

### 16.9.1.5 DC DISTRIBUTION BOARD

a. DC Distribution panel to receive the DC output from the array field.

b. DC Distribution Panel Board (DPB) shall have sheet from enclosure of dust & vermin proof conform to IP 67 protection. The bus bars are made of copper of desired size. Suitable capacity MCBs/MCCB shall be provided for controlling the DC power output to the PCU along with necessary surge arrestors.

### 16.9.1.6 AC DISTRIBUTION PANLE BOARD

a. AC Distribution Panel Board (DPB) shall control the AC power from PCU/ inverter and should have necessary surge arrestors. Interconnection from AC distribution board to mains at LT Bus bar while in grid tied mode.

b. All switches and the circuit breakers, connectors should conform to IEC 60947, part I, II and III/ IS60947 part I, II and III.

c. The changeover switches, cabling work should be undertaken by the bidder as part of the project.

d. All the Panel's shall be metal clad, totally enclosed, rigid, floor mounted, air - insulated, cubical type suitable for operation on three phase / single phase, 415 or 230 volts, 50 Hz.

e. The panels shall be designed for minimum expected ambient temperature of 52 degree Celsius, 80 percent humidity and dusty weather.

f. All indoor panels will have protection of IP-54 or better. All outdoor panels will have protection of IP-65 or better.

g. Should conform to Indian Electricity Act and rules (till last amendment).

h. All the 415V AC or 230 volts devices / equipment like bus support insulators, circuit

## SECTION V: EMPLOYER'S REQUIREMENT

**breakers, SPDs, VTs etc., mounted inside the switchgear shall be suitable for continuous operation and satisfactory performance under the following supply conditions**

Variation in supply voltage +/- 10 %

Variation in supply frequency +/- 3 Hz

### 16.9.1.7 PCU/ARRAY SIZE RATIO

a. The combined wattage of all inverters should not be less than rated capacity of power plant. b. Maximum power point tracker shall be integrated in the PCU/inverter to maximize energy drawn from the array.

### 16.9.1.8 PCU/ INVERTER

a. As SPV array produce direct current electricity, it is necessary to convert this direct current into alternating current and adjust the voltage levels to match the grid voltage. Conversion shall be achieved using an electronic Inverter and the associated control and protection devices. All these components of the system are termed the "Power Conditioning Unit (PCU)". In addition, the PCU shall also house MPPT (Maximum Power Point Tracker), an interface between Solar PV array & the Inverter, to the power conditioning unit/inverter should also be DG set interactive, if necessary. Inverter output should be compatible with the grid frequency. Typical technical features of the inverter shall be as follows:

Switching device IGBT/MOSFET

Control Microprocessor /DSP

Nominal AC output voltage and frequency 415V, 3 Phase, 50 Hz (In case single phase inverters are offered, suitable arrangement for balancing the phases must be made.) Output frequency 50 Hz

Grid Frequency Synchronization range + 3 Hz or more

Ambient temperature considered -20 degree C to 50 degree C

Humidity 95 % non-condensing Protection of Enclosure IP-20 (Minimum) for indoor IP-65(Minimum) for outdoor

Grid Frequency Tolerance range + 3 or more

Grid Voltage tolerance - 20% & + 15 %

No-load losses Less than 1% of rated power

Inverter efficiency(minimum) >93% (In case of 10kW or above)

Inverter efficiency (minimum) >90% (In case of less than 10kW)

THD < 3%

PF > 0.9

b. Three phase PCU/ inverter shall be used with each power plant system (10KW and/or above) but in case of less than 10KW single phase inverter can be used.

c. PCU/inverter shall be capable of complete automatic operation including wakeup, synchronization & shut-down.

d. The output of power factor of PCU inverter is suitable for all voltage ranges or sink of reactive power, inverter should have internal protection arrangement against any sustainable fault in feeder line and against the lightning on feeder.

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- e. Built-in meter and data logger to monitor plant performance through external computer shall be provided.
- f. The power conditioning units / inverters should comply with applicable IEC/ equivalent BIS standard for efficiency measurements and environmental tests as per standard codes IEC 61683/IS 61683 and IEC 60068- 2(1,2,14,30) /Equivalent BIS Std.
- g. The charge controller (if any) / MPPT units environmental testing should qualify IEC 60068-2(1, 2, 14, 30)/Equivalent BIS standard. The junction boxes/ enclosures should be IP-65(for outdoor)/ IP-54 (indoor) and as per IEC 529 specifications.
- h. The PCU/ inverters should be tested from the MNRE approved test centers / NABL /BIS /IEC accredited testing- calibration laboratories. In case of imported power conditioning units, these should be approved by international test houses.

### 16.9.1.9 INTEGRATION OF PV POWER WITH GRID

- a. The output power from SPV would be fed to the inverters which converts DC produced by SPV array to AC and feeds it into the main electricity grid after synchronization. In case of grid failure, or low or high voltage, solar PV system shall be out of synchronization and shall be disconnected from the grid. Once the DG set comes into service PV system shall again be synchronized with DG supply and load requirement would be met to the extent of availability of power. 4 pole isolation of inverter output with respect to the grid/ DG power connection need to be provided.

### 16.9.1.10 DATA ACQUISITION SYSTEM / PLANT MONITORING

- a. Data Acquisition System shall be provided for each of the solar PV plant.
- b. Data Logging Provision for plant control and monitoring, time and date stamped system data logs for analysis with the high quality, suitable PC. Metering and instrumentation for display of systems parameters and status indication shall be provided.
- c. Solar Irradiance: An integrating Pyranometer / Solar cell-based irradiation sensor (along with calibration certificate) provided, with the sensor mounted in the plane of the array. Readout integrated with data logging system.
- d. Temperature: Temperature probes for recording the Solar panel temperature and/or ambient temperature to be provided complete with readouts integrated with the data logging system
- e. The following parameters are accessible via the operating interface display in real time separately for solar power plant: → AC Voltage. → AC Output current. → Output Power → Power factor. → DC Input Voltage. → DC Input Current. → Time Active. → Time disabled. → Time Idle. → Power produced → Protective function limits (Viz- AC Over voltage, AC Under voltage, Over frequency, → Under frequency ground fault, PV starting voltage, PV stopping voltage) f. All major parameters available on the digital bus and logging facility for energy auditing through the internal microprocessor and read on the digital front panel at any time and logging facility (the current values, previous values for up to a month and the average values) should be made available for energy auditing through the internal microprocessor and should be read on the digital front panel.
- g. PV array energy production: Digital Energy Meters to log the actual value of AC/ DC voltage, Current & Energy generated by the PV system provided. Energy meter along with CT/PT should be of 0.5 accuracy class.
- h. Computerized DC String/Array monitoring and AC output monitoring shall be provided as part of the inverter and/or string/array combiner box or separately.

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- i. String and array DC Voltage, Current and Power, Inverter AC output voltage and current (All 3 phases and lines), AC power (Active, Reactive and Apparent), Power Factor and AC energy (All 3 phases and cumulative) and frequency shall be monitored.
- j. Computerized AC energy monitoring shall be in addition to the digital AC energy meter.
- k. The data shall be recorded in a common work sheet chronologically date wise. The data file shall be MS Excel compatible. The data shall be represented in both tabular and graphical form.
- l. All instantaneous data shall be shown on the computer screen.
- m. Software shall be provided for USB download and analysis of DC and AC parametric data for individual plant.
- n. Provision for Internet monitoring and download of data shall be also incorporated. o. Remote Server and Software for centralized Internet monitoring system shall be also provided for download and analysis of cumulative data of all the plants and the data of the solar radiation and temperature monitoring system.
- p. Ambient / Solar PV module back surface temperature shall be also monitored on continuous basis.
- q. Simultaneous monitoring of DC and AC electrical voltage, current, power, energy and other data of the plant for correlation with solar and environment data shall be provided.
- r. Remote Monitoring and data acquisition through Remote Monitoring System software at the owner Employer or their Representative specified location with latest software/hardware configuration and service connectivity for online / real time data monitoring/control complete to be supplied and operation and maintenance/control to be ensured by the supplier. Provision for interfacing these data on Employer or their Representative specified SCADA or any other server and portal in future shall be kept.

### 16.9.1.11 TRANSFORMER "IF REQUIRED" & METERING

- a. Dry/oil type relevant KVA, 11KV/415V, 50 Hz Step up along with all protections, switchgears, Vacuum circuit breakers, cables etc. along with required civil work.
- b. The bidirectional electronic energy meter (0.5 S class) shall be installed for the measurement of import/Export of energy.
- c. The bidder must take approval/NOC from the Concerned DISCOM for the connectivity, technical feasibility, and synchronization of SPV plant with distribution network and submit the same to Employer or their Representative before commissioning of SPV plant. d. Reverse power relay shall be provided by bidder (if necessary), as per the local DISCOM requirement.

### 16.9.1.12 POWER CONSUMPTION

- a. Regarding the generated power consumption, priority need to give for internal consumption first and thereafter any excess power can be exported to grid. Finalization of tariff is not under the purview of Employer or their Representative. Decisions of appropriate authority like DISCOM, state regulator may be followed.

### 16.9.1.13 PROTECTIONS

- a. The system should be provided with all necessary protections like earthing, Lightning, and grid islanding as follows:
- b. Lightning protection- The SPV power plants shall be provided with lightning & overvoltage protection. The main aim in this protection shall be to reduce the over voltage to a tolerable

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value before it reaches the PV or other sub system components. The source of over voltage can be lightning, atmosphere disturbances etc. The entire space occupying the SPV array shall be suitably protected against Lightning by deploying required number of Lightning Arrestors. Lightning protection should be provided as per IEC 62305 standard. The protection against induced high voltages shall be provided by the use of metal oxide varistors (MOVs) and suitable earthing such that induced transients find an alternate route to earth.

c. Lightning protection- Internal surge protection shall consist of three MOV type surge-arrestors connected from +ve and –ve terminals to earth (via Y arrangement)

d. Earthing protection- Each array structure of the PV yard should be grounded/ earthed properly as per IS: 3043- 1987. In addition, the lightning arrester should also be earthed inside the array field. Earth Resistance shall be tested in presence of the Employer or their Representative as and when required after earthing by calibrated earth tester. PCU, ACDB and DCDB should also be earthed properly. Earth resistance shall not be more than 1 ohms. It shall be ensured that all the earthing points are bonded together to make them at the same potential.

e. Grid Islanding- In the event of a power failure on the electric grid, it is required that any independent power producing inverters attached to the grid turn off in a short period of time. This prevents the DC-to- AC inverters from continuing to feed power into small sections of the grid, known as "islands." Powered islands present a risk to workers who may expect the area to be unpowered, and they may also damage grid-tied equipment. The Rooftop PV system shall be equipped with islanding protection. In addition to disconnection from the grid (due to islanding protection) disconnection due to under and over voltage conditions shall also be provided. A manual disconnects 4 pole isolation switches beside automatic disconnection to grid would have to be provided at utility end to isolate the grid connection by the utility personnel to carry out any maintenance. This switch shall be locked by the utility personnel.

f. Cables- Cables of appropriate size to be used in the system shall have the following characteristics: → Shall meet IEC 60227/IS 694, IEC 60502/IS1554 standards → Temp. Range: –10 degree C to +80-degree C. → Voltage rating 660V/1000V → Excellent resistance to heat, cold, water, oil, abrasion, UV radiation → Flexible → Sizes of cables between arrayinterconnections, array to junction boxes, junction boxes to Inverter etc. shall be so selected to keep the voltage drop (power loss) of the entire solar system to the minimum. The cables (as per IS) should be insulated with a special grade PVC compound formulated for outdoor use. → Cable Routing/ Marking: All cable/wires are to be routed in a GS cable tray and suitably tagged and marked with proper manner by good quality ferule or by other means so that the cable easily identified. → The Cable should be so selected that it should be compatible up to the life of the solar PV panels i.e., 25years. → The ratings given are approximate. Bidder to indicate size and length as per system design requirement. All the cables required for the plant provided by the bidder. Any change in cabling sizes if desired by the bidder/approved after citing appropriate reasons. All cable schedules/layout drawings approved prior to installation. → Multi Strand, annealed high conductivity copper conductor PVC type 'A' pressure extruded insulation or XLPE insulation. Overall PVC/XLPE insulation for UV protection Armored cable for underground laying. All cable trays including covers to be provided. All cables conform to latest edition of IEC/ equivalent BIS Standards as specified below: BoS item / component Standard Description Standard Number Cables General Test and Measuring Methods, PVC/XLPE insulated cables for working Voltage up to and including 1100 V, UV resistant for outdoor installation IS /IEC 69947. → The size of each



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type of DC cable selected shall be based on minimum voltage drop; however, the maximum drop shall be limited to 1%. → The size of each type of AC cable selected shall be based on minimum voltage drop; however, the maximum drop shall be limited to 2 %.

g. Connectivity- The maximum capacity for interconnection with the grid at a specific voltage level shall be as specified in the Distribution Code/Supply Code of the State and amended from time to time. Following criteria have been suggested for selection of voltage level in the distribution system for ready reference of the solar suppliers. Plant Capacity Connecting voltage Up to 10 kW 240V-single phase or 415V-three phase as per direction of Employer or their representative Above 10kW and up to 100 kW 415V – three phases Above 100kW At HT/EHT level (11kV/33kV/66kV) as per DISCOM rules → The maximum permissible capacity for rooftop shall be 1 MW for a single net metering point. → Utilities may have voltage levels other than above; DISCOMS may be consulted before → finalization of the voltage level and specification is made accordingly. → For large PV system (Above 100 kW) for commercial installation having large load, the solar power can be generated at low voltage levels and stepped up to 11 kV level through the step-up transformer. The transformers and associated switchgear would require to be provided by the SPV bidders.

### 16.9.1.14 TOOLS AND TACKLES

a. After completion of installation & commissioning of the power plant, necessary tools & tackles are to be provided free of cost by the bidder for maintenance purpose. List of tools and tackles shall be supplied by the bidder for approval of specifications and make from Employer or their Representative.

b. A list of requisite spares in case of PCU/inverter comprising of a set of control logic cards, IGBT driver cards etc. Junction Boxes. Fuses, MOVs / arrestors, MCCBs etc along with spare set of PV modules be indicated, which shall be supplied along with the equipment. A minimum set of spares shall be maintained in the plant itself for the entire period of warranty and Operation & Maintenance which upon its use shall be replenished

### 16.9.1.15 DANGER BOARDS AND SIGNAGES

a. Danger boards should be provided as and where necessary as per IE Act. /IE rules as amended up to date. Three signage shall be provided one each at battery –cum- control room, solar array area and main entry from administrative block. Text of the signage may be finalized in consultation with Employer or their Representative.

### 16.9.1.16 PLANNING AND DESIGN

a. The bidder should carry out Shadow Analysis at the site and accordingly design strings & arrays layout considering optimal usage of space, material and labor. The bidder should submit the array layout drawings along with Shadow Analysis Report to Employer or their Representative for approval.

b. Employer or their Representative reserves the right to modify the landscaping design, Layout and specification of sub-systems and components at any stage as per local site conditions/requirements.

c. The bidder shall submit preliminary drawing for approval & based on any modification or recommendation, if any. The bidder submits three sets and soft copy in CD of final drawing for formal approval to proceed with construction work.

d. Drawings to be furnished by contractor: - → The Contractor shall furnish the following drawings Award/Intent and obtain approval. → General arrangement and dimensioned layout → Schematic drawing showing the requirement of SV panel, Power conditioning Unit(s)/ inverter, → Junction Boxes, AC and DC Distribution Boards, meters etc. → Structural drawing

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along with foundation details for the structure. → Itemized bill of material for complete SV plant covering all the components and associated accessories. → Layout of solar Power Array

### 16.9.2 DG SET

a. Each load center shall be provided with a DG Set as a standby power backup of suitable capacity and capacity shall be decided in such a way that it should run during peak flow in the event of power failure. DG sets shall be as per norms and regulation laid down by CPCB and other statutory authorities.

b. DG Set with acoustic enclosure shall preferably be installed outside the building. However, DG set shall be as near to the substation as possible i.e. as near to Essential LT Panel as possible. DG set shall be selected considering utmost efficient operation of drive in peak demand in case of power failure.

c. Associated AMF panel/ Electrical panel of the DG Set can be located inside the acoustic enclosure or outside the acoustic enclosure as per manufacturer standard. All other specifications shall be in line with CPWD specifications.

### 16.9.3 DRAWINGS & MANUAL

a. Five sets of Engineering, electrical drawings and Installation and O&M manuals are to be supplied. Bidders shall provide complete technical data sheets for each equipment giving details of the specifications along with make/makes in their bid along with basic design of the power plant and power evacuation, synchronization along with protection equipment. b. Approved ISI and reputed makes for equipment be used.

c. For complete electro-mechanical works, bidders shall supply complete design, details, and drawings for approval to Employer or their Representative before progressing with the installation work

### 16.9.4 SAFETY MEASURES

a. The bidder shall take entire responsibility for electrical safety of the installation(s) **including connectivity with the grid and follow all the safety rules & regulations applicable as per Electricity Act, 2003 and CEA guidelines etc.**

## 16.10 Desludging Vehicle Specification

### 16.10.1 Driving System

1. The Engine of the Truck Chassis will be utilized to drive the vacuum pump through a split- shaft power take-off unit installed between the vehicle gearbox and the differential unit. The Hydraulic pump shall be driven through the side Power Take Off (PTO) of the truck gear box.
2. The changeover of the PTO unit for individual drive will be from driver's cabin.

### 16.10.2 Tanker

1. The cylindrical tank and Dish ends shall be fabricated out of 5 mm thick MS Plates conforming to IS: 2062 grade. The tank shall have a capacity of 4000 Ltrs. The tank will be mounted on an appropriate sub-frame, which in turn will be bolted to the truck chassis.
2. The tank has Blow – Back arrangement for discharge of material from the sludge tank using the Exhauster / Compressor in compressor mode. The Blow-back Arrangement will be more hygienic and cleaner way of evacuating the sludge from the tank by pressurizing the tank when the exhauster compressor will run in compressor mode.

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3. The tank also has arrangement for hydraulic tipping for discharge of material from the sludge tank. The rear door of the sludge tank will be fitted with hydraulic cylinders for opening and closing of the door. Adequate sealing and locking arrangement has been provided to render the door leak proof. Further, necessary arrangement for filling and draining the freshwater compartment will be provided. A filter shall be provided in the inlet of the freshwater tank.
4. The Level Indicator made of thick transparent acrylic tubing to be provided on sludge compartments in positions convenient for the operator to view.
5. The tank exterior will be spray painted with a coat of superior quality anticorrosive primer and two coats of enamel paint of reputed make. The tank interior will be coated with two coats of anti-corrosive epoxy paint.

### 16.10.3 Exhauster / Compressor / Imported Unit

1. The Exhauster / Compressor shall be of proven design with rated capacity of 6500 LPM of airflow and will be capable of generating vacuum of up to 90% Vacuum during suction and alternatively pressure of up-to 1.5 Bar under pressure mode during Blow-back. The unit will be utilized for operating under vacuum for suctioning sludge through a 80 mm dia. suction hose and alternatively in pressure mode for discharging the sludge by Blowback arrangement from the tank without tipping / opening of the doors through a 4 way valve for change over from suction operation to pressure mode. Under the pressure mode, compressed air can be injected into the Sewer Manhole, Septic Tank, etc for agitating the sludge / slurry before suction.

### 16.10.4 Hydraulic System / Controls

1. The Hydraulic System includes hydraulic pump driven by vehicle PTO, hydraulic tipping cylinder, door opening cylinder, hydraulic motor for winding / unwinding of jetting hose, hydraulic tank, oil pipe and control valve.
2. All the controls required for operation of the hydraulic system are grouped and mounted at a convenient place at the rear end so that the entire controls / operations of the system is affected from a single location.

### 16.10.5 Accessories

1. 2 Nos., 30 m Long heavy duty, PVC flexible suction hoses of 80mm internal diameter and fitted with quick action couplings shall be provided along with the equipment.

### 16.10.6 Truck Chassis

1. The entire unit will be mounted on Two Axle 9 Ton GVW Truck Chassis of Ashok Leyland/TATA/Eicher or equivalent fitted with PTO.

Table 14: Truck Chassis

Component	Specifications/ Description
TruckChassis - Model &GVW	TATA/AshokLeyland/EicherMotororequivalentGVW-9Ton2Axle
Vacuum-cum- Compressor Pump <ul style="list-style-type: none"><li>• Make</li><li>• Displacement</li><li>• Vacuum Pressure</li></ul>	Indian/ Imported Make 7000LPM 700 mmHg (90%vacuum) 1.50Bar
Suction Hose- <ul style="list-style-type: none"><li>• Internal Dia</li><li>• Max.Length</li><li>• Max. Depth</li></ul>	80 mm internal dia 80 feet long 5 m depth
Cylindrical tank and Dish ends- <ul style="list-style-type: none"><li>• Thickness</li><li>• Material &amp;</li></ul>	5 mm thick MS Plates

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• Grade	IS:2062 grade A
Hydraulic System/ Control- • Make	Indian/ Imported Make

### 17 EMPLOYER'S REPRESENTATIVE OFFICE

1. The Contractor shall provide a site office, for the build period.
2. Apart from the toilet for the workers, a dedicated toilet for the use of senior team, employers, employer consultant and representative to be provided at site.
3. Site office shall have a telephone connected to the public system and broadband internet.
4. This office shall have all the design and site progress documents pertaining to the project and shall be accessible to the employer, and employer's representative.
5. The Contractor shall be responsible for the proper maintenance of the offices during the build period. He shall keep the offices and toilets clean and shall provide adequate cleaning staff for this purpose throughout the Contract period.
6. All electricity, water and telephone charges, relating to the site office, including connection and disconnection fees and rental charges shall be paid by the Contractor.

### 18 PERSONNEL REQUIREMENT DURING DESIGN-BUILD

1. Contractors shall deploy following key staff at site to execute and supervise the works in construction phase. The Contractor is required to ensure mobilization of qualified and experienced staff in sufficient numbers on site at his own cost to ensure quality and adhere to the schedule. The general requirements of key staff are given below.

*Table 15: Personnel Requirement for Design-Build Period*

S. No.	Designation	Number	Minimum Qualification
1	Project Manager	1 number	BE/ B.Tech with 5 years' experience
2	Site Incharge	Not less than 1 site in charge for 5 sites based on geographical proximity.	Diploma with 3 years' experience.

### 19 SITE MANAGEMENT AND MATERIAL STORAGE

1. Site storage involves the provision of adequate space, protection and control for materials, components and equipment that are to be kept on a construction site during the design build period. Contractor shall assess the location and size of space for material storage management and to be planned carefully within available space as part of an overall site layout plan and each site will present its own problems. Contractor shall take all the measures for material staking and handling at each construction site so that quality of material do not deteriorate before installation. No payment shall be made to the contractor for the site and material management, staking and handling. The contractor shall be responsible for any material damaged, theft, loss or reduction in quality parameter.

### 20 PROTECTION OF OVERHEAD AND UNDERGROUND SERVICES

1. The Contractor will be held responsible for any damage to known services (i.e., overhead services that are visible within the Site and underground services surveyed

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by him and indicated on the drawings) and he shall take all necessary measures to protect them. All work or protective measures shall be subject to approval of the Employer's Representative. In the event of a service being damaged he shall inform the Employer's Representative and the authority concerned; the Contractor shall not repair any such service unless instructed to do so.

2. Contractor will map the underground utilities. Where no underground services are shown on the drawings or scheduled but the possibility of their presence can reasonably be inferred, the Contractor shall, in collaboration with the Employer's Representative, ascertain whether any such services exist within the relevant section of the Site. The Contractor shall complete such an investigation well in advance of the start of construction work in the said section and he shall submit a report in good time to enable the Employer's Representative to make whatever arrangements are necessary for the protection, removal, or diversion of the services before any construction activities commences.
3. As soon as any underground service not shown on the drawings is discovered, it shall be deemed to be a known service and the Contractor will be held responsible for any subsequent damage to it. If such a service is damaged during its discovery, the same shall be reported to the employer and further actions to be taken based on employer's directions.
4. Where the authority concerned elects to carry out on its own account any alterations or protective measures, the Contractor shall co-operate with and allow such authority reasonable access and sufficient space and time to carry out the required work.

### **21 PROVISION OF TEMPORARY SERVICES**

1. For water supply, contractor may install temporary lines or arrange for regular supply by tankers.
2. The Contractor shall install temporary pipes and pumps of adequate size to carry off sewage/drainage. No sewage/drainage shall be allowed to flow upon the ground surface.

### **22 PROTECTION OF ADJOINING PROPERTY AND REINSTATEMENT UPON COMPLETION**

1. The Contractor shall be responsible and take all measures in order to protect adjoining property including buildings, electrical and telephone poles, bridges and culverts, retaining walls, compound walls and fences, and other structures. Prior to the commencement of the activities, the Contractor shall assess the probability and extent of unavoidable damages, if any, to the building and properties and submit his assessment to the Employer's Representative. The Employer's Representative may make his own opinion and if required may order arrangements for protection or repair of such likely unavoidable damage in which event the Contractor shall complete the activities.

### **23 LATRINES AND WASHING FACILITIES**

1. Throughout the period of construction of the Works the Contractor shall provide, maintain and cleanse useable and sufficient latrines for use by his employees. He shall ensure that his employees do not foul the Site but make proper use of the latrines. Where practicable, the latrines shall be connected to the nearest sewer, or if this is not practicable the Contractor shall provide an adequately sized septic tank and soak-pit.
2. After completion, the latrines shall be removed, all ground disinfected and the surface

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reinstated to the satisfaction of the Employer or his Representative.

### **24 ELECTRICITY FOR CONTRACTOR'S USE ON SITE**

1. The Contractor shall be responsible for provision and distribution of an electrical supply for the purpose of construction.
2. The installation shall comply with all the relevant regulations, Indian Standards and Codes of Practice, and Health and Safety requirements, etc. The Contractor must take every possible precaution to ensure that his installation is safe and injury to personnel or damage to plant and buildings is avoided. The Contractor shall be fully responsible for all safety. The Contractor shall test the temporary site distribution system every 3 months for compliance with the relevant standards.

### **25 DISPOSAL OF REFUSED/RUBISHED MATERIAL FROM SITE**

1. Refuse and rubbish of every kind shall be removed from the Site and dispose-off by the Contractor at his own expense, frequently and regularly to keep the Site in an approved wholesome, hygienic and tidy condition to the satisfaction of the employer or his Representative.

### **26 REMOVAL OF CAMPS**

1. On completion of the Works in accordance with Conditions of Contract the Contractor shall remove those facilities not required.
2. The Contractor shall take down and remove all structures connected with this camp, and shall take out all pipes, drains and culverts, backfill trenches, fill up all latrine pits, soak ways and other sewage disposal excavations, and shall restore the site as far as practicable to its original conditions and leave it neat and tidy to the satisfaction of the Engineer.
3. During shifting of the camp all trash and unwanted material must be disposed-off properly. Pit latrines must be adequately covered.
4. Cost of this activity is deemed to be included in Contractors quoted price.

### **27 CLEARANCE OF SITE BEFORE START OF EXECUTING**

1. The site shall be provided by the Employer/ULB without any trees, roots, jungle, bush wood, grass or any kind of rubbish and other objectionable matter.
2. The contractor shall undertake minor cleaning and leveling of site as required.
3. The Contractor shall establish working Benchmarks tied with the Reference Benchmark in the area soon after taking possession of the site. The Reference Benchmark for the area shall be the GSI benchmarks and the values of the same shall be used by Employers Representative. The working Benchmarks/levels should be approved from the Employers Representative.
4. The lines and levels of formation, side slopes, drainage works, carriage ways and shoulders shall be carefully set out and frequently checked, care being taken to ensure that correct gradients and cross sections are obtained everywhere.
5. After obtaining approval of the Employers Representative, work on earthwork can commence.
6. Precision automatic levels or total station, having a standard deviation of +2mm per km, and fitted with micrometer attachment shall be used for all double run levelling work.

## **28 QUALITY CONTROL**

### **28.1 Quality Control Plan and Procedures**

1. The Contractor shall be responsible for establishing and maintaining procedures for quality control that will ensure that all aspects of the Works comply with the requirements of the Contract. As soon as reasonably practicable prior to the commencement of Works the Contractor shall submit for approval a Quality Control Plan giving detailed proposals for control of quality of all aspects of work on the Site and at suppliers' workshops.
2. The Quality Control Plan shall include the following: a) a list of the Contractor's staff engaged in quality control b) a list of any outside testing agencies employed by the Contractor for work in connection with quality control c) a list of manufactured items and materials, obtained by the Contractor for the Works, which require inspection at the suppliers' premises, and the proposed procedures for ensuring quality control d) a list of materials and operations to be inspected by the Contractor at the various stages of construction work on Site, together with inspection procedures, test types and frequencies e) sample of proposed quality control records, testing and reporting forms.
3. Unless the Employer's Representative permits otherwise, the approved Quality Control Plan shall be followed throughout the construction of the Works. Any approval by the Employer's Representative of the Contractor's plan and procedures shall not relieve the Contractor of his obligation to ensure that the Works comply with the requirements of the Contract.
4. The Contractor shall appoint a suitably qualified member of his staff to be responsible for all aspects of quality control and to maintain effective liaison with the Employer's Representative.

### **28.2 Sampling and Testing**

1. The Contractor shall provide for the approval of the Employer's Representative, samples of all construction materials and manufactured items required for the Permanent Works. All samples rejected by the Employer's Representative shall be removed from Site. All approved samples shall be stored by the Contractor in a sample room, at a location approved by the Employer's Representative, for the duration of the Contract, and any materials or manufactured items subsequently delivered to Site for incorporation in the Permanent Works shall be of a quality at least equal to the approved sample. The approved samples may only be disposed of with the Employer's Representatives approval.
2. Samples shall be submitted and tests carried out sufficiently early to enable further samples to be submitted and tested if required by the Employer's Representative. Samples for testing will generally be selected by the Employer's Representative from materials to be utilized in the project and all tests will be as directed by, and at such points as may be convenient to the Employer's Representative.
3. For manufactured items, the Contractor shall give the Employer's Representative 15 days' notice in writing of the date on which any of the materials will be ready for testing or inspection at the suppliers' premises or at a laboratory approved by the Employer's Representative and unless the Employer's Representative shall attend at the appointed place and time the test may proceed in his absence.
4. All material test reports shall be submitted for information and approvals to employer's representative.
5. Approval by the Employer's Representative as to the placing of orders for materials or as to samples or tests shall not prejudice any of the Employer's Representative's

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powers under the Contract.

6. The provisions of this clause shall also apply to materials supplied under any nominated subcontract.
7. In addition to any special provision made herein as to sampling and testing materials by particular methods, samples of materials and workmanship proposed to be employed in the execution of the Works may be called for at any time by the Employer's Representative and these shall be furnished without delay by the Contractor at his own cost. Approved samples will be retained. The Employer's Representative will be at liberty to reject all materials and workmanship that are not equal or better in quality and character than such approved samples.
8. The tests required for quality control shall include but not be limited to:
  - a. tests conducted at the premises of the Contractor, Subcontractor, manufacturer or supplier which are normally or customarily carried out at such premises for the items or materials being supplied for the Works.
  - b. tests which are normally or customarily conducted on the items or materials being supplied for the Works by the Contractor, Subcontractor, supplier or manufacturer but which have to be conducted at an approved laboratory because the necessary testing facilities are not available on the premises of the Contractor, Sub-Contractor, supplier and manufacturer.
  - c. tests on locally obtained materials or items either on the Site or at an approved laboratory for the purpose of obtaining the approval of the Employer's Representative to the classification, use and compliance with the Specifications of such items or materials.
  - d. routine quality control tests conducted by the Contractor to ensure compliance with the Specifications.
  - e. regular testing of concrete and other materials as specified in the relevant section of the Technical Specifications.
  - f. Standard shop and Site acceptance tests, including trial assemblies, of Plant.

### **28.3 Inspection and Acceptance**

1. The Employer's Representative will not inspect any item of fabricated or finished work until such time as the Contractor shall have forwarded to the Employer's Representative the approved Construction Drawings covering the items to be inspected.
2. Manufactured items and materials delivered to the Site shall be inspected by the Contractor on arrival. Any defects shall be notified to the Employer's Representative.
3. Minor defects to surface finishes and the like in manufactured items shall be made good in an approved manner to the satisfaction of the Employer's Representative. Items with more serious defects shall be returned to the suppliers for correction or replacement as appropriate. All the costs arising due to all the Inspection Testing & commissioning will be borne by the contractor.

### **28.4 Inspection Requirement**

1. All inspection and testing shall be carried out in accordance with the Specification and in absence of Specification relevant standards.
2. The Contractor shall carry out at the place of manufacture tests of the Plant / Equipment at any part of the Works.
3. At the start of the contract the contractor and employer shall agree on the type, location and details of the testing to be undertaken for the various components of the work.
4. The Employer shall be entitled to attend the aforesaid inspection and/or tests by his own duly authorized and designated representatives.



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5. The Employer and his duly authorized representative shall have access to the Contractor's premises at all suitable times to inspect and examine the material and workmanship of the mechanical and electrical plant and equipment during its manufacture there. If part of the plant and equipment is being manufactured on other premises, the Contractor shall obtain permission for the Employer or his duly authorized representative, to inspect as if the plant and equipment was manufactured on the Contractor's own premises. Testing (including testing for chemical analysis and physical properties) shall be carried out by the Contractor and certificates submitted to the Engineer's Representative who will have the right to witness or inspect the above-mentioned inspection / testing at any stage desired by him.
6. The procedure for the testing and inspection to be carried out during or following the manufacture of the materials to ensure the quality and workmanship of the materials and to further ensure that they conform to the Contract in whatever place they are specified shall be as described below.
7. The Contractor shall give the Employer at least 15 clear days' notice in writing of the date and the place at which any plant or equipment will be ready for inspection / testing as provided in the Contract. The Employer or his duly authorized representative shall thereupon at his discretion notify the Contractor of his intention either to release such part of the plant and equipment upon receipt of works tests certificates or of his intention to inspect. The Employer shall then give notice in writing to the Contractor and attend at the place so named the said plant and equipment which will be ready for inspection and/or testing. As and when any plant shall have passed the tests referred to in this section, the Engineer's Representative shall issue to the Contractor a notification to that effect.
8. The Contractor shall forward to the Employer 3 duly certified copies of the test certificates and characteristics performance curves for all equipment.
9. If the Engineer's Representative fails to attend the inspection and/or test, or if it is agreed between the parties that the Engineer's Representative(s) shall not do so, then the Contractor may proceed with the inspection and/or test in the absence of the Engineer's Representative and provide the Employer with a certified report of the results.
10. If any materials or any part of the works fails to pass any inspection / test, the Contractor shall either rectify or replace such materials or part of the works and shall repeat the inspection and/or test upon giving a notice. Any fault or shortcoming found during any inspection or test shall be rectified to the satisfaction of the Engineer before proceeding with further inspection of wiring of that item. Any circuit previously tested, which may have been affected by the rectification work, shall be re-tested.
11. Where the plant and equipment is a composite unit of several individual pieces manufactured in different places, it shall be assembled and tested as one complete working unit, at the project site.
12. Neither the execution of a inspection test of materials or any part of the works, nor the attendance by the Engineer's Representative(s), nor the issue of any test certificate shall relieve the Contractor from his responsibilities under the Contract.
13. The test equipment, meters, instruments etc., used for testing shall be calibrated at recognized test laboratories at intervals recommended by the manufactures and valid certificates shall be made available to the Engineer's representatives at the time of testing. The calibrating instrument used as standards shall be traceable to National / International standards. Calibration certificates or test instruments shall be produced from a recognized Laboratory for the Engineer's consent in advance of testing and if necessary, instruments shall be recalibrated or substituted before the commencement of the test.

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14. The Contractor shall maintain proper identification of all materials used, along with reports for all internal / stage inspection work carried out, based on the specific job requirement and or based on the data sheets / drawings / specifications.
15. The testing and approval for dispatching shall not absolve the Contractor from his obligations for satisfactory performance of the plant.

### **29 QA-QC & STANDARD SPECIFICATIONS**

1. DLB's QA-QC Manual and Standard Specifications shall be part of the contract and Scope of Work.

### **30 INSPECTION AND TESTING REQUIREMENTS**

1. The Contractor shall submit the following for approval:
  - a. Certificate/undertaking for having achieved Physical completion of Plant and facilities.
  - b. As-Built Drawings; and
  - c. Operation and Maintenance Manuals.
2. All the plant operations tests shall be conducted in the presence of Employer's representative and shall not be commenced until the aforementioned documents are approved by the Employer's representative.

### **31 TESTS ON PHYSICAL COMPLETION OF PLANT AND FACILITIES**

#### **31.1 Dry Test-General**

1. As a minimum requirement, the following dry tests shall be carried out:
  - a. A general inspection to check for correct assembly, installation of all equipment etc., and quality of workmanship.
  - b. A check on the presence of lubricant, cooling medium, etc.
  - c. A general check to ensure that all covers, access ladders, water proofing, guard Aluminum railings, etc. are in place; and
  - d. A check on damp-proofing, rust – proofing, vermin-proofing and particularly the sealing of apertures between building structures, chambers etc.

#### **31.2 Civil and Building Works**

1. As a minimum requirement the presence of foreign bodies in pipe work and structures shall be checked and rectified, as necessary. All Building services including Lighting and Sanitary fixtures shall be checked.

#### **31.3 Mechanical Works**

1. As a minimum requirement, preliminary running checks shall be carried out on all the mechanical works as far as permitted by circumstances in order to ensure smooth operation of the equipment and machinery. The noise levels and vibration etc of centrifuge, blower and gas engine if provided shall be assessed and corrective measures for meeting the criteria taken, as required.

#### **31.4 Electrical Works**

1. The following tests are to be carried out on all the equipment/ systems, as applicable.
  - a. Insulation resistance measurement of equipment, accessories, cabling, wiring etc;
  - b. Dielectric tests of the oil of Transformer.
  - c. Phase sequence and polarity of Transformer.
  - d. Voltage and current ratios of Transformer.
  - e. Vector group of Transformer.
  - f. Resistance measurement of winding, contacts, of Transformer and motors.

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- g. Continuity tests of all equipment.
- h. Calibration of indicators, meters, relays, etc;
- i. Control and interlock checks in MCC etc;
- j. Settings of equipment and accessories.
- k. Checking of accuracy and error.
- l. Checking of operation characteristics, pick-up voltages, and currents, etc. of all drives.
- m. No load tests and trials on drives (electrical motors);
- n. Operational and functional tests on equipment, accessories, control schemes, alarms, trip, indication circuits, etc.
- o. Measurement of guaranteed or approved designs including lighting levels, earth resistance measurements etc.; and
- p. Complete commissioning checks of the system.

### **31.5 Instrumentation & Control System**

1. The following dry tests shall be carried out on the instrumentation and control system:
  - a. Continuity checks on all signal, control, and power supply cables.
  - b. Checking of instrument loop integrity, functionality, and calibration. A written report on each instrument in the format required by the Employer's representative shall be provided certifying that the instruments have been calibrated to the published specified accuracy.
  - c. Checking functionality of the instrument control panels and consoles; and
  - d. PLC console/MMI and associated equipment.

### **31.6 Hydraulic Wet Test**

1. Hydraulic wet tests shall be carried out on completion of dry tests. Tube well water/potable shall be used for hydraulic performance of the works. In order to demonstrate hydraulic wet test, the Contractor shall ensure that each part of the works is hydraulically loaded to its rated throughput for a period of at least twenty-four (24) hours. In order to remove doubt, the following tests inter alia shall be carried out:
  - a. Pressure testing of all piped systems in accordance with the relevant standards.
  - b. Filling of all structures and check for leaks and structural stability.
  - c. Running of all rotating systems in order to check for:
  - d. Correct functionality.
  - e. Absence of leaks.
  - f. Allowed temperature rise, smoothness of running and the absence of undue vibration, stress, and noise level; and
  - g. Check drives running currents, power-factor, efficiency etc. under full load conditions of all equipment.
  - h. Carry out calibration of instruments, especially flow meters and integrators for gas and raw sewage where appropriate.
  - i. Carry out valving, diversions etc. to full hydraulic load (or where there is a requirement to withstand no load to overload) on each process element.
  - j. Demonstrating correct functionality of electrical, control, and instrumentation systems.
  - k. Assess leakage levels in piping, gates and valves etc.
2. During these tests a check on the performance of Plant shall be made, as far as site facilities will allow, to compare its site performance with the factory test data and to identify any constraints on performance due to site conditions.

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### **31.7 Safety Audit**

1. After satisfactory completion of the hydraulic wet tests and prior to the continuous introduction of raw septage to the plant, a safety audit shall be carried out to ensure compliance with the necessary requirements of safety during operation of the Plant. The safety audit shall be documented. The Employer's Representative shall approve the safety audit document.

### **32 TESTS DURING TRIAL RUN AND COMMISSIONING – PROCESS WET TEST**

1. On approval of safety audit the Contractor shall carry out process wet tests. Screened septage shall be used as the primary feed stock for process wet tests. These tests shall be carried out to demonstrate the process performance of the works. In order to demonstrate this, the Contractor shall ensure that each part of the treatment system is loaded to its rated throughput for a continuous stable operating period of not less than 36 hours. The Contractor shall arrange collection and disposal of screenings, and sludge also as generated from the plant area as directed by the Employer's representative from this point of time onwards.
2. The following test inter-alia shall be carried out:
  - a. Check for leaks in structures, chambers, pumps and pipe works.
  - b. Running of all rotating systems in order to check for:
    - i. Correct functionality
    - ii. Absence of leaks
    - iii. Allowed temperature rise.
    - iv. Smoothness of running and absence of undue vibration or stress.
    - v. Check drive running currents where the clear septage and sludge is pumped.
    - vi. Demonstrate correct functionality of electrical, control and instrumentation systems.
3. On completion of the tests on the various parts of the works the Contractor shall proceed for commissioning and stabilizing the plant.

### **33 TESTS ON COMPLETION - PERFORMANCE GUARANTEE TESTS (PG TESTS)**

1. Once the Contractor is satisfied with the stabilization of treatment units and energy efficiency of the system, it will inform the Employer's representative in writing that it is ready to perform performance guarantee test (PG Test). The performance guarantee test will be conducted at a mutually agreed convenient date.
2. The performance test shall be conducted for a continuous period of one month continuously. The Employer's representative in the presence of line agency and / or such referee appointed by it shall conduct all tests.
3. PG test conducted with flow regulation based on influent characteristics load per day as per the design norm shall meet the performance guarantees. However, the Employer reserves the right to ask the Contractor to load the plant to full capacity or in one stream if sufficient flow is not available. In this case the Employer will take over the plant based on the actual results obtained.
4. During the tests the Contractor shall take samples to demonstrate that each part of the works and the works as a whole is performing.
5. In case of failure of first Performance Guarantee Test, action shall be initiated in accordance with condition of contract. In any case, the extension for clearing the PG Tests shall not be extended beyond 90 days after the Works has failed first

## SECTION V: EMPLOYER'S REQUIREMENT

### Performance Guarantee Tests.

6. In case of failure of Performance Guarantee Test, in-respect of Effluent parameters mentioned in performance key indicators the works shall be rejected and contractor must rectify process to achieve parameters at his own cost.
7. All consumables needed for operation of the works such as chemicals, lubricants etc. shall be provided by the contractor. The Contractor shall provide all facilities and equipment not supplied under the contract and which are deemed necessary to carry out and monitor the Tests on Completion.
8. Samples during PG tests shall be drawn for testing as below:

*Table 16: Performance Guarantee Tests*

S. No.	Location of Sampling / Check point	Sample/ Reading	To be tested for
1	Dewatering system	Liquid	Solid content in the wet cake: not less than 18%.
2	Sludge dryer	Solid	Moisture content $\leq 30\%$
3	UV disinfection	Liquid	Faecal Coliform $< 100/100$ ml.
4	Pyrolizer	Solid	Carbon content $> 25\%$

9. All samples shall be done as per "Standard Methods"

## **34 TREATED EFFLUENT AND TREATED BIO SOLID/SLUDGE QUALITY CRITERIA FOR PASSING THE TESTS ON COMPLETION OF FSTPs**

1. The works shall be considered to have achieved the required treated water quality standards for passing Tests on Completion if all samples taken during a three (3) day continuous operational period comply with the guaranteed quality In respect of effluent characteristics and treated bio solids/ sludge in all 4 out of 5 cases shall be deemed to have been cleared.

## **35 TRIAL RUN AND PRE-COMMISSIONING ACTIVITIES**

1. After the completion of construction or installation/erection or execution of the works, trial run and pre-commission activities shall be carried out to make the plant ready for commissioning. All equipment, materials, and provisions necessary for conducting site tests shall be provided by the Contractor at no additional cost to the Contract.

## **36 COMMISSIONING**

1. On successful completion of all the trial runs and pre-commissioning activities for the entire facility, the facility is deemed to be ready for Commissioning.
2. A continuous operation of total plant for a period of 2 days to the satisfaction of the Employer's Representative will be deemed to demonstrate satisfactory commissioning of the system. The costs associated for the Contractor's and other operating personnel during the period, along with costs of tools and spare parts, which are required for operation and maintenance of the plant and equipment during the commissioning period shall also be borne by the Contractor and shall be deemed to be included in the Contract Price.
3. The total time allotted for the trial run and commissioning will be within the construction period. Cost of the Contractor's personnel, maintenance, chemicals, electricity and any consumables for operation and maintenance of the system during the period of trial run and commissioning shall be borne by the Contractor.

**C. ENVIRONMENT, HEALTH & SAFETY AND INSURANCE****37 ENVIRONMENT, HEALTH & SAFETY****37.1 General Principles**

1. The FSTPs will be designed and operated to meet the latest norms of Central Pollution Control Board, National Green Tribunal and State Pollution Control Board of Rajasthan for liquid, solid and gaseous emissions emanating from the facility.
2. The design should incorporate elements which supports in minimizing flies, rodents and bird menace and fire hazards and to take necessary steps and processes that would bring in control of odour at the site.
3. Measures will be taken to comply with the provisions laid down under Noise pollution (Regulatory and Control) Amendment Rules, 2010 dated 11.01.2010 issued by MoEF & CC, GoI to control the noise to the prescribed levels.
4. Minimum of 33% of the total site area will be earmarked for green belt development. Local species will be used in green belt as far as possible.

**37.2 INSURANCE**

The contractor shall take comprehensive all risk policy and other necessary insurance during the set up and O&M phase of the project. The value of insurance shall be adequate to cover all risks including but not limited to accident, fire, natural calamities, theft, employee risks etc. The desludging vehicle shall be insured as per the motor vehicle act.

**37.3 Environmental Management**

1. In proposed project, environmental protection and compliance measures will be taken right at the designing, planning, technology selection, raw material sourcing and in form of maximum reuse/recycling of materials within proposed units. In addition to above measures, Project Authority will also follow the end-of-pipe treatment approach to monitor the discharge of pollutants into the environment.
2. The project bidder shall prepare a site level EMP to mitigate potential environmental impacts that are identified and quantified in the process of baseline and impact assessment. The overall strategy should not only cut down the pollution costs, but also result in saving in the cost of production. Environmental management plan shall include points mentioned in Table below.

*Table 17: Environmental Management Plan Requirements*

Sr. No.	ACTIVITY	MITIGATION MEASURES
1	Protection of site	The site shall be enclosed with compound wall, lockable gates, designed to discourage entry by unauthorized persons and animals.
2	Safety measures for Chemical Handling	<ol style="list-style-type: none"> <li>1. Chemical storage tanks / solution preparation tanks shall be constructed in line with applicable code of safety.</li> <li>2. All other instruments like pressure gauges, pressure relief valves, level indicators, compound gauges, etc. as required for safe &amp; trouble-free operation of the system shall be provided.</li> <li>3. All dosing pumps shall have pressure safety valves.</li> <li>4. Any other item(s) if required for completeness of the system, safety requirements and to make the system operational shall be provided.</li> <li>5. Safety equipment: Personal protective equipment such</li> </ol>

## SECTION V: EMPLOYER'S REQUIREMENT

		as air masks, emergency require kit, Safety helmets, goggles, rubber boots, gloves and colored vests (aprons) etc. shall be made available.
3	Energy efficiency	<ol style="list-style-type: none"> <li>1. Motors with Variable frequency drives shall be used to optimize the operating pressure.</li> <li>2. LED lamps shall be used for lighting.</li> <li>3. Solar power shall be used as far as possible</li> </ol>
4	Safety measures for plant operation & maintenance	<ol style="list-style-type: none"> <li>1. Handrails and guards shall be installed around tanks, trenches, pits, stairwells, and other hazardous areas.</li> <li>2. Emergency eyewash and water availability shall be ensured.</li> <li>3. Adequate number of fire extinguishers shall be provided.</li> </ol>
5	Safety Training and information	<ol style="list-style-type: none"> <li>1. Display charts, safety checks, maintenance procedure, etc. shall be made available.</li> <li>2. Emergency Action Plan shall be prepared as applicable and be made available at the site.</li> <li>3. Operators shall be provided with necessary training periodically.</li> </ol>
6	Noise from Operation	<ol style="list-style-type: none"> <li>1. Necessary measures for controlling noise from operation pumps, DG sets etc. shall be provided to control vibration.</li> <li>2. Necessary provisions like enclosure, vibration control mechanism and periodical maintenance shall be implemented to maintain the noise levels within the standards.</li> </ol>

### 1.1.1 Environment Monitoring Plan

1. To monitor the extent of environmental impact of the proposed project, the ambient environmental quality along the proposed project area has to be monitored. The monitoring requirement for the different environmental components is presented in following table.

*Table 18: Environmental Monitoring Plan*

AIR QUALITY MONITORING	
Project stage	Baseline monitoring at the start of the project and once in a year during operations.
Parameter	PM10, PM2.5, SO2, NOx, CO, H2S and Odour, DG stack monitoring and pyrolyzer stack monitoring.
Sampling method	Method specified by CPCB for analysis
Standards	Air (Prevention and Control of Pollution) Rules, CPCB, 1994
Frequency	Once at pre-construction and construction period and annually at operation phase.
Duration	Continuous 24 hours / or for 1 full working day
Sampling Location	One station in FSTP boundary in the downwind direction
Measures	Wherever air pollution parameters increase above specified standards, additional measures as decided by the engineer shall be adopted.
WATER QUALITY MONITORING	
Project stage	Baseline monitoring at the start of the project and once in 3 Months during operations.

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Parameter	pH, temp, turbidity, Total hardness, total alkalinity, chloride, sulphate, nitrate, fluoride, sodium, potassium, Electrical Conductivity, Ammoniacal nitrogen, Nitrate-Nitrogen total phosphorus, BOD, COD, Calcium, Magnesium, Total Dissolved Solids, Total Suspended Solids during Pre-Construction & Construction Phase pH, BOD, COD, TSS, Ammoniacal Nitrogen, Total Nitrogen, MLSS, DO, Faecal Coliform during operation phase
Sampling method	Grab sample collected from source and analysis as per Standard methods for examination of water and wastewater
Standards	Indian standards for Inland Surface Water (IS: 1226, 1982) and for Drinking water (IS: 10500, 1991)
Frequency	Parameters for water quality: pH, temp, turbidity, Total hardness, total alkalinity, chloride, sulphate, nitrate, fluoride, sodium, potassium, Electrical Conductivity, Ammoniacal nitrogen, Nitrate-Nitrogen total phosphorus, BOD, COD, Calcium, Magnesium, Total Dissolved Solids, Total Suspended Solids - operation phase for ground water. pH, BOD, COD, TSS, Ammoniacal Nitrogen, Total Nitrogen, MLSS, DO, Faecal Coliform during operation phase in FSTP
Duration	Grab sampling
Sampling location	Outfall of the FSTP site Ground Water i.e., Nearest Bore well.
Measures	At locations of increase in water pollution, all inflow channels shall be checked for pollution loads and channel delivering higher pollution loads shall be terminated from disposal into the water source and other methods of disposal to be adopted.
Implementation	To be implemented through approved monitoring agencies
Supervision	Implementing agency
<b>NOISE LEVEL MONITORING</b>	
Project stage	Baseline monitoring at the start of the project and once in a year during operations.
Parameter	Noise level on dB (A) scale noise levels on dB (A) scale
Special guidance	Free field at 1m from the equipment's whose noise levels are being Determined Equivalent noise levels using an integrated noise level meter kept at 15m from edge of pavement Standards MoEF CC Noise Rules 2000.
Duration	Readings to be taken at 15 seconds interval for 15 minutes every hour and then averaged.
Location	At two locations, near the equipment yard, or at sensitive Area.
Measures	Increase of noise levels causing disturbance to the sensitive receptors, management measures as suggested in the EMP to be carried out.
Implementation	Will be implemented through approved monitoring agencies
Supervision	Implementing agency
<b>SOIL QUALITY MONITORING</b>	
Project stage	Baseline study
Parameter	Soil bearing capacity
Sampling method	Collected and analyzed as per soil analysis reference book, M.L.



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	Jackson
Standards	Threshold for each contaminated set by IRIS database of USEPA until national standards are promulgated.
Duration	Grab sampling
Location	Project location
Measures	At location of increase in pollution level, source to be identified and will be diverted from future disposal.
Implementation	Will be implemented through approved monitoring agencies.
Supervision	Implementing agency
<b>BIOCHAR TESTS</b>	
Mass, Average Particle size (mm), % C, H, O, N, Ash, % K, P, Ca, Mg, Na, Fe, Cl, S etc. on quarterly basis	

### 1.1.2 Environment Standards

#### 37.3.1.1 Water

1. The treat water shall comply to the PCB standards (MoEF& CC Notification October 2017). Standards are presented in Section 11.

#### 37.3.1.2 Air

1. The emission limits for new diesel engine generator set shall meet the standards given in Table below.

*Table 19: Emission limits for DG (MoEF Notification, 2013)*

Sr No	Power Category	Emission Limits (g/kW-hr)			Smoke Limit (light absorption coefficient, m <sup>-1</sup> )
		NO <sub>x</sub> + HC	CO	PM	
1	Upto 19 kW	≤ 7.5	≤ 3.5	≤ 0.3	≤ 0.7
2	More than 19 kW upto 75 kW	≤ 4.7	≤ 3.5	≤ 0.3	≤ 0.7

#### 37.3.1.3 Biochar

1. The biochar quality shall comply with US-EPA Biosolids Rule for land application as shown in Table below.

*Table 20: US-EPA Biosolids Rule for land application*

Sr No	Parameter	Class A biosolids	Class B biosolids
1	Pathogen reduction	Pathogen levels should be below detectable limits 24 hours after treatment or at the point of application Faecal coliform: <1000 MPN/g of dry solids Salmonella Sp.: <3 MPN/ 4g of dry solids	May contain pathogens up to certain levels. Animal grazing, crop harvesting, and public access are forbidden until environmental conditions have further reduced pathogens Faecal coliform: <2,00,000 MPN/g of dry solids
2	Pollutant Limits (Heavy Metals)	Should abide by limits for ten trace metals (varies per option/type): Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, and Zinc	

## 38 SITE SAFETY

1. The contractor shall appoint a safety officer to manage the safety process at all their

## SECTION V: EMPLOYER'S REQUIREMENT

sites.

2. The Contractor shall always in the conduct of his work and that of his Subcontractors adhere to the established rules and regulations concerning all safety matters. This is especially important wherever it is necessary to enable the free passage of the public through the Site.
3. The Contractor's Safety Officer shall have the qualification and the authority to issue instructions to the Contractor's personnel regarding protection measures to prevent accidents.
4. The Contractor shall provide the public with adequate information on all risks with respect to the construction works. If the general public sustains any kind of bodily injury or death, the Contractor shall be responsible for providing all necessary medical care and compensation.
5. During construction, the Contractor shall erect, maintain, and subsequently remove sufficient barricades, guards, lighting, sheeting, shoring, temporary sidewalks and bridges, danger signals as well as temporary covering of potential accident areas, as approved by the Employer's Representative.
6. All open excavations shall be protected sufficiently to keep out livestock, and ensure the safety of workmen and members of the public and be in accordance with the directives of the police and the other local regulations.
7. The Contractor shall be responsible for ensuring that all persons working in the vicinity of powerlines are aware of the relatively large distance that high voltage electricity can "short" to earth when cranes or other large masses of steel are in the vicinity of power lines.
8. Where work is to be carried out in the proximity of buildings, bridges, tanks or other structures, the Contractor shall take all necessary precautions, including shoring and strutting, where necessary, to ensure the safety of the structures that are at risk.
9. The Contractor shall be responsible for all damages or injury which may be caused on any property by trespass by the Contractor's or his Subcontractor's employees in the course of their employment, whether the said trespass was committed with or without the consent or knowledge of the Contractor.

### **39 SAFETY EQUIPMENT AT SITE**

1. The Contractor shall provide the safety equipment to Employer's Representative/supervision consultant/visiting officers or team and labour at each site office. These shall be called as the Personal Protective Equipment (PPE). The Contractor shall replace each item after it wears out and becomes unsuitable for use.

#### **39.1 Training for Proper Use of PPE**

1. Contractor's safety officer is required to train each labour/supervisor that must use PPE and this training must contain to know at least the following:
  - a. When PPE is necessary.
  - b. What PPE is necessary.
  - c. How to properly put on, take off, adjust and wear the PPE.
  - d. The limitations of the PPE.
  - e. Proper care, maintenance, useful life and disposal of PPE.
2. Contractor's safety officer makes sure that labour demonstrates an understanding of the PPE training as well as the ability to properly wear and use PPE before they are allowed to perform work requiring the use of the PPE. If employer representative believes that a previously trained labor is not demonstrating the proper understanding and skill level in the use of PPE, that labor should receive retraining. Other situations that require additional or retraining of labor include the following

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circumstances: changes in the workplace or in the type of required PPE that make prior training obsolete.

3. The safety officer must document the training of each labour/site employee of the contractor required to wear or use PPE by preparing a certification containing the name of each personnel trained, the date of training and a clear identification of the subject of the certification.

### **39.2 Type of Protections and Required PPE**

Following type of protections are generally required:

1. Eye and Face Protection –Safety spectacles, Goggles, Welding shields, Laser safety goggles, Face shields etc.
2. Head Protection – Hard Hats/Helmets as per type of work.
3. Foot and Leg protection – Leggings, Metatarsal guards, Toe guards, Combination foot and shin guards, Safety shoes, electrically conductive shoes, Electrical hazard, safety-toe shoes, foundry shoes etc.
4. Hand and Arm Protection – Leather gloves, Aluminized gloves, Aramid fiber gloves, Synthetic gloves, Fabric gloves, Coated fabric gloves, Chemical and liquid resistance gloves (Butyl gloves, Natural (latex) rubber gloves, Neoprene gloves, Nitrile gloves) etc.
5. Body protection – jackets as per work exposure.
6. Hearing protection – ear buds as per noise in dB at work site.
7. Road work safety equipment – reflecting jackets, stop sign etc.

### **39.3 Contractor's Offices, Stores and Services**

1. The Contractor shall provide, erect, construct, maintain and subsequently provide proper offices, stores, workshops, laboratories, storage, and parking areas for his own use within 30 days if Notice to Proceed. Such facilities shall be sufficiently sized and equipped to enable him to manage his operations and those of his Subcontractors in a professional manner and to enable him to carry out all his obligations under the Contract. Sheds for storage of materials that may deteriorate or corrode if exposed to the weather shall be weatherproof, adequately ventilated and provided with raised floors.

### **39.4 First Aid at Office and Work Site**

1. The Contractor shall make his own arrangements for treatment of casualties on the Site in such first-aid units as may be thought necessary. The Contractor shall be responsible for the construction of such first-aid units and their management and operation and the removal by ambulance of injured or sick employees to nearby hospitals. The first-aid service shall cover the Contractor's own personnel as well as that of the Employer, the Employer's Representative, and all Subcontractors.

## **D. OPERATION AND MAINTENANCE**

### **40 OPERATION & MAINTENANCE PLAN**

1. Process Flow Chart and Material Balance Statement setting out the activities and the outputs at each stage.
2. Calculations and methodology for operations with respect to processing & disposal and/or reuse of sludge & septage at the sites.
3. Resource Utilization Statement indicating the proposed equipment procurement and utilization, contracting activities, utilization of office and other facilities.
4. The maintenance (regular & emergency) schedules should also be indicated over the

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entire Concession Period.

5. Re-use of treated outputs (liquid and solid).
6. Details on net energy consumption/KLD of faecal sludge treated.
7. Operation Timing
  - a. The FSTP plant shall operate 6 days a week between 9.30 a.m to 5.30 p.m. The weekly holiday shall be ideally on Sunday but may be changed as per local requirements. The standard list of holidays shall include the national, state and local holidays and be declared in advance once in a year.
  - b. The desludging operations shall be done between 7.30 a.m to 3.00 p.m. The desludging vehicles shall be parked in the FSTP plant when not in use.

### 40.1 Organization & Staffing

1. To present the calculations for manpower requirement for different parts of the FSTPs value-chain. Proposed organization structure and composition of the project and operational team to be presented, including staff deployment plan, suitable timings for plant operations and roles and responsibilities. The Concessionaire shall indicate the number of staff to be sourced locally.

#### 40.1.1 Personnel Requirement During Operation & Maintenance-FSTPs

1. For all operations and maintenance work, the Contractor shall provide skilled staffs for complete O&M. They should have adequate qualifications and sufficient experience of in performing operation and maintenance.
2. The Table below outlines the minimum number of staffing, and their minimum qualifications and experience on similar projects, that the Contractor shall be required deploy for carrying out the O&M functions. Contractor shall mobilize more personnel and workers when required for proper functioning of the system.

*Table 21: Personnel Requirement for O&M Period*

S. No.	Designation	Nos.	Minimum Qualification
1	Plant Supervisor	1 for each FSTP site	12 <sup>th</sup> pass preferred from local area.
2	Plant Operator	1 for each FSTP site	10 <sup>th</sup> Pass preferred from local area.
3	Gardner-cum-helper	1 for each FSTP	-
4	Night Watchman	1 for each FSTP	-

#### 40.1.2 During Operation & Maintenance-Scheduled Desludging

*Table 22: Personnel for Scheduled Desludging*

S. No.	Designation	Nos.	Minimum Qualification
1	Driver	1 for Each Vehicle	10th pass
2	Helper	Minimum 1 for each Vehicle	-

#### 40.1.3 Provision for Staff

1. The payment and all other requirements of the workers would be handled by the Contractor.
2. ULB will not be responsible for the activities of the staff employed by the Contractor

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and all liabilities and responsibility lies with the Contractor themselves.

### **40.1.4 Provision of Safety Equipment for Staff**

1. No worker will come into physical contact with the faecal sludge, during emptying or otherwise.
2. Each worker who is involved in the emptying of septic tanks is required to be given, and be wearing, safety equipment which are given below:
  - a. Safety goggles or glasses with side splash protection.
  - b. Dust mask that fits over nose and mouth.
  - c. Clean rubber gloves.
  - d. Dedicated work clothes with apron.
  - e. Work boots.
  - f. Battery operated torch.
3. The Contractor also needs to provide workers access to clean water, soap, disposable paper towels, and a first aid kit in the FSTP.

### **40.2 Identification of Risks and Mitigation Plan**

1. Ability of the system to ensure all weather operations and be able to handle variable inputs of varying characteristics, ability of the system to handle anticipated shocks such as power outage, process hazard and measures for mitigating risks.

### **40.3 Maintenance of Existing Access Roads**

1. The Contractor shall ensure the access roads provided by the ULB are not damaged due to the movement of vehicles during plant setup and operation. Any damage caused due to the wrong handling by the contractor, or his team shall be repaired by the contractor at his own cost.

### **40.4 Water Supply and Wastewater Disposal at Site**

1. The Contractor shall make his own arrangements for water supply during construction at site and he shall ensure the quality of the water remains usable for the purpose for which it is intended. The Contractor shall also conduct weekly/bi-weekly test for water quality and comply with the quality requirements, as directed by the ULB's representative.

## **41 DESLUDGING PROCESS O&M REQUIREMENTS**

### **41.1 General Scope**

1. The Contractor shall be responsible for desludging of septic tanks of households and establishments identified by the ULB based on the agreed zoning and schedule of desludging service (finalized by concerned ULBs). The desludging frequency shall be every 3 years. For example, if the first zone is served in the first year of operation, it will be served again on the [4th] year of operation. The desludging operation and the transport of the raw septage to the septage treatment plant shall comply with the requirements and standards set forth in this section.
2. Within the twenty-one (21) days of commissioning, the ULB shall provide the list of households and commercial establishments with names and addresses for the desludging of septic tanks/pits in the given Zone of operations. The list shall be updated each year of operation.
3. Desludging of septage from household pits/ septic tank, transportation to FSTP, Disposal to designated unit in FSTP including operate and maintenance of the equipment with all accessories complete in all respect over the entire O&M period.
4. The Contractor shall take all precautions to avoid damage in the process of emptying and there is no spillage during emptying.

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5. While emptying of septic tanks, the Contractor must ensure that minimum of 4-6 inches of faecal waste matter is left inside the septic tanks.
6. Service outside of the ULB service area:
  - a. Tipping of Septage in Treatment Plant by Third Parties- The Contractor shall be allowed to accept septage from private de-sludgers and charge a tipping fee for it subject to the consent of the ULB, which consent shall not be unreasonably withheld, and provided the service requirements of the ULB are met in accordance with this contract.
  - b. Request for Unscheduled Desludging- The Contractor may accept request for unscheduled desludging of households or commercial establishments within the service area of the ULB.
7. Transport to/from Septage Treatment Plant- Every trip to the FSTP shall be recorded on "Septage Delivery Form" containing date and time, and volume delivered as verified through the vacuum truck's contents level/volume indicator along with a certified government ID proof of the company.
  - a. Three (3) copies: for Consumer, ULB and Contractor
  - b. Plant staff at FSTP to verify entries.
  - c. The contractor shall be responsible for assessing the route conditions, hauling distances and volume of traffic in the locality from the various septic tanks to be serviced to the Septage Treatment Plant for safe and hygienic transportation.

### **41.2 Typical Duties and Responsibilities**

1. Typical duties and responsibilities of FS (Faecal Sludge) collection and transport service include those that occur prior to the FS removal, the FS collection itself, and the subsequent transportation of the FS to the treatment facility.
2. When emptying the FS from septic tanks/pits, several tasks are performed in accomplishing the job. Ideally, a typical job requires the service provider to:
  - a. interact with customers prior to removing FS to arrange logistics and inform them of procedures.
  - b. share the standardized fee or negotiate.
  - c. locate septic tank/pits that are to have sludge removed.
  - d. determine the accessibility of the system once it is located.
  - e. open the septic tank/pits to facilitate the process.
  - f. collect the FS.
  - g. evaluate the condition of the system post-collection.
  - h. close and secure the system once the FS removal has been completed.
  - i. clean up after the process is completed; and
  - j. perform the final inspection and report any issues with the system to the customers after the service is completed.

### **41.3 Approach and Work Plan for Carrying Out Scheduled Emptying**

1. Contractor shall have to submit the approach, methodology and tentative work plan in consultation with ULB officials for 5 years to roll out the scheduled septic tank emptying service in the Urban Local Body (ULB). The work plan should also include tentative number of trucks with its sizes to be used by the bidder.

### **41.4 Undertaking IEC Activities to Spread Awareness About Scheduled Emptying**

1. The Contractor will be required to print pamphlets containing information on the scheme for scheduled emptying highlighting the information as decided between the Contractor and the ULB. These pamphlets will be distributed to

## SECTION V: EMPLOYER'S REQUIREMENT

households/properties when the Contractor visits them and in areas where scheduled emptying needs to be undertaken.

### **41.5 Undertaking Preliminary Visits to Households/Properties at the Beginning of Every Quarter**

1. The Contractor will be required to undertake visits to each household/property after being given the schedule/target for emptying by the ULB. These visits will be undertaken at the beginning of the quarter and should contain the households/properties which are scheduled to be cleaned in that quarter. The Contractor needs to hand over the pamphlets, inform the households/properties about the scheduled emptying, and take details necessary for communication such as phone number among other things as deemed necessary by the Contractor. The contractor will also visit the households/properties atleast two days prior to their schedule for emptying.
2. During the preliminary visit, the contractor shall ensure that the septic tanks are accessible and have proper access covers which are openable. In case access is not available, the contractor shall notify the same to the ULB and the household. It is the responsibility of the ULB to ensure that the septic tanks (Containment systems) in the households have proper access for emptying.

### **41.6 Non-Disclosure of Information**

1. The contractor shall not divulge or disclose to any third party any confidential information (including any personal data and sensitive personal data of the households/properties) communicated to or discovered by him in the course of carrying out the Services or use the same for any purpose other than to perform the Services without the prior written consent of the ULB officials and shall ensure that their employees shall do likewise. This clause shall continue to be binding on the Contractor and their employees notwithstanding the termination or expiry of this Contract.

### **41.7 Regular Emptying of Septic Tank**

1. The Contractor shall build a database and a Management Information System (MIS) of the households in the Urban Local Body where the faecal sludge needs to be emptied. The data needs to be updated as and when emptying is undertaken. The MIS should record information like the specification of the septic tank (containment system), date it is emptied, signs of leakages or cracks, access for emptying etc. The contractor shall share the updated database and MIS with the ULB at the end of every month.
2. The Contractor shall be available to carry out and perform the Services and needs to visit the households/properties as per schedule to be worked out in consultation with the ULB.
3. The contractor shall prepare operating procedures and submit to ULB for approval. The approved operating procedures must be followed by the contractor.
4. The Contractor must call each household/property at least two days before the scheduled visit.
5. The Contractor must visit each household/property as per the defined and agreed monthly based schedule/target.
6. If the household/ property is not available or not willing to empty the septic tanks during schedule emptying, then at least two attempts will be made by contractor in a gap of 15 days before reporting as 'unavailable' (not present at the house/property) or 'unwilling' (do not want to get their septic tanks cleaned). Contractor shall compile the list of households/ properties, which are not willing or not available to empty its

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septic tank and submit to ULB every fortnight. The ULB should ascertain facts in such cases.

### **41.8 Use Of Safety Gear for Emptying of Septic Tanks**

1. The cleaner and helper must wear safety equipment at all times while dealing with faecal matter.
2. Gas detection equipment be used before the start of desludging work to see the level of toxicity of gases.
3. No person should enter the septic tanks at any given point (as per The Prohibition of Employment of Manual Scavengers and their Rehabilitation Act, 2013), and emptying should be done only through the GPS mounted suction emptier truck and using the mechanized equipment.

### **41.9 Safe Transport of Faecal Sludge without Spillage**

1. The Contractor should transport the collected sludge in mechanical suction emptier trucks only. There must be no spillage of the collected sludge.
2. In case there is any spillage, the faecal matter must be cleaned as soon as it is brought to the notice of the Contractor.
3. Only the faecal sludge should be discharged at the allocated treatment site.

### **41.10 Emergency Emptying**

1. As part of regular emptying, the Contractor is only required to empty the septic tank for the households/properties as per the schedule given by ULB.
2. ULB will direct the Contractor to empty the septic tank for the households/properties making request for an emergency emptying.
3. Also, the individual households can also request the contractor for emergency service.

### **41.11 Statutory Requirements for Suction Emptier Truck**

1. A motor vehicle which is roadworthy, complied with all statutory requirements and capable of carrying and operating as vacuum/suction tanker truck should only be used. The desludging vehicle is required to obtain fitness certificate from the local RTO office as per applicable norms.

### **41.12 Expected Service Standards, Monitoring Process and Penalties**

1. The Contractor will have to adhere to the service standards highlighted under the scope of work. If the service standards are not met as highlighted below, the following actions can be taken against the Contractor by the ULB:
2. Inadequacies or inconsistencies in the use of safety gear for emptying septic tanks:
  - a. Households/property owners, Contractor employees can complain in case manual scavenging is observed or the safety equipment outlined in this contract are not used. For action to be taken by the ULB, the complainant must provide pictorial proof.
  - b. The ULB can conduct random inspections to ensure the Contractor is adhering to safety and manual scavenging regulations during emptying.
  - c. In cases where manual scavenging is observed based on complaints by households / property owners or based on ULB inspections, a show cause notice would be served by the ULB and a meeting will be called to verify these complaints or observations. The minutes of such a meeting will be published and the decision of the ULB will be binding.
  - d. In cases where manual scavenging is observed and verified, the Contract can be terminated.
3. Inadequate regular emptying of septic tanks:



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- a. The Contractor must collect signatures from all the households / property owners whose septic tanks are cleaned by the Contractor in the format/template approved by the ULB. Also one Government ID copy needs to be attached for each household where the desludging activity has taken place and should be attached with the format
  - b. The Contractor must inform ULB of all households/properties that are unwilling or unavailable to get their septic tanks cleaned, after having contacted them at least twice. This information has to be submitted by the Contractor to the ULB and it will be checked by ULB official.
  - c. Households/properties who have been contacted twice, but have been verified as being unavailable or unwilling for septic tank emptying, will be included in the target.
  - d. The Contractor must submit a report to the ULB at the end of each month to reflect number of septic tanks cleaned as per a template approved by the ULB.
  - e. Following the receipt of the monthly report, a designated ULB official will inspect a random sample of 'cleaned' households/properties.
  - f. At the end of the month, the Contractor will be paid monthly contract value against submission of receipt and report that they have actually emptied the septic tanks as per the monthly target and discharged it at the designated treatment plant. If the contractor fails to submit this, proportionate payment would be deducted. For example, if the Contractor submits receipts of only 70% of the target households/properties that they have emptied in a month, they will receive 70% of the monthly Contract value.
  - g. The ULB will compare the results of the sample survey and self-reporting, and in case of 1-20 instances of wrong reporting, INR 500 penalty will be charged per instance and if more than 20 instances of wrong reporting, a final warning and a notice would be given. If additional instances are found then the Contract can be terminated.
  - h. The survey by the ULB will be completed in 2 days at the beginning of every month.
  - i. ULB will review the performance of contract after one year from commencement of operations, if the proportion of households/properties emptied is less than 70% of the defined target for year then the Contract will be reviewed by the ULB and the Contract can be terminated.
4. Spillage during emptying:
- a. Household/Property owners can report any grievances to the ULB.
  - b. The Sanitation Inspector will review and if necessary, instruct the Contractor, in writing, to address the grievance within 24 hours.
  - c. The Contractor will acknowledge the receipt of the complaint through his signature.
  - d. In case of dispute, a designated ULB employee will inspect the grievance and take the final decision.
  - e. After each grievance is addressed, the Contractor will get a signature from the households/property owners stating the same.
  - f. For each grievance not addressed, the Contractor will be charged INR 200 as penalty.

### **41.13 Online Monitoring of Scheduled Emptying Services**

1. The contractor shall have to develop SMS based alert system for sending messages to households/properties regarding their turn in schedule emptying plan. The

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contractor will also have a contact number where residents can register complaints through calling or through an SMS.

2. The emptier trucks will be GPS-enabled for the purpose of monitoring the services.
3. A web and mobile based application shall be developed by the contractor, and used for the purpose of monitoring the emptying services.
4. The data will be available at the control center for monitoring and management.

### **41.14 Tools Requirements**

1. Contractor shall be responsible for procuring and maintaining necessary tools and equipment in proper working order.

### **41.15 Transportation**

1. The following emptying/desludging equipment's can be employed:
  - a. Vacuum truck as per Specifications given in this section.
  - b. Vehicle already purchased by the ULB post maintenance and subject to clearing the specifications as per the document, over and above the mandatory vehicles under this contract.
2. Further, the transport trucks should be able to reach out to every house and the collection mechanism for inaccessible toilets due to poor road access also needs to be considered.
3. The activities shall be carried out in line with the following:
  - a. CPHEEO Guidelines on Standard Operating Procedure (SOP) for Cleaning of Sewers and Septic Tanks.
  - b. Primer on faecal sludge as prescribed under the Swachh Bharat Mission.
  - c. Guidelines on Septage Management by CPCB.

### **41.16 Desludging Vehicle and Equipment**

1. Supply, Trial run and commissioning of Truck mounted Desludging Equipment with all accessories, as per technical specification.
2. Maintenance of equipment- Routine, Preventive and Break down maintenance.
3. Desludging from household pits/septic tanks at any location domestic/institutional/public within respective premises, transportation to FSTP and disposal to stipulated unit of FSTP.
4. The equipment shall be a Truck Mounted Mobile Unit suitable for desludging, dislodging and removing obstructions and blockages from containments (pits/septic tanks/etc.) by a High Vacuum suctioning the Sludge/ slurry by Vacuum Suction System and discharging the collected sludge by Hydraulic Tipping of the Tank, alternatively through Blow-back Arrangement.

### **41.17 Number and Capacity of Desludging Vehicle**

1. The number of new desludging trucks shall be one for 5 KLD and 10 KLD plants. Two numbers for 15 KLD, 20 KLD, 25 KLD, and 35 KLD plants.

### **41.18 Operation and Maintenance (Vehicle & Sludge Collection)**

1. Under the operation activity, the contractor shall attend to the household on instruction of ULB/client, access the accessibility of septic tank or pit, give prior notice to the household on date and time of desludging, mount the desludging machine at a suitable place which would not hamper or impact normal activity of other people or pedestrians, Use of required safety gears, desludging the containment with high power suction machine to the tank, complete desludging activity with safety and care, transportation of the vehicle to FSTP, dispose-off septage to Inlet chamber/screen chamber of FSTP, cleaning of the tank, and proper garaging of the vehicle at designated place.

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2. Trial run period is of 5 days shall be commencing after the delivery of all above equipment with good condition and successful commissioning of each machine.
3. The warranty period shall be of 12 months the vehicles will be maintained by the supplier free of cost. The warranty shall remain valid for 12 months after the Goods or any portion thereof as the case may be, have been delivered to and accepted at the destination with satisfaction of Employer.
4. Contractor shall make Preventive maintenance, Break down maintenance and Routine maintenance. He shall submit O&M manual and provide training for the same.
5. The maintenance activity shall include checking of fuel, training of driver, tire puncture checking, cleaning of equipment, lubricating the accessories and equipment and any other, etc.
6. The Contractor shall provide the followings:
  - a. One copies of workshop and service manual.
  - b. One copies of spare parts catalogue.
  - c. Warranty card for one year.
  - d. Battery warranty card for one year.
7. The technology integration in terms of GPS device to be integrated.
8. If collection, transportation and disposal at designated place (to designated unit of FSTP) is non-complied, then penalty shall be charged as per regulations of Urban Local Body of concerned city.

## 42 PLANT OPERATION AND MAINTENANCE REQUIREMENTS

### 42.1 Operation and Maintenance (FSTP)

#### 42.1.1 General

1. This section applies to the specifications for the activities and materials to be used during the Operation and Maintenance (O&M) Period. The required degree of workmanship, the performance requirements for the acceptable quality of effluent, the keeping and maintenance of records, and the responsibilities during the O&M Period are described herein.
2. The Contractor shall operate and maintain the system for which he would be constructing and/or restoring and/or replacing the components, for the O&M Period specified in the Contract.
3. This shall contain all components of treatment units/facilities and other ancillary structures/components within the project boundary.

#### 42.1.2 Activities During O&M Period

1. Operating procedures: It is essential to regularly operate and maintain the FSTP treatment system for its smooth function and improved life span. The operator must be familiar with the operating procedures before he starts to operate and maintain the fecal sludge treatment system. It is a must that the operator undergoes a training program dedicated to O&M of FSTP.
2. Specific activities of the Contractor are illustrated, but not limited to the following, as given below:
  - a. Supply and supervise operator for monitoring and coordinating the activities mentioned in O&M manual of the treatment facility. Operator must be available at the treatment facility on 6 days of the week for at least 8 hours or as agreed. Operator shall be provided with all the required personal safety equipment to carry out the task, he/she shall also be covered as per the labor act of the local, state, and national governments with provisions for medical and accidental insurance.

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- b. Supervisors and Labors must be always provided with personal safety equipment and shall be covered as per local, state and national employment acts.
  - c. Maintain for the landscape consisting of grass turf and flowering/non flowering plants within the treatment premises.
  - d. Maintain, repair and restore sludge/water and wastewater pumps in the treatment facility for the O&M period to match performance standards as per design or instructions of the engineer. It includes cost of part/whole replacements where ever necessary, transportation and fee for expert supervision/site visits by manufacturer/ suppliers. All repairs and replacements shall be carried out by competent personnel.
  - e. Cleaning and maintaining tidy the premises of the treatment plant including removal of trash from dustbins/trash chambers, cleaning of roads and cleanage of spillage for O&M period.
  - f. Collection, analysis, reporting and documentation of wastewater/fecal sludge/treated water samples at times prescribed by the local government/pollution control boards or any competent authority. Testing parameters and methods to be carried out as per standards mentioned by the PCB in a NABL certified laboratory.
  - g. Maintain, replace, restore – sand/filter media in sludge drying beds/planted gravel filter to maintain treatment standards as per design and commissioning post restoration under expert supervision.
  - h. Monitor, making payment and documentation of electricity charges as billed by the competent agency.
  - i. Preparing, packaging, and making arrangement for selling of biochar/biosolids/co-compost to buyers.
3. Within the framework of the Contractor's general responsibilities given above, the Contractor shall carry out the following activities. These shall not limit the requirement for other activities which are required in accordance with the terms and conditions of the Contract or are essential as per good practices. The operator shall not cause damage to the infrastructure. The contractor shall not deviate from the operating procedure without the approval from the Engineer-In-Charge. The operators and operating staff shall be available in the site during operational hours.
4. The Contractor shall be responsible for, but not limited to, the following:
  - a. Providing periodic routine maintenance of treatment units. Such maintenance shall ensure adequate cleanliness, ventilation, illumination, and safety. In addition, the general hygienic standards shall be maintained, and adequate planting shall be undertaken to maintain the total environment of the premises. Daily cleaning and maintain of treatment complex once in a week. It shall include all units, including walkway, open area, horticulture, drainage, etc.
  - b. Water tanks and electrical fittings/connections shall be cleaned and checked once in a month respectively.
  - c. Treating the waste at the desired level and disposing to drainage system outside the premises by pumping.
  - d. The waste or end product of the treatment plant shall not be disposed in non-designated areas or areas outside the treatment facility without the approval of the local government.
  - e. Monitoring the treated waste quality as per the monitoring.
  - f. Providing the required qualified staff, but not less than the minimum specified numbers at the specified levels to negotiate all possible emergency situations.

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- g. Operation and maintenance of all electrical and mechanical units on monthly basis or as on required whichever is minimum.
- h. Providing all consumables required (chemicals, chlorine powder, inoculums, fuel, etc.) for the functioning of the system.
- i. Disinfection of effluent, if instructed by Employer.
- j. Operation of mechanical, electrical and electro-mechanical units.
- k. The contractor should maintain yard lighting and rooms/toilet lighting of the complex and ensure that the lights should not be on when not required. Maintenance of the lighting fixtures and the lighting system of all and replacement of all non-functional lighting fixtures. Contractor shall have adequate standby fixture to ensure immediate replacement.
- l. Solar power utilization.
- m. Providing back up emergency power facility which would be used for running of the plant in case of power cut off from the power authority or its agencies.
- n. Providing back up emergency lighting facility for at night, which would be used in case of power cut off from the power authority or its agencies.
- o. Contractor shall ensure that no wastage or physical loss of water within the campus by proper monitoring and maintenance.
- p. Contractor must ensure smooth function of FSTP by proper addressing issue on:
  - i. clogging of interconnected pipes, which can occur due to soil waste, damage of screen chamber.
  - ii. irregular desludging of treatment modules where sludge may enter into subsequent modules resulting in reduced efficiency, clogging of the filter material in AF and PGF.
  - iii. charging activated sludge into AF may cause clogging of the filter material
  - iv. clogging of filter media in PGF may occur due to leaves and solid waste entering the PGF.
5. Providing required spares for pumps, motors, electrical fixtures, plumbing utilities, toilet components, sewers pipes and maintaining adequate inventory of required accessories for repair without any additional costs to the Employer. The Contractor shall have adequate tools and tackles as required for O&M of the systems. However, at the end of the O&M Period the Contractor shall hand over the full spares, tools and tackles as supplied by him.
6. The Contractor shall be solely responsible for the safety and security of the O&M items in the stores and shall be responsible for any loss or damages occurring in the stores.
7. Submission of monthly reports on performance of the system.
8. Carryout out test for all parameters for performance guarantee and non-performance guarantee parameter.
9. Maintenance of plant lighting, internal road, drainage system, plantation, plant water supply system etc.
10. O&M activities with responsibilities:

*Table 23 O&M Activities with Responsibilities*

Activities	Frequency	Details	Primary Responsibility
Hand Holding	as and when	<ul style="list-style-type: none"> <li>As per O&amp;M Manual</li> </ul>	Employer

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Support	required		
Daily monitoring and inspection procedures	Daily	<ul style="list-style-type: none"> <li>• Log the quantity, source and age of FS and the truck details.</li> <li>• Inspect the quality of FS prior to discharge into the treatment plant to ensure hazardous or non-biological waste are not being accepted.</li> <li>• Inspect the levels of sludge and liquid in all underground tanks</li> <li>• Inspect for scum and trash in stabilization tank</li> <li>• Inspect the moisture content in the dried sludge manually.</li> </ul>	Operator
Screen	Daily	<ul style="list-style-type: none"> <li>• Remove trash from screen chamber after each loading from the truck into the stabilization reactor. Removed trash to be disposed into a trash bin located within the premises.</li> </ul>	Operator
Stabilization Reactor	Daily	<ul style="list-style-type: none"> <li>• Accumulated sludge from the outlet chamber to be pumped into mechanical sludge dewatering system.</li> </ul>	Operator
	As per requirement	<ul style="list-style-type: none"> <li>• Scum to be removed from the first chamber of the stabilization tank and disposed along with trash.</li> </ul>	Operator
	As per requirement	<ul style="list-style-type: none"> <li>• Accumulated sludge in the first three chambers to be de-sludge as and when the sludge accumulated height is more than 500 mm. The removed solids to be disposed directly</li> </ul>	Operator

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		into mechanically dewatering system.	
Mechanical Sludge drying	Daily	<ul style="list-style-type: none"> <li>• Cleaning of sludge outlet</li> <li>• Disposal of sludge-to-sludge storage yard.</li> </ul>	Operator
Pyrolyzer	Daily	<ul style="list-style-type: none"> <li>• Open the combustion chamber and clean the area accessible around the fire pot with a brush or vacuum cleaner.</li> <li>• Empty the contents in the char collection box into an airtight metallic container.</li> <li>• Check for pyrolyzer and chimney temperature is not beyond the acceptable range.</li> <li>• Check for any blockages in the system.</li> </ul>	Operator
	Weekly	<ul style="list-style-type: none"> <li>• Check for any broken / separated parts which need maintenance.</li> <li>• Apply grease and lubricant as per schedule.</li> </ul>	Operator
MBBR	Daily	<ul style="list-style-type: none"> <li>• Check for free flow of liquids into the inlet and from the outlet of MBBR.</li> <li>• Check for aeration visually in aeration zone.</li> <li>• Check the working of recirculation pump every day, see that water gets pumped back to anaerobic zone.</li> <li>• Check for blower functionality.</li> </ul>	Operator
	Weekly	<ul style="list-style-type: none"> <li>• Clean suction filter of blower on weekly basis.</li> <li>• Apply grease and lubricant as per schedule.</li> </ul>	Operator
	Yearly	<ul style="list-style-type: none"> <li>• Desludge the system after 12 to 18 months or when it is filled with sludge more than 30% of the total Volume.</li> </ul>	Operator
General maintenance of pipes	Daily	<ul style="list-style-type: none"> <li>• All sludge carrying pipes, such as outlet of screen chamber, outlet of stabilization tanks</li> </ul>	Operator

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		<p>etc. must be flushed with treated water.</p> <ul style="list-style-type: none"> <li>• All pipes to be inspected for leakages or blockage by assessing the flow of water through pipes.</li> <li>• Hoses and temporary connections to be washed thoroughly after usage and stored at designated areas.</li> </ul>	
Maintenance of Landscape	Weekly thrice	<ul style="list-style-type: none"> <li>• Grass, green belt, and trees inside the treatment facility to be irrigated using treated water</li> <li>• Compost/bio solids from the facility to be used as a soil conditioner and nutrient provider.</li> </ul>	Operator
Sand and Carbon Filter	Daily	<ul style="list-style-type: none"> <li>• Checking of pressure pipes and connectivity to both filters.</li> <li>• Checking of vales.</li> </ul>	Operator
	Once in Three month	<ul style="list-style-type: none"> <li>• Backwashing of filter media</li> <li>• Recharging filter media</li> </ul>	Operator

### 42.1.3 Specification for Materials for Maintenance

1. The specifications for materials used for maintenance, repairs and renovation, replacement items shall be the same/equivalent as those that have been used during the execution of work in compliance to as stipulate in the specification. During O&M period, without being limited by this clause, the Contractor shall use appropriate materials for repairs, even if the material required for such repairs has not been used earlier.

### 42.2 Operation & Maintenance Manual and As-Built Drawings

1. The submission of the As-built drawings and the operation and maintenance manual for the system is compulsory.
2. The Contractor must submit as operation and maintenance manual after the physical completion of the work.
3. Contractor shall periodically suggest employer to update the manual to incorporate the appropriateness in respect specific site condition and suitable practices experience gained while carrying out the O&M activities.
4. The provisions in the approved Operation and Maintenance Manual shall be valid



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and binding for both the parties during the O&M Period along with the additions and deletions made.

5. The manual so prepared shall be updated by the contractor after the end of every year during the O&M Period, giving special attention to the experience gained and the observations made by the Contractor, the Employer and the Engineer.

### 42.3 Disclaimer (Operating Procedures)

1. The review or approval by the DLB/ULB of the Operating Procedures shall not relieve the Contractor from any liability under this contract or any other contract agreement nor shall it be considered a waiver by the DLB/ULB of any of its rights. The DLB/ULB shall not be liable to the Contractor or any other person by reason of any review or approval of the Operating Procedures.

### 42.4 Tests After Completion & During O&M Period

1. During O & M period, tests for treated effluent (BOD, COD, pH, TSS, Faecal Coliform and Nitrogen) and Bio-Solids/Sludge (Moisture, Organic Carbon, Organic Nitrogen, Phosphorus, Bulk Density) shall be done as per the PCB CFO.

### 42.5 Treated Water Testing Procedure Sampling and Testing By The DLB/ULB

1. DLB/ULB or its representative will have right to access the facilities for the purpose of taking samples of Treated Water for testing at the RPCB laboratory or at an external laboratory.
2. The DLB/ULB shall bear the full cost of the taking and analysis of its own samples of Treated Water and bio-solids, whenever it desires to self-test the samples.

### 42.6 Penalties

#### 42.6.1 Damages for Non-Performance of O&M Services

1. For non-performance of the operation services following damages shall be imposed on the contractor and deducted from monthly payment of operation and maintenance by ULB.

Table 24: Damages for non-performance of O&M services

Activities	Damages
Desludging	<ul style="list-style-type: none"><li>• Quarterly basis if the number of trips as agreed is not achieved - Penalty 25% of the cost/trip</li><li>• Any instance of discharge of waste outside the FSTP - Penalty of INR 5000/- for every instance of discharge.</li></ul>
If the output characteristics of the treated effluent is not as per standards specified by the local government.	<ul style="list-style-type: none"><li>• First instant in a month – 5% of the monthly O&amp;M contract value</li><li>• Second instant in the same O&amp;M month – Totaling to 10% of the monthly O&amp;M contract value for next successive instant.</li><li>• Third instant in the same O&amp;M month – Totaling to 20% of the monthly O&amp;M contract value.</li></ul>

#### 42.6.2 Failure to Achieve Effluent Quality Standards

1. In case of failure to attaining the required quality of treated wastewater effluent and non-attending to comply with the O&M activities as stipulated in the document, liquidated damages shall be imposed for such failure to meet the performance criteria. The Employer will be entitled to recover any such non-compliance from the

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monthly progress payments to be made to the Contractor in the month in which the failure occurred, or at any time thereafter from the subsequent monthly progress payments.

2. If the Contractor does not meet the quality as directed by the Employer due to his operational limitations, liquidated damages (LD) (designated as LD in this chapter) shall be imposed on a monthly basis or withheld from performance guarantee. The limit of LD shall not exceed the percentage/amount as given in the relevant section elsewhere in the bid document.
3. In case the permissible effluent quality limits for any of the parameters is not achieved it would be deemed to be non-conformance to qualitative guarantee.

### **43 OTHER REQUIREMENTS**

#### **43.1 Signboards**

1. Signboards shall be placed at FSTP site in English and Hindi both languages, information about the project and Employer, and the names of the Employer's Representative and Contractor their contact numbers in a form and size to be agreed by the Employer's Representative. They shall be of durable construction capable of withstanding the effects of the climate until the end of the design build Period.
2. The Contractor shall keep the signboards in good repair for the duration of the contract and shall remove them on completion of the Contract.
3. Besides these signboards the Contractor shall not, except with the written authority of the Employer's Representative, exhibit or permit to be exhibited on the Site any other form of advertisement.
4. Size of sign board will be of 6'x 4' and following minimum Information signboards shall include following minimum information:
  - i. Name of Work: -
  - ii. Estimated Cost: -
  - iii. Name of Contractor: -
  - iv. Date of Start of Work: -
  - v. Date of completion of Work: -
  - vi. Description of Work: -
  - vii. Contact Person: - Employer Representative contact details.
  - viii. Suggestions are welcome.

### **E. DEFECT LIABILITY AND HANDBACK**

#### **44 DEFECT LIABILITY PERIOD**

1. The Contractor shall be responsible for operation and maintenance of the system for the period specified in the Bid Documents. The Defect Liability Period will be first 12 months, during the Defect Liability Period (DLP) the contractor shall be required to carry out all the maintenance required for the plant and desludging vehicle. Post DLP, the Contractor shall be responsible for operation and daily, weekly and regular maintenance of plant and desludging vehicle. All non-routine maintenance shall be paid for or reimbursed by the Employer.
2. After O&M period, employer will take over the asserts and issue a Hand-over certificate to the Contractor.

#### **45 HANDBACK OF THE PROJECT**

The contractor shall hand back the facilities such as FSTP, desludging vehicles to the respective Urban Local Body at the end of the O&M period. The plant and the vehicle shall be returned in working condition. Training of the ULB staff for a minimum period of 90 days

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shall be undertaken prior to hand back of the Facilities to the ULBs. In case the contractor is discharged from the responsibility of O&M prior to the official period of O&M the responsibility to handover the working plant and desludging vehicle to the ULB shall remain.

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### **15. Contract Price, Payments and Lien.....**

- 15.1 Contract Price
- 15.2 Lump sum Provisions in Estimate/content
- 15.3 Schedule of Payments
- 15.4 Application for Interim Payment certificate
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- 15.13 Recovery of cost of preparation of Bill
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  - 16.1 Termination by Procuring Entity
  - 16.2 Contractor liable to pay compensation
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- 17. Suspension of works and Termination by the Contractor.....**
  - 17.1 Contractor's Entitlement to suspend work
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- 18. Risk & Responsibilities .....**
  - 18.1 Indemnities
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- 19. Force Majeure .....**
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- 20. Insurance .....**
  - 20.1 General Requirements for Insurance
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- 21. Claims, Disputes and Arbitration .....**
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21.2 Contractor's Claims

21.3 Dispute Resolution

**Appendix A: General Conditions of Admissibility of Escalation.....**

**Appendix B: Dispute Resolution during execution of the Contract.....**

### 1. General Provisions

Sub-Title	Sub-Clause	Provision
<b>Definitions</b>	<b>1.1</b>	In the Conditions of Contract (these General Conditions) which include Special Conditions, the following works and expressions shall have the meaning stated as under. Words indicating persons or parties include firms, companies, and other legal entities except where context requires otherwise.
<b>The Contract</b>	<b>1.1.1</b>	
	<b>1.1.1.1</b>	<b>Bill of Quantities (BOQ)</b> means the priced and completed Bill of Quantities forming part of the Bid. <b>Activity Schedule</b> means the various stages of execution of the Works in case of Lump Sum Contract which are linked to payment Schedule.
	<b>1.1.1.2</b>	<b>Contract</b> means the document forming the Bid and acceptance thereof and the formal agreement executed between the competent authority on behalf of the Governor of Rajasthan and the Contractor, together with the documents referred to therein including these conditions, the Specifications, designs, Drawings and instructions issued from time to time on Contract and shall be complementary to one another.
	<b>1.1.1.3</b>	<b>Contract Agreement</b> means the Contract Agreement referred to in Sub-Clause 1.81 [Signing of the Contract].
	<b>1.1.1.4</b>	<b>Contract Data</b> means the pages completed by the Procuring Entity entitled Contract Data which constitute the Special Conditions of the Contract.
	<b>1.1.1.5</b>	<b>Drawings</b> means the Drawings of the Works, as included in the Contract and any additional and modified drawings issued by (or on behalf of) the Procuring Entity in accordance with the Contract.
	<b>1.1.1.6</b>	<b>Letter of Acceptance</b> means the letter of formal acceptance, sig

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		nedbythe Procuring Entity,includinganyannexedmemorandacomprising agreementsbetweenandsignedbybothParties.Ifthereisnosuc hLetterof Acceptance,theexpression“LetterofAcceptance”meanstheC ontractAgreement andthedayoffissuingtheLetterofAcceptancemeansthe day of signingtheContractAgreement.
	1.1.1.7	<b>Letter of Technical/ Financial Bid</b> meansthe documententitledLetter Technical orLetterof Financialbid, whichwascompletedbytheBidderandincludesthesignedoffert o the Procuring Entityfor theWorks.
	1.1.1.8	<b>Risk and Cost means</b> when the Contractor fails to complete the Contract despite due notices, the procuring entity may terminate the Contract with full 10% compensation and/ or measure the acceptable work done and get the balance work of the BOQ/ Activity Schedule carried out at the risk and cost of the Contractor and the difference of cost at which the balance work is carried out through the Department/ Organisation or another agency is debited to the Contractor.
	1.1.1.9	<b>Schedules</b> meansthe document(s) entitled Schedules, completed by the Contractor and submitted with the letter of Bid, as included in the Contract. Such documents may include the Bill of Quantities, data, lists and Schedules of rates and /or prices.
	1.1.1.10	<b>Specifications</b> meanstheBIS, IRC, and other Code SpecificationoftheWorksfollowedbyrelevant DepartmentoftheGovernmentofIndia/StateGovernmentand/ orincludedin theContractandanymodificationoradditionmadeorapprovedb ytheEngineer-in-Charge.
	1.1.1.11	<b>Technical/ Financial Bid</b> meanstheLetterofTechnical or Financial Bid andallotherdocumentswhichtheBiddersubmittedwiththeLette rof Technical or Financial Bid,asincludedin the Contract.
<b>PartiesandPers ons</b>	1.1.2	
	1.1.2.1	<b>Party:</b> meanstheProcuring EntityortheContractor, or both asthecontextrequires.
	1.1.2.2	<b>Contractor</b> shallmeantheindividual,firmorcompany,whether incorporateornotundertakingtheWorksandshallincludetheleg al or authorisedrepresentativeofsuchindividualorthepersonscom posingsuchfirmorcompanyor

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		thesuccessorsofsuchfirmorcompanyandthepermittedassigneesofsuch individual,firmorcompany.
	<b>1.1.2.3</b>	<b>Contractor's Personnel</b> means the Contractor and Contractor's Representative and all personnel whom the Contractor utilizes on Site, who may include the staff, labour and other employees of the Contractor and of each Subcontractor; and any other personnel assisting the Contractor in the execution of the Works. All communications addressed to the Contractor can be handed over at site to the Contractor's personnel.
	<b>1.1.2.4</b>	<b>Contractor's Representative</b> means the person named by the Contractor in the Contract or appointed from time to time by the Contractor under Sub-Clause 4.5 [Contractor's Representative], who acts on behalf of the Contractor.
	<b>1.1.2.5</b>	<b>Engineer-in-Charge or Engineer</b> means the Divisional officer / Executive Engineer who shall be in-charge of the Works and who shall sign the Contract on behalf of the Governor of Rajasthan and who shall be responsible for supervising the Contract, administering the Contract, certifying payments due to the Contractor, issuing and valuing Variations to the Contract, awarding extension of time, valuing the Compensation events, etc.
	<b>1.1.2.6</b>	The <b>Procuring Entity</b> or <b>PE</b> means the Party who employs the Contractor to carry out the Works.
	<b>1.1.2.7</b>	<b>Procuring Entity's Personnel</b> means the Engineer-in-Charge, the assistants referred to in Sub-Clause 3.2 [Delegation by the Engineer-in-Charge] and all other staff, labour and other employees of the Engineer-in-Charge and of the Procuring Entity; and any other personnel notified to the Contractor, by the Procuring Entity or the Engineer-in-Charge, as Procuring Entity's Personnel.
	<b>1.1.2.8</b>	<b>Subcontractor</b> means any person / firm named in the Bid / Contract and approved by the Engineer-in-Charge as a Subcontractor, or any person appointed and approved as a Subcontractor subsequently, for a part of the Works; and the legal successors in title to each of these persons/ firms.
<b>Dates, tests and periods of completion</b>	<b>1.1.3</b>	
	<b>1.1.3.1</b>	<b>Base Date</b> means the date 28 Days prior to the last date specified for submission of the Bid.
	<b>1.1.3.2</b>	<b>Commencement/ start Date</b> means the dates specified under S

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		ub-Clause 8.3.1 [Commencement of Works].
	<b>1.1.3.3</b>	<b>A Defect</b> is any part of the Works not completed in accordance with the approved specifications, designs and/ or drawings of the Contract.
	<b>1.1.3.4</b>	The <b>Defect Liability Certificate</b> is the certificate issued by Engineer-in-Charge after Defect Liability Period has ended and upon correction of Defects pointed out by the Engineer-in-Charge.
	<b>1.1.3.5</b>	The <b>Defect Liability Period</b> will be decided by the Department/ Organisation depending on nature of the Works, from the date of completion of the Works and shall be mentioned in the Contract Data.
	<b>1.1.3.6</b>	<b>Defects Notification Period</b> means the period for notifying Defects in the Works or a Section (as the case may be) under Sub-Clause 13.2 [Completion of Outstanding Work and Remedying Defects], which extends over twelve Months except if otherwise stated in the Contract Data (with any extension under Sub-Clause 13.4 [Extension of Defects Notification Period], calculated from the date on which the Works or Section is completed as certified under Sub-Clause 12.1 [Taking Over of the Works and Sections].
	<b>1.1.3.7</b>	<b>Performance Certificate</b> means a certificate issued under Sub-Clause 13.10 [Performance Certificate].
	<b>1.1.3.8</b>	<b>Taking-Over Certificate</b> means a certificate issued under Sub-Clause 12.1 [Taking Over of the Works and Sections].
	<b>1.1.3.9</b>	<b>Tests on Completion</b> means the tests which are specified in the Contract or agreed by both Parties or instructed as a Variation, and which are carried out under Clause 11 [Tests on Completion] before the Works or a Section (as the case may be) are taken over by the Procuring Entity.
	<b>1.1.3.10</b>	<b>Tests after Completion</b> means the tests (if any) which are specified in the Contract and which are carried out in accordance with the Specification after the Works or a Section (as the case may be) is taken over by the Procuring Entity.
	<b>1.1.3.11</b>	The <b>Intended Completion Date</b> is the date on which it is intended that the Contractor shall complete the Works. The Intended Completion Date is specified in the Contract Data. The Intended Completion Date may be revised

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		only by the Engineer-in Charge by issuing an extension of time.
	<b>1.1.3.12</b>	<b>Time for Completion</b> means the time for completing the Works or a section (as the case may be) under Sub-Clause 8.4 [Time for Completion], as stated in the Contract Data (with any extension under Sub-Clause 8.6 [Extension of Time for Completion], calculated from Commencement Date.
	<b>1.1.3.13</b>	<b>Day means</b> calendar Day; <b>Year</b> means a period of 365 Days.
<b>Money and Payments</b>	<b>1.1.4</b>	
	<b>1.1.4.1</b>	<b>Accepted Contract Amount</b> means the amount accepted in the Letter of Acceptance for execution and completion of the Works and remedying of any defects and maintaining the Works, if stated in the Contract.
	<b>1.1.4.2</b>	<b>Cost</b> means all expenditure reasonably incurred (or to be incurred) by the Contractor, whether on or off the Site, including overhead and similar charges, but does not include profit.
	<b>1.1.4.3</b>	<b>Final Payment Certificate</b> means the Payment Certificate issued under Sub-Clause 15.9 [Issue of Final Completion Certificate].
	<b>1.1.4.4</b>	<b>Final Statement</b> means the statement defined in Sub-Clause 15.10 [Final Statement of Payments].
	<b>1.1.4.5</b>	<b>Interim Payment Certificate</b> means a Payment Certificate issued under Sub-Clause 15.5 [Issue of Interim Payment Certificate], other than the Final Payment Certificate.
	<b>1.1.4.6</b>	<b>Market Rate of an item</b> shall be the current rate as decided by the Engineer-in Charge on the basis of the Cost of Materials and Labour at the Site where the work is to be executed for a variation item.
	<b>1.1.4.7</b>	<b>Payment Certificate</b> means a Payment Certificate issued under Clause 15 [Contract Price, Payment and Lien].
	<b>1.1.4.8</b>	<b>Provisional sums/ Lump sums</b> means a sum (if any) which is specified in the Contract as a provisional sum, for the execution of any part of the Works or for supply of Plant, Materials or services under Sub-Clause 9.6 [Provisional Sums]. These are also moneys provided in the estimate of the project to pay for unforeseen / un-quantified items. It may also include lump sum provided in the estimate/ BOQ for unforeseen items to be paid after approval of analysis of rates of such items and charges payable to Government agencies or the contractor for

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		approvals, service connections, extensions of services from the supply lines etc., as the case may be.
	<b>1.1.4.9</b>	<b>Performance Security</b> means an amount as percentage of the Accepted Contract Price deposited in the form of Bank Guaranteed or any other prescribed form deposited by the Contractor as a security for due performance of the Contract.
<b>Works and Materials</b>	<b>1.1.5</b>	
	<b>1.1.5.1</b>	<b>Materials</b> are all supplies, including consumables, used by the Contractor or consumption in the Works.
	<b>1.1.5.2</b>	<b>Permanent Works</b> means the Permanent Works to be executed by the Contractor under the Contract. These works shall have a defined designed life and durability.
	<b>1.1.5.3</b>	<b>Plant</b> means the apparatus, machinery and other equipment intended to form or forming part of the Permanent Works,
	<b>1.1.5.4</b>	<b>Scope of work</b> shall cover execution of all aspects of the Works as per the Contract.
	<b>1.1.5.5</b>	<b>Section</b> means a part of the Works specified in the Contract Data as a Section (if any) .
	<b>1.1.5.6</b>	<b>Specifications</b> means the Specification (BIS, IRC etc. or specifications approved by the department or others) of the Works included in the Contract and any modification or addition made or approved by the Engineer-in Charge.
	<b>1.1.5.7</b>	<b>Temporary Works</b> are Works designed, constructed, installed, and removed by the Contractor which are needed for construction or installation of the Works.
	<b>1.1.5.8</b>	<b>Work or Works</b> shall, unless there is something either in the subject or context repugnant to such construction, be construed and taken to mean the Works by virtue of the Contract contracted to be executed whether temporary or permanent and whether original, altered, substituted or additional works.
<b>Others</b>	<b>1.1.6</b>	
<b>Interpretation</b>	<b>1.1.6.1</b>	<b>Act</b> means the Rajasthan Transparency in Public Procurement Act, 2012.

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	<b>1.1.6.2</b>	<b>Contractor's documents</b> are the bids (technical and financial) submitted, softwares, bills, reports, drawings, designs, letters/ communications, test results, etc., submitted by the Contractor to the Procurement Entity in connection with the Contract.
	<b>1.1.6.3</b>	<b>Department</b> means any Department of Government of Rajasthan which invite Bids on behalf of Governor of Rajasthan as specified in Contract Data.
	<b>1.1.6.4</b>	<b>Field laboratory</b> means the Contractor's equipped laboratory provided with equipments, experienced personnel, consumables, books of specifications and codes for use on quality testing/inspections on the works.
	<b>1.1.6.5</b>	<b>Force Majeure</b> is defined in Sub-Clause 19.1 [Definition of Force Majeure].
	<b>1.1.6.6</b>	<b>Government/ Governor of Rajasthan</b> means the State Government of Rajasthan/ Governor of Rajasthan
	<b>1.1.6.7</b>	<b>Laws</b> mean the entire national or the state legislations, statutes, ordinances and other laws, and regulations and by-laws of India and Rajasthan and any legally constituted public authority.
	<b>1.1.6.8</b>	<b>Procuring Entity's Equipments</b> means the apparatus, machinery and vehicles (if any) made available by the Procuring Entity on hire for the use of the Contractor in the execution of the Works, as stated in the Specifications; but does not include Plant which has not been taken over by the Procuring Entity.
	<b>1.1.6.9</b>	<b>Rules</b> means the Rajasthan Transparency in Public Procurement Rules, 2013
	<b>1.1.6.10</b>	<b>Site</b> shall mean land and/or other places on, into or through which work is to be executed under the Contract or any adjacent land, path or street through which work is to be executed under the Contract or any adjacent land, path or street which may be allotted or used for the purpose of carrying out the Contract.
	<b>1.1.6.11</b>	<b>Site office</b> means a suitable covered all weather usable space built by the Contractor at Site of Works at his cost for use by him and the Procuring Entity.
	<b>1.1.6.12</b>	<b>Unforeseeable</b> means not reasonably foreseeable by an experienced Contractor by the Base Date.
	<b>1.1.6.13</b>	<b>Variations</b> mean any change to the Works, which is instructed or approved as a variation under Clause 9 [Deviations, Variations and Adjustments].

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	<b>1.2</b>	<p>In the Contract, except where the context requires otherwise</p> <ul style="list-style-type: none"> <li>a) words indicating one gender include all genders;</li> <li>b) words indicating the singular also include the plural and words indicating the plural also include the singular;</li> <li>c) provisions including the word “agree”, “agreed” or “agreement” require the agreement to be recorded in writing;</li> <li>d) “written” or “in writing” means hand-written, type-written, printed or electronically made, and resulting in a permanent record;</li> <li>e) the word “tender” is synonymous with “bid” and “tenderer” with “bidder” and the words “tender document” with “bidding document”.</li> </ul> <p>The marginal words and other headings shall not be taken into consideration in the interpretation of these Conditions.</p>
<b>Communications</b>	<b>1.3</b>	<p>Wherever these Conditions provide for the giving or issuing of approvals, certificates, consents, determinations, notices, requests and discharges, by one party to the other, these communications shall be:</p> <ul style="list-style-type: none"> <li>i. in writing and delivered by hand against receipt, sent by mail or courier, or transmitted using any of the agreed systems of electronic transmission as stated in the Contract Data; and</li> <li>ii. delivered, sent or transmitted to the address for the recipient’s Communications as stated in the Contract Data. However: <ul style="list-style-type: none"> <li>a) if the recipient gives notice of another address, communications shall thereafter be delivered accordingly; and</li> <li>b) if the recipient has not stated otherwise when requesting an approval or consent, it may be sent to the address from which the request was issued.</li> </ul> </li> </ul> <p>Approvals, certificates, consents and determinations shall not be unreasonably withheld or delayed. When a certificate is issued to a Party, the certifier shall send a copy to the other Party. When a notice is issued to a Party, by the other Party or the Engineer-in-Charge, a copy shall be sent to the Engineer-in-Charge or the other Party, as the case may be.</p>
<b>Law and language</b>	<b>1.4</b>	<p>The Contract shall be governed by the laws of India and the State of Rajasthan.</p>



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		The ruling language of the Contract shall be English or that stated in the Special Conditions of Contract.
<b>Works to be carried out</b>	<b>1.5</b>	<p>The WorkstobecarriedoutundertheContractshall,exceptas otherwiseprovided in theseconditions,includeall labour, materials,equipment, tools, plants, testing and quality assurance, andtransportwhichmayberequiredinpreparationofanddoingin thefullandentireexecutionandcompletionoftheWorks.The descriptionsgivenintheScheduleofQuantities (Activity Schedule in case of Lump Sum Contract)shallunless otherwise stated,beheldtoincludewastageonMaterials, carriageandcartage,carryingandreturnofempties,hoisting, setting,fittingandfixinginpositionandallotherLabournecessar yinandforthefullandentireexecutionand completionofthe Worksasaforesaidinaccordancewith good practiceandrecognizedprinciples to deliver a work of specified quality and durability conforming to designs, drawings etc.</p> <p>The Works include clearance, leveling and dressing of Site within a distance of 15 meters of the work site on all sides except where the building adjoins another building.</p>
<b>Sufficiency of Tender/ Bid</b>	<b>1.6</b>	TheContractorshallbedeemedtohave satisfiedhimself before biddingastothe correctnessandsufficiencyofhis BidfortheWorksandoftheratesandpricesquotedinthe ScheduleofQuantities,whichratesandpricesshall,exceptas otherwiseprovided,coverallhisobligationsunderthe Contractandallmattersandthingsnecessaryforthe proper completionandmaintenanceoftheWorks. He shall also be responsible for satisfying himself on the completeness of the documents /data provided by the Procuring Entity. He shall not raise any objections or deficiencies or inaccuracies in such documents.
<b>Discrepancies and adjustment of errors</b>	<b>1.7.1</b>	TheseveraldocumentsformingtheContractaretobetakenas mutuallyexplanatoryofoneanother,detailedDrawingsbeing followedinpreferencetosmallscaleDrawingandfigured dimensionsinpreferencetoscaleandspecialconditionsin preferencetoGeneralConditions.
	<b>1.7.2</b>	<p>InthecaseofdiscrepancybetweentheBill ofQuantities,the Specificationsand/ortheDrawings,the followingorderof preferenceshallbeobserved:</p> <ul style="list-style-type: none"> <li>• DescriptionofBillofQuantities</li> <li>• ParticulardetailedSpecificationandSpecialCondition ,ifany</li> <li>• Drawings / Designs</li> <li>• IRC / MORT&amp;H , ASTHO Specification, if required</li> </ul>

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		<ul style="list-style-type: none"> <li>Indian Standard Specifications or B.I.S.</li> </ul>
	<b>1.7.3</b>	If there are varying or conflicting provisions made in any one document forming part of the Contract, the Procuring Entity shall be the deciding authority with regard to the intention of the document and his decisions shall be final and binding on the Contractor.
	<b>1.7.4</b>	Any error in description, quantity or rate in Bill of Materials or any omission thereof shall not vitiate the Contractor or release the Contractor from the execution of the whole or part of the Works comprised therein according to Drawings and Specifications or from any of his obligations under the Contract.
<b>Signing of the Contract</b>	<b>1.8.1</b>	<p>The successful Bidder, after submitting the performance guarantee i.e. within 15 Days of receipt of Notification of Award or as specified in the Contract Data, shall attend the office of the Procurement Entity / Engineer-in-charge for authentication, signing and completion of the Contract document and execute the agreement consisting of:</p> <p>The notice inviting Bid, all the documents including Drawings, if any, forming the Bidding Document as issued at the time of invitation of bids and acceptance thereof together with any correspondence leading thereto, Standard Forms consisting of various standard Sub-Clauses with corrections up to the date stipulated in Contract Data along with annexure thereto and drawings etc.</p> <p>The Cost of stamp duties and similar charges (if any) imposed by Law in connection with entry into the Contract Agreement shall be borne by the Contractor.</p>
<b>Signed copy of Contract Document to be given to Contractor</b>	<b>1.8.2</b>	The Contractor shall be furnished, free of Cost one signed copy of the Contract Documents together with all Drawing except standard Specifications (BIS or IRC or others), Schedule of Rates and such other printed and published documents, which shall be procured by the Contractor at his cost. These documents shall be deemed to be part of the Contract. These shall be kept in the Site office. None of these documents shall be used for any purpose other than that of this Contract.
<b>Conditions of the Contract</b>	<b>1.8.3</b>	The Contract shall be governed by the General Conditions of Contract (GCC). The Special Conditions of Contract (SCC)/ Contract Data, wherever applicable, shall supersede/ clarify the GCC to the extent specified.
<b>Priority of</b>	<b>1.8.4</b>	The documents forming the Contract

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<b>Documents</b>		<p>are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents shall be in accordance with the following sequence:</p> <ul style="list-style-type: none"> <li>(a) the Contract Agreement,</li> <li>(b) the Letter of Acceptance,</li> <li>(c) the Technical Bid and Financial Bid along with the letters of the Technical Bid and Financial Bid</li> <li>(d) the Contract Data/ Special Conditions of Contract,</li> <li>(e) the General Conditions of Contract,</li> <li>(f) the Scope of Work &amp; Specifications,</li> <li>(g) the Drawings,</li> <li>(h) the Instructions to Bidders,</li> <li>(i) the Notice Inviting Bids, and</li> <li>(j) the Schedules and any other documents forming part of the Contract.</li> </ul> <p>If an ambiguity or discrepancy is found in the documents, the Engineer-in-Charge shall issue any necessary clarification or instruction.</p>
<b>Personnel</b>	<b>1.9.1</b>	<p>The Contractor shall employ the key personnel named in the Schedule of Key Personnel as referred to in the qualification criteria to carry out the functions stated in the Schedule or other personnel approved by the Engineer-in-Charge. The Engineer-in-Charge will approve any proposed replacement of key personnel only if their qualifications, abilities, and relevant experiences are substantially equal to or better than those of the personnel listed in the Schedule.</p>
	<b>1.9.2</b>	<p>If the Engineer-in-Charge asks the Contractor to remove a person who is a member of the Contractor's staff for his work force stating reasons, the Contractor shall ensure that the person leaves the Site within seven Days and has no further connection with the work in the Contract.</p>
<b>Procuring Entity's Risks</b>	<b>1.10</b>	<p>The Procuring Entity is responsible for the excepted risks which are :</p> <ul style="list-style-type: none"> <li>(a) insofar as they directly affect the execution of the Works in India, the risks of war, hostilities, invasion, act of foreign enemies, rebellion, revolution, insurrection or military or usurped power, civil war, riot commotion or disorder (unless restricted to the Contractor's employees), and contamination from any nuclear fuel or nuclear waste or radioactive toxic explosive, or</li> </ul>

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		(b) a caused solely to the design of the Works, other than the Contractor's design.
<b>Contractor's Risks</b>	<b>1.11</b>	All risks of loss of or damage to physical property and of personal injury and death which arise during and in consequence of the performance of the Contract other than the Procuring Entity's risks are the responsibility of the Contractor.
<b>Procuring Entity's use of Contractor's documents</b>	<b>1.12</b>	<p>As between the Parties, the Contractor shall retain the copyright and other intellectual property rights in the Contractor's Documents and other design documents made by (or on behalf of) the Contractor.</p> <p>The Contractor shall be deemed (by signing the Contract) to give to the Procuring Entity a non-terminable transferable non-exclusive royalty-free license to copy, use and communicate the Contractor's Documents, including making and using modifications of them. This license shall:</p> <ol style="list-style-type: none"> <li>apply throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works,</li> <li>entitle any person in proper possession of the relevant part of the Work to copy, use and communicate the Contractor's Documents for the purposes of completing, operating, maintaining, altering, adjusting, repairing and demolishing the Works, and in the case of Contractor's Documents which are in the form of computer programs and other software, permit their use on any computer on the Site and other places as envisaged by the Contract, including replacements of any computers supplied by the Contractor.</li> <li>The Contractor's Documents and other design documents made by (or on behalf of) the Contractor shall not, without the Contractor's consent, be used, copied or communicated to a third party by (or on behalf of) the Procuring Entity for purposes other than those permitted under this Sub-Clause.</li> </ol>
<b>Contractor's use of Procuring Entity's Documents</b>	<b>1.13</b>	As between the Parties, the Procuring Entity shall retain the copyright and other intellectual property rights in the Specification, the Drawings and other documents made by (or on behalf of) the Procuring Entity. The Contractor may, at this Cost, copy, use, and obtain communication of these documents for the purposes of the Contract. They shall not, without the Procuring Entity's consent, be copied, used or communicated to a third party by the Contractor, except as necessary for the purposes of the Contract.
<b>Care Supply and of</b>	<b>1.14</b>	The approved Specification, Designs and Drawings shall be in the custody and care of the Procuring Entity. Unless otherwise stated in the Contract,

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<b>documents</b>		<p>one copy of the Contract and of each subsequent Drawing shall be supplied to the Contractor, whomay make further copies at his Cost.</p> <p>Each of the Contractor's Documents shall be in the custody and care of the Contractor, unless and until taken over by the Procuring Entity. Unless otherwise stated in the Contract, the Contractor shall supply to the Engineer-in-Charge four copies of each of the Contractor's Documents.</p> <p>The Contractor shall keep, on the Site, a copy of the Contract, publications named in the Specification, the Contractor's Documents (if any), the Drawings and Variations and other communications given under the Contract. The Procuring Entity's Personnel shall have the right of access to all these documents at all reasonable times.</p> <p>If a Party becomes aware of an error or Defect in a document which was prepared for use in executing the Works, the Party shall promptly give notice to the other Party of such error or Defect.</p>
<b>Delays in issuing drawings or instructions.</b>	<b>1.15</b>	<p>The Contractor shall give notice to the Engineer-in-Charge whenever the Works are likely to be delayed or disrupted if any necessary Drawing or instruction is not issued to the Contractor within a particular time, which shall be reasonable. The notice shall include details of the necessary Drawing or instruction, details of why and by when it should have been issued, and the nature and amount of the delay or disruption likely to be suffered if it is late.</p> <p>If the Contractor suffers delay and/or incurs Cost as a result of a failure of the Engineer-in-Charge to issue the notified Drawing or instruction within a time which is reasonable and is specified in the notice with supporting details, the Contractor shall give a further notice to the Engineer-in-Charge and shall be entitled subject to Sub-Clause 21.2 [Contractor's Claims] to an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.6 [Extension of Time for Completion],</p> <p>However, if and to the extent that the Engineer-in-Charge's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time,</p>
<b>Confidential Details</b>	<b>1.16</b>	<p>The Contractor's and the Procuring Entity's Personnel shall not disclose all such confidential and other information as may be reasonably required in order to verify compliance with the Contract and allow its proper implementation.</p> <p>Each of them shall treat the details of the Contract as</p>

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		private and confidential, except to the extent necessary to carry out their respective obligations under the Contract or to comply with applicable Laws. Each of them shall not publish or disclose any particulars of the Works prepared by the other Party without the previous agreement of the other Party. However, the Contractor shall be permitted to disclose any publicly available information, or information otherwise required to establish his qualifications to compete for other projects.
<b>2. The Procuring Entity</b>		
<b>Right of Access to the Site</b>	<b>2.1</b>	<p>The Procuring Entity shall give the Contractor right of access to, and possession of at least 80% of the Site within 30 days of signing of the Contract or within the time specified in the Special Conditions of Contract (SCC). If under the Contract the Procuring Entity is required to give to the Contractor possession of any foundation, structure, plant or means of access, the Procuring Entity shall do so in the time and manner stated in the Specification. However, the Procuring Entity may withhold any such right or possession until the Performance Security has been received.</p> <p>If the Contractor suffers delay as a result of a failure by the Procuring Entity to give any such right or possession within such time, the Contractor shall give notice to the Engineer-in-charge and shall be entitled subject to Sub-Clause 21.2 [Contractor's Claims] to an extension of time for any such delay, if completion is or will be delayed,</p> <p>After receiving this notice, the Engineer-in-charge shall proceed to agree or determine these matters</p> <p>However, if and to the extent that the Procuring Entity's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time.</p>
	<b>2.2</b>	The right and possession may not be exclusive to the Contractor.
<b>Assistance by Procuring Entity</b>	<b>2.3</b>	<p>The Procuring Entity shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to obtain expeditiously any permits, licenses or approvals which the Contractor is required to obtain :</p> <ul style="list-style-type: none"> <li>i. for the delivery of Goods, including clearance through customs, and</li> <li>ii. for the export of Contractor's Equipment when it is removed from the Site.</li> </ul>
<b>Procuring Entity's Personnel</b>	<b>2.4</b>	The Procuring Entity shall be responsible for ensuring that the Procuring Entity's Personnel and the Procuring Entity's other Contractor on the Site, co-

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		operate with the Contractor's efforts under Sub-Clause 4.7 [Co-operation], and take actionssimilar to those which the Contractor is required to take under Sub-Clause 4.8 [Safety Procedures] and under Sub-Clause 4.17 [Protection of the Environment]
<b>Procuring Entity's Claims</b>	<b>2.5</b>	<p>If the Procuring Entity considers himself to be entitled to any payment under any Sub-Clause of these Conditions or otherwise in connection with the Contract, and/or to any extension of the Defects Liability Period, the Procuring Entity or the Engineer-in-charge shall give notice and particulars to the Contractor. However, notice is not required for payments due under Sub-Clause 4.18 [Electricity, Water and Gas], under Sub-Clause 4.19 [Issue of Procuring Entity's Equipment and Materials], or for other services requested by the Contractor.</p> <p>The notice shall be given as soon as practicable and no longer than 28 Days after the Procuring Entity became aware, or should have become aware, of the event or circumstances giving rise to the claim. A notice relating to any extension of the Defects Notification Period shall be given 28 days before the expiry of such period.</p> <p>The particulars shall specify the Sub-Clause or other basis of the claim, and shall include substantiation of the amount and/or extension Defects Notification Period to which the Procuring Entity considers himself to be entitled in connection with the Contract. The Engineer-in-charge shall then proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the amount (if any) which the Procuring Entity is entitled to be paid by the Contractor, and/or the extension (if any) of the Defects Notification Period in accordance with Sub-Clause 13.4 [Extension of Defects Notification Period].</p> <p>This amount may be included as a deduction in the Contract Price and Payment Certificates. The Procuring Entity shall be entitled to set off against or make any deduction from an amount certified in a Payment Certificate, or to otherwise claim against the Contractor, in accordance with this Sub-Clause.</p>
<b>Quality Control</b>	<b>2.6</b>	<p>The Procuring Entity shall have the right to exercise proper Quality Control measures. The Contractor shall provide a fully equipped field laboratory, testing personnel, consumables and other assistance at his cost to conduct such tests. The Quality Control shall be in three tiers :</p> <ul style="list-style-type: none"> <li>i) tier one by the Contractor's Engineers to the specified frequency,</li> <li>ii) by the Engineer-in-Charge's personnel to conform the quality and acceptance of the work and</li> <li>iii) by the Technical Examiner's organisation or such other independent bodies of State Government/ the Department/ Organisation or QCI approved Third Party Quality Inspection Agency. The work shall have</li> </ul>

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		to be completed to conform to the specifications and shall be acceptable only after rectification of deficient /defective works as per 'Non Conformance Reports', if any, issued by the above mentioned agency or the Engineer-in-Charge.
<b>3. Engineer-in-Charge</b>		
<b>Duties and Responsibilities</b>	<b>3.1.1</b>	<p>The Executive Engineer of the concerned Division will function as the Engineer-in-Charge for the purpose of the Contract or the Procuring Entity shall appoint another engineer as the Engineer-in-charge, as specified in the Contract Data, who shall carry out the duties assigned to him in the Contract and ensure execution of works as per approved drawings, designs, specifications etc.. The Engineer-in-charge's staff shall include suitably qualified Engineers and other professionals who are competent to carry out these duties.</p> <p>The Engineer-in-charge shall have no authority to amend the Contract. The Engineer-in-charge may exercise the authority attributable to the Engineer-in-charge as specified in or necessarily to be implied from the Contract. If the Engineer-in-charge is required to obtain the approval of the Procuring Entity before exercising a specified authority, he shall have to obtain that approval.</p>
	<b>3.1.2</b>	<p>The Procuring Entity shall promptly inform the Contractor of any change to the authority attributed to the Engineer-in-charge.</p> <p>However, whenever the Engineer-in-charge exercises a specified authority for which the Procuring Entity's approval is required, then (for the purposes of the Contract) the Procuring Entity shall be deemed to have given approval.</p> <p>Except as otherwise stated in these Conditions:</p> <ul style="list-style-type: none"> <li>i. whenever carrying out duties or exercising authority, specified in or implied by the Contract, the Engineer-in-charge shall be deemed to act for the Procuring Entity;</li> <li>ii. the Engineer-in-charge has no authority to relieve either Party of any duties, obligations or responsibilities under the Contract; and</li> <li>iii. any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by the Engineer-in-charge (including absence of disapproval) shall not relieve the Contractor from any responsibility he has under the Contract, including responsibility for errors, omissions, discrepancies, quality of works and non-compliance to specifications/ instructions of the Engineer-in-charge /Procuring Entity.</li> </ul>



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		<p>iv. Any act by the Engineer-in-charge in response to a Contractor's request except otherwise expressly specified shall be notified in writing to the Contractor within 28 Days of receipt.</p> <p>The Engineer-in-charge shall obtain the specific approval of the competent authority before taking action under the following Sub-Clauses of these Conditions and other Sub-Clauses, if specified in the Contract Data:</p> <p>i. Sub-Clause 4.12 [Unforeseeable Physical Conditions] agreeing or determining an extension of time and/or additional Cost.</p> <p>ii. Sub-Clause 9.1 [Right to Vary]: Instructing a Variation, except;</p> <p>(a) in an emergency situation as determined by the Engineer-in-charge, or</p> <p>(b) if such a Variation would increase the Accepted Contract Amount by less than the percentages specified in the Contract Data.</p> <p>iii. Approving a proposal for Variation submitted by the Contractor in accordance with Sub-Clause 9.1 [Right to Vary] or Sub-Clause 9.3 [Value Engineering].</p> <p>Notwithstanding the obligation, as set out above, to obtain approval, if, in the opinion of the Engineer-in-charge, an emergency occurs affecting the safety of life or of the Works / or of adjoining property, he may, without relieving the Contractor of any of his duties and responsibility under the Contract, instruct the Contractor to execute all such work or to do all such things as may, in the opinion of the Engineer-in-charge, be necessary to abate or reduce the risk. The Contractor shall forthwith comply, despite the absence of approval of the competent authority, with any such instruction of the Engineer-in-charge. The Engineer-in-charge shall determine (after due approval from the competent authority) an addition to the Contract Price, in respect of such instruction, in accordance with Clause 9 [Deviations, Variations and Adjustments] and shall notify the Contractor accordingly, with a copy to the Procuring Entity.</p>
<b>Delegation by Engineer-in-Charge</b>	<b>3.2</b>	<p>The Engineer-in-charge may from time to time assign duties and delegate authority to assistants and may also revoke such assignment or delegation. These assistants may include a resident Engineer, and/or independent inspectors appointed to inspect and/or test items of works and/or Materials. The assignment, delegation or revocation shall be in writing and shall not take effect until copies have been received by both Parties.</p> <p>However, unless otherwise agreed by both Parties, the Engineer-in-charge shall not delegate the authority to determine any</p>

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		<p>matter in accordance with Sub-Clause 3.5 [Determinations]</p> <p>Each assistant, to whom duties have been assigned or authority has been delegated, shall only be authorized to issue instructions to the Contractor to the extent defined by the delegation. Any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by an assistant, in accordance with the delegation, shall have the same effect as though the act had been an act of the Engineer-in-charge. However:</p> <ul style="list-style-type: none"> <li>i. any failure to disapprove any work, Plant or Materials shall not constitute approval, and shall therefore not prejudice the right of the Engineer-in-charge to reject the work, Plant or Materials;</li> <li>ii. if the Contractor questions any determination or instruction of an assistant, the Contractor may refer the matter to the Engineer-in-charge, who shall promptly confirm, reverse or vary the determination or instruction.</li> </ul>
<b>Instruction of the Engineer-in-Charge</b>	<b>3.3</b>	<p>The Engineer-in-charge may issue to the Contractor (at any time) instructions and additional or modified Drawings which may be necessary for the execution of the Works and the remedying of any Defects, all in accordance with the Contract. The Contractor shall only take instructions from the Engineer-in-charge, or from an assistant to whom the appropriate authority has been delegated under Sub-Clause 3.2. If an instruction constitutes a Variation, Clause 9 [Deviations, Variations and Adjustments] shall apply.</p> <p>The Contractor shall comply with the instructions given by the Engineer-in-charge or delegated assistant, on any matter related to the Contract. Whenever practicable, their instructions shall be given in writing. If the Engineer-in-charge or a delegated assistant:</p> <ul style="list-style-type: none"> <li>i. gives an oral instruction,</li> <li>ii. receives a written confirmation of the instruction, from (or on behalf of) the Contractor, within two working Days after giving the instruction, and</li> <li>iii. does not reply by issuing a written rejection and/or instruction within two working Days after receiving the confirmation, then the confirmation shall constitute the written instruction of the Engineer-in-charge or delegated assistant (as the case may be).</li> </ul>
<b>Replacement of Engineer-in-Charge</b>	<b>3.4</b>	<p>If the Procuring Entity intends to replace the Engineer-in-charge, the Procuring Entity shall inform the contractor by a notice before the intended date of replacement, the name and contact details of the intended replacement of the Engineer-in-charge.</p>

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<b>Determinations</b>	<b>3.5</b>	<p>Whenever these Conditions provide that the Engineer-in-charge shall proceed in accordance with this Sub-Clause 3.5 to agree or determine any matter like variations, extensions of time, responsibilities / valuation for loss and or damage to works etc., the Engineer-in-charge shall peruse the Contract, Specifications, Codes and consult the Contractor in an endeavor to reach an agreement. If an agreement is not reached, the Engineer-in-charge shall make a fair determination in accordance with the Contract, taking due regard of all relevant circumstances.</p> <p>The Engineer-in-charge shall give notice to the Contractor of each agreement or determination, with supporting particulars, within 28 Days from the likely date of implementation of such agreement or determination and obtain receipt of the corresponding claim or request except when otherwise specified. The Contractor shall give effect to each determination unless and until revised under Clause 21 [Claims, Disputes and Arbitration].</p>
<b>Minutes of Meeting</b>	<b>3.6</b>	<p>The Engineer-in-charge may require the Contractor to attend a progress review / or quality assurance / design review meeting during execution of the Works. The Engineer-in-charge shall record the minutes of the meeting and provide a copy within 7 days to the Contractor for compliance. These minutes will be a part of evidence in case of request for extension of time or variation or punitive action against the Contractor as per terms of the Contract.</p> <p>In case the issue of minutes is delayed, the Contractor may issue the record note of discussions and decisions taken in the meeting for record and confirmation by the Engineer-in Charge. These shall be treated as confirmed if not denied within 15 days by the Engineer-in-Charge.</p>
<b>4. The Contractor</b>		
<b>General Obligations and Contractor's personnel.</b>	<b>4.1.1</b>	<p>The Contractor shall design, prepare drawings (to the extent specified in the Contract), execute as per specifications and complete the Works in accordance with the Contract and with the Engineer-in-Charge's instructions, and shall remedy any Defects in the Works.</p> <p>The Contractor shall provide the Plant and Contractor's Documents specified in the Contract, and all Contractor's Personnel, Goods, consumables and other things and services, whether of a temporary or permanent nature, required in and for this design, execution, completion and remedying of Defects.</p>
	<b>4.1.2</b>	<p>The Contractor shall be responsible for the adequacy, stability and safety of all Site operations and of all methods of construction. Except to the extent specified in the Contract, the</p>

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		Contractor shall be responsible for all Contractor's Documents, Temporary Works, and such design of each item of works, Plant and Materials as is required for the item to be in accordance with the specifications for items of Contract, and shall not otherwise be responsible for the design or Specification of the Permanent Works.
	<b>4.1.3</b>	The Contractor shall deploy experienced and competent personnel to execute the works. The quality of workmanship has to be as specified. Personnel not found capable of good workmanship shall be removed and replaced with better workman.
	<b>4.1.4</b>	The Contractor shall, whenever required by the Engineer-in-charge, submit details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works. He shall also be responsible for the safety of works and personnel at the site and shall submit a safety execution plan (as per relevant code for safety at construction site) for the approval by the Engineer-in-charge. No significant alteration to these arrangements and methods shall be made without this having previously been approved by the Engineer-in-charge. He shall also comply to the requirements of the mitigations of the Environmental impacts of the execution of works.
	<b>4.1.5</b>	<p>If the Contract specifies that the Contractor shall design any part of the Permanent Works, then unless otherwise stated in the Special Conditions of Contract:</p> <ul style="list-style-type: none"> <li>i. the Contractor shall submit to the Engineer-in-charge the Contractor's Documents for this part in accordance with the procedure specified in the Contract.</li> <li>ii. these Contractor's Documents shall be in accordance with the Specification and Drawings, shall be written in the language for communications defined in the Sub-Clause 1.4 [Law and Language] and shall include additional information required by the Engineer-in-charge to add to the Drawings for co-ordination of each Party's designs;</li> <li>iii. the Contractor shall be responsible for this part and it shall, when the Works are completed, be fit for such purposes for which the part is intended as specified in the Contract; and</li> <li>iv. prior to the commencement of the Tests on Completion, the Contractor shall submit to the Engineer-in-charge the "as-built" drawings, designs and documents and, if applicable, operation and maintenance manuals in accordance with the Specification and insufficient detail for the Procuring Entity to operate, maintain, dismantle, reassemble, adjust and repair all parts of the Works. Such parts shall not be considered to be completed for</li> </ul>

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		the purposes of taking-over under Clause 12 [Taking Over of the Works and Sections] until these documents and manuals have been submitted to the Engineer-in-charge.
	<b>4.1.6</b>	The Contractor shall allow the Engineer-in-charge and any person authorized by the Engineer-in-charge access to the Site, to any place where work in connection with the Contract is being carried out or is intended to be carried out and to any place where Materials or plant are being installed / assembled for the Works. The contractor may satisfy himself regarding site, acquisition of land, approach roads etc.
	<b>4.1.7</b>	The liability, if any, on account of quarry fees, royalties, octroi, service tax, and any other taxes and duties in respect of materials actually consumed on public work shall be borne by the Contractor.
	<b>4.1.8</b>	The cost of all water / power connections necessary for the execution of the Works and the cost of water consumed and hire charges of meters and the cost of electricity consumed in connection with the execution of the Works shall be paid by the Contractor except where otherwise specifically indicated. He shall also be responsible for environment mitigated disposal of waste water released during execution.
<b>Compliance with the Code of Integrity</b>	<b>4.2.1</b>	<p>The Contractor is bound by the provisions of the Code of Integrity stipulated in the Act, the Rules and specified in ITB Sub-Clause 1.3 [Code of Integrity] and refrain himself from corrupt, fraudulent, coercive and collusive practices which are defined as below:</p> <ul style="list-style-type: none"> <li>a) "corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, anything of value to influence improperly the action of another party;</li> <li>b) "fraudulent practice" means any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;</li> <li>c) "coercive practice" means impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the action of a party;</li> <li>d) "collusive practice" means an arrangement between two or more parties designed to achieve an improper purpose,</li> </ul>

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		including influencing improperly the actions of another party.
	<b>4.2.2</b>	The Procuring Entity shall take legal action against the Contractor, if it breaches any provisions of the Code of Integrity, under Section 11(3), 46 and chapter IV of the Act.
	<b>4.2.3</b>	The Contractor shall permit the Procuring Entity to inspect the Contractor's accounts and records relating to the performance of the Contract and to have them audited by auditors appointed by the Procuring Entity, if so required by the Procuring Entity.
<b>Performance Security</b>	<b>4.3.1</b>	<p>The Contractor shall have the option to furnish a Performance Security @ 10% of the Contract value, in Indian Rupees, in one of the following forms <i>[strike out which is not applicable]</i>:</p> <ul style="list-style-type: none"> <li>i. Deposit through eGRAS; or</li> <li>ii. Bank Draft or Banker's Cheque of a Scheduled Bank in India; or</li> <li>iii. National Savings Certificates and any other script/ instrument under National Savings Schemes for promotion of small savings issued by a Post Office in Rajasthan, if the same can be pledged under the relevant rules. They shall be accepted at their surrender value at the time of Bid and formally transferred in the name of the Procuring Entity with the approval of Head Post Master; or</li> <li>iv. Bank guarantee. It shall be of a scheduled Bank in India in prescribed or other acceptable format or from other Issuer acceptable to the Procuring Entity. The bank guarantee shall be got verified from the issuing bank and confirmer, if any; or</li> <li>v. Fixed Deposit Receipt (FDR) of a Scheduled Bank in India. It shall be in the name of the Procuring Entity on account of Bidder and discharged by the Bidder in advance. The Procuring Entity shall ensure before accepting the Fixed Deposit Receipt that the Bidder furnishes an undertaking from the bank to make payment/ premature payment of the Fixed Deposit Receipt on demand to the Procuring Entity without requirement of consent of the Bidder concerned. In the event of forfeiture of the Performance Security, the Fixed Deposit shall be forfeited along with interest earned on such Fixed Deposit.</li> <li>vi. The Contractor shall have option to get the Performance Security deposited by deduction from his each running and final bill (Payment Certificate) @ 10% of the amount of the bill.</li> </ul>

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<b>Additional Performance Security</b>	<b>4.3.2</b>	<p>i. If the Bid, which results in the lowest evaluated bid price, is seriously imbalanced or front loaded in the opinion of the Procuring Entity, the Procuring Entity may require the Bidder to produce detailed price analysis for any or all items of the Bill of Quantities to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analysis, taking into consideration the schedule of estimated Contract payments, the Procuring Entity may require that the amount of the performance security be increased (to a maximum of 20% of the bid value of such items) at the expense of the Bidder to a level sufficient to protect the Procuring Entity against financial loss in the event of default by the successful Bidder under the Contract.</p> <p>ii. Without limitation to the provisions of the rest of this Sub-Clause, whenever the Engineer-in-charge determines an addition to the Contract Price as a result of a change in Cost, or as a result of a Variation of the Contract Price, the Contractor shall at the Engineer-in-charge's request promptly increase the Performance security to a level of 10 percent of the increased Contract Price.</p>
	<b>4.3.3</b>	<p>The proceeds of the Performance Security shall be forfeited and shall be payable as compensation to the Procuring Entity on happening of any of the events mentioned below:</p> <ul style="list-style-type: none"> <li>i. when the Contractor does not execute the agreement within the specified time; after issue of letter of acceptance/ placement of work order; or</li> <li>ii. when the Contractor fails to commence the work within the time specified; or</li> <li>iii. when the Contractor fails to complete the work satisfactorily within the time specified; or</li> <li>iv. when any terms and conditions of the contract is breached; or</li> <li>v. Failure by the Contractor to pay the Procuring Entity any amount due, either as agreed by the Contractor or determined under any of the Sub-Clauses of these Conditions or another agreement, within 30 Days of the service of notice to this effect by Engineer-in-Charge; or</li> <li>vi. if the Contractor breaches any provision of the Code of Integrity prescribed for Bidders specified in the Act, the Rules, ITB Sub-Clause 1.3 and Sub-Clause 4.2.1 of these conditions.</li> </ul> <p>Notice of reasonable time will be given in case of forfeiture of Performance Security. The decision of the Procuring Entity in this regard shall be final.</p>

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	<b>4.3.4</b>	<p>The Contractor shall ensure that the Performance Security remains valid upto a period 60 days beyond fulfillment of all the obligations of the Contractor under the Contract, including defect liability and maintenance, if any. If the terms of the Performance Security specify its expiry date, and the Contractor has not become entitled to receive the Performance Certificate by the date 28 Days prior to the expiry date as provided in the Contract, the Contractor shall get extended the validity of the Performance Security.</p> <p>Failure by the Contractor to extend the validity of the Performance security as described herein above, in which event the Engineer-in-charge may claim the full amount of the performance security.</p>
	<b>4.3.5</b>	<p>The Procuring Entity shall return the Performance Security or release the Performance Security Declaration to the Contractor as below after completion of all obligations under the Contract, more specifically, after the expiry of the period as specified below:</p> <ol style="list-style-type: none"> <li>In case of contracts relating to hiring of trucks and other T&amp;P, transportation including loading, unloading of materials, the amount of Performance Security will be refundable along with the final bill.</li> <li>Ordinary repairs: 3 months after the completion of the Works, provided the final bill has been paid.</li> <li>Original Works / Special Repair Works: Performance Security will be refunded six months after completion, or after expiry of one full rainy season, or after expiry of defect liability period and maintenance period, if any specified in the Contract Data, whichever is later, provided the final bill has been paid.</li> <li>In case of supply of materials: after 3 months of completion of supply, provided the final bill has been paid.</li> <li>In case of PWD original Works/ Special Repair Works costing more than Rupees 100 lakh, partial amount of Performance Security will be refunded during the defect liability @ 10% of the Performance Security amount after the lapse of one year of completion and thereafter 10% of original amount of Performance Security at the end of each subsequent year. The remaining amount of Performance Security will be refunded after the satisfactory expiry of the defect liability period.</li> </ol>
	<b>4.3.6</b>	<p>In the event of the Contract being determined or rescinded under any of the provisions of Sub-Clause 16.1, the Performance Security shall stand forfeited in full and shall be absolutely at the disposal of the Procuring Entity.</p>



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	<b>4.3.7</b>	For works for which a maintenance period of 3-5 years is also specified in addition to the defect liability period. The regular maintenance shall be a part of the BOQ of the Contract as a lump sum amount per annum to be paid on quarterly basis. Necessary price escalation as per provisions in the Contract shall also be payable for years subsequent to the expiry of the Defect Liability Period.
<b>Commencement of Work at the earliest. Record the commencement or start date.</b>	<b>4.4</b>	The Contractor shall commence the Works after signing of the Contract within the period as specified in the Special Conditions of the Contract. In case the Contractor does not commence the works within the above period, the Engineer-in-charge shall issue a notice after the expiry of the said period. The actual date of commencement shall be duly recorded by the Engineer-in-Charge.
<b>Contractor's Representative</b>	<b>4.5</b>	<p>Contractor shall appoint the Contractor's Representative and shall give him all authority necessary to act on the Contractor's behalf under the Contract.</p> <p>Unless the Contractor's Representative is named in the Contract, the Contractor shall, prior to the Commencement Date, submit to the Engineer-in-charge for consent the name and particulars of the person the Contractor proposes to appoint as Contractor's Representative. If consent is withheld or subsequently revoked in terms of this Sub-Clause, or if the appointed person fails to act as Contractor's Representative, or conducts improperly at the Site, the Contractor shall submit the name and particulars of another suitable person for such appointment. The former representative shall be removed within 24 hours of such notice by the Engineer-in-charge.</p> <p>The Contractor shall not, except if the representative has lost the confidence of the Contractor or is not complying to the instructions of the Engineer-in-charge or his assistants, remove without the prior consent of the Engineer-in-charge, revoke the appointment of the Contractor's Representative or appoint a replacement.</p> <p>The whole time of the Contractor's Representative shall be given to directing the Contractor's performance of the Contract. If the Contractor's Representative is to be temporarily absent from the Site during the execution of the Works, a suitable replacement person shall be appointed, subject to the Engineer-in-charge's prior consent, and the Engineer-in-charge shall be notified accordingly. The Contractor's Representative shall, on behalf of the Contractor, receive instructions under Sub-Clause 3.3 [Instructions of the Engineer-in-charge] and comply to them.</p> <p>The Contractor's Representative may delegate any powers, functions and authority to any competent person and may at any time revoke the delegation. Any delegation or revocation shall not take effect until the Engineer-in-charge has received</p>

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		<p>prior notices signed by the Contractor's Representative, naming the person and specifying the powers, functions and authority being delegated or revoked. The Contractor's Representative shall be fluent in the language for communications defined in Sub-Clause 1.4. If the Contractor's Representative's delegates are not fluent in the said language, the Contractor shall make competent interpreters available during all working hours in a number deemed sufficient by the Engineer-in-charge.</p>
<b>Sub-Contractor, nominated Sub-Contractor.</b>	<b>4.6</b>	<p>The Contractor shall not Sub-let or subcontract the whole/ or even part of the Works without the consent of the Engineer-in-charge. If the Contractor does so, the Contract shall be liable to be terminated under Sub-Clause 16.1 [Termination by Procuring Entity]. Details of the capability of such proposed Sub-Contractors (except the nominated Sub-Contractor named by the Engineer-in-charge) shall be approved by the Engineer-in-charge. The Contractor shall be responsible for the misconduct, acts or default of any Subcontractor, his agents or employees, as if they were the acts or default of the Contractor.</p> <p>Unless otherwise stated:</p> <ul style="list-style-type: none"> <li>i. the Contractor shall not be required to obtain consent to suppliers solely of materials, or to a subcontractor for which the nominated Subcontractor is named in the Contract.</li> <li>ii. the prior consent/ approval of the Engineer-in-charge on capability documents of the sub-contract shall be obtained for proposed Sub-Contractor;</li> <li>iii. the Contractor shall give the Engineer-in-charge not less than 28 Days' notice of the intended date of the commencement of each Sub-Contractor's work, and of the commencement of such work on the Site.</li> </ul> <p>The Contractor shall ensure that the requirements imposed on the Contractor regarding Confidentiality as defined in the GCC Sub-Clause 1.16 [Confidential Details] shall apply equally to each nominated Subcontractor / Subcontractor.</p>
<b>Co-Operation</b>	<b>4.7</b>	<p>The Contractor shall, as specified in the Contract or as instructed by the Engineer-in-charge, allow appropriate opportunities for carrying out work to:</p> <ul style="list-style-type: none"> <li>i) the Procuring Entity's Personnel,</li> <li>ii) any other Contractor employed by the Procuring Entity, and</li> <li>iii) the personnel of any legally constituted public authorities,</li> </ul> <p>who may be employed in the execution on or near the Site of any work not included in the Contract.</p>

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		<p>Any such instruction shall constitute a Variation if and to the extent that it causes the Contractor to suffer delays and/or to incur Unforeseeable Cost. Services for these personnel and other Contractors may include the use of Contractor's Equipment, Temporary Works or access arrangements which are the responsibility of the Contractor.</p> <p>If, under the Contract, the Procuring Entity is required to give to the Contractor, possession of any foundation, structure, plant or means of access in accordance with Contractor's Documents, the Contractor shall submit such documents to the Engineer-in-charge in the time and manner stated in the Specifications.</p>
<b>Safety Procedures at the site of works</b>	<b>4.8.1</b>	<p>The Contractor shall:</p> <ul style="list-style-type: none"> <li>i. prepare and submit for approval by the Engineer-in-charge an auditable safety plan at Site in accordance with relevant Code. The Contractor shall comply with all applicable safety regulations;</li> <li>ii. take care for the safety of all persons entitled to be on the Site;</li> <li>iii. use reasonable efforts to keep the Site and Works clear of unnecessary obstruction so as to avoid danger to these persons;</li> <li>iv. provide fencing, lighting, guarding and watching of the works until completion and taking over under Sub-Clause 12.1 [Taking over of Works]; and</li> <li>v. provide any Temporary Works (including roadways, footways, guards and fences) which may be necessary, because of the execution of the Works, for the use and protection of the public and of owners and occupiers of adjacent land.</li> </ul> <p>In addition to the provisions of this Contract, the Contractor shall follow the safety code of the Department.</p>
<b>Safety Provisions for labour</b>	<b>4.8.2</b>	<p>In respect of all labour directly or indirectly employed, noncompliance in the work for the performance of the Contractor's part of this Contract, the Contractor shall at his own expense arrange for the safety provisions as per P.W.D. Safety Code framed from time to time and shall at his own expense provide for all facilities in connection therewith. In case the Contractor fails to make arrangement and provide necessary facilities as aforesaid, the Engineer-in-Charge shall be entitled to provide for all such arrangements at the risk and cost of the Contractor plus 15% as agency charges.</p>
<b>Quality Assurance</b>	<b>4.9.1</b>	<p>The Procuring Entity shall have the right to exercise proper Quality Control measures to ensure that the works have been executed as per specifications and have the designed durability. It will be in three tiers:</p> <ul style="list-style-type: none"> <li>i. The first tier being the Contractor's engineers</li> </ul>

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		<p>ensuring full compliance to specifications and conforming the same through testing (as per frequencies specified in the BIS, IRC or other relevant codes) on input materials, processes and the output in the field laboratory established by the Contractor at his cost .</p> <p>ii. The second tier shall be the Engineer-in-charge's team conducting such tests to the extent of the specified code frequency at the Contractor's field laboratory or Department/ Organisation's laboratory and comparing the results with those carried out by the Contractor's Engineers; and</p> <p>iii. The third tier shall be the 'Third Party Quality Inspections' by the QCI approved / accredited Inspection Bodies as per ISO 17020, or by the Technical Examiner of the Department/ Organisation, where exists. The QCI approved / accredited Inspection Body may be selected through competitive bidding. The third tier shall conduct such tests to the extent of 10% of the specified frequencies duly witnessed by the Contractor's &amp; Procuring Entity's Engineers and providing a final acceptability on the Works costing above Rs 10 crores for buildings and structures and Rs.20 crores for roads, bridges/ flyovers, canals, dams, etc. as specified in the SCC.</p> <p>The Contractor shall provide all assistance to conduct such tests.</p>
	<b>4.9.2</b>	<p>The Contractor shall institute a approved quality assurance plan stating the methodology / responsibility for sampling, testing/ confirmatory testing, testing frequencies, statistical quality controls, observation / report formats, acceptance criteria, issue and resolution of Non Conformance Reports etc. to demonstrate compliance with the requirements of the specifications. The system shall be in accordance with the details stated in the Contract. The Engineer-in-charge shall be entitled to audit any aspect of the system.</p> <p>Details of all procedures and compliance documents shall be submitted to the Engineer-in-charge for information before each design and execution stage is commenced. When any document of a technical nature is issued to the Engineer-in-charge, evidence of the prior acceptance by the Contractor himself shall be apparent on the document itself.</p> <p>Compliance with the quality assurance system shall not relieve the Contractor of any of his duties, obligations or responsibilities under the Contract.</p>
<b>Site Data</b>	<b>4.10.1</b>	<p>The Procuring Entity shall have made available to the Contractor for his information, prior</p>

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		<p>to the Base Date, all relevant data in the Procuring Entity's possession on sub-surface and hydrological conditions at the Site, including environmental aspects. The Procuring Entity shall similarly make available to the Contractor all such data which come into the Procuring Entity's possession after the Base Date. The Contractor shall be responsible for verifying and interpreting all such data. The Procuring Entity shall not be held responsible about the correctness of all such data and the Contractor shall confirm/ verify all such data at his own cost.</p>
	<b>4.10.2</b>	<p>To the extent which was practicable (taking account of Cost and time), the Contractor shall be deemed to have obtained all necessary information as to risks, contingencies and other circumstances which may influence or affect the Bid for Works. To the same extent, the Contractor shall be deemed to have inspected and examined the Site, its surroundings, the above data and other available information, and to have been satisfied before submitting the Bid as to all relevant matters, including (without limitation):</p> <ul style="list-style-type: none"> <li>i. the form and nature of the Site, including sub-surface conditions,</li> <li>ii. the hydrological and climatic conditions,</li> <li>iii. the extent and nature of the work and goods necessary for the execution and completion of the Works and the remedying of any Defects,</li> <li>iv. the Laws, procedures and labour practices of India, particularly Rajasthan, and</li> <li>v. the Contractor's requirements for access, accommodation, facilities, personnel, power, transport, water and other services.</li> </ul>
<b>Sufficiency of the Contracted Amount</b>	<b>4.11</b>	<p>The Contractor shall be deemed to:</p> <ul style="list-style-type: none"> <li>i. have satisfied himself as to the correctness and sufficiency of the Accepted Contract Amount, and</li> <li>ii. have based the Accepted Contract Amount on the data, interpretations, necessary information, inspections, examinations and satisfaction as to all relevant matters referred to in Sub-Clause 4.10 [Site Data].</li> </ul> <p>Unless otherwise stated in the Contract, the Accepted Contract Amount covers all the Contractor's obligations under the Contract (including those under Provisional Sums, if any) and all</p>

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		things necessary for the proper execution and completion of the Works and the remedying of any Defects.
<b>Unforeseeable Physical Conditions</b>	<b>4.12</b>	<p>In this Sub-Clause, "physical conditions" means natural physical conditions and man-made and other physical obstructions and pollutants, which the Contractor encounters at the Site when executing the Works, including sub-surface and hydrological conditions but excluding climatic conditions.</p> <p>If the Contractor encounters adverse physical conditions which the Procuring Entity considers to have been Unforeseeable, the Contractor shall give notice to the Engineer-in-charge as soon as practicable.</p> <p>This notice shall describe the physical conditions, so that they can be inspected by the Engineer-in-charge, and shall set out the reasons why the Contractor considers them to be Unforeseeable. The Contractor shall continue executing the Works, using such proper and reasonable measures as are appropriate for the physical conditions, and shall comply with any instructions which the Engineer-in-charge may give. If an instruction constitutes a Variation, Clause 9 [Deviations, Variations and Adjustments] shall apply.</p> <p>If and to the extent that the Contractor encounters physical conditions which are Unforeseeable, gives such a notice, and suffers delay and/or incurs Cost due to these conditions, the Contractor shall be entitled subject to notice under Sub-Clause 21.2 [Contractor's Claims] to:</p> <ul style="list-style-type: none"> <li>i. an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.6 [Extension of Time for Completion], and</li> <li>ii. payment of any such Cost, directed to be incurred by the Contractor as approved extra item which shall be included in the Contract Price.</li> </ul> <p>Upon receiving such notice and inspecting and/or investigating these physical conditions, the Engineer-in-charge shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine whether and (if so) to what extent these physical conditions were Unforeseeable, and the matters described in sub-paragraphs (i) and (ii) above related to this extent by the Contractor, but the Engineer-in-charge shall not be bound by the Contractor's interpretation of any such evidence.</p> <p>However, before additional Cost is finally agreed or determined under sub-paragraph (ii), the Engineer-in-charge may also review whether other physical conditions in similar parts of the Works (if any) were more favorable than could reasonably have been foreseen when the Contractor submitted the Bid. If and to the extent that these more favorable conditions were encountered, the Engineer-in-charge may proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the reductions in Cost whi</p>

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		<p>chwereduetotheseconditions,whichmaybeincluded(asdeductions)intheContractPriceandPaymentCertificates.However,theneffectofalladjustmentsundersub-paragraph(ii)andallthesereductions,forallthephysicalconditionsencounteredinsimilarpartsoftheWorks,shallnotresultinane reductionintheContractPrice.</p>
<b>Right of Way and Facilities</b>	<b>4.13.1</b>	<p>Unlessotherwisespecified inthe Contractthe Procuring Entityshallprovideaccesstoand possessionoftheSiteincluding specialand/ortemporary rights-of-waywhicharenecessaryfortheWorks.The Contractorshallobtain,athisriskandCost,anyadditional rightsofwayorfacilitiesoutsidetheSitewhichhemay requireforthepurposesoftheWorks.</p>
	<b>4.13.2</b>	<p>The Contractor shall allow the Engineer-in-charge and any person authorized by the Engineer-in-charge access to the Site, to any place where work in connection with the Contract is being carried out or is intended to be carried out and to any place where materials are being collected or stored or plant are being installed/ assembled for the Works. The contractor may satisfy himself regarding site, acquisition of land, approach roads etc.</p>
<b>Avoidance of Interference with public conveniences</b>	<b>4.14</b>	<p>The Contractorshallnotinterfereunnecessarilyorimproperly with:</p> <ul style="list-style-type: none"> <li>i. theconvenienceofthepublic,or</li> <li>ii. theaccesstoanduseandoccupationofallroadsand footpaths,irrespectiveofwhethertheyare publicorin thepossessionof theProcuring Entityorofothers</li> </ul> <p>The ContractorshallindemnifyandholdtheProcuring Entityharmless againstandfromalldamages,lossesandexpenses(including legal feesandexpenses)resultingfromanysuchunnecessaryor improperinterference.</p>
<b>Access Routes to Site</b>	<b>4.15</b>	<p>TheContractorshallbedeemedtohavebeensatisfiedasto thesuitabilityandavailabilityofaccessroutestotheSiteatBase Date.TheContractorshallusereasonable efforts to prevent any road or bridge from being damaged by the Contractor's trafficorbytheContractor'sPersonnel.Theseeffortsshall includetheproperuseofappropriatevehiclesandroutes.</p> <p>ExceptasotherwisestatedintheseConditions:</p> <ul style="list-style-type: none"> <li>i.the Contractor shall(as between the Parties) be responsible for anymaintenancewhichmaybe requiredforhisuseofaccessroutes;</li> <li>ii. theContractorshallprovideallnecessarysignsor directionsalongaccessroutes, andshall obtain any permissionwhichmayberequiredfromthe relevantauthoritiesforhisuseofroutes,signsand directions;</li> <li>iii.theProcuring Entityshallnotberesponsibleforanyclaims</li> </ul>

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		<p>which may arise from the use or otherwise of any access route;</p> <p>iv. the Procuring Entity does not guarantee the suitability or availability of particular access routes; and</p> <p>v. Costs due to non-suitability or non-availability, for the use required by the Contractor, of access routes shall be borne by the Contractor.</p>
<b>Contractor's Equipment</b>	<b>4.16</b>	<p>The Contractor shall be responsible for all Contractor's Equipment. When brought onto the Site, Contractor's Equipment shall be deemed to be exclusively intended for the execution of the Works.</p> <p>The Contractor shall not remove from the Site any major items of Contractor's Equipment without the consent of the Engineer-in-Charge. However, consent shall not be required for vehicle transporting Goods or Contractor's Personnel off Site.</p>
<b>Protection of the Environment</b>	<b>4.17</b>	<p>The Contractor shall take all reasonable steps to protect the environment (both on and off the Site) and to limit damage and nuisance to people and property resulting from pollution, noise and other results of his operations.</p> <p>The Contractor shall ensure that emissions, surface discharges and effluent from the Contractor's activities shall not exceed the values stated in the Specifications or prescribed by applicable Laws.</p> <p>The Contractor shall, throughout the execution and completion of the Works and the remedying of any Defects therein:</p> <ol style="list-style-type: none"> <li>have full regard for the safety of all persons entitled to be upon the Site and keep the Site (so far as the same is under his control) and the Works (so far as the same are not completed or occupied by the Procuring Entity) in an orderly state appropriate to the avoidance of danger to such persons; and</li> <li>provide and maintain at his own Cost all lights, guards, fencing, warning signs and watchmen and other things necessary or required by the Engineer-in-charge or by any duly constituted authority, for the protection of the Works or for the safety and convenience of the public or others.</li> </ol>
<b>Electricity, Water and Gas</b>	<b>4.18</b>	<p>The Contractor shall, except as stated below, be responsible for the provision of all power, water and other services he may require for his construction activities and to the extent defined in the Specifications, for the tests.</p> <p>The Contractor shall be entitled to use for the purposes of the Works such supplies of electricity, suitable water, gas and other services as may be available on the Site with due permission of the service provider, on payment of billing value. The Contractor shall, at his risk and</p>



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		<p>cost, provide any apparatus necessary for his use of these services and for measuring / paying for the quantities consumed.</p> <p>The quantities consumed and the amounts due for such services shall be agreed or determined by the Engineer-in-Charge in accordance with Sub-Clause 2.5 [Procuring Entity's Claims] and Sub-Clause 3.5 [Determinations]. The Contractor shall pay these amounts to the Procuring Entity /service provider.</p>
<p><b>Issue of Procuring Entity's Equipments and Materials</b></p> <p><i>(Not applicable in case of Lump Sum Contract)</i></p>	4.19	<p>i. The Procuring Entity may on request issue its machinery and equipment on hire to the Contractor, if available, for use in the execution of the Works. The hire charges shall be as provided in the Contract Data or on the rates declared by the Procuring Entity in general.</p> <p>The Procuring Entity shall hand over the equipment in good working condition duly confirmed by the Contractor at the time of issue, along with departmental operators, helpers. The Contractor shall be responsible for the proper operation and care of the Procuring Entity's Equipment, POL, washout and ordinary repairs. Contractor's operators shall not operate the equipment and the rentals / hire and other charges shall be deposited in advance for every 15 days by the Contractor failing which these shall be recovered from the immediately next Interim payment due to the Contractor.</p> <p>ii. The Procuring Entity may issue materials like cement, steel, etc. (if available) to the Contractor for bonafide use in the Works at the rates specified in the Contract Data or at issue rate plus storage charges or free of cost, if it is a labour rate Contract, at the time and places specified in the Contract. Such materials shall be issued at different stages in quantities calculated for each stage by the Engineer-in-Charge.</p>
<b>Progress Reports</b>	4.20	<p>Unless otherwise stated in the Conditions, monthly progress reports shall be prepared by the Contractor and submitted to the Engineer-in-charge in specified number of copies along with the interim payment certificates, and the updated construction programme on MS Project or similar software for the next month. The first report shall cover the period up to the end of the first calendar month following the Commencement Date. Reports shall be submitted monthly thereafter, each within 7 Days after the last day of the month to which it relates. Reporting shall continue until the Contractor has completed all works which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works.</p> <p>Each report shall include:</p> <p>i. charts, drawings, outputs</p>

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		<p>and detailed description of progress, including each stage of design (if any) on MS project or similar software, Contractor's Documents, procurement, manufacture, delivery to Site, construction, erection and testing; and including these stages for work by each nominated Subcontractor (as defined in Sub-Clause 5.2 [Nomination of Sub-Contractors];</p> <p>ii. photographs (in adequate numbers) showing the status of progress of work on the Site;</p> <p>iii. the details described in Sub-Clause 6.12 [Records of Contractor's Personnel &amp; Equipment];</p> <p>iv. copies of quality assurance documents, test results, test certificates of manufactured Materials and action taken on Third Party Quality Inspections by the Contractor;</p> <p>v. list of notices given under Sub-Clause 2.5 [Procuring Entity's Claims] and notices given under Sub-Clause 21.2 [Contractor's Claims];</p> <p>vi. safety statistics, including details of any hazardous incidents and activities relating to environmental aspects and public relations; and</p> <p>vii. comparisons of actual and planned progress, hindrances, with details of any events or circumstances which may jeopardize the completion in accordance with the Contract, and the measures being (or to be) adopted to overcome delays.</p>
<b>Security of the Site and Works</b>	<b>4.21</b>	<p>Unless otherwise stated in the Conditions:</p> <p>i. the Contractor shall be responsible for keeping unauthorized persons off the Site,</p> <p>ii. authorized persons shall be limited to the Contractor's Personnel and the Procuring Entity's Personnel; and to any other personnel notified to the Contractor by the Procuring Entity or the Engineer-in-charge, as authorized personnel of the Procuring Entity's other Contractors on the Site.</p> <p>iii. The contractor shall arrange to protect, at his own cost, in an adequate manner, all cut stone work and other work, requiring protection and to maintain such protection as long as work is in progress. He shall remove and replace this protection, as required by the Engineer-in-charge, from time to time. Any damage to the work, so protected, no matter how it may be caused, shall be made good by the Contractor free of cost. All templates, forms. Moulds, centering, false works and models which in the opinion of the Engineer-in-charge are necessary for the proper and workman like execution of the work, shall be provided by the Contractor free of cost.</p> <p>iv. The Contractor shall arrange to keep the site and works</p>

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		secure from manmade disasters, explosions by design or by accident or both at his own cost.
<b>Contractor's Operations on Site</b>	<b>4.22</b>	<p>The Contractor shall confine his operations to the Site, and to any additional areas which may be obtained by the Contractor and agreed to by the Engineer-in-charge as additional working areas. The Contractor shall take all necessary precautions to keep Contractor's Equipment and Contractor's Personnel within the Site and these additional areas, and to keep them off adjacent land.</p> <p>During the execution of the Works, the Contractor shall keep the Site free from all unnecessary obstruction, and shall store or dispose of any Contractor's Equipment or surplus Materials. The Contractor shall clear away and remove from the Site any wreckage, rubbish and Temporary Works which are no longer required.</p> <p>When the annual repairs and maintenance of Works are carried out, the splashes and droppings from white washing, color washing, painting etc. on walls, floor, windows etc. shall be removed and the surface cleaned simultaneously with the completion of these items of work in the individual rooms, quarters or premises etc. where the work is done without waiting for the actual completion of all the other items of work in the Contract. In case the Contractor fails to comply with the requirements of this Sub-Clause, the Engineer-in-Charge shall have the right to get this work done at the Cost of the Contractor either Departmentally or through any other agency. Before taking such action, the Engineer-in-Charge shall give ten Day's notice in writing to the Contractor.</p> <p>Upon the issue of a Taking-Over Certificate, the Contractor shall clear away and remove, from that part of the Site and Works to which the Taking-Over Certificate refers, all Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works. The Contractor shall leave that part of the Site and the Works in a clean and safe condition. However, the Contractor may retain on Site, during the Defects Notification Period, such goods, equipment as are required by the Contractor to fulfill obligations under the Contract.</p>
<b>Fossils/ antiques and articles of value</b>	<b>4.23</b>	<p>All fossils, coins, articles of value or antiquity, and structures and other remains or items of geological or archaeological interest found on the Site shall be placed under the care and authority of the Engineer-in-charge / Procuring Entity. The Contractor shall take reasonable precautions to prevent Contractor's Personnel or other persons from removing or damaging any of these findings.</p> <p>The Contractor shall, upon discovery of any such finding, promptly give notice to the Engineer-in-charge, who shall issue instructions for dealing with it. If the Contractor suffers delay and/or incurs Cost from complying with the instructions, the Contractor shall give a further notice to the Engineer-in-</p>

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		<p>charge and shall be entitled subject to Sub-Clause 21.2 [Contractor's Claims] to:</p> <p>i. an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.6 [Extension of Time for Completion]; and</p> <p>ii. Payment of any such Cost, which shall be included in the Contract Price. After receiving this further notice, the Engineer-in-charge shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.</p>
<b>Completion Plans to be Submitted by the Contractor</b>	<b>4.24</b>	<p>The Contractor shall submit completion drawings, designs within thirty Days of the virtual completion of the Works.</p> <p>In case, the Contractor fails to submit the completion drawings, designs as aforesaid, the Engineer-in-charge shall be authorised to get these as built drawings, designs and other data prepared in 6 copies (4 hard and two soft) at the cost of the Contractor.</p>
<b>Contractor to Supply Tools &amp; Plants etc.</b>	<b>4.25</b>	<p>The Contractor shall provide at his own Cost all materials plant, tools, appliances, implements, ladders, cordage, tackle, scaffolding and Temporary Works required for the proper execution of the Works, whether original, altered or substituted and whether included or not in the Specification or other documents forming part of the Contractor referred to in these conditions, or which may be necessary for the purpose of satisfying or complying with the requirements of the Engineer-in-Charge as to any matter as to which under these conditions he is entitled to be satisfied, or which he is entitled to require together with carriage therefore to and from the Works.</p> <p>The Contractor shall also supply without charge the requisite number of persons with the means and materials, necessary for the purpose of setting out Works, and counting, weighing and assisting the measurement for examination at any time and from time to time of the work or Materials. Failing his so doing the same may be provided by the Engineer-in-Charge at the actual Cost +15% as agency charges to the Contractor, under this Contract or otherwise and/ or from his Performance Security or the proceeds of sale thereof, or of a sufficient portion thereof.</p>
<b>Changes in the firm's constitution to be intimated</b>	<b>4.26</b>	<p>Where the Contractor is a partnership firm, the previous approval in writing of the Engineer-in-Charge shall be obtained before any change is made in the constitution of the firm. Where the Contractor is an individual or a Hindu undivided family business concern such approval as aforesaid shall likewise be obtained before the Contractor enters into any partnership agreement where under the partnership firm would have the right to carry out the Works hereby undertaken by the Contractor. If previous approval as</p>

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		aforesaid is not obtained, the Contract shall be deemed to have been subcontracted in contravention of Sub-Clause 4.6 [Sub-Contractor, nominated Sub-Contractor] and the same action may be taken and the same consequences shall ensue as provided in the Sub-Clause 16.1 [Termination by Procuring Entity]
<b>5. Sub-Contractor and Nomination of Sub-Contractor</b>		
<b>Sub Contractor</b>	<b>5.1</b>	A Sub Contractor, if permitted under the Contract, is a firm or a person specified by the Contractor in his Bid along with details of his capabilities on equipment/ machineries, personnel (technical and others), experience on similar works specific to the project, commitment to Quality assurance etc. He should not have been debarred by the Procuring Entity or the State Government.
<b>Nomination of Sub-Contractor</b>	<b>5.2</b>	In the Contract, "nominated Sub-Contractor" means a Sub-Contractor: (a) who is stated in the Contract as being a nominated Sub-contractor, or (b) whom the Engineer-in-charge, instructs the Contractor to employ as a Subcontractor subject to Sub-Clause 5.3 [Objection to Nomination].
<b>Objections to nominations</b>	<b>5.3</b>	The Contractor shall not be under any obligation to employ a nominated Sub-contractor against whom the Contractor raises reasonable objection by notice to the Engineer-in-charge as soon as practicable, with supporting particulars.
<b>Payment to Nominated Sub-Contractor</b>	<b>5.4</b>	The Contractor shall pay to the Nominated Sub-Contractor the amounts shown on the Nominated Sub-contractor's invoices approved by the Contractor which the Engineer-in-charge certifies to be due in accordance with the sub-contract. These amounts plus other charges paid to the Nominated Sub-Contractor shall be included in the Contract Price in accordance with Sub-Clause 9.6 [Provisional Sums].
<b>Evidence of payments</b>	<b>5.5</b>	Before issuing a Payment Certificate which includes an amount payable to a nominated Subcontractor, the Engineer-in-Charge may request the Contractor to supply reasonable evidence that the nominated Subcontractor has received all amounts due in accordance with previous Payment Certificates, less applicable deductions for retention or otherwise. Unless the Contractor: (a) submits this reasonable evidence to the Engineer-in-Charge, or (b) (i) satisfies the Engineer-in-Charge in writing that the Contractor is reasonably entitled to withhold

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		<p>or refuse to pay these amounts, and</p> <p>(ii) submits to the Engineer-in-Charge reasonable evidence that the nominated Subcontractor has been notified of the Contractor's entitlement, then the Procuring Entity may (at his sole discretion) pay, direct to the nominated Subcontractor, part or all of such amounts previously certified (less applicable deductions) as are due to the nominated Subcontractor and for which the Contractor has failed to submit the evidence described in sub-paragraphs (a) or (b) above. The Contractor shall then repay, to the Procuring Entity, the amount which the nominated Subcontractor was directly paid by the Procuring Entity.</p>
<b>6. Engagement of Staff and Labour by the Contractor</b>		
<b>Staff and Labour</b>	<b>6.1</b>	<p>i. Except as otherwise stated in the Specifications, the Contractor shall make arrangements for the engagement of all staff and labour, local or otherwise, and for their payment, water, power, healthcare backup, transport and, when appropriate, housing.</p> <p>ii. The Contractor is encouraged, to the extent practicable and reasonable, to employ staff and labour with appropriate qualifications and experience from sources within India.</p> <p>iii. No Engineer of gazetted rank or other gazetted officer employed in Engineering or administrative duties in an Engineering Department of the Government of Rajasthan shall work as a Contractor or employee of a Contractor for a period of two years after his retirement from Government service without the previous permission of State Government in writing. The Contract is liable to be cancelled if either the Contractor or any of his employees is found at any time to be such a person who had not obtained said permission prior to engagement in the Contractor's service, as the case may be.</p>
<b>Bidder barred from bidding if near Relatives working in Procuring Entity's office</b>	<b>6.2</b>	<p>The Contractor shall not be permitted to bid for works of a Procuring Entity in which his near relative is an employee. He shall also not have a person as his employee who is a near relative of an employee of the Procuring Entity. Any breach of this condition by the Contractor shall be considered as breach of Code of Integrity and shall render him liable to action under Section 11(3) of the Act which includes exclusion of his Bid from procurement process, forfeiture of Bid Security, Performance Security or any other security or bond relating to procurement, recovery of payments made, if any, along with interest at bank rate, cancellation of the Contract, if already made, debarment from future bidding for a period upto three years, etc.</p> <p><b>Note:</b> By the term 'near relative' is meant wife, husband,</p>

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		<i>parents and grand- parents, children and grand- children, brothers and sisters, uncles and cousins and their corresponding in- laws.</i>
<b>Employment of Technical Staff and other Employees</b>	<b>6.3.1</b>	The Contractor shall Engage technical personnel as per list provided for in the Contract and provide all necessary superintendence during execution of the Works and as long thereafter as may be necessary for proper fulfilling of the obligations under the Contract. The project manager of the Contractor shall be his principal technical representative. Other personnel shall be engaged as specified in the qualification criteria.
	<b>6.3.2</b>	<p>The technical staff should always be available at site whenever required by Engineer- in- charge to take instructions.</p> <p>The Contractor shall comply with the provisions of the Apprenticeship Act, 1961, and the Rules and Orders issued, thereunder, from time to time. If he fails to do so, his failure will be a breach of Contract. The Contractor shall also be liable for any pecuniary liability arising on account of any violation by him of the provisions of the said Act.</p>
<b>Responsibility of the Technical Staff and employees</b>	<b>6.4</b>	Technical officers/ staff deployed by the Contractor at any construction Site will be responsible for proper quality of Works and physical targeted progress of the Works.
<b>Rate of Wages and Conditions of Labour</b>	<b>6.5</b>	<p>The Contractor shall not pay less than fair wages/ minimum wages to labourers engaged by him on the Works as revised from time to time by the State Government, but the Procuring Entity shall not be liable to pay anything extra for it except as stipulated in price escalation Sub-Clause of the agreement.</p> <p><b>Explanation:</b> “Fair Wage” means minimum wages for time or piece work, fixed or revised, by the State Government under the Minimum Wages Act, 1948.</p> <p>The Contractor shall, notwithstanding the provisions of any contract to the contrary, cause to be paid fair wages to labourers directly or indirectly engaged on the Works, including any labour engaged by his Sub-Contractors in connection with the said Works as if the labourers have been immediately or directly employed by him.</p> <p>In respect of all labourers, immediately or directly employed on the Works, for the purpose of Contractor's part of this agreement, the Contractor shall comply with or cause to be complied with the Public Works Department Contractor's Labour Regulations made, or that maybe made by the State Government from time to time in Regard to payment of wages, wage period, deductions from wages, recovery of wages not paid, and unauthorized deductions, maintenance of wages register, wage card, publication of scale of wages</p>

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		<p>and other terms of employment, inspection and submission of periodical returns and other matters of a like nature.</p> <p>The Engineer-in-charge shall have the right to deduct from the money due to the Contractor any sum required or estimated to be required for making good the loss suffered by a worker or workers, by reasons of non-fulfillment of the conditions of the Contract, for the benefit of the worker or the workers, non-payment of wages or of deductions made therefrom, which are not justified by the terms of the Contract, or as a result of non-observance of the aforesaid regulations.</p> <p>Vis-à-vis the State Government of Rajasthan, the Contractor shall be primarily liable for all payments to be made and for the observance of the regulations aforesaid, without prejudice to his right to claim indemnity from his Sub-Contractors.</p> <p>The regulations, aforesaid, shall be deemed to be part of this Contract and any breach, thereof, shall be deemed to be breach of the Contract.</p>
<b>Contractor not to engage staff of Procuring Entity</b>	<b>6.6</b>	<p>The Contractor shall not recruit, or attempt to recruit, full time (on leave) or part time the staff and labour from among the Procuring Entity's Personnel in any capacity.</p>
<b>Working Hours</b>	<b>6.7</b>	<p>No work shall be carried out on the Site on locally recognized Days of rest, or outside the normal working hours stated in the Contract Data, unless:</p> <ul style="list-style-type: none"> <li>i otherwise stated in the Contract,</li> <li>ii. the Engineer-in-charge gives consent, or</li> <li>iii the work is unavoidable, or necessary for the protection of life or property or for the safety of the Works, in which case the Contractor shall immediately advise the Engineer-in-charge.</li> </ul>
<b>Facilities for Staff and Labour</b>	<b>6.8</b>	<p>Except as otherwise stated in the Specifications, the Contractor shall provide and maintain all necessary accommodation and welfare facilities for the Contractor's Personnel. The Contractor shall also provide work site facilities for the Procuring Entity's Personnel as stated in the Specifications.</p> <p>The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works.</p>



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<b>Health &amp; Safety</b>	<b>6.9</b>	<p>The Contractor shall at all times take all reasonable precautions to maintain the health and safety of the Contractor's Personnel. In collaboration with local health authorities, the Contractor shall ensure that medical staff, first aid facilities, sick bay, doctor at call and ambulance service are available at all times at the Site and at any accommodation for Contractor's and Procuring Entity's Personnel, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics.</p> <p>The Contractor shall appoint a safety officer at the Site, responsible for maintaining safety and protection against accidents. This person shall be qualified and trained for this responsibility, and shall have the authority to issue instructions and take protective measures to prevent accidents. Throughout the execution of the Works, the Contractor shall provide whatever is required by this person to exercise this responsibility and authority.</p> <p>The Contractor shall send, to the Engineer-in-charge, details of any accident occurred at the Site or to or due to the Works, as soon as practicable after its occurrence. The Contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the Engineer-in-charge may reasonably require.</p>
<b>Contractor's Superintendence</b>	<b>6.10</b>	<p>Throughout the execution of the Works, and as long thereafter as is necessary to fulfill the Contractor's obligations, the Contractor shall provide all necessary superintendence to plan, arrange, direct, manage, inspect and test the Works.</p> <p>Superintendence shall be given by a sufficient number of persons having adequate knowledge of the language for communications (defined in Sub-Clause 1.4 [Law and Language]) and of the operations to be carried out (including the methods and techniques required, the hazards likely to be encountered and methods of preventing accidents), for the satisfactory and safe execution of the Works.</p>
<b>Contractor's Personnel</b>	<b>6.11</b>	<p>Contractor's Personnel shall be appropriately qualified, skilled and experienced in respective trades or occupations. The Engineer-in-charge may require the Contractor to remove (or cause to be removed) any person employed on the Site or Works, including the Contractor's Representative, if applicable, who:</p> <ul style="list-style-type: none"> <li>i. persists in any misconduct or lack of care,</li> <li>ii. carries out duties incompetently or negligently,</li> <li>iii. fails to conform with any provisions of the Contract, or</li> <li>iv. Persists in any conduct which is prejudicial to safety, health, or the protection of the environment.</li> </ul> <p>If appropriate, the Contractor shall then appoint (or cause to be</p>

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		appointed)a suitable replacement person.
<b>Records of Contractor's personnel and Equipment</b>	<b>6.12</b>	The Contractor shall provide all required equipment, machinery at the Site and submit to the Engineer-in-charge, details showing the number of each category of Contractor's Personnel and of each type of Contractor's Equipment on the Site. Details shall be submitted each calendar month, in a form approved by the Engineer-in-charge, until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works.
<b>Disorderly Conduct</b>	<b>6.13</b>	The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst the Contractor's Personnel, and to preserve peace and protection of persons and property on and near the Site.
<b>Foreign Personnel</b>	<b>6.14</b>	<p>Is permitted, the Contractor may bring in to the Country any foreign personnel who are necessary for the execution of the Works to the extent allowed by the applicable Laws. The Contractor shall ensure that these personnel are provided with the required residence visas and work permits. The Procuring Entity will, if requested by the Contractor, use his best endeavors in a timely and expeditious manner to assist the Contractor in obtaining any local, state, national, or Government permission required for bringing in the Contractor's personnel.</p> <p>The Contractor shall be responsible for the return of these personnel to the place where they were recruited or to their domicile. In the event of the death in the Country of any of these personnel or members of their families, the Contractor shall similarly be responsible for making the appropriate arrangements for their return or burial.</p>
<b>Supply of Food Stuffs</b>	<b>6.15</b>	The Contractor shall arrange for the provision of a sufficient supply of suitable food stuff as may be stated in the Specification at reasonable prices for the Contractor's Personnel for the purposes of or in connection with the Contract.
<b>Supply of Water</b>	<b>6.16</b>	The Contractor shall, having regard to local conditions, provide at his cost on the Site an adequate supply of potable drinking and other water for use in construction and for use of the Contractor's Personnel.
<b>Measures against Insect and Pest Nuisance</b>	<b>6.17</b>	The Contractor shall at all times take the necessary precautions to protect the Contractor's Personnel employed on the Site from insect and pest nuisance, and to reduce their danger to health. The Contractor shall comply with all the regulations of the local health authorities, including use of appropriate insecticide.

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<b>Alcoholic Liquor or Drugs</b>	<b>6.18</b>	The Contractor shall not, other than in accordance with the Laws of the Country, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or allow importation, sale, gift, barter or disposal thereof by Contractor's Personnel. He shall also not allow the consumption of such Alcoholic Liquor/Drugs at Site during working hours.
<b>Arms and Ammunition</b>	<b>6.19</b>	The Contractor shall not give, barter, or otherwise dispose of, to any person, any arms or ammunition of any kind, or allow Contractor's Personnel to do so.
<b>No unlicensed storage of Explosives and POL</b>	<b>6.20</b>	The Contractor is not authorised to store explosives and POL or other inflammable materials without a valid license from the competent legal authority.
<b>Prohibition of Forced or Compulsory labour</b>	<b>6.21</b>	The Contractor shall not employ forced or compulsory labour, which consists of any work or service, not voluntarily performed, that is exacted from an individual under threat of force or penalty, and includes any kind of involuntary or compulsory labour, such as indentured labour, bonded labour or similar labour-contracting arrangements.
<b>Prohibition of Child Labour</b>	<b>6.22</b>	The Contractor shall comply with the provisions of Acts and rules pertaining to prohibition of employment of child labour including not employing any child to perform any work that is economically exploitative, or is likely to be hazardous to, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development.
<b>Festivals and Religious Customs</b>	<b>6.23</b>	The Contractor shall respect the Country's recognized festivals, days of rest and religious or other customs.
<b>Employment Records of Workers</b>	<b>6.24</b>	The Contractor shall keep complete and accurate records of the employment of labour at the Site. The records shall include the names, ages, genders, hours worked and wages paid to all workers. These records shall be summarized on a monthly basis and submitted to the Engineer-in-charge, and these records shall be available for inspection by Auditors / labour inspectors and others as per law during normal working hours. These records shall be included in the details to be submitted by the Contractor under Sub-Clause 6.12 [Records of Contractor's Personnel and Equipment].
<b>Compliance with Labour Laws</b>	<b>6.25</b>	The Contractor shall comply with all the relevant labour Laws applicable to the Contractor's Personnel, including Laws relating to their employment, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights. The Contractor shall require his employees to obey all applicable Laws, including those concerning

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		<p>safety at work.</p> <p>The Contractor shall obtain a valid license under the State Labour Act, and the Contract Labour (Regulation and Abolition) Central Rules 1961, before the commencement of the Works, and continue to have a valid license until the completion of the Works. The Contractor shall also abide by the provisions of the Child Labour (Prohibition and Regulation) Act, 1986.</p> <p>The Contractor shall also comply with the provisions of the Building and Other Construction Workers (Regulation of Employment &amp; Conditions of Service) Act, 1996 and the Building and Other Construction Workers Welfare Cess Act, 1996.</p>
<b>Payment of Wages</b>	<b>6.26</b>	<p>i. The Contractor shall pay to labour employed by him either directly or through Sub-Contractors, wages not less than fair wages as defined in P.W.D. Contractor's Labour Regulations or as per the provisions of the Contract Labour (Regulation and Abolition) Act 1970 and the Contract Labour (Regulation and Abolition) Central Rules, 1971, where applicable.</p> <p>ii. The Contractor shall, notwithstanding the provisions of any Contract to the contrary, cause to be paid for wages to labour indirectly engaged on the Works including any labour engaged by his sub-Contractors in connection with the said Works, as if the labour had been immediately employed by him.</p>
<b>Penalty for non-compliance with labour Laws</b>	<b>6.27</b>	<p>i. In respect of all labour directly or indirectly employed in the Works of performance of the Contractor's Part of this Contract, the contractor shall comply with or cause to be complied with the Public Works Department Contractor's Labour Regulations made by the Government from time to time in regard to payment of wages, wage period, deductions from wages, recovery of wages not paid and deductions unauthorisedly made, maintenance of wage books or wage slips, publication of scale of wages and other terms of employment, inspection and submission of periodical returns and all other matters of the like nature as per the Provisions of Contract Labour (Regulation &amp; Abolition) Act, 1970, and the Contract Labour (Regulation &amp; Abolition) Central Rules, 1971, wherever applicable.</p> <p>ii. The Engineer-in-Charge concerned shall have the right to deduct from the moneys due to the Contractor any sum required or estimated to be required for making good the loss suffered by a worker or workers by reason of non-fulfillment of the conditions of the Contract for the benefit of the workers, non-payment of wages or of deductions, made from his or their wages which are not justified by their terms of the Contract or non-observance</p>

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		<p>of the Regulations.</p> <p>iii. Under the provision of Minimum Wages (Central) Rules 1950, the Contractor is bound to allow to the labour directly or indirectly employed in the Works one day rest for 6 Days continuous work and pay wages at same rate as for duty. In the event of default the Engineer-in-Charge shall have the right to deduct the sum or sums not paid on account of wages for weekly holidays to any labour and pay the same to the persons entitled thereto from any money due to the Contractor by the Engineer-in-Charge concerned.</p> <p>iv. The Contractor shall comply with the provisions of the Payment of Wages Act, 1936, Minimum Wages Act, 1948, Employees Liability Act, 1938, Workmen's Compensation Act, 1923, industrial Disputes Act, 1947, Maternity Act, 1970, or the modifications thereof or any other relevant Labour Laws and the rules made thereunder from time to time.</p> <p>v. The Contractor shall indemnify and keep indemnified the State Government/ Procuring Entity against payments to be made under and for the observance of the Laws aforesaid and the P.W.D. Contractor's Labour Regulations without prejudice to his right to claim indemnity from his Sub-Contractors.</p> <p>vi. The Laws aforesaid shall be deemed to be a part of this Contract and any breach thereof shall be deemed to be a breach of this Contract.</p> <p>vii. Whatever is the minimum wage for the time being, or if the wage payable higher than the minimum wage, such wage shall be paid by the Contractor to the workmen directly without the intervention of Jamadar and that Jamadar shall not be entitled to deduct or recover any amount from the minimum wage payable to the workmen as and by way of commission or otherwise. The Contractor shall ensure that no amount by way of commission or otherwise is deducted or recovered by the Jamadar from the wage of workmen.</p>
<b>7. Execution of works and workmanship</b>		
<b>Manner of Execution</b>	<b>7.1</b>	<p>The Contractor shall carry out works, the production of mixes, the procurement of input materials, and all other execution of the Works:</p> <p>i. in the manner (if any) specified in the Contract,</p> <p>ii. in a proper workman like and careful manner, in accordance with recognized good practices, and</p> <p>iii. with properly equipped facilities and non-hazardous materials, except as otherwise specified in the Contract.</p>

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<b>Samples</b>	<b>7.2</b>	<p>The Contractor shall submit the following samples of Materials, and relevant information, to the Engineer-in-charge for consent prior to using the Materials in or for the Works:</p> <ul style="list-style-type: none"> <li>i. Contractor's standard samples of raw/ produced Materials and samples specified in the Contract, all at the Contractor's Cost, and</li> <li>ii. additional samples instructed by the Engineer-in-Charge as a Variation.</li> </ul> <p>Each sample shall be labeled as to origin and intended use in the Works.</p> <p>Samples shall also be collected by the Quality testing/inspection teams from the works in progress and the Contractor shall willingly cooperate with such quality assurance procedures.</p>
<b>Inspection</b>	<b>7.3</b>	<p>The Procuring Entity's Personnel shall at all reasonable times:</p> <ul style="list-style-type: none"> <li>i. have full access to all parts of the Site and to all places from which natural materials are being obtained, and</li> <li>ii. during production, manufacture and construction (at the Site and elsewhere), be entitled to examine, inspect, measure and test the materials and workmanship, and to check the progress of manufacture of Plant and production and manufacture of materials.</li> </ul> <p>The Contractor shall give the Procuring Entity's Personnel full opportunity to carry out these activities, including providing access, facilities, permissions and safety equipment. No such activity shall relieve the Contractor from any obligation or responsibility.</p> <p>The Contractor shall give notice of minimum 07 days to the Engineer-in-charge whenever any work is ready and before it is covered up, put out of sight, or packaged for storage or transport, beyond measurement, any work in order that the same may be measured and correct dimensions thereof, be taken before the same is covered up. The Engineer-in-charge shall then either carry out the examination, inspection, measurement or testing without unreasonable delay, or promptly give notice to the Contractor that the Engineer-in-charge does not require to do so. If the Contractor fails to give the notice, he shall, if and when required by the Engineer-in-charge, uncover the work and thereafter reinstate and make good, all at the Contractor's Cost.</p>
<b>Stores supplied by the Procuring Entity</b>	<b>7.4</b>	<p>If the specification or estimate of the Works provide for the use of any special description of materials, to be supplied from the Engineer Incharge's stores, or if, it is required that Contractor shall use certain stores to be provided by the</p>

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<b>(Not applicable in case of Lump Sum Contract)</b>		<p>Engineer Incharge specified in the Schedule or Memorandum hereto annexed, the Contractor shall be bound to procure and shall be supplied such materials and stores as are, from time to time, required to be used by him for the purpose of the Contract only, and the value of the full quantity of materials and stores, so supplied, at the rates specified in the said Schedule or Memorandum, may be set off or which may be deducted from any sum, then due or thereafter become due, to the Contractor under the Contract or otherwise or against or from the Performance Security or the proceeds of sale, if the same is held in Government securities, the same or a sufficient portion thereof being in this case, sold for this purpose. All materials supplied to the Contractor, either from departmental stores or with the assistance of the Procuring Entity, shall remain the absolute property of the Procuring Entity. The Contractor shall be the trustee of the stores/materials, so supplied/ procured and these shall not, on any account, be removed from the Site of the Works and shall be, all times, open to inspection by the Engineer Incharge. Any such materials, unused and in perfectly good condition at the time of completion or determination or rescinding of the Contract, shall be returned to the Engineer Incharge's Stores, if, by a notice in writing under his hand, he shall so require, and if on service of such notice, the Contractor fails to return the materials, so required, he shall be liable to pay the price of such materials. But the Contractor shall not be entitled to return any such materials, unless with such consent, and shall have no claim for compensation on account of any such materials, so supplied to him as aforesaid being unused by him, or for any wastage in or damage to any such materials. For the stores returned by the Contractor, he shall be paid for, at the price originally charged excluding storage charges, in case of materials supplied from departmental stores and actual cost including freight, cartage, taxes etc., paid by the Contractor, in case of supplies received with the assistance of the Procuring Entity, however, should in no case exceed market rate prevailing at the time the materials are taken back. The decision of the Engineer Incharge, as to the price of the stores returned, keeping in view its condition etc., shall be final and conclusive. In the event of breach of the aforesaid condition, the Contractor shall, in addition to throwing himself open to account for contravention of the terms of the license or permit and/or for criminal breach of trust, pay to the Procuring Entity, all advantages or profits resulting or which in the usual course, would result to him by reason of such breach. Provided that the Contractor shall, in no case be entitled to any compensation or damage on account of any delay in supply, or non-supply thereof, all or any such materials and stores.</p>
<b>Penal rate in case of excess</b>	<b>7.5</b>	The Contractor shall return the materials issued free of cost to him and found surplus after its intended consumption in

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<b>consumption</b>  <i>(Not applicable in case of Lump Sum Contract)</i>		<p>the Works, immediately. The Contractor shall be charged for the materials which were not returned or consumed in excess of the requirements calculated on the basis of standard consumption approved by the Procuring Entity, at double of the issue rate including storage and supervision charges or market rate, whichever is higher. A Materials Supply and Consumption Statement, in prescribed Form RPWA 35A, shall be submitted with every Payment Certificate, distinguishing materials supplied by the Procuring Entity and materials procured by the Contractor himself. The recovery for such materials shall be made from Payment Certificate next after the consumption and shall not be deferred. Certificate of such nature shall be given in each Payment Certificate.</p>
<b>Hire of Plant and Machinery</b>	7.6	<p>Plant and Machinery, required for execution of the Works, may be issued to the Contractor, if available, on the rates of hire charges and other terms and conditions as per the departmental/ Organisation Rules, as per Schedule annexed to these conditions. Rates of such Plant &amp; Machinery shall be got revised periodically so as to bring them at par with market rate.</p>
<b>Imported Store articles to be obtained from the Procuring Entity</b>  <i>(Not applicable in case of Lump Sum Contract)</i>	7.7	<p>The Contractor shall obtain from the stores of the Engineer-in-charge, all imported store articles, which may be required for the Works or any part thereof, or in making up articles required thereof, or in connection therewith, unless he has obtained permission, in writing, from the Engineer Incharge. to obtain such stores and articles from elsewhere. The value of such stores and articles, as may be supplied to the Contractor by the Engineer Incharge, will be debited to the Contractor, in his account, at the rates shown in the Schedule attached to the Contract, and if they are not entered in the Schedule, they will be debited at cost price, which for the purposes of this Contract, shall include the cost of carriage and all other expenses, whatsoever, which shall have been incurred in obtaining delivery of the same at the stores aforesaid plus storage charges.</p>
<b>Materials Supplied by the Contractor</b>	7.8	<p>The Contractor shall, at his own expense, provide all materials conforming to the specifications from the sources approved by the Engineer-In-Charge, required for the Works other than those, which are stipulated, to be supplied by the Procuring Entity.</p> <p>Samples for all such materials shall be collected by the Contractor and tested in the presence of representative of the Engineer-in-Charge, at the field laboratory established by the Contractor at the site. Tests which cannot be carried out at the field laboratory, shall be got tested at an NABL accredited laboratory, or any ISI approved laboratory or a Government /Departmental laboratory approved by the Engineer-in-Charge. Only materials so approved shall be used in the works and any change of materials shall be similarly got approved again. Works constructed/executed</p>



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		<p>with unapproved materials shall be summarily rejected without any further investigation or testing.</p> <p>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.</p> <p>The Engineer-in-Charge shall have full powers to require the removal from the premises, of all materials 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 for 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 from other suitable sources and all Costs which may be incurred for such removal and substitution shall be borne by the Contractor.</p>
<b>Testing</b>	<b>7.9.1</b>	<p>This Sub-Clause shall apply to all tests specified in the Contract, other than the Tests after Completion (if any).</p> <p>Except as otherwise specified in the Contract, the Contractor shall provide a field laboratory with all apparatus, assistance, documents and other information, electricity, equipment, fuel, consumables, instruments, labour, materials, and suitably qualified and experienced staff, as are necessary to carry out the specified tests efficiently. The Contractor shall agree, with the Engineer-in-charge, the time and place for the specified testing of any Plant, Materials and other parts of the Works.</p> <p>The Engineer-in-charge may, under Sub-Clause 9.2.1 [Deviations/ Variations, Extent and Pricing], vary the location or details of specified tests, or instruct the Contractor to carry out additional tests. If these varied or additional tests show that the tested Plant, Materials or works or workmanship is not in accordance with the Contract, the Cost of carrying out this variation shall be borne by the Contractor, notwithstanding other provisions of the Contract.</p> <p>The Engineer-in-charge shall give the Contractor not less than 24 hours' notice of the Engineer-in-charge's intention to attend the tests. If the Engineer-in-charge does not attend at the time and place agreed, he may designate a qualified and authorised person to attend the testing, if not, the Contractor may approach the Procuring Entity for deputing an Engineer / any other experienced person to witness the tests. In no case shall the tests be conducted without an Engineer/competent person representing the Procuring Entity.</p>

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	<b>7.9.2</b>	<p>If the Contractor suffers delay and/or incurs Cost from complying with these instructions or as a result of a delay for which the Procuring Entity is responsible, the Contractor shall give notice to the Engineer-in-charge and shall be entitled subject to Sub-Clause 21.2 [Contractor's Claims ] to:</p> <ul style="list-style-type: none"> <li>i. an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.6 [Extension of Time for Completion ], and</li> <li>ii. payment of any such Cost, which shall be included in the Contract Price.</li> </ul> <p>After receiving this notice, the Engineer-in-charge shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters</p> <p>The Contractor shall promptly forward to the Engineer-in-charge, duly certified reports of the tests. When the specified tests have been passed, the Engineer- in-charge shall endorse the Contractor's test certificate.</p>
<b>Cost of Samples</b>	<b>7.10</b>	All samples shall be supplied by the Contractor at his own Cost if the supply thereof is clearly intended by or provided for in the Contract.
<b>Cost of Tests</b>	<b>7.11</b>	<p>The Cost of conducting any test shall be borne by the Contractor if such test is:</p> <ul style="list-style-type: none"> <li>i. clearly intended by or provided for in the Contract, or</li> <li>ii. particularised in the Contract (In case only of a test under load or of a test to ascertain whether the design of any finished or partially finished work is appropriate for the purposes for which it was intended to fulfill) in sufficient detail to enable the Contractor to price or allow for the same in his Bid.</li> </ul>
<b>Cost of Tests not provided for</b>	<b>7.12</b>	<p>If any test required by the Engineer-in-charge which is:</p> <ul style="list-style-type: none"> <li>i. not so intended by or provided for in the Contract or codes;</li> <li>ii. (in the cases above mentioned) not so particularized, or</li> <li>iii. (though so intended or provided for),</li> </ul> <p>if required by the Engineer-in-charge to be carried out at any place other than the Site or the place of manufacture, fabrication or preparation of the Materials or Plant, on test shows the Materials, Plant or work or workmanship not to be in accordance with the provisions of the Contract/ specifications to the satisfaction of the Engineer-in-charge, then the Cost of such test shall be borne by the Contractor, but in any other case Department/ Organisation will bear the Cost.</p>
<b>Rejection</b>	<b>7.13</b>	If, as a result of an examination, inspection,

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		<p>measurement or testing, any Plant, Materials, works or workmanship is found to be defective or otherwise not in accordance with the Contract, the Engineer-in-charge may reject the works, Plant, Materials or workmanship by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the defect and ensure that the reconstructed/ reproduced/ replaced item complies with the Contract.</p> <p>If the Engineer-in-charge requires this Plant, Materials, works, or workmanship to be retested, the tests shall be repeated under the same terms and conditions. If the rejection and retesting cause the Procuring Entity to incur additional Costs, the Contractor shall subject to Sub-Clause 2.5 [Procuring Entity's Claims] pay these Costs to the Procuring Entity.</p>
<b>Remedial Work</b>	<b>7.14</b>	<p>Notwithstanding any previous test or certification, the Engineer-in-charge may instruct the Contractor to:</p> <ul style="list-style-type: none"> <li>i. remove from the Site and replace any works, Plant or Materials which is not in accordance with the Contract,</li> <li>ii. remove and re-execute any other work which is not in accordance with the Contract, and</li> <li>iii. execute any work which is urgently required for the safety of the Works, whether because of an accident, unforeseeable event or otherwise.</li> </ul> <p>The Contractor shall comply with the instruction within a reasonable time, which shall be the time (if any) specified in the instruction, or immediately if urgency is specified under sub-paragraph iii.</p> <p>If the Contractor fails to comply with the instruction, the Procuring Entity shall be entitled to employ and pay other persons to carry out the work. Except to the extent that the Contractor would have been entitled to payment for the work, the Contractor shall subject to Sub-Clause 2.5 [Procuring Entity's Claims] pay to the Procuring Entity all Costs arising from this failure.</p>
<b>Ownership of Plant and Materials</b>	<b>7.15</b>	<p>Except as otherwise provided in the Contract, each item of Plant and Materials shall, to the extent consistent with the Contract, become the property of the Procuring Entity at whichever is the earlier of the following times, free from liens and other encumbrances:</p> <ul style="list-style-type: none"> <li>i. when it is incorporated in the Works;</li> <li>ii. when the Contractor is paid the corresponding value of the Plant and Materials under Sub-Clause 8.12 [Payment for Plant and Materials in event of Suspension].</li> </ul>
<b>Dismantled Material</b>	<b>7.16</b>	<p>The Contractor, in course of the Works, should understand that all materials e.g. stone, bricks, steel and other</p>

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<b>Government Property</b>		materials obtainable in the Works by dismantling etc. will be considered as the property of the Procuring Entity and will be disposed off to the best advantage of the Procuring Entity, as per directions, of the Engineer-in-charge.
<b>Action where no Specifications are provided.</b>	<b>7.17</b>	In the case of any class of works for which there are no specifications in Bureau of Indian Standards Specifications, Indian Road Congress for road Works and Indian Building Congress for building Works or any Central Government agency, or Departmental Specifications, such works shall be carried out in accordance with the relevant International Standards under the instructions and requirements of the Engineer-in-Charge.
<b>Royalties</b>	<b>7.18</b>	<p>The Contractor shall pay all royalties, rents and other payments for:</p> <ul style="list-style-type: none"> <li>i. natural Materials obtained from outside the Site, and</li> <li>ii. disposal of materials from demolitions and excavations and of other surplus materials (whether natural or man-made), except to the extent that disposal areas within the Site are specified in the Contract.</li> <li>iii. the liability, if any, on account of quarry fees, royalties, octroi and any other taxes and duties in respect of materials actually consumed on public work shall be borne by the Contractor.</li> </ul>
<b>8. Commencement, Delays and Suspension</b>		
<b>Fixing centerlines, reference points and bench marks.</b>	<b>8.1</b>	The basic centerlines, reference points and benchmarks will be fixed by the by the Contractor and checked/confirmed by the Engineer-in-Charge. The Contractor shall establish at his own Cost at suitable points, additional reference lines and benchmarks as may be necessary and instructed by the Engineer-in-Charge. The Contractor shall remain responsible for the sufficiency and accuracy of all the benchmarks and reference lines.
<b>Setting out of works.</b>	<b>8.2</b>	<p>The Contractor shall set out the Works in relation to original points, lines and levels of reference specified in the Contract or notified by the Engineer-in-Charge. The Contractor shall be responsible for the correct positioning of all parts of the Works, and shall rectify any error in the positions, levels, dimensions or alignment of the Works.</p> <p>The Procuring Entity shall be responsible for any errors in these specified or notified items of reference, but the Contractor shall use reasonable efforts to verify their accuracy before they are used. If the Contractor suffers delay and/or incurs Cost from executing work which was necessitated by an error in these items of reference, and an experienced contractor could not reasonably have discovered such error and avoided this delay and/ or Cost, the Contractor shall give notice to the Engineer-in-Charge</p>

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		<p>and shall be entitled subject to Sub-Clause 21.2 [Contractor's Claims] to:</p> <ul style="list-style-type: none"> <li>i. an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.6 [Extension of Time for Completion], and</li> <li>ii. payment of any such Cost, which shall be included in the Contract Price.</li> </ul> <p>After receiving this notice, the Engineer-in-Charge shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (a) whether and (if so) to what extent the error could not reasonably have been discovered, and (b) the matters described in subparagraphs i and ii above related to this extent.</p>
<b>Commencement of Works</b>	<b>8.3.1</b>	<p>Except otherwise specified in the Contract Data/ Special Conditions of Contract, the Commencement Date shall be the date at which the following precedent conditions have all been fulfilled and the Engineer-in-charge's instruction recording the agreement of both Parties on such fulfillment and instructing to commence the Work is received by the Contractor:</p> <ul style="list-style-type: none"> <li>i. signature of the Contract Agreement (after submission of Performance security and Insurance by the Contractor) by both Parties, and if required, approval of the Contract by relevant authorities;</li> <li>ii. delivery to the Contractor of reasonable evidence of the Procuring Entity's Financial arrangements;</li> <li>iii. except if otherwise specified in the Contract Data, possession of the Site given to the Contractor together with such permission(s) under (a) of Clause 2.1 [Right of Access to the Site] as required for the commencement of the Works;</li> </ul> <p>The Contractor shall commence the execution of the Works as soon as is reasonably practicable after the Commencement Date, and shall then proceed with the Works with due expedition and without delay. The date of commencement and stipulated completion shall be entered in the Contract Agreement.</p>
	<b>8.3.2</b>	<p>In case, the work cannot be started within one-fourth time of the stipulated period of completion of the Works due to reasons not within the control of the Contractor as decided by the Procuring Entity, either Party may close the Contract. In such eventuality, the Performance Security of the Contractor shall be refunded, but no payment on account of interest, loss of profit or damages etc. shall be payable at all.</p>
<b>Time for Completion</b>	<b>8.4</b>	<p>The Contractor shall complete the whole of the Works, and each Section (if any), within the Time for Completion for</p>

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		<p>the Works or Section (as the case may be), including:</p> <ul style="list-style-type: none"> <li>i. achieving the passing of the Tests on Completion, and</li> <li>ii. Completing all work which is stated in the Contract as being required for the Works or Section to be considered to be completed for the purposes of taking-over under Clause 12 [Taking Over of the Works and Sections].</li> <li>iii. Completion of as built drawings and a manual for maintenance and operations, if required.</li> <li>iv. Completion of each mile stone as per the current (original updated every month) construction programme.</li> <li>v. Rectification and or reconstruction of all deficient items of work or works /items of works for which 'Non Conformance Reports' were issued.</li> <li>vi. Restoration of the approach roads, fencing and appurtenant works damaged during execution of the Contracted project and clearance of Site.</li> </ul>
<p><b>Construction Programme</b></p> <p><i>(Activity Schedule in case of Lump Sum Contract)</i></p>	<b>8.5</b>	<p>The Contractor shall submit a detailed execution time programme on MS Project or other similar software to the Engineer-in-charge within 28 Days after receiving the notice under Sub-Clause 8.3 [Commencement of Works]. The Contractor shall also submit a revised programme whenever the previous programme is inconsistent with actual progress or with the Contractor's obligations. Each programme shall be revised every month and shall include:</p> <ul style="list-style-type: none"> <li>i. the order in which the Contractor intends to carry out the Works, including the anticipated timing of each stage of design (if any), drawings, Contractor's Documents, procurement, manufacture of Plant, delivery to Site, construction of works, erection and testing,</li> <li>ii. each of these stages for work by each Sub-Contractor/ Nominated Sub-Contractor,</li> <li>iii. the sequence and timing of quality and other inspections and tests specified in the Contract, and</li> <li>iv. a supporting report which includes: <ul style="list-style-type: none"> <li>(a) a general description of the time, methods which the Contractor intends to adopt, and of the major stages, in the execution of the Works, and</li> <li>(b) details showing the Contractor's reasonable estimate of the number of each class of Contractor's Personnel and of each type of Contractor's Equipment, required on the Site for each major stage.</li> </ul> </li> </ul> <p>Unless the Engineer-in-charge, within 21 Days after receiving a programme, gives notice to the Contractor stating the extent to which it does not comply with the Contract, the Contractor shall proceed in accordance with</p>

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		<p>the programme, subject to his other obligations under the Contract. The Procuring Entity's Personnel shall be entitled to rely upon the programme when planning their activities.</p> <p>The Contractor shall promptly give notice to the Engineer-in-charge of specific probable future events or circumstances which may adversely affect the Works, increase the Contract Price or delay the execution of the Works. The Engineer-in-charge may require the Contractor to submit an estimate of the anticipated effect of the future event or circumstances, and/or a proposal under Sub-Clause 9.2 [Deviations/ Variations Extent and Pricing].</p> <p>If, at any time, the Engineer-in-charge gives notice to the Contractor that a programme fails (to the extent stated) to comply with the Contract or to be consistent with actual progress and the Contractor's stated intentions, the Contractor shall submit a revised programme to the Engineer-in-charge in accordance with this Sub-Clause.</p>
<b>Extension of Time for Completion</b>	<b>8.6</b>	<p>The Contractor shall be entitled subject to Sub-Clause 21.2 [Contractor's Claims] to an extension of the Time for Completion if and to the extent that completion for the purposes of Clause 12 [Taking Over of the Works and Sections] is or will be delayed by any of the following causes:</p> <ul style="list-style-type: none"> <li>i. a Variation (unless an adjustment to the Time for Completion has been agreed under Clause 9 [Deviations, Variations and Adjustments] or other substantial change in the quantity/design of an item of work included in the Contract,</li> <li>ii. a cause of delay giving an entitlement to extension of time under a Sub-Clause of these Conditions,</li> <li>iii. exceptionally adverse climatic conditions, excluding the rains, high or low variations in temperatures,</li> <li>iv. Unforeseeable shortages in the availability of personnel or Goods caused by epidemic or Governmental actions, or</li> <li>v. any delay, impediment or prevention caused by or attributable to the Procuring Entity, the Procuring Entity's Personnel, or the Procuring Entity's other Contractors</li> </ul> <p>If the Contractor considers himself to be entitled to an extension of the Time for Completion, the Contractor shall give notice to the Engineer-in-charge in accordance with Sub-Clause 21.2 [Contractor's Claims]. When determining each extension of time under Sub-Clause 3.5 [Determinations], the Engineer-in-charge shall review previous determinations and may increase, but shall not decrease, the total extension of time.</p>

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<b>Delays Caused by Authorities</b>	<b>8.7</b>	<p>If the following conditions apply, namely:</p> <ul style="list-style-type: none"> <li>i. the Contractor has diligently followed the procedures laid down by the relevant legally constituted public authorities in the Country,</li> <li>ii. these authorities delay or disrupt the Contractor's work, and</li> <li>iii. the delay or disruption was Unforeseeable,</li> </ul> <p>Then this delay or disruption will be considered as a cause of delay under Sub-Clause 8.6 [Extension of Time for Completion].</p>
<b>Rate of progress of works.</b>	<b>8.8</b>	<p>As soon as possible after the Contract is concluded the Contractor shall submit a time and progress chart (preferably on MS Project or other similar software) for each milestone and get it approved by the Engineer-in-Charge. The chart shall be prepared in direct relation to the time stated in the Contract documents for completion of items of the work. It shall indicate the forecast of the dates of commencement and completion of various tasks or sections of the work and may be amended as necessary by agreement between the Engineer-in-Charge and Contractor within the limitations of time imposed in the Contract documents, and further to ensure good progress during the execution of the work, the Contractor shall in all cases in which the time allowed for any work, exceeds one month complete the work as per milestone.</p> <p>If, at any time:</p> <ul style="list-style-type: none"> <li>i. actual progress is too slow to complete within the Time for Completion, and/or progress has fallen (or will fall) behind the current programme under Sub-Clause 8.5 [Construction Programme], other than as a result of a cause listed in Sub-Clause 8.6 [Extension of Time for Completion], then the Engineer-in-charge may instruct the Contractor to submit, under Sub-Clause 8.5 [Construction Programme], a revised programme and supporting report describing the revised methods which the Contractor proposes to adopt in order to expedite progress and complete within the Time for Completion.</li> <li>ii Unless the Engineer-in-Charge notifies otherwise, the Contractor shall adopt these revised methods, which may require increases in the working hours and/or in the numbers of Contractor's Personnel and/or Goods, at the risk and Cost of the Contractor. If these revised methods cause the Procuring Entity to incur additional Costs, the Contractor shall subject to notice under Sub-Clause 2.5 [Procuring Entity's Claims] pay these Costs to the Procuring Entity, in addition to delay damages (if any) under Sub-Clause 8.9 below.</li> <li>iii. Additional Costs of revised methods including acceleration measures, instructed by the Engineer-in-</li> </ul>



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		<p>charge to reduce delays resulting from causes listed under Sub-Clause 8.6 [ Extension of Time for Completion ] shall be paid by the Procuring Entity, without generating, however, any other additional payment benefit to the Contractor</p> <p>If the progress of the work has fallen so much in arrears as to prevent other contractors on the work from carrying out their part of the work within the stipulated time, he will be liable for the settlement of any claim put in by any of these contractors for the expenses of keeping their labor unemployed to the extent considered reasonable by the Engineer-in-charge.</p>						
<p><b>Compensation / Damages for Delay (Liquidated Damage)</b></p> <p><i>(In case of Lump Sum Contract, the liquidated damages shall be linked to Stage wise completion of Works as stated in Activity Schedule and specified in SCC)</i></p>	<p><b>8.9</b></p>	<p>a. If the Contractor fails to maintain the required progress in terms of Sub-Clause 8.4 [Extension of Time for Completion] or to complete the Works and clear the Site on or before the original or extended date of completion, he shall, without prejudice to any other right or remedy available under the Law to the Government/ procuring Entity on account of such breach, pay as agreed compensation the amount calculated at the rates stipulated below as the Engineer-in-charge (whose decision in writing shall be final and binding) may decide on the amount of contracted value of the Works for every time span that the progress remains below that specified in Sub-Clause 8.4 [Extension of Time for Completion] or that the Works remains incomplete. This will also apply to items or group of items for which a separate period of completion has been specified.</p> <p>b. To ensure good progress during the execution of Works, the Contractor shall be bound, in all cases in which the time allowed for any Works exceeds one month (save for special jobs or where time spans have been fixed in light of the specific construction programme), to complete 1/8th of the whole of the work before 1/4th of the whole time allowed under the contract has elapsed, 3/8th of the work before 1/2 of such time has elapsed and 3/4th of the work before 3/4 of such time has elapsed. If the Contractor fails to complete the work in accordance with this time schedule in terms of cost in money, and the delay of execution of Works is attributable to the Contractor, the Contractor shall be liable to pay compensation to the Government/ Procuring Entity at every time span as below:-</p> <table><tr><td>A .</td><td>Time Span of full stipulated period</td><td>1/4<sup>th</sup></td><td>1/2<sup>th</sup></td><td>3/4<sup>th</sup></td><td>Full</td></tr></table>	A .	Time Span of full stipulated period	1/4 <sup>th</sup>	1/2 <sup>th</sup>	3/4 <sup>th</sup>	Full
A .	Time Span of full stipulated period	1/4 <sup>th</sup>	1/2 <sup>th</sup>	3/4 <sup>th</sup>	Full			

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		B	Work to be completed in terms of money	1/8 <sup>th</sup> (Rs)	3/8 <sup>th</sup> (Rs)	3/4 <sup>th</sup> (Rs)	Full (Rs)
		C	Compensation payable by the Contractor for delay attributable to Contractor at the stage of	Delay up to one fourth period of the prescribed time span – 2.5% of the work remained unexecuted.  Delay exceeding one fourth of the prescribed time span but not exceeding half of the prescribed time span - 5% of the work remained unexecuted.  Delay exceeding half of the prescribed time span but not exceeding three fourth of the prescribed time span - 7.5% of the work remain unexecuted.  Delay exceeding three fourth of the prescribed time span – 10% of the work unexecuted.			
<p><b>Note-1:</b> In case delayed period over a particular time span is split up and is jointly attributable to the Procuring Entity and the Contractor, the competent authority may reduce the compensation in proportion of delay attributable to the Procuring Entity over entire delayed period over that time span after clubbing up the split delays attributable to the Procuring Entity and this reduced compensation would be applicable over the entire delayed period without paying any escalation.</p> <p><b>Note-2:</b> The compensation, levied as above, shall be recoverable from the Payment Certificate payable after the concerned time span. The total compensation for delays shall, however, not exceed 10 percent of the total value of the Works.</p> <p>c. The Contractor shall further be bound to carry out the work in accordance with the date and quantity entered in the progress statement attached to the Bid.</p> <p>d. However, if a time schedule has been submitted by the Contractor before execution of the agreement, and it is entered in agreement as submitted or as modified by the Procuring Entity or the Engineer-in-Charge, the Contractor shall complete the Works within the said time schedule. In the event of the Contractor failing to comply with the time schedule, he shall be liable to pay compensation as prescribed in foregoing paragraph of this Sub-Clause. While granting extension in time attributable to the Procuring Entity, reasons shall be</p>							

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		<p>recorded for each delay.</p> <p>e. The amount of compensation may be adjusted or set off against any sum payable to the Contractor under this or any Contract with the Procuring Entity. In case, the Contractor does not achieve a particular milestone mentioned in Contract Data or the rescheduled milestone(s), the amount shown against that milestone shall be withheld, to be adjusted against the compensation levied at the final grant of extension of time.</p> <p>f. Withholding of this amount on failure to achieve a milestone shall be automatic without any notice to the Contractor. However, if the Contractor catches up with the progress of work on the subsequent milestone(s), the withheld amount shall be released. In case the Contractor fails to make up for the delay in subsequent milestone(s), amount mentioned against each milestone missed subsequent also shall be withheld. However, no interest, whatsoever, shall be payable on such withheld amount.</p> <p>g. If the Contract is completed in the original time period as agreed upon in the Contract, then the Liquidated Damages so imposed for delays of intermediate milestones will be adjusted/ paid. Also, price escalation shall not be applicable if Liquidated Damages have been imposed. However, if the Contractor finishes the work as per the original time period, he shall be eligible to receive the price escalation.</p>
<b>Suspension of Work</b>	<b>8.10.1</b>	The Engineer-in-charge may for recorded reasons, at any time instruct the Contractor to suspend progress of part or all of the Works. During such suspension, the Contractor shall protect, store and secure such part or the Works against any deterioration, loss or damage. The Engineer-in-charge may also notify the cause for the suspension.
	<b>8.10.2</b>	<p>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, for any of the following reasons:</p> <p>i. on account of any default on the part of the Contractor; or</p> <p>ii. for proper execution of the Works or part thereof for reasons other than the default of the Contractor; or</p>

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		<p>iii. for safety of the Works or part thereof.</p> <p>The Contractor shall, carry out the instructions given in that behalf by the Engineer-in-Charge.</p> <p>If the suspension is ordered for reasons ii and iii above, the Contractor shall be entitled to an extension of time equal to the period of every such suspension for completion of the item or group of items of work for which a separate period of completion is specified in the Contract and of which the suspended work forms a part,</p>
<b>Consequences of Suspension</b>	<b>8.11</b>	<p>If the Contractor suffers delay and/ or incurs Cost from complying with the Engineer-in-charge's instructions under Sub-Clause 8.10 [Suspension of Work] and/ or from resuming the work, the Contractor shall give notice to the Engineer-in- charge and shall be entitled subject to Sub-Clause 21.2 [Contractor's Claims] to:</p> <p>i. An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.6 [Extension of Time for Completion], and</p> <p>ii. payment of any such Cost, which shall be included in the Contract Price.</p> <p>After receiving this notice, the Engineer-in-charge shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.</p> <p>The Contractor shall not be entitled to an extension of time for, or to payment of the Cost incurred in making good the consequences of the Contractor's faulty design, workmanship or Materials, or of the Contractor's failure to protect, store or secure the work in accordance with Sub-Clause 8.10 [Suspension of Work].</p>
<b>Payment for Plant and Materials in Event of Suspension</b>	<b>8.12</b>	<p>The Contractor shall be entitled to payment of the value (as at the date of suspension) of Plant and/ or Materials which have not been delivered to Site, if:</p> <p>i. the work on Plant or delivery of Plant and/ or Materials has been suspended for more than 28 Days, and</p> <p>ii. The Contractor has marked the Plant and/ or Materials as the Procuring Entity's property in accordance with the Engineer-in-charge's instructions.</p>
<b>Prolonged Suspension</b>	<b>8.13</b>	<p>If the suspension under Sub-Clause 8.10 [Suspension Work]. has continued for more than 84 Days, the Contractor may request the Engineer-in-charge's permission to proceed. If the Engineer-in- charge does not give permission within 28 Days after being requested to do so, the Contractor may, by giving notice to the Engineer-in-charge, treat the suspension as an omission under Sub-Clause 9.2 [Deviations/ Variations Extent and Pricing] of the affected part of the Works. If the suspension affects the whole of the Works, the Contractor may give notice of</p>

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		termination under Sub-Clause 17.2 [Termination by Contractor].
<b>Resumption of Work</b>	<b>8.14</b>	After the permission or instruction to proceed is given, the Contractor and the Engineer-in-charge shall jointly examine the Works and the Plant and Materials affected by the suspension. The Contractor shall make good any deterioration or Defect in or loss of the Works or Plant or Materials, which has occurred during the suspension after receiving from the Engineer-in-charge an instruction to this effect under Sub-Clause 9.2 [Deviations/ Variations, Extent and Pricing].
<b>Work to be executed strictly as per specifications</b>	<b>8.15</b>	All Works under or in course of execution or executed in pursuance of the Contract shall at all times be executed strictly as per specifications of the Contract as established by regular testing at the specified frequency and be open and accessible to the quality inspection and supervision of the Engineer-in-Charge, his authorized subordinates in charge of the work and all the superior officers, officers of the Quality Control Organization, Third Party Inspection Agency, if engaged by the Procuring Entity, 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 written 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. All payments shall be linked to the specified quality of works and works failing on tests or not executed as per design, drawings and specifications shall not be paid unless rectified to the specified quality by the Contractor.
<b>Action when Work executed with unsound materials, imperfect and unskilled workmanship</b>	<b>8.16</b>	If it shall be established through regular testing or post execution quality testing by the third party quality inspection agency to the Engineer-in-Charge or his higher authority or his authorized subordinates in charge of the Works, that any work has been executed with unsound, imperfect, or unskillful workmanship, or with Materials or articles provided by him for the execution of the work which are unsound or of a quality inferior to that contracted or otherwise not in accordance with the Contract, the Contractor shall, on demand in writing from the Engineer-in-Charge specifying the work, Materials or articles complained of, notwithstanding that the same may have been passed, certified and paid for, forthwith rectify, or remove and reconstruct the work so specified in whole or in part, as the case may require or as the case may be, remove the Materials or articles so specified and reconstruct, provide other proper and suitable Materials or articles at his own charge and Cost. In the event of the

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		<p>Contractor failing do so within a period specified by the Engineer-in-Charge in his demand aforesaid, then the Contractor shall be liable to pay compensation for the specified period, at the same rate as under Sub-Clause for non-completion of the work in time for this default.</p> <p>In such case the Engineer-in-Charge may not accept the item of work at the rates applicable under the Contract but may accept such items at reduced rates as the competent authority may consider reasonable during the preparation of on account bills or final bill if the item is so acceptable without detriment to the safety and utility of the item and the structure and incidental items rectified, or removed and re-executed at the risk and cost of the Contractor. Decision of the Engineer-in-Charge to be conveyed in writing in respect of the same will be final and binding on the Contractor.</p>
<b>9. Deviations, variations and adjustments</b>		
<b>Right to Vary</b>  <i>(Additions and Alterations in case of Lump Sum Contract)</i>	<b>9.1</b>	<p>Variations may be initiated by the Engineer-in-charge at any time during the execution of the Works prior to issuing the Taking-Over Certificate for the Works, either by an instruction or by a request for the Contractor to submit a proposal.</p> <p>The Contractor shall execute and be bound by each Variation, unless the Contractor promptly gives notice to the Engineer-in- charge stating (with supporting particulars) that:</p> <ul style="list-style-type: none"> <li>i. the Contractor cannot readily obtain the Goods required for the Variation, or</li> <li>ii. such Variation triggers a substantial change in the sequence or progress of the Works.</li> </ul> <p>Upon receiving this notice, the Engineer-in-charge shall cancel, confirm or vary the instruction.</p> <p>Each Variation may include:</p> <ul style="list-style-type: none"> <li>i. changes to the quantities of any item of work included in the Contract (however, such changes do not necessarily constitute a Variation),</li> <li>ii. changes to the quality and other characteristics of any item of work,</li> <li>iii changes to the levels, positions and/ or dimensions of any part of the Works,</li> <li>iv. omission of any work unless it is to be carried out by others,</li> <li>v. any additional work, Plant, Materials or services necessary or incidental to the Works, including any associated Tests on Completion, boreholes and other testing and exploratory work,</li> </ul>

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		<p>vi. Changes to the sequence or timing of the execution of the Works.</p> <p>The Contractor shall not make any alteration and/ or modification of the Permanent Works, unless and until the Engineer-in-charge instructs or approves a Variation.</p>
<b>Deviations/ Variations Extent and Pricing</b>	<b>9.2.1</b>	<p>The Engineer-in-charge shall have power (i) to make alternations in, omissions from, additions to, or substitutions for the original Specifications, quantities, Drawings, designs and instructions that may be appear to him to be necessary or advisable during the progress of the Works, and (ii) to omit a part of the Works in case of non-availability of a portion of the Site or for any other reasons and the Contractor shall be bound to carry out the Works in accordance with any instructions given to him in writing signed by the Engineer-in-charge after approval from competent authority and such alterations, omissions, additions or substitutions shall form part of the Contract as if originally provided therein and any altered, additional or substituted work which the Contractor may be directed to do in the manner specified above as part of the Works, shall be carried out by the Contractor on the same conditions in all respects including price on which he agreed to do the main work except as hereafter provided.</p>
<b>(In case of Lump Sum Contract, Rates of measured up additions and alterations shall be as per applicable BSR or rates of Day Work given by the Contractor and forming part of the Contract)</b>	<b>9.2.2</b>	<p>The rates for such additional, altered or substituted works shall be determined in accordance with the following provisions:</p> <ol style="list-style-type: none"> <li>If the rates for the additional, altered or substituted work are specified in the Contract for the Works, the Contractor is bound to carry out the additional, altered or substituted work at the same rates as are specified in the Contract for the Works.</li> <li>If the rates for the additional, altered or substituted work are not specifically provided in the Contract for the Works, such rates will be derived from the rates for a similar class of work as are specified in the Contract for the Works.</li> <li>If the rates for the additional, altered or substituted work cannot be determined in the manner specified in the sub-clauses i and ii above, then the rates for such composite work item shall be worked out on the basis of the concerned Schedule of Rates of the district/ area specified above minus/ plus the percentage which the total Bid amount bears to the estimated cost of the entire Works put to bid. Provided always that if the rate for such part or parts of the item is not in the Schedule of Rates, the rate for such part or parts will be determined by the Engineer-in-charge on the basis of the prevailing market rates when the work was done but the percentage of bid discount/ premium will not be</li> </ol>

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		<p>subtracted/ added to such market rates.</p> <p>iv. If the rates for the additional, altered or substituted work item cannot be determined in the manner specified in sub sub-clause I to iii above then the contractor shall within 7 days of the date of receipt of order to carry out the work, inform the Engineer-in-charge of the rate which it is his intention to charge for such class of work supported by analysis of the rate(s) claimed and the Engineer-in-charge shall determine the rate/ rates on the basis of prevailing market rates and pay the contractor accordingly. However, the Engineer-in-charge, by notice in writing, will be at liberty to cancel his order to carry out such class of work and arrange to carry it out in such manner as he may consider advisable but under no circumstances, the Contractor shall suspend the work on the plea of non-settlement of rates on items falling under this sub-clause.</p>
	<b>9.2.3</b>	<p>The quantum of additional work for each item shall not exceed 50% of the original quantity of the item given in the Contract and the total value of additional, altered, and substituted items of work shall not exceed 50% of the Accepted Contract Price. <b><i>(This para is not applicable in case of Lump Sum Contract)</i></b></p>
	<b>9.2.4</b>	<p>The time for completion of the Works shall in the event of any deviations resulting in additional Cost over the Contract Price being ordered be extended if requested by the Contractor in the proportion which the additional Cost of the altered, additional or substituted work, bears to the original Contract Price. Similarly, the proportionate time period for an item of work deleted shall be reduced from the total time period provided in the Contract.</p>
<b>Value Engineering</b>	<b>9.3</b>	<p>The Contractor may, at any time, submit to the Engineer-in-charge a written proposal which (in the Contractor's opinion) will, if adopted, (i) accelerate completion, (ii) reduce the Cost to the Procuring Entity of executing, maintaining or operating the Works, (iii) improve the efficiency or value to the Procuring Entity of the completed Works, or (iv) otherwise be of benefit to the Procuring Entity</p> <p>The proposal shall be prepared at the Cost of the Contractor and shall include the items listed in Sub-Clause 9.2 [Deviations, Variations and Pricing].</p> <p>If a proposal, which is approved by the Engineer-in-charge, includes a change in the design of part of the Permanent Works, then unless otherwise agreed by both Parties:</p> <ol style="list-style-type: none"> <li>the Contractor shall design this part,</li> <li>Sub-Clause 4.1[Contractor's General Obligations] shall</li> </ol>



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		<p>apply, and</p> <p>iii. If this change results in a reduction in the Contract value of this part, the Engineer-in-charge shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine a fee, which shall be included in the Contract Price.</p>
<p><b>No compensation for alterations in or restriction of works to be carried out</b></p>	<p><b>9.4</b></p>	<p>If, at any time after the commencement of the Works, the Procuring Entity shall, for any reason, whatsoever, not require the whole Works, thereof, as specified in the Contract, to be carried out, the Engineer-in-charge shall give notice, in writing, of the fact to the Contractor, who shall have no claim to any payment or compensation, 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 full amount of the Works not having been carried out. Neither shall he have any claim for compensation by reason of alterations having been made in the original specifications, drawings and design and instructions, which shall involve any curtailment of the Works, as originally contemplated. Provided, that the contractor shall be paid the charges for the cartage only, of Materials actually brought to the Site of the Works by him for bonafide use and rendered surplus as a result of the abandonment or curtailment of the Works or any portion thereof, and taken them back by the Contractor, provided, however, that the Engineer-in-charge shall have, in all such cases, the option of taking over all or any such Materials at their purchase price or at local market rates whichever may be less. In the case of such stores, having been issued from Procuring Entity's Stores, charges recovered, including storage charges shall be refunded after taking into consideration any deduction for claim on account of any deterioration or damage while in the custody of the Contractor and in this respect the decision of the Engineer-in-charge shall be final.</p>
<p><b>Monthly Return of Extra Claims</b></p>	<p><b>9.5.1</b></p>	<p>To facilitate timely resolution of Contractor's claims due against the orders/ instructions of the Engineer-in-Charge, the Contractor shall submit every month along with the Intermediate Payment Claims, a comprehensive statement of claims raised by him for any work claimed as extra, up to the previous month and awaiting resolution by the Engineer-in-Charge and/ or Procuring Entity. Value of claims shall be based upon the rates and prices mentioned in the Contract or in the Schedule of Rates in force in the District/ Division/ Circle for the time being. The Engineer-in-Charge shall duly acknowledge it and proceed to act as per Sub-Clause 3.5 [Determinations]. He will communicate the resolution to the Contractor and also reasons for rejection to the Contractor's claims. The contractor shall be deemed to have waived all claims, not included in such return and will have no right to enforce any such claims not</p>

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		<p>included, whatsoever be the circumstances.</p> <p>However, the Contractor shall continue performance on the Contract despite rejection of his claims by the Engineer-in-Charge. Such rejected claims may then be raised before the Dispute Resolution Board or the Arbitration Tribunal, as appropriate.</p>
	<b>9.5.2</b>	<p>The Contractor shall send to the Engineer-in-Charge once every three Months an up to date account giving complete details of all claims for additional payments to which the Contractor may consider himself entitled and of all additional work ordered by the Engineer-in-Charge after approval from competent authority which he has executed during the preceding quarter .</p>
	<b>9.5.3</b>	<p>Any operation or procedure incidental to or necessary to the execution of the Works has to be in contemplation of Bidder while submitting his Bid, whether or not, specifically indicated in the description of the item and the relevant Specifications, shall be deemed to be included in the rates quoted by the Bidder or the rate given in the said schedule of rates, as the case may be. Nothing extra shall be admissible for such operations/ procedures.</p>
<b>Provisional Sums</b>	<b>9.6</b>	<p>Each Provisional Sum shall only be used, in whole or in part, in accordance with the Engineer-in-charge's instructions and the Contract Price shall be adjusted accordingly. The total sum paid to the Contractor shall include only such amounts, for the work, supplies or services to which the Provisional Sum relates, as the Engineer-in-charge shall have instructed. For each Provisional Sum, the Engineer-in-charge may instruct:</p> <ul style="list-style-type: none"> <li>i. work to be executed (including Plant, Materials, labour or services to be supplied) by the Contractor and valued; and/ or</li> <li>ii. Plant, Materials or services to be procured by the Contractor from a Nominated Sub-Contractor as defined in Sub-Clause 5.2 [Nomination of Sub-Contractor] or otherwise; and for which there shall be included in the Contract Price: <ul style="list-style-type: none"> <li>(a) the actual amounts paid (or due to be paid) by the Contractor, and</li> <li>(b) A sum for overhead charges, calculated at 10% percent of these actual amounts.</li> </ul> </li> </ul> <p>The amount of overheads (10%) shall be subject to tax liability as per law.</p> <p>The Contractor shall, when required by the Engineer-in-charge, produce invoices, vouchers and accounts or receipts in substantiation.</p>

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<b>Day Work</b>	<b>9.7</b>	<p>For works of a minor or incidental nature, the Engineer-in-charge may instruct that a Variation shall be executed on a Day work basis. The work shall then be valued in accordance with the Day work Schedule included in the Contract, and the following procedure shall apply. If a Day work Schedule is not included in the Contract, this Sub-Clause shall not apply.</p> <p>Before ordering materials for the work, the Contractor shall submit quotations to the Engineer-in-charge. When applying for payment, the Contractor shall submit invoices, vouchers and accounts or receipts for any Materials/ Equipment/ Plant/ Temporary Works.</p> <p>Except for any items for which the Day work Schedule specifies that payment is not due, the Contractor shall deliver each day to the Engineer-in-charge accurate statements in duplicate which shall include the following details of the resources used in executing the previous day's work:</p> <ul style="list-style-type: none"> <li>i. the names, occupations, day wages and required time period of Contractor's Personnel,</li> <li>ii. the identification, type and time of Contractor's Equipment and Temporary Works, and</li> <li>iii. The quantities and types of Plant and Materials used.</li> </ul> <p>One copy of each statement will, if correct, or when agreed, be signed by the Engineer-in-charge and returned to the Contractor. The Contractor shall then submit priced statements of these resources to the Engineer-in-charge, prior to their inclusion in the next Statement under Sub-Clause 15.5 [Issue of Interim Payment Certificates].</p>
<b>10. Price Variation</b>		
<b>Price Variation due to changes in the prices of labour, materials, bitumen, petroleum, cement and steel</b>	<b>10.1</b>	<p>If, during the progress of the contract of value exceeding Rs. 50 lakh (accepted Contract Price minus cost of material supplied by the Procuring Entity), and where stipulated completion period is more than 3 months (both the conditions should be fulfilled), the price, of any materials/ bitumen/ diesel and petrol/ cement/ steel incorporated in the Works (not being materials to be supplied by the Procuring Entity) and/ or wages of labour increases or decreases, as compared to the price and/ or wages prevailing at the date of opening of bids or date of negotiations for the Works, the amounts payable to Contractor for the Works shall be adjusted for increase or decrease in the rates of materials (excepting those materials supplied by the Procuring Entity)/ labour/ bitumen /diesel and petrol/ cement/ steel. If negotiated rates have been accepted, prices as on the date of negotiation shall be considered for price adjustment. Similarly, if rates received</p>

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	<p>on the date of opening of bids have been accepted, then prices on the date of opening of bids shall be considered for price adjustment.</p> <p>Increase or decrease in the cost of labour/ material/ diesel and petrol/ cement/ steel shall be calculated quarterly and cost of bitumen shall be calculated on monthly basis in accordance with the following formula:-</p> <p><b>(A) Labour</b></p> $V_L = 0.75 \times \frac{P_L}{100} \times R \times \frac{(I_{L1} - I_{L0})}{I_{L0}}$ <p>Where,</p> <p><math>V_L</math> = Increase or decrease in the cost of Works during the quarter under consideration due to change in rates for labour.</p> <p><math>R</math> = The value of the Works done in rupees during the quarter under consideration excluding the cost of materials supplied by the Procuring Entity and excluding other items as mentioned in this Sub-Clause.</p> <p><math>I_{L0}</math> = The average consumer price index for industrial workers (whole-sale prices) for the quarter in which bids were opened/ negotiated (as published in Reserve Bank of India Journal/ Labour Bureau Simla, for the area).</p> <p><math>I_{L1}</math> = The average consumer price index for industrial workers (whole-sale prices) for the quarter of calendar year under consideration (as published in Reserve Bank of India Journal/ Labour Bureau Simla, for the area).</p> <p><math>P_L</math> = Percentage of labour components.</p> <p>Note: In case of revision of minimum wages by the Government or other competent authority, nothing extra would be payable except the price escalation permissible under this Sub-Clause.</p> <p><b>(B) Materials</b> (excluding materials supplied by the Procuring Entity).</p> $V_M = 0.75 \times \frac{P_M}{100} \times R \times \frac{(L_{M1} - L_{M0})}{L_{M0}}$ <p>Where,</p> <p><math>V_M</math> = Increase or decrease in the cost of Works during the quarter under consideration due to change in rates for materials.</p> <p><math>R</math> = The value of the Works done in rupees during the quarter under consideration excluding the cost of</p>
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		<p>materials supplied by the Procuring Entity and excluding other items as mentioned in this Sub-Clause.</p> <p><math>L_{M0}</math> = The average wholesale price index (all commodities) for the quarter in which bids were opened/ negotiated (as published in Reserve Bank of India Journal/ Economic Adviser to Government of India, Ministry of Industries, for the area).</p> <p><math>L_{M1}</math> = The average wholesale price index (all commodities) for the quarter under consideration (as published in Reserve Bank of India Journal/ Economic Adviser to Government of India, Ministry of Industries, for the area).</p> <p><math>P_M</math> = Percentage of materials components (excluding materials supplied by the Procuring Entity).</p> <p><b>(C) Bitumen</b></p> $V_b = 0.85 \times \frac{P_b}{100} \times R \times \frac{(B_i - B_0)}{B_0}$ <p>Where,</p> <p><math>V_b</math> = Increase or decrease in the cost of Works during the month under consideration due to changes in the rate for bitumen.</p> <p><math>R</math> = The value of the Works done in rupees during the month under consideration excluding the cost of materials supplied by the Procuring Entity and excluding other items as mentioned in this Sub-Clause.</p> <p><math>B_0</math> = The official retail price of bitumen at the IOC depot at nearest center on the day 28 days prior to date of opening of Bids.</p> <p><math>B_i</math> = The official retail price of bitumen of IOC depot at nearest center for the 15th day of the month under consideration.</p> <p><math>P_b</math> = Percentage of bitumen components of the Works.]</p> <p><b>(D) Petroleum</b></p> $V_f = 0.75 \times \frac{P_f}{100} \times R \times \frac{(F_i - F_0)}{F_0}$ <p>Where,</p> <p><math>V_f</math> = Increase or decrease in the cost of Works during the quarter under consideration due to change in rates for fuel and lubricants.</p> <p><math>R</math> = The value of the Works done in rupees during the</p>
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		<p>quarter under consideration excluding the cost of materials supplied by the Procuring Entity and excluding other items as mentioned in this Sub-Clause.</p> <p><math>F_0</math> = The average wholesale price index of High Speed Diesel (HSD) as published by the Economic Adviser to the Government of India, Ministry of Industry on the day of opening of bids/ negotiations.</p> <p><math>F_i</math> = The average whole sale price Index of HSD for the quarter under consideration as published weekly by the Economic Adviser to the Government of India, Ministry of Industry for the quarter under consideration.</p> <p><math>P_f</math> = Percentage of fuel and lubricants components excluding fuel and lubricants supplied by the Procuring Entity (Specified in the sanctioned estimate for the Works).</p> <p><math>R</math> = Total Works done during the quarter as prescribed under this Sub-Clause.</p> <p>Note: For application of this Sub-Clause price of HSD is chosen to indicate fuel and lubricants components.</p> <p><b>(E) Cement</b></p> $V_C = 0.75 \times \frac{P_C}{100} \times R \times \frac{(L_{C1} - L_{C0})}{L_{C0}}$ <p>Where,</p> <p><math>V_C</math> = Increase or decrease in the cost of Works during the quarter under consideration due to change in the rates of cement.</p> <p><math>R</math> = The value of the Works done in rupees during the quarter under consideration excluding the cost of cement supplied by the Procuring Entity and excluding other items as mentioned in this Sub-Clause.</p> <p><math>L_{C0}</math> = The average wholesale price index for the quarter in which bids were opened/ negotiated (as published by the Economic Adviser to the Government of India, Ministry of Industries).</p> <p><math>L_{C1}</math> = The average whole sale price Index for the quarter under consideration (as published by the Economic Adviser to Government of India, Ministry of Industries).</p> <p><math>P_C</math> = Percentage of cement components (excluding cement supplied by the Procuring Entity).</p> <p><b>(F) Steel</b></p> $V_S = 0.75 \times \frac{P_S}{100} \times R \times \frac{(L_{S1} - L_{S0})}{L_{S0}}$
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		<p style="text-align: center;">100                      L<sub>S0</sub></p> <p>Where,</p> <p>V<sub>S</sub> = Increase or decrease in the cost of Works during the quarter under consideration due to change in the rates of steel.</p> <p>R = The value of the Works done in rupees during the quarter under consideration excluding the cost of steel supplied by the Procuring Entity and excluding other items as mentioned in this Sub-Clause.</p> <p>L<sub>S0</sub> = The average wholesale price index for the quarter in which bids were opened/ negotiated (as published by the Economic Adviser to the Government of India, Ministry of Industries).</p> <p>L<sub>SI</sub> = The average wholesale price Index for the quarter under consideration (as published by the Economic Adviser to Government of India, Ministry of Industries).</p> <p>P<sub>S</sub> = Percentage of steel components (excluding steel supplied by the Procuring Entity).</p>
<p><b>Price Variation in installation of elevators, supply/installation of Centrally Air Conditioning and Central Evaporating Cooling Works.</b></p>	<p><b>10.2</b></p>	<p>In all cases of contracts for installation of elevators, supply/ installation of Central Air Conditioning and Central Evaporating Cooling Works, the price quoted shall be based on the Indian Electrical and Electronics Manufacturers Association (IEEMA) price variation Sub-Clause based on the cost of raw materials/ components and labour cost as on the date of quotation/ bid, and the same is deemed to be related to wholesale price index number of metal products and All India Average consumer price index number of industrial workers as specified below. In case of any variation in these index numbers, the prices shall be subject to adjustment up or down in accordance with following formula:</p> $P = \frac{P_0}{100} \left[ 15 + 55 \frac{MP}{MP_0} + 15 \frac{W_0(D)}{W_0} + 15 \frac{W_0(1)}{W_0} \right]$ <p>Where,</p> <p>P = Price payable as adjusted in accordance with the above price variation formula.</p> <p>P<sub>0</sub> = Price quoted/ confirmed.</p> <p>MP<sub>0</sub> = Wholesale Price Index Number for Metal Products as published by the office of the Economic Adviser, Ministry of Industry, Government of India, in their weekly bulletin, Revised Index Number of Wholesale Prices (Base: 1981- 82 = 100) for the week ending first Saturday of the relevant calendar month. The relevant month shall be that in which price was offered or negotiated whichever is later.</p> <p>W<sub>0</sub> = All India Average Consumer Price Index Number for</p>

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		<p>Industrial workers (Base : 1982 = 100), as published by Labour Bureau, Ministry of Labour, Government of India, for relevant calendar month. The relevant month shall be that in which price was offered or negotiated whichever is later.</p> <p>The above index number <math>MP_0</math> &amp; <math>W_0</math> are those published by IEEMA as prevailing on the first working day of the calendar month FOUR months prior to the date of bidding.</p> <p><math>MP</math> = Wholesale Price Index Number for Metal Products as published by the office of the Economic Adviser, Ministry of Industry, Government of India, in their weekly bulletin Revised Index Number of Wholesale Prices (Base: 1981-82 = 100). The applicable wholesale price Index Number for Metal Products as prevailing on 1st Saturday of the month covering the date FOUR months prior to the date of delivery and would be as published by IEEMA.</p> <p><math>W_0(D)</math> = All India Average Consumer Price Index Number for Industrial Workers prevailing for the month covering the date FOUR months prior to the date of delivery of manufactured material and would be as published by IEEMA.</p> <p><math>W_0(1)</math> = All India Average Consumer Price Index Number for Industrial Workers (Base : 1982 = 100) as published by Labour Bureau, Ministry of Labour, Government of India. The applicable All India Consumer Price Index Number of Industrial Workers prevailing for the FOUR months prior to the date of completion of installation/ progress parts of installation and would be as published by IEEMA. The date of delivery shall be the date on which the manufactured material is actually supplied at Site. The date of completion of installation (or progress part of installation) shall be the date on which the Works is notified as being completed and is available for inspection/ duly tested. In the absence of such notification, the date of completion is not intimated, such completion shall be considered by the Engineer Incharge which shall be final.</p> <p><b>Note-1</b> The Wholesale Price Index Number for Metal Products is published weekly by the office of the Economic Adviser, but if there are any changes, the same are incorporated in the issue appearing in the following week. For the purpose of this Price Variation Sub-Clause, the final index figures shall apply.</p> <p><b>Note-2</b> The sole purpose of the above stipulation is to arrive at the entire Contract under the various situations. The above stipulation does not indicate any intentions to sell materials under this Contract as movables.</p> <p><b>Note-3</b> The indices <math>MP</math> &amp; <math>W_0</math> are regularly published by IEEMA in monthly basic price circulars based on</p>
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		information bulletins from the authorities mentioned. These will be used for determining price variation and only IEEMA Circulars will be shown as evidence, if required.
<b>General Conditions for admissibility of Price Variation</b>	<b>10.3</b>	The General Conditions for admissibility of Price Variation are given in <b>Appendix A</b> to these General Conditions.
<b>11. Tests on completion</b>		
<b>Contractor's obligations</b>	<b>11.1</b>	<p>The Contractor shall carry out the Tests on Completion in accordance with the BIS/ IRC and other standard codes and Sub-Clause 7.9 [Testing], after providing the documents in accordance with the requirements for tests on completion.</p> <p>The Contractor shall give to the Engineer-in-charge not less than 15 Days' notice of the date after which the Contractor will be ready to carry out each of the Tests on Completion. Unless otherwise agreed, Tests on Completion shall be carried out within 7 Days after this date, on such day or Days as the Engineer-in- charge shall instruct.</p> <p>In considering the results of the Tests on Completion, the Engineer-in-charge shall make allowances for the effect of any use of the Works by the Procuring Entity on the performance or other characteristics of the Works. As soon as the Works, or a Section, have passed any Tests on Completion, the Contractor shall submit a certificate of the results of these Tests to the Engineer-in-charge.</p>
<b>Delayed Tests</b>	<b>11.2</b>	<p>If the Tests on Completion are being unduly delayed by the Engineer-in-charge, Sub-Clause 7.9.2 of 7.9 [Testing] shall be applicable.</p> <p>If the Tests on Completion are being unduly delayed by the Contractor, the Engineer-in-charge may by notice require the Contractor to carry out the Tests within 21 Days after receiving the notice. The Contractor shall carry out the Tests on such day or Days within that period as the Contractor may fix and of which he shall give notice to the Engineer-in-charge.</p> <p>If the Contractor fails to carry out the Tests on Completion within the period of 21 Days, the Procuring Entity's/ Engineer-in-Charge's Personnel may proceed with the Tests at the field laboratory or at an outsourced laboratory at the risk and cost of the Contractor. The Tests on Completion shall then be deemed to have been carried out in the presence of the Contractor and the results of the Tests shall be accepted as accurate and binding on the Contractor.</p>

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<b>Retesting</b>	<b>11.3</b>	If the Works, or a Section, fails to pass the Tests on Completion, Sub-Clauses 7.13 [Rejection] and 11.4 [Failure to Pass Tests on Completion] shall apply, and the Engineer-In-Charge or the Contractor may require the failed Tests, and Tests on Completion on any related work, to be repeated under the same terms and conditions.
<b>Failure to Pass Tests on Completion</b>	<b>11.4</b>	<p>If the Works, or a Section, fails to pass the Tests on Completion repeated under Sub-Clause 11.3 [Retesting], the Engineer-in-Charge shall be entitled to:</p> <ul style="list-style-type: none"> <li>i. Order further repetition of Tests on Completion;</li> <li>ii. If failure deprives the Procuring Entity of substantially the whole benefit of the Works or Section, reject the Works or Section (as the case may be), in which event the Procuring Entity shall have the same remedies as provided in Sub-paragraph (c) of Sub-Clause 13.6 [Failure to Remedy Defect]; or</li> <li>iii. Issue a Taking-Over Certificate, if the Procuring Entity so requires.</li> </ul> <p>In the event of Sub-para iii, the Contractor shall proceed in accordance with all other obligations under the Contract, and the Contract Price shall be reduced by such amount as shall be appropriate to cover the reduced value to the Procuring Entity as a result of this failure. Unless the relevant reduction for this failure is stated (or its method of calculation is defined) in the Contract, the Procuring Entity may require the reduction to be (i) agreed by the Contractor (in full satisfaction of this failure only) and paid before this Taking-Over certificate is issued, or (ii) determined and paid under Sub-Clause 3.5 [Determinations].</p>
<b>12. Taking over of the Works and Sections by Procuring Entity</b>		
<b>Taking over of works.</b>	<b>12.1</b>	<p>Except as stated in Sub-Clause 11.4 [Failure to Pass Tests on Completion], the Works shall be taken over by the Procuring Entity when (a) the Works have been completed in accordance with the Contract, including the matters described in Sub-Clause 8.4 [Time for Completion] and except as allowed in sub-paragraph i. below, and (b) a Taking-Over Certificate for the Works has been issued, or is deemed to have been issued in accordance with this Sub-Clause.</p> <p>The Contractor may apply by notice to the Engineer-in-charge for a Taking-Over Certificate not earlier than 14 Days before the Works will, in the Contractor's opinion, be complete and ready for taking over. If the Works are divided into Sections, the Contractor may similarly apply for a Taking-Over Certificate for each Section.</p> <p>The Engineer-in-charge shall, within 28 Days after</p>

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		<p>receiving the Contractor's application:</p> <ul style="list-style-type: none"> <li>i. issue the Taking-Over Certificate to the Contractor, stating the date on which the Works or Section was completed in accordance with the Contract, except for any minor outstanding work and Defects which will not substantially affect the use of the Works or Section for their intended purpose (either until or whilst this work is completed and these Defects are remedied); or</li> <li>ii. reject the application, giving reasons and specifying the work required to be done by the Contractor to enable the Taking-Over Certificate to be issued. The Contractor shall then complete this work before issuing a further notice under this Sub-Clause.</li> </ul> <p>If the Engineer-in-charge fails either to issue the Taking-Over Certificate or to reject the Contractor's application within the period of 28 Days, and if the Works or Section (as the case may be) are substantially in accordance with the Contract, the Taking-Over Certificate shall be deemed to have been issued on the last day of that period.</p>
<b>Taking over of Parts of the Works</b>	<b>12.2</b>	<p>The Engineer-in-charge may, at the sole discretion of the Procuring Entity, issue a Taking-Over Certificate for any part of the Permanent Works.</p> <p>The Procuring Entity shall not use any part of the Works (other than as a temporary measure which is either specified in the Contract or agreed by both Parties) unless and until the Engineer-in-charge has issued a Taking-Over Certificate for this part. However, if the Procuring Entity does use any part of the Works before the Taking-Over Certificate is issued:</p> <ul style="list-style-type: none"> <li>i. the part which is used shall be deemed to have been taken over as from the date on which it is used,</li> <li>ii. the Contractor shall cease to be liable for the care of such part as from this date, when responsibility shall pass to the Procuring Entity, and</li> <li>iii. if requested by the Contractor, the Engineer-in-charge shall issue a Taking-Over Certificate for this part.</li> </ul> <p>After the Engineer-in-charge has issued a Taking-Over Certificate for a part of the Works, the Contractor shall be given the earliest opportunity to take such steps as may be necessary to carry out any outstanding Tests on Completion. The Contractor shall carry out these Tests on Completion as soon as practicable before the expiry date of the relevant Defects Notification Period.</p> <p>If the Contractor incurs Cost as a result of the Procuring Entity taking over and/ or using a part of the Works, other</p>

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		<p>than such use as is specified in the Contract or agreed by the Contractor, the Contractor shall:</p> <p>(a) give notice to the Engineer-in-charge, and (b) be entitled subject to Sub-Clause 21.2 [Contractor's Claims] to payment of any such Cost, which shall be included in the Contract Price. After receiving this notice, the Engineer-in-charge shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine this Cost.</p> <p>If a Taking-Over Certificate has been issued for a part of the Works (other than a Section), the delay damages thereafter for completion of the remainder of the Works shall be reduced. Similarly, the delay damages for the remainder of the Section (if any) in which this part is included shall also be reduced. For any period of delay after the date stated in this Taking-Over Certificate, the proportional reduction in these delay damages shall be calculated as the proportion which the value of the part so certified bears to the value of the Works or Section (as the case may be) as a whole. The Engineer-in-charge shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these proportions. The provisions of this paragraph shall only apply to the rate of delay damages under Sub-Clause 8.9 [Compensation/Damages for Delay], and shall not affect the maximum amount of these damages.</p>
<p><b>Taking over if Tests on Completion suffer Interference</b></p>	<p><b>12.3</b></p>	<p>If the Contractor is prevented, for more than 14 days, from carrying out the Tests on Completion by a cause for which the Procuring Entity is responsible, the Procuring Entity shall be deemed to have taken over the Works or Section (as the case may be) on the date when the Tests on Completion would otherwise have been completed.</p> <p>The Engineer-in-charge shall then issue a Taking-Over Certificate accordingly, and the Contractor shall carry out the Tests on Completion as soon as practicable, before the expiry date of the Defects Notification Period. The Engineer-in-charge shall require the Tests on Completion to be carried out by giving 14 days' notice and in accordance with the relevant provisions of the Contract.</p> <p>If the Contractor suffers delay and/ or incurs Cost as a result of this delay in carrying out the Tests on Completion, the Contractor shall give notice to the Engineer-in-Charge and shall be entitled subject to Sub-Clause 21.2 [Contractor's Claims] to:</p> <ul style="list-style-type: none"> <li>i. an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.6 [Extension of time for Completion], and</li> <li>ii. payment of any such Cost, which shall be included in the Contract Price.</li> </ul> <p>After receiving this notice, the Engineer-in-Charge shall proceed in accordance with Sub-Clause 3.5</p>

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		[Determinations] to agree or determine these matters.
<b>Surfaces Requiring Reinstatement</b>	<b>12.4</b>	Except as otherwise states in a Taking Over Certificate, a Certificate for a Section or part of the Works shall not be deemed to certify completion of any ground or other surfaces requiring reinstatement.
<b>13. Defect Liability</b>		
<b>Defect Liability Period</b>	<b>13.1</b>	It is the period, as specified in the Contract data, after certified total completion or after a suspension (short or prolonged) or termination of the Works by the Engineer-in-Charge or the Contractor and handing over of the Works (including Sections or parts handed over earlier) to the Engineer-in-Charge, during which the Contractor is responsible for remedying/ repairing, restoring to the original condition any apparent, virtual or observed defects, deficiencies in the Works, or its performance. The Contractor shall have to repair & restore the defect/ deficiency after a notice issued by the Engineer-in-Charge, who will be free to get it remedied at the risk and cost of the Contractor besides other action being taken as per the Contract, if the Contractor does not get it remedied within the period specified in such notice. The attendances to normal wear and tear due to use by the Procuring Entity/ occupier, in respect of sections or parts taken over for the convenience of the Procuring Entity, shall not be treated as defect.
<b>Completion of Outstanding Work and Remedying Defects.</b>	<b>13.2</b>	<p>In order that the Works and Contractor's Documents, and each Section, shall be in the condition required by the Contract (fair wear and tear excepted) by the expiry date of the relevant Defects Notification Period or as soon as practicable thereafter, the Contractor shall:</p> <ol style="list-style-type: none"> <li>complete any work which is outstanding on the date stated in a Taking-Over Certificate, within such reasonable time as is instructed by the Engineer-in-charge, and</li> <li>Execute all work required to remedy Defects or damage, as may be notified by (or on behalf of) the Procuring Entity on or before the expiry date of the Defects Notification Period for the Works.</li> </ol> <p>If a Defect appears or damage occurs, the Contractor shall be notified accordingly, by (or on behalf of) the Procuring Entity. The Contractor is required to repair, rectify, the defects, restore the damages at his own cost with in the period indicated in the notice by the Procuring Entity. If the Contractors fails to do so, action as per Sub-Clause 13.3 shall be taken.</p>
<b>Cost of Remedying</b>	<b>13.3</b>	All work referred to in Sub-Clause 13.2 above [Completion of Outstanding Work and Remedying

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<b>Defects</b>		<p>Defects] shall be executed at the risk and cost of the Contractor, if and to the extent that the work is attributable to:</p> <ul style="list-style-type: none"> <li>i. any design for which the Contractor is responsible,</li> <li>ii. Plant, Materials or workmanship not being in accordance with the Contract, or</li> <li>iii. Failure by the Contractor to comply with any other obligation.</li> </ul> <p>The cost to be debited shall be arrived at as under:</p> <p>(a) Cost of remedial work (including taxes) as paid to other agency or debited to the contractor if the remedial action is taken up by the department/ organisation, plus</p> <p>(b) A compensation of 15% , less</p> <p>(c) Credit the cost of materials, hire charges of Contractor's plant and machinery if used in the remedial work.</p> <p>If and to the extent that such work is attributable to any other cause, the Contractor shall be notified promptly by (or on behalf of) the Procuring Entity and Sub-Clause 9 [Deviations, Variations and Adjustments] shall apply.</p>
<b>Extension of Defects Notification Period</b>	<b>13.4</b>	<p>The Procuring Entity shall be entitled subject to Sub-Clause 2.5 [Procuring Entity's Claims] to an extension of the Defects Notification Period for the Works or a Section if and to the extent that the Works, Section or a major item of work (as the case may be, and after taking over) cannot be used for the purposes for which they are intended by reason of a Defect, deficiency or by reason of damage attributable to the Contractor. However, a Defects Notification Period shall not be extended by more than two years.</p> <p>If delivery and/ or erection of Plant and/ or Materials was suspended under Sub-Clause 8.10 [Suspension of Work] or Sub-Clause 17.1 [Contractor's Entitlement to Suspend Work], the Contractor's obligations under this Sub-Clause shall not apply to any Defects or damage occurring more than two years after the Defects Notification Period for the Plant and/ or Materials would otherwise have expired.</p>
<b>Contractor liable for Damages done and for Imperfections</b>	<b>13.5</b>	<p>If the Contractor or his personnel shall break, deface, injure or destroy any part of a building or any structure in which they may be working, or any building, road, fence, enclosure, water pipe, power/ telecom cables, drains, electric or telephone post or wires, trees, etc. or cultivated ground contiguous to the Site where the Works or any part of it is being executed, or if any damage shall happen to the work while in progress, from any cause whatever or if any defect, shrinkage or other faults or imperfection appear in the work within Defect Liability Period after a certificate final or otherwise of its completion shall have been given by the Engineer-in-Charge as aforesaid arising out of Defect or improper Materials, procedures or</p>

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		workmanship the Contractor shall upon receipt of a notice in writing on that behalf make the same good at his own expense or in default the Engineer-in-Charge cause the same to be made good by employing other workman/ agency and deduct the expense from any sums that may be due or at any time thereafter may become due to the Contractor, or from his Performance Security or the proceeds of sale thereof or a sufficient portion thereof.
<b>Failure to remedy defect</b>	<b>13.6</b>	<p>If the Contractor fails to remedy any Defect, deficiency or damage within a reasonable time, a date may be fixed by (or on behalf of) the Procuring Entity, on or by which the Defect, deficiency or damage is to be remedied. The Contractor shall be given reasonable notice of this date.</p> <p>If the Contractor fails to remedy the Defect or damage by this notified date and this remedial work was to be executed at the cost of the Contractor under Sub-Clause 13.3 [Cost of Remedying Defects], the Procuring Entity may (at his option):</p> <ul style="list-style-type: none"> <li>i. carry out the work himself or by others, in a reasonable manner and at the Contractor's cost, but the Contractor shall have no responsibility for this work; and the Contractor shall subject to Sub-Clause 2.5 [Procuring Entity's Claims] pay to the Procuring Entity the costs reasonably incurred by the Procuring Entity in remedying the Defect or damage;</li> <li>ii. require the Engineer-in-charge to agree or determine a reasonable reduction in the Contract Price in accordance with Sub-Clause 3.5 [Determinations]; or</li> <li>iii. If the Defect or damage deprives the Procuring Entity of substantially the whole benefit of the Works or any major part of the Works, terminate the Contract as a whole, or in respect of such major part which cannot be put to the intended use. Without prejudice to any other rights, under the Contract or otherwise, the Procuring Entity shall then be entitled to recover all sums paid for the Works or for such part (as the case may be), plus financing Costs and the Cost of dismantling the same, clearing the Site and returning Plant and Materials to the Contractor.</li> </ul>
<b>Removal of Defective Work</b>	<b>13.7</b>	<p>If the Defect or damage cannot be remedied expeditiously on the Site and the Procuring Entity gives consent, the Contractor may remove from the Site for the purposes of repair such items of Plant as are Defective or damaged. This consent may require the Contractor to increase the amount of the Performance Security by the full replacement Cost of these items, or to provide other appropriate security.</p>
<b>Further Tests</b>	<b>13.8</b>	<p>If the work of remedying of any Defect or damage may affect the performance of the Works, the Engineer-in-</p>

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		<p>charge may require the repetition of any of the tests described in the Contract. The requirement shall be made by notice within 28 Days after the Defect or damage is remedied.</p> <p>These tests shall be carried out in accordance with the terms applicable to the previous tests, except that they shall be carried out at the risk and cost of the Party liable, under Sub-Clause 13.3 [Cost of Remedying Defects], for the cost of the remedial work.</p>
<b>Contractor / Third Party Quality Inspection Agency to Search for the Cause of the Defect.</b>	<b>13.9</b>	<p>The Contractor or third party quality inspection agency shall, if required by the Engineer-in-charge, search for the cause of any Defect, under the direction of the Engineer-in-charge. Unless the Defect is to be remedied at the cost of the Contractor under Sub-Clause 13.3 [Cost of Remedying Defects], the cost of the search shall be agreed or determined by the Engineer-in-charge in accordance with Sub-Clause 3.5 [Determinations] and shall be included in the Contract Price or of the third party quality inspection agency.</p>
<b>Performance Certificate</b>	<b>13.10</b>	<p>Performance of the Contractor's obligations shall not be considered to have been completed until the Engineer-in-charge has issued the Performance Certificate to the Contractor, stating the date on which the Contractor completed his obligations under the Contract.</p> <p>The Engineer-in-charge shall issue the Performance Certificate within 28 Days after the latest of the expiry dates of the Defects Liability Periods, or as soon thereafter as the Contractor has supplied all the Contractor's Documents and completed and tested all the Works, including remedying any Defects. A copy of the Performance Certificate shall be issued to the Procuring Entity.</p> <p>Only the Performance Certificate shall be deemed to constitute acceptance of the Works.</p>
<b>Substantial Completion of Parts</b>	<b>13.11</b>	<p>If any part of the Permanent Works has been substantially completed and has satisfactorily passed any Test on Completion prescribed by the Contract, the Engineer-in-charge may issue a Taking-Over Certificate in respect of that part of the Permanent Works before completion of Works and upon the issue of such Certificate, the Contractor shall be deemed to have undertaken to complete with due expedition any outstanding work in that part of the Permanent Works during Defect Liability Period.</p>
<b>Unfulfilled Obligations</b>	<b>13.12</b>	<p>After the Performance Certificate has been issued, each Party shall remain liable for the fulfillment of any obligation which remains unperformed at that time. For the purposes of determining the nature and extent of unperformed obligations, the Contract shall be deemed to remain in</p>



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		force.
<b>Right to Access</b>	<b>13.13</b>	Until the Performance Certificate has been issued, the Contractor shall have such right of access to the Works as is reasonably required in order to comply with this Sub-Clause, except as may be inconsistent with the Procuring Entity's reasonable security restrictions.
<b>Clearance of Site</b>	<b>13.14</b>	<p>Upon receiving the Performance Certificate, the Contractor shall remove any remaining Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works from the Site.</p> <p>If all these items have not been removed within 28 days after receipt by the Contractor of the Performance Certificate, the Procuring Entity may sell or otherwise dispose of any remaining items. The Procuring Entity shall be entitled to be paid the costs incurred in connection with, or attributable to, such sale or disposal and restoring the Site.</p> <p>Any balance of the moneys from the sale shall be paid to the Contractor. If these moneys are less than the Procuring Entity's costs, the Contractor shall pay the outstanding balance to the Procuring Entity.</p>
<b>14. Measurement and Evaluation. (In case of Lump Sum Contract measurement of only additions and alterations shall be taken)</b>		
<b>Measurement of Work Done</b>	<b>14.1</b>	<p>Whenever the Engineer-in-charge requires any part of the Works to be measured/ re-measured, reasonable notice shall be given to the Contractor's Representative, who shall:</p> <ul style="list-style-type: none"> <li>i. promptly either attend or send another qualified representative to assist the Engineer-in-charge in taking/ verifying the measurement, and</li> <li>ii. Supply any particulars requested by the Engineer-in-charge for his satisfaction of the measurements.</li> </ul> <p>If the Contractor fails to attend or send a representative, the measurement made by (or on behalf) of the Engineer-in-charge shall be accepted as accurate.</p>
<b>Method of measurement.</b>	<b>14.2.1</b>	The measurements (as per IS 1200) of the executed and acceptable work shall be recorded once in a month by the representative of the Engineer-in-Charge and the Contractor or his representative jointly and shall be signed by the Contractor in acceptance. The Engineer-in-Charge shall, except as otherwise provided, shall check, ascertain and determine measurement and the value of the work done in accordance with the Contract. The Procuring Entity reserves to itself the right to prescribe a scale of check measurements of work, in general, or a specific scale for specific works or by other special orders (about which the

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		<p>decision of the Procuring Entity shall be final). Checking of measurement by a superior officer shall supersede the measurements taken by the subordinate officers and the former will become the basis of the payment. Any excess payments detected, as a result of such check measurement or otherwise at any stage upto the date of completion and the Defect Liability Period specified elsewhere in this Contract, shall be recoverable from the Contractor as any other dues payable to the Procuring Entity.</p> <p>The Contractor shall, without extra charge, provided all necessary assistance with labour and equipment necessary for measurements and recording levels.</p> <p>If the Contractor objects to any of the measurements recorded, a note shall be made to that effect with reason and signed by both the parties.</p>
	<b>14.2.2</b>	<p>All measurement of all items having financial value shall be recorded in Measurement Book or MS Excel file and printed out in two copies. The original shall be treated as the Measurement book. Such files in original shall be mailed to the Engineer-in-Charge and shall be saved with a dedicated password. Other data like initial field levels or survey field books or findings of the geotech investigations shall be similarly recorded and protected so that a complete record is obtained of all works performed under the Contract.</p>
	<b>14.2.3</b>	<p>If for any reason the Contractor or his authorized representative is not available and the work of recording measurements is suspended by the Engineer-in-charge or his representative, the Engineer-in-Charge and the Department/ Organisation shall not entertain any claim from Contractor for any loss or damages on this account. If the Contractor or his authorized representative does not remain present at the time of such measurements after the Contractor or his authorized representative has been given a notice in writing three (3) Days in advance or fails to countersign or to record objection within seven days from the date of the measurement, then such measurements recorded in his absence by the Engineer-in-charge or his representative shall be deemed to have been accepted by the Contractor.</p> <p>Except where any general or detailed description of the work expressly shows to the contrary, measurements shall be taken of the net actual quantities in accordance with the procedure set forth in the Bill of Quantities and IS 1200 notwithstanding any general or local practice.</p> <p>The Contractor shall give not less than seven Day's notice to the Engineer-in-Charge or his authorized representative in charge of the Works before covering up or otherwise placing beyond the reach of measurement any work in</p>

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		<p>order that the same may be measured and correct dimension thereof be taken before the same is covered up or placed beyond the reach of measurements and shall not cover and place beyond reach of measurement any work without consent in writing of the Engineer-in-Charge or his authorized representative in charge of the Works who shall within the aforesaid period of seven Days inspect the work, and if any work shall be covered up or placed beyond the reach of measurements without such notice having been given or the Engineer-in-charge's consent being obtained in writing, the same shall be uncovered at the Contractor's expense, for the due measurement or in default thereof no payment or allowance shall be made for such works or the materials with which the same was executed. The covering shall then be restored by the Contractor at his cost.</p> <p>Engineer-in-Charge or his authorized representative may cause either themselves or through another officer of the Department/ Organisation to check the measurements recorded jointly or otherwise as aforesaid and all provisions stipulated herein above shall be applicable to such checking of measurements or levels.</p> <p>It is also a term of this Contract that recording of measurements of any item of work in the measurement sheets/ Measurement book and/ or its payment in the interim, on account or final bill shall not be considered as conclusive evidence as to the sufficiency of any work or material to which it relates, nor shall it relieve the Contractor from liabilities from any other measurement, Defects noticed till completion of the Defects liability period.</p>
<b>Omissions</b>	<b>14.3</b>	<p>Whenever the omission of any work forms part (or all) of a Variation, the value of which has not been agreed, if:</p> <ul style="list-style-type: none"> <li>i. the Contractor will incur (or has incurred) Cost which, if the work had not been omitted, would have been deemed to be covered by a sum forming part of the Accepted Contract Amount;</li> <li>ii. the omission of the work will result (or has resulted) in this sum not forming part of the Contract Price; and</li> <li>iii. this Cost is not deemed to be included in the evaluation of any substituted work; then the Contractor shall give notice to the Engineer-in-charge accordingly, with supporting particulars. Upon receiving this notice, the Engineer-in-charge shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine this Cost, which shall be included in the Contract Price.</li> </ul>
<b>15. Contract Price, Payment and Lien</b>		
<b>Contract price</b>	<b>15.1</b>	<p>Unless otherwise stated in the Particular Conditions:</p> <ul style="list-style-type: none"> <li>i. the Contract Price shall be agreed or determined and be</li> </ul>

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		<p>subject to adjustments in accordance with the Contract;</p> <p>ii. the Contractor shall pay all taxes, duties and fees required to be paid by him under the Contract, and the Contract Price shall not be adjusted for any of these Costs except as stated in Sub-Clause 15.21 [Adjustments for Changes in Legislation] or Price adjustment;</p> <p>iii. any quantities which may be set out in the Bill of Quantities or other Schedule are estimated quantities and are not to be taken as the actual and correct quantities:</p> <p>(a) of the Works which the Contractor is required to execute, or</p> <p>(b) for the purposes of Sub-Clause 11 [Measurement and Evaluation]; and</p> <p>iv. the Contractor shall submit to the Engineer-in-charge, within 28 Days after the Commencement Date, a proposed breakdown of each lump sum price in the Schedules. The Engineer-in-charge may take account of the breakdown when preparing Payment Certificates, but shall not be bound by it.</p>
<b>Lump sum provisions in Estimate/ Contract</b>	<b>15.2</b>	<p>When the estimate includes lump sum provisions primarily in respect of parts of work/ items whose specifications and costs are not known at the time of framing the Estimate, and if a bid is to be invited on such an estimate, such lump sum shall be excluded from the bid.</p> <p>Subsequently, when the specifications and costs of such items are known, their execution, if to be completed concurrently with the Contract, shall either be done as a variation item or on market rates (without bid premium) of the Contract. Such variation should be approved by the competent authority and then the Contractor shall be entitled to payment in respect of such items of work, or separate bids shall be invited for the work to be executed concurrently with the present Contract.</p>
<b>Schedule of Payments</b> <i>(in case of Lump Sum Contract payments shall be linked to various stages of completion of Works given in the Activity Schedule)</i>	<b>15.3</b>	<p>The schedule of payments shall be as included in the Contract. If the Contract does not include a schedule of payments, the Contractor shall submit non-binding estimates of the payments which he expects to become due during each quarterly period. The first estimate shall be submitted within 28 Days after the Commencement Date. Revised estimates shall be submitted at quarterly intervals, until the Taking-Over Certificate has been issued for the Works. The percentage quoted in the Bid and accepted in the Contract will be deducted/added from/to the gross amount of the bill.</p>

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<b>Application for Interim Payment Certificates (Running Account Bills)</b>	<b>15.4</b>	<p>The Contractor shall submit a Statement in required number of copies to the Engineer-in-Charge after the end of each month, in a form approved by the Engineer-in-Charge, showing in detail the amounts to which the Contractor considers himself to be entitled on the basis of measurement (or Activity Schedule in case of Lump sum Contract) and advance payment, secured advance, deductions, etc. as applicable, together with supporting documents which shall include the report on the progress during this month in accordance with Sub-Clause 4.20 [Progress Reports].</p>
<b>Issue of Interim Payment Certificates</b>	<b>15.5</b>	<p>No amount will be certified or paid until the Procuring Entity has received and accepted the Performance Security. Thereafter, the Engineer-in-charge shall, within 28 Days after receiving a Statement and supporting documents, deliver to the Procuring Entity and to the Contractor an Interim Payment Certificate which shall state the amount which the Engineer-in-charge fairly determines to be due, with all supporting particulars for any reduction or withholding made by the Engineer-in-charge on the Statement, if any.</p> <p>However, prior to issuing the Taking Over Certificate for the Works, the Engineer-in-charge shall not be bound to issue an Interim Payment Certificate in an amount which would (after retention and other deductions) be less than the minimum amount of Interim Payment Certificate (if any) stated in the Contract Data. In this event, the Engineer-in-charge shall give notice to the Contractor accordingly.</p> <p>An Interim Payment Certificate shall not be withheld for any other reason, although:</p> <ul style="list-style-type: none"> <li>i. if anything supplied or work done by the Contractor is not in accordance with the Contract, the cost of rectification or replacement may be withheld until rectification or replacement has been completed; and/or</li> <li>ii. if the Contractor was or is failing to perform any work or obligation in accordance with the Contract, and had been so notified by the Engineer-in-charge, the value of this work or obligation may be withheld until the work or obligation has been performed.</li> </ul> <p>The Engineer-in-charge may in any Payment Certificate make any correction or modification that should properly be made to any previous Payment Certificate. A Payment Certificate shall not be deemed to indicate the Engineer-in-charge's acceptance, approval, consent or satisfaction.</p>
<b>Payment of an Interim Payment Certificate</b>	<b>15.6.1</b>	<p>A bill shall be submitted by the Contractor each month on or before the date fixed by the Engineer-in-charge for all work executed in the previous month and the Engineer-in-charge shall take or cause to be taken or check the</p>

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		requisite measurement for the purpose of having the same verified and the claim, as far as admissible, authorized or paid, if possible, before the expiry of thirty days from the presentation for the bill. If the contractor does not submit the bill within the time fixed, as aforesaid, the Engineer-in-charge may depute a subordinate to measure up the said work in the presence of the Contractor, whose signature in the Measurement Book or sheet will be sufficient warrant and the Engineer-in-charge may prepare a bill from such Measurement Book, which shall be binding on the Contractor in all respects.
<b>Payment at Part Rates</b>	<b>15.6.2</b>	<p>The rates for several items of works may be paid in part rates provisionally in running bills in proportion to the quantum of items executed as per specifications at the discretion of the Engineer-in-charge. The deferred payment, will however, be released after the successful completion of the item of work.</p> <p>In case of item rates, if the rate quoted for certain items is very high in comparison to the average/overall bid value over the estimated cost of the work, the payment at running stages shall not be made until an appropriate additional performance security for items for which rates have been quoted high, has been submitted by the Contractor. This security shall be refunded at the final stage of completion.</p>
<b>Payment at Reduced Rates</b>	<b>15.6.3</b>	In case certain item of the Works has not been executed as per specifications, design, drawings and the specified durability and the Engineer-in-Charge is not convinced to accept the item of Works at the full rate applicable under the Contract, may accept such item at a reduced rate (in proportion to the designed and executed capability and or the designed and assessed service life of the structure and its components) with a minimum reduction of 25% of the full rate during the preparation of on account bills or final bill if the item is so acceptable without detriment to the safety and utility of the item and the whole Works. Decision of the Engineer-in-Charge to be conveyed in writing in respect of the same will be final and binding on the Contractor.
<b>Recovery of Cost of Water and Electricity consumed by the Contractor</b>	<b>15.6.4</b>	The cost of all water connections necessary for the execution of Works, and the cost of water consumed and hire charges of meters and the cost of electricity consumed in connection with the execution of the Works shall be paid by the Contractor except where otherwise specifically provided in the Contract Data.
<b>Recovery of materials issued and hire charges of</b>	<b>15.6.5</b>	Recoveries on account of materials issued to the Contractor by the Procuring Entity, Machinery and Equipment lent on hire, advance payment, secured advance, etc. or on any other account, and dues shall be

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<b>Machinery and Equipment, etc.</b>		made from each payment certificate from the Contractor as per conditions of this Contract.
<b>Payment on Intermediate Certificate to be regarded as Advances</b>	<b>15.7</b>	All interim payments shall be regarded as payment by way of advances against final payment only and shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be rejected, removed, taken away and reconstructed or re-erected. Any certificate given by the Engineer-in-Charge relating to the work done or Materials delivered forming part of such payment may be modified or corrected by any subsequent such certificate(s) or by the final certificate and shall not by itself be conclusive evidence that any work or Materials to which it relates is/are in accordance with the Contract and Specifications. Any such interim payment, or any part thereof shall not in any respect conclude, determine or affect in any way powers of the Engineer-in-Charge under the Contract or any of such payments be treated as final settlement and adjustment of accounts or in any way vary or affect the Contract.
<b>Application for issue of final completion certificate</b>	<b>15.8</b>	The Contractor shall apply to the Engineer-in-Charge for issue of the Final Completion Certificate at least 45 days in advance of the likely date of full/ satisfactory completion. The Engineer-in-Charge during this period shall review and finalise the requirements of work to qualify as final completion with respect to the third party quality inspection agency reports, if any. The Final completion certificate shall be issued within 30 days of its becoming due as per notice.
<b>issue of final completion certificate</b>	<b>15.9</b>	After the Contractor has rectified all deficiencies pointed out by the Engineer-in-Charge in the final payment documents, and complied to all observations of the Third Party Quality Inspection Agency and the Independent Engineer to the entire satisfaction of the Engineer-in-Charge, the Contractor shall apply to the Engineer-in-Charge releasing the final payment as per final statement and also issue a final payment certificate. The Engineer-in-Charge shall proceed to issue the final payment certificate after reviewing all tests on completion, determinations, as built design and drawings, and other compliances required under the Contract.
<b>Final Statement of payments</b>	<b>15.10</b>	Within 28 Days after receiving the Taking Over Certificate for the Works, the Contractor shall submit to the Engineer-in-charge, six copies of a draft final statement with as built drawings (with two soft copies also) and all other supporting documents showing in detail in a form approved by the Engineer-in-charge the value of all work done in accordance with the Contract, and any further sums which the Contractor considers to be due to him under the Contract or otherwise.

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		<p>If the Engineer-in-charge disagrees with or cannot verify any part of the draft final statement, the Contractor shall submit such further information as the Engineer-in-charge may reasonably require within 28 Days from receipt of said draft and shall make such changes in the draft as may be agreed between them. The Contractor shall then prepare and submit to the Engineer-in-charge the final statement as agreed. This agreed statement is referred to in these Conditions as the "Final Statement".</p> <p>However if, following discussions between the Engineer-in-charge and the Contractor and any changes to the draft final statement which are agreed, it becomes evident that a dispute exists, the Engineer-in-charge shall deliver to the Procuring Entity's competent authority (with a copy to the Contractor) an Interim Payment Certificate for the agreed parts of the draft final statement.</p>
<b>Discharge</b>	<b>15.11</b>	<p>When submitting the Final Statement, the Contractor shall submit a discharge which confirms that the total of the Final Statement represents full and final settlement of all moneys due to the Contractor under or in connection with the Contract. This discharge may state that it becomes effective when the Contractor has received the Performance Security and the outstanding balance of this total, in which event the discharge shall be effective on such date.</p>
<b>Payment of Final Bill</b>	<b>15.12</b>	<p>The final value of the acceptable works done, less payments already received, value of claims raised and paid, value of claims not paid along with Interim Payment Certificates, final statement of price escalation due and paid, etc. shall be submitted by the Contractor along with the Final Bill. The final bill shall be submitted by the Contractor in the same manner as specified in interim bills within three Months of physical completion of the work or within one month of the date of the final certificate of completion issued by the Engineer-in-Charge whichever is earlier. No further claims shall be made by the Contractor after submission of the final bill and these shall be deemed to have been waived and extinguished.</p> <p>Payments of those items of the bill in respect of which there is no dispute and of items in dispute, for quantities and rates as approved by Engineer-in-Charge, will, as far as possible be made within a period of 90 days, the period being reckoned from the date of receipt of the bill by the Engineer-in-Charge complete with accounts of advances, Materials issued, Machinery &amp; Equipment lent on hire by the Procuring Entity, dismantled Materials, etc.</p>
<b>Recovery of cost of preparation of the bill</b>	<b>15.13</b>	<p>In case the Contractor does not submit the bill within the time fixed, the Engineer-in-charge may prepare the bill as per provision of Sub-Clause 15.6.1 [Payment of an Interim Payment Certificate] but a deduction @ 0.5 % of the</p>



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		<p>amount of such a bill shall be made and credited to the general revenue account of the Department/ Organisation on account of preparation of the bill.</p> <p>The Contractor shall submit all bills on the printed forms, to be had on application, at the office of the Engineer- in-charge and the charges in the bills shall always be entered at the rates specified in the Contract or in the case of any extra work ordered in pursuance of these conditions, and not mentioned or provided for in the Contract, at the rates approved for such work.</p>
<b>Payment of Contractor's Bills to Banks</b>	<b>15.14</b>	<p>Payments due to the Contractor may, if so desired by him, be made to his Bank instead of direct to him provided that the Contractor furnishes to the Engineer-in-Charge (i) the account number with name and address of branch of the Bank, (ii) an authorization in the form of a legally valid document such as a power of attorney conferring authority on the Bank to receive payments, and (iii) his own acceptance of the correctness of the amount made out as being due to him by Procuring Entity or his signature on the bill or other claim preferred against Procuring Entity before settlement by the Engineer-in-Charge of the account or claim by payment to the Bank. While the receipt given by such copy of Banks statement shall constitute a full and sufficient discharge for the payment, the Contractor shall also acknowledge with a receipt. Wherever possible the Contractor shall present his bills duly receipted and discharges through his Bankers.</p> <p>Nothing herein contained shall operate to create in favour of the Bank any rights or equities vis.-a-vis. the Procuring Entity/ Governor of Rajasthan.</p>
<b>Advance Payments</b>	<b>15.15</b>	<p>If provided in the SCC/ Contract Data, the Procuring Entity shall make an advance payment on simple interest (rate as specified in SCC) as an mobilization for the Works, when the Contractor submits a Bank Guarantee of an equal amount from a Scheduled Bank in India. The total advance payment, the number and timing of installments (if more than one), and the applicable currencies and proportions, shall be as stated in the Contract Data.</p> <p>Unless and until the Procuring Entity receives this Bank Guarantee and got confirmed from the issuing Bank, or if the provision of advance payment is not stated in the Contract Data, this Sub-Clause shall not apply.</p> <p>Unless stated otherwise in the Contract Data, the advance payment shall be repaid through percentage deductions from the interim payments determined by the Engineer-in-charge in accordance with Sub-Clause 15.5 [Issue of Interim Payment Certificates], as follows</p> <p>i. deductions shall commence in the next interim Payment Certificate following that in which the total of all certified</p>

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		<p>interim payments (excluding the advance payment and deductions and repayments of retention) exceeds 30 percent of the Accepted Contract Amount less Provisional Sums; and</p> <p>ii. deductions shall be made at the amortisation rate stated in the Contract Data of the amount of each Interim Payment Certificate (excluding the advance payment and deductions for its repayments as well as deductions for retention money) in the currencies and proportions of the advance payment until such time as the advance payment has been repaid; provided that the advance payment shall be completely repaid prior to the time when 90 percent of the Accepted Contract Amount less Provisional Sums has been certified for payment.</p> <p>If the advance payment has not been repaid prior to the issue of the Taking-Over Certificate for the Works or prior to termination under Sub-Clause 16.1 [Termination by Procuring Entity], Sub-Clause 17.2 [Termination by Contractor] or Sub-Clause 19 [Force Majeure] (as the case may be), the whole of the balance then outstanding shall immediately become due to the Procuring Entity.</p>
<p><b>Secured Advance on Non-Perishable Materials</b></p> <p><i>(Not applicable in case of Lump Sum Contract)</i></p>	<b>15.16</b>	<p>The Contractor, on signing an indenture in the form to be specified by the Engineer-in-Charge, may be paid during the progress of the execution of the work, up to 75% of the assessed value of any Materials which have been actually brought at the Site and which, in the opinion of the Engineer-in-charge, are non-perishable, non-fragile and non-combustible and will be consumed in the Works within next three months in accordance with the construction programme and the Contract provided that they are adequately stored and/ or protected against damage by weather or other causes but which have not, at the time of granting advance, been incorporated in the Works. When Materials on account of which advance has been made under this Sub-Clause are incorporated in the work, the amount of such advance shall be recovered/ deducted from the next payment made under any of the Sub-Clauses of this Contract.</p>
<p><b>Ensuring Payment and Amenities to Workers if Contractor fails to pay</b></p>	<b>15.17</b>	<p>In every case in which by virtue of the provisions of the Contract Labour (Regulation and Abolition) Act, 1970, and of the Contract Labour (Regulation and Abolition) Central Rules, 1971, any applicable Labour Laws, the Procuring Entity is obliged to pay any amounts of wages to a workman employed by the Contractor in execution of the Works, or to incur any expenditure in providing welfare and health amenities required to be provided under the above said Laws or under the P.W.D. Contractor's Labour Regulations, or under the Rules framed by Government from time to time for the protection of health and sanitary arrangements for workers employed by the Contractor, the Procuring Entity shall recover from the Contractor the</p>

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		<p>amount of wages so paid or the amount of expenditure so incurred; and without prejudice to the rights of the Procuring Entity under sub-section (2) of Section 20, and sub-section (4) of Section 21, of the Contract Labour (Regulation and Abolition) Act, 1970, Government shall be at liberty to recover such amount or any part thereof by deducting it from the Performance Security or from any sum due by the Procuring Entity to the Contractor whether under this Contract or otherwise. The Procuring Entity shall not be bound to contest any claim made against it under sub-section (1) of Section 20, sub-section (4) of Section 21, of the said Act, except on the written request of the Contractor and upon his giving to the Procuring Entity full security for all costs for which the Procuring Entity might become liable in contesting such claim.</p>
<p><b>Withholding and lien in respect of sums due from Contractor</b></p>	<p><b>15.18</b></p>	<p>i. Whenever any claim or claims for payment of a sum of money arises out of or under the Contract or against the Contractor, the Engineer-in-Charge or the Government shall be entitled to withhold and also have a lien to retain such sum or sums in whole or in part from the Performance Security, if any, deposited by the Contractor and for the purpose aforesaid, the Engineer-in-Charge or the Government shall be entitled to withhold the Performance Security furnished, if any and also have a lien over the same pending finalization or adjudication of any such claim. In the event of the security being insufficient to cover the claimed amount or amounts or if no security has been taken from the Contractor, the Engineer-in-Charge or the Government shall be entitled to withhold and have a lien to retain to the extent of payable or which may at any time thereafter become payable to the Contractor under the same Contract or any other Contract with the Engineer-in-Charge or the Government or any Contracting person through the Engineer-in-Charge pending finalization of adjudication of any such claim. It is an agreed term of the Contract that the sum of money or moneys so withheld or retained under the lien referred to above by the Engineer-in-Charge or Government will be kept withheld or retained as such by the Engineer-in-Charge or Government till the claim arising out of or under the Contract is determined by the arbitrator (if the Contract is governed by the arbitration Sub-Clause) or by the competent court, as the case may be and that the Contractor will have no claim for interest or damages whatsoever on any account in respect of such withholding or retention under the lien referred to above and duly notified as such to the Contractor. For the purpose of this Sub-Clause, where the Contractor is a partnership firm or a limited company, the Engineer-in-Charge or the Government shall be entitled to withhold and also have a lien to retain towards such claimed</p>

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		<p>amount or amounts in whole or in part from any sum found payable to any partner/ limited company as the case may be, whether in his individual capacity or otherwise.</p> <p>ii. The Procuring Entity shall have the right to cause an audit and technical examination of the Works and the final bills of the Contractor including all supporting vouchers, abstract etc., to be made within two years after payment of the final bill and if as a result of such audit and technical examination any sum is found to have been overpaid in respect of any work done by the Contractor under the Contract or any work claimed to have been done by him under the Contract and found not to have been executed, the Contractor shall be liable to refund the amount of over-payment and it shall be lawful for the Procuring Entity to recover the same from him in the manner prescribed or in any other manner legally permissible; and if is found that the Contractor was paid less than what was due to him under the Contract in respect of any work executed by him under it, the amount of such under payment shall be duly paid by the Procuring Entity to the Contractor, without any interest thereon whatsoever.</p>
<b>Lien in respect of claims in other Contracts</b>	<b>15.19</b>	<p>Any sum of money due and payable to the Contractor (including the Performance Security returnable to him) under the Contract may be withheld or retained by way of lien by the Engineer-in-Charge or the Government or any other Contracting person or persons through Engineer-in-charge against any claim of the Engineer-in-Charge or the Government or such person or persons in respect of payment of a sum of money arising out of or under any other Contract made by the Contractor with the Engineer-in-Charge or the Government or with such person or persons.</p> <p>It is an agreed term of the Contract that the sum of money so withheld or retained under this Sub-Clause by the Engineer-in- Charge or the Government will be kept withheld or retained as such by the Engineer-in-Charge or the Government till his claim arising out of the same Contract or any other Contract is either mutually settled or determined by the arbitration Sub-Clause or by the competent court, as the case may be and that the Contractor shall have no claim for interest or damages whatsoever on this account or on any other ground in respect of any sum of money withheld or retained under this Sub-Clause and duly notified as such to the Contractor.</p>
<b>Levy or Taxes payable by Contractor</b>	<b>15.20</b>	<p>i. VAT/ Sales Tax , service tax or any other taxes and duties on Materials, works or services in respect of this Contract shall be payable by the Contractor according to</p>

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		<p>Law in effect.</p> <p>ii. The Contractor shall deposit royalty and obtain necessary permit for supply of the red earth, moorum, sand, chips, bajri, stone, kankar, etc. from local authorities. The liability, if any, on account of quarry fees, royalties, octroi and other taxes and duties in respect of materials actually consumed on the Works, shall be borne by the Contractor.</p> <p>iii. If pursuant to or under any Law, notification or order any royalty, cess or the hike becomes payable to the Government of India and does not at any time become payable by the Contractor to the State Government/ Local authorities in respect of any Material used by the Contractor in the Works then in such a case, it shall be Lawful to the Government of India and it will have the right and be entitled to recover the amount paid in the circumstances as aforesaid from the dues of the Contractor.</p> <p>iv. In respect of goods and Materials procured by the Contractor, for use in Works under the Contract, VAT will be paid by the Contractor himself but in respect of such goods manufactured and supplied by the Contractor and Works executed under the contract, the responsibility of payment of VAT shall be that of the Procuring Entity.</p>
<b>Adjustments for changes in Legislation</b>	<b>15.21</b>	<p>i. All the bid rates shall be inclusive of all taxes and levies payable under respective statutes, However if any further tax or levy is imposed by Statute, after the Base Date and the Contractor thereupon necessarily and properly pays such taxes/ levies the Contractor shall be reimbursed the amount so paid, provided such payments, if it any, is not, in the opinion of the Procuring Entity (whose decision shall be final and binding on the Contractor) attributable to delay in execution of work within the control of the Contractor.</p> <p>ii. The Contractor shall keep necessary books of accounts and other documents for the purpose of this condition as may be necessary and shall allow inspection of the same by a duly authorized representative of the Procuring Entity and/ or the Engineer-in-Charge and further shall furnish such other information/ document as the Engineer-in-Charge may require from time to time.</p> <p>iii. The Contractor shall, within a period of 30 Days of the imposition of any such further tax or levy, give a written notice thereof to the Engineer-in-Charge that the same is given pursuant to this condition, together with all necessary information relating thereto.</p> <p>This Sub-Clause shall not be applicable if the effect of changes in legislation has been included in price variation</p>

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		formulae in Clause 10 [Price Variation].
<b>Pre Check and Post Check of Bills</b>	<b>15.22</b>	The Government/ Procuring Entity shall have a right to provide a system of pre check of Contractor's bills by a specified organization and payment by an Accounts Organisation as the Government/ Procuring Entity may in its absolute discretion decide. Any overpayments detected as a result of such pre check or post check of Contractor's bills can be recovered from the Contractor's bills and the Contractor will refund such excess payments.
<b>16. Termination of Contract by Procuring Entity</b>		
<b>Termination by Procuring Entity</b>	<b>16.1</b>	<p>Subject to the other provisions contained in this Sub-Clause the Engineer-in-charge may, without prejudice to his any other rights or remedy against the Contractor in respect of any delay, inferior workmanship, any claims for damages and/or any other provisions of this Contract or otherwise and whether the date of completion has or has not elapsed by a notice of reasonable period in writing absolutely determine the Contract in any of the following cases:</p> <ul style="list-style-type: none"> <li>i. If the Contractor, having been given by the Engineer-in-Charge a notice in writing to rectify, reconstruct or replace any defective work or that the work is being performed in an inefficient or otherwise improper or un-workmanlike manner, or by workers who do not understand the instructions of the Engineer-in-Charge, or do not execute the work as per specifications or in contravention of the advice of the third party quality inspections agency about the quality of works, if any, shall omit to comply with the requirement of such notice for a period of fifteen Days thereof.</li> <li>ii. If the Contractor being a company shall pass a resolution or the Court shall make an order that the company shall be wound up or if a receiver or a manager on behalf of a creditor shall be appointed or if circumstances shall arise which entitle the Court or the creditor to appoint a receiver or a manager or which entitle the Court to make a winding up order.</li> <li>iii. If the Contractor has, without reasonable cause, suspended the progress of the Works for a continuous period of 30 days, or has failed to proceed with the Works with due diligence so that, in the reasoned opinion of the Engineer-in-Charge (which shall be final and binding), he will be unable to secure completion of the Works by the stipulated date of completion and continues to do so after a notice in writing of fifteen Days from the Engineer-in-Charge.</li> <li>iv. If the Contractor fails to complete the Works within the stipulated time or spans of the Works with individual date of completion, if any stipulated, on or before such</li> </ul>

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		<p>date(s) of completion and or fails to achieve two continuous mile stones, does not complete them within the period specified in a notice given in writing on that behalf by the Engineer-in-Charge.</p> <p>v. If the Contractor persistently neglects to carry out his obligations under the Contract and/ or commits default in complying with any of the terms and conditions of the Contract and does not remedy it or take effective steps to remedy it within fifteen Days after a notice in writing is given to him on that behalf by the Engineer-in-charge.</p> <p>vi. If the Contractor sublets the Works or a part of Works without specific permission of the Procuring Entity/ Engineer-in-charge.</p> <p>vii. If the Contractor has not been commenced the Works by the Commencement Date or within 1/8th of the stipulated time for completion subject to a maximum of 45 Days, whichever is earlier.</p> <p>When the Contractor has made himself liable for action under any of the cases aforesaid, the Engineer-in-Charge on behalf of the Procuring Entity shall have the powers:</p> <p>(a) To determine or rescind the Contract as aforesaid (of which a 28 days termination or rescission notice in writing to the Contractor under the hand of Engineer-in-Charge shall be conclusive evidence). Upon such determination or rescission the Bid Security and Performance Security under the Contract shall be liable to be forfeited and shall be absolutely at the disposal of the Procuring Entity.</p> <p>(b) To employ labour paid by the Procuring Entity and to supply materials to carry out the Works or any part of the Works, debiting the Contractor with the cost of the labour and the price of the materials (of the amount of which cost and price certified by the Engineer-in-charge shall be final and conclusive against the Contractor) and crediting him with the value of the work done in all respects in the same manner and at the same rates, as if it has been carried out by the Contractor under the terms of this Contract. The certificate of the Engineer-in-Charge, as to the value of the work done, shall be final and conclusive evidence against the Contractor provided always that action under the sub Sub-Clause shall only be taken after giving notice in writing to the Contractor. Provided also that if the expenses incurred by the Procuring Entity are less than the amount payable to the Contractor at his agreement rates, the difference shall not be paid to the Contractor.</p> <p>(c) After giving notice specifying the date and time to the Contractor to measure up the acceptable (executed as per design, drawings and specifications) work of the</p>
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		<p>Contractor at Site and to take such part thereof, as shall be unacceptable out of his hands and to give it to another contractor to complete, in which case any expenses which may be incurred in excess of the sum which would have been paid to the original Contractor, if the whole work had been executed by him (of the amount of which excess, the certificate in writing of the Engineer-in-charge shall be final and conclusive) shall be borne and paid by the original Contractor and may be deducted from any money due to him by the Procuring Entity under this Contract or any other account, whatsoever, or from his Bid Security, Performance Security or the Enlistment Security or the proceeds of sale thereof, or a sufficient part thereof as the case may be.</p> <p>In the event of any one or more of the above courses being adopted by the Engineer-in-charge the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any engagements or made any advances on account or with a view to the execution of the Works or the performance of the Contract.</p> <p>In case action is taken under any of the aforesaid provisions, the Contractor shall not be entitled to recover or be paid any sum for any work thereof or actually performed under this Contract unless and until the Engineer-in-charge has certified in writing the performance of such work and value payable in respect thereof and he shall only be entitled to be paid the value so certified.</p>
<b>Contractor liable to pay compensation even if action not taken under Sub-Clause 16.1 above</b>	<b>16.2</b>	<p>(i) In any case in which the powers conferred upon the Engineer- in-Charge by Sub-Clause 16.1 [Termination by Procuring Entity] shall have become exercisable and the same are not exercised, the non-exercise of such powers shall not constitute a waiver of any of the conditions hereof and such powers shall, notwithstanding, be exercisable in the event of any future case of default by the Contractor and the liability of the Contractor for compensation shall remain unaffected.</p> <p>(ii) In the event of the Engineer-in-Charge putting in force all or any of the powers vested in him under the preceding Sub-Clause 16.1, he may, if he so desires, after giving a notice in writing to the Contractor, take possession of all or any tools, plants, materials and stores, in or upon the Works or the Site, thereof or belonging to the Contractor or procured by him and intended to be used for execution of the Works or any part thereof, paying or allowing for the same in account, at the Contract rates or, in the case of these not being applicable, at current market rates to be</p>



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		certified by the Engineer-in-Charge (whose certificate, thereof, shall be final and conclusive), otherwise the Engineer-in-Charge may, by notice in writing to the Contractor or his authorized agent, require him to remove such tools, plants, materials or stores from the premises (within a time to be specified in such notice), and in the event of the Contractor failing to comply with any such requisition, the Engineer-in-Charge may remove them at the Contractor's expense or sell them by auction or private sale on account of the Contractor and his risk in all respects, and the certificate of the Engineer-in-Charge as to the expenses of any such removal, and the amount of the proceeds and expenses of any such sale shall be final and conclusive against the Contractor.
<b>Valuation at the date of termination:</b>	<b>16.3</b>	As soon as practicable after a notice of termination under Sub-Clause 16.1 has taken effect, the Engineer-in-charge shall proceed in accordance with Sub-Clause 3.5[Determinations] to agree or determine the value of the Works, Goods and Contractor's Documents, and any other sums due to the Contractor for work executed in accordance with the Contract.
<b>Payment after Termination</b>	<b>16.4</b>	<p>After a notice of termination under Sub-Clause 16.1 has taken effect, the Procuring Entity may:</p> <ul style="list-style-type: none"> <li>i. proceed in accordance with Sub-Clause 3.5 [Procuring Entity's Claims ],</li> <li>ii. withhold further payments to the Contractor until the Costs of execution, completion and remedying of any Defects, damages for delay in completion (if any), and all other Costs incurred by the Procuring Entity, have been established, and</li> <li>iii. recover from the Contractor any losses and damages incurred by the Procuring Entity and any extra Costs of completing the Works, after allowing for any sum due to the Contractor under Sub-Clause 16.3. After recovering any such losses, damages and extra Costs, the Procuring Entity shall pay balance to the Contractor, if any.</li> </ul>
<b>Procuring Entity's Entitlement to Termination for Convenience</b>	<b>16.5</b>	If, at any time after the commencement of the Works, the Government/ Procuring Entity shall, for any reason, whatsoever, not require the whole work, thereof, as specified in the Contract, to be carried out, the Engineer-in-charge shall give notice, in writing, of the fact to the Contractor, who shall have no claim to any payment or compensation, 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 full amount of the Works not having been carried out. Neither shall he have any claim for

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		<p>compensation by reason of alterations having been made in the original specifications, drawings and design and instructions, which shall involve any curtailment of the Works, as originally contemplated. Provided, that the contractor shall be paid the charges for the cartage only, of materials actually brought to the Site of the Works by him for bonafide use and rendered surplus as a result of the abandonment or curtailment of the Works or any portion thereof, and taken them back by the Contractor provided, however, that the Engineer-in-charge shall have, in all such cases, the option of taking over all or any such materials at their purchase price or at local market rates whichever may be less.</p>
<p><b>Corrupt, Fraudulent, Collusive or Coercive Practices</b></p>	<p><b>16.6</b></p>	<p>If the Procuring Entity determines that the Contractor, his Sub-Contractors or any of their personnel has breached the Code of Integrity prescribed in the Act, the Rules, or the Instructions to Bidders [Section I of the Bidding Document] or has engaged in corrupt, fraudulent, collusive or coercive practices, in competing for or in executing the Contract, then the Procuring Entity may, after giving 14 Days notice to the Contractor:</p> <ul style="list-style-type: none"> <li>i. terminate the Contract and expel him from the Site,</li> <li>ii. forfeit or encash performance security and any other security or bond relating to this Contract,</li> <li>iii. recover the payments made under the Contract alongwith interest thereon at bank rate,</li> <li>iv. recover compensation for loss incurred due to termination of the Contract including excess expenditure, if any incurred in getting the remaining work executed from other agency under Sub-Clause 16.1.</li> </ul> <p>For the purposes of this Sub-Clause:</p> <ul style="list-style-type: none"> <li>i. “corrupt practice” means the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence the action of a public official in the procurement process or in the Contract execution;</li> <li>ii. “fraudulent practice” means a misrepresentation or omission of facts in order to influence a procurement process or the execution of the Contract;</li> <li>iii. “collusive practice” means a scheme of arrangement between two or more bidders, with or without the knowledge of the Procuring Entity, designed to establish bid prices at artificial, non-competitive levels;</li> <li>iv. “Coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the procurement process or affect the execution of a Contract.</li> </ul> <p>Should any employee of the Contractor be determined to</p>

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		have engaged in corrupt, fraudulent or coercive practice during the execution of the Works then that employee shall be removed in accordance with Sub-Clause 6.11 [Contractor's Personnel].
<b>Termination of Contract on death of Contractor</b>	<b>16.7</b>	Without prejudice to any of the rights or remedies under this Contract, if the Contractor dies, the Procuring Entity shall have the option of terminating the Contract without compensation to the Contractor after the affidavit of his/ their legal heir/heirs that they are not in a position to complete the work as Contracted or are not going to be in this profession in future.
<b>17. Suspension of Works and Termination by the Contractor</b>		
<b>Contractor's Entitlement to Suspend Work</b>	<b>17.1</b>	<p>If the Engineer-in-charge fails to certify an Interim Payment Certificate in accordance with Sub-Clause 15.5 [Issue of Interim Payment Certificates] or fails to make a payment of an Interim Payment Certificate within time period specified in accordance with Sub-Clause 15.6 [Payment of an Interim Payment Certificate], the Contractor may, after giving not less than 21 Days' notice to the Procuring Entity, suspend work (or reduce the rate of progress of work) unless and until the Contractor has received the Payment Certificate or payment, as the case may be as described in the notice.</p> <p>If the Contractor subsequently receives such Payment Certificate or payment (as described in the relevant Sub-Clause and in the above notice) before giving a notice of termination, the Contractor shall resume normal working as soon as is reasonably practicable.</p> <p>If the Contractor suffers delay and/ or incurs Cost as a result of suspending the Works (or reducing the rate of progress of the Works) in accordance with this Sub-Clause, the Contractor shall give notice to the Engineer-in-charge and shall be entitled subject to Sub-Clause 21.2 [Contractor's Claims ] to:</p> <ul style="list-style-type: none"> <li>i. an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.6 [Extension of Time for Completion], and</li> <li>ii. payment of any such Cost, which shall be included in the Contract Price.</li> </ul> <p>After receiving this notice, the Engineer-in-charge shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.</p>
<b>Termination by Contractor</b>	<b>17.2</b>	<p>The Contractor shall be entitled to terminate the Contract if:</p> <ul style="list-style-type: none"> <li>i. the Contractor does not receive the amount due under an Interim Payment Certificate within 28 Days after the</li> </ul>

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		<p>expiry of the time stated in Sub-Clause 15.6 [Payment of an Interim Payment Certificate] within which payment is to be made (except for deductions in accordance with Sub-Clause 2.5 [Procuring Entity's Claims], or</p> <p>ii. the Procuring Entity substantially fails to perform his obligations under the Contract in such manner as to materially and adversely affect the economic balance of the Contract and/ or the ability of the Contractor to perform the Contract, or</p> <p>iii. a prolonged suspension affects the whole of the Works as described in Sub-Clause 8.13 [Prolonged Suspension], or</p> <p>iv. the Contractor does not receive the Engineer-in-charge's instruction recording the agreement of both Parties on the fulfillment of the conditions for the Commencement of Works under Sub-Clause 8.3 [Commencement of Works].</p> <p>In any of these events or circumstances, the Contractor may, upon giving 28 Days' reasoned notice to the Procuring Entity, terminate the Contract.</p>
<b>Cessation of Work and Removal of Contractor's Equipment</b>	<b>17.3</b>	<p>After a notice of termination under Sub-Clause 16 [Termination of Contract by Procuring Entity], Sub-Clause 17.2 [Termination by Contractor] or Sub-Clause 19.6. [Optional Termination, Payment and Release] has taken effect, the Contractor shall promptly:</p> <p>i. cease all further work, except for such work as may have been instructed by the Engineer-in-charge for the protection of life or property or for the safety of the Works,</p> <p>ii. hand over Contractor's Documents, as built drawings, Plant, Materials and other work, for which the Contractor has received payment, and</p> <p>iii. remove all other Goods from the Site, except as necessary for safety, and leave the Site.</p>
<b>Payment on Termination</b>	<b>17.4</b>	<p>After a notice of termination under Sub-Clause 17.2 [Termination by Contractor] has taken effect, the Procuring Entity shall promptly pay the Contractor in accordance with Sub-Clause 19.6. [Optional Termination, Payment and Release].</p>
<b>18. Risk and responsibilities</b>		
<b>Indemnities</b>	<b>18.1</b>	<p>The Contractor shall indemnify and hold harmless the Procuring Entity, the Procuring Entity's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of:</p> <p>i. bodily injury, sickness, disease or death, of any person</p>

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		<p>whatsoever arising out of or in the course of or by reason of the Contractor's design (if any), the execution and completion of the Works and the remedying of any Defects, unless attributable to any negligence, willful act or breach of the Contract by the Procuring Entity, the Procuring Entity's Personnel, or any of their respective agents, and</p> <p>ii. damage to or loss of any property, real or personal (other than the Works), to the extent that such damage or loss arises out of or in the course of or by reason of the Contractor's design (if any), the execution and completion of the Works and the remedying of any Defects, unless and to the extent that any such damage or loss is attributable to any negligence, willful act or breach of the Contract by the Procuring Entity, the Procuring Entity's Personnel, their respective agents, or anyone directly or indirectly employed by any of them.</p>
<b>Contractor's Care of the Works</b>	<b>18.2.1</b>	<p>The Contractor shall take full responsibility for the care of the Works and materials and Goods from the Commencement Date until the Taking-Over Certificate is issued (or is deemed to be issued under Clause 12 [Taking Over of the Works and Sections by Procuring Entity] for the Works, when responsibility for the care of the Works shall pass to the Procuring Entity. If a Taking-Over Certificate is issued (or is so deemed to be issued) for any Section or part of the Works, responsibility for the care of the Section or part shall then pass to the Procuring Entity.</p> <p>After responsibility has accordingly passed to the Procuring Entity, the Contractor shall take responsibility for the care of any work which is outstanding on the date stated in a Taking-Over Certificate, until this outstanding work has been completed.</p> <p>If any loss or damage happens to the Works, Materials or Goods or Contractor's Documents during the period when the Contractor is responsible for their care, from any cause not listed in Sub-Clause 18.3 [Procuring Entity's Risks], the Contractor shall rectify/ reimburse the loss or damage at the Contractor's risk and Cost, so that the Works, Materials or Goods or Contractor's Documents conform with the Contract.</p> <p>The Contractor shall be liable for any loss or damage caused by any actions performed by the Contractor after a Taking-Over Certificate has been issued. The Contractor shall also be liable for any loss or damage which occurs after a Taking Over Certificate has been issued and which arose from a previous event for which the Contractor was liable.</p>
	<b>18.2.2</b>	<p>All risks of loss of or damage to physical property and of personal injury and death which arise during and in</p>

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		consequence of the performance of the Contract other than the excepted risks are the responsibility of the Contractor.
<b>Procuring Entity's Risks.</b>	<b>18.3</b>	<p>The risks referred to in Sub-Clause 18.4 [Consequences of Procuring Entity's Risks] below, insofar as they directly affect the execution of the Works, are:</p> <ul style="list-style-type: none"> <li>i. war, hostilities (whether war be declared or not), invasion, act of foreign enemies,</li> <li>ii. rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war, within the Country,</li> <li>iii. riot, commotion or disorder within the Country by persons other than the Contractor's Personnel,</li> <li>iv. munitions of war, explosive Materials, ionizing radiation or contamination by radio-activity, within the Country, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity,</li> <li>v. pressure waves caused by aircraft or other aerial devices travelling at sonic or supersonic speeds,</li> <li>vi. use or occupation by the Procuring Entity of any part of the Permanent Works, except as may be specified in the Contract,</li> <li>vii. design of any part of the Works by the Procuring Entity's Personnel or by others for whom the Procuring Entity is responsible, and</li> <li>viii. Any operation of the forces of nature which is Unforeseeable or against which an experienced Contractor could not reasonably have been expected to have taken adequate preventive precautions.</li> </ul>
<b>Consequences of Procuring Entity's Risks</b>	<b>18.4</b>	<p>If and to the extent that any of the risks listed in Sub-Clause 18.3 above results in loss or damage to the Works, materials or Goods or Contractor's Documents, the Contractor shall promptly give notice to the Engineer-in-charge and shall rectify this loss or damage to the extent required by the Engineer-in-charge.</p> <p>If the Contractor suffers delay and/ or incurs Cost from rectifying this loss or damage, the Contractor shall give a further notice to the Engineer-in-charge and shall be entitled subject to Clause 21.2 [Contractor's Claims ] to:</p> <ul style="list-style-type: none"> <li>i. An extension of time for any such delay, if completion is or will be delayed, under Clause 8.6 [Extension of Time for Completion], and</li> <li>ii. payment of any such Cost, which shall be included in the Contract Price.</li> </ul> <p>After receiving this further notice, the Engineer-in-charge</p>

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		shall proceed in accordance with Clause 3.5 [Determinations] to agree or determine these matters.
<b>Intellectual and Industrial Property Rights</b>	<b>18.5</b>	<p>In this Sub-Clause, “infringement” means an infringement (or alleged infringement) of any patent, registered design, copyright, trade mark, trade name, trade secret or other intellectual or industrial property right relating to the Works; and “claim” means a claim (or proceedings pursuing a claim) alleging an infringement.</p> <p>Whenever a Party does not give notice to the other Party of any claim within 28 Days of receiving the claim, the first Party shall be deemed to have waived any right to indemnity under this Sub-Clause.</p> <p>The Contractor shall fully indemnify and keep indemnified the Procuring Entity and the State Government against any action, claim or proceeding relating to infringement or use of any patent or design or any alleged patent or design rights and shall pay any royalties which may be payable in respect of any article or part thereof included in the Contract. The Contractor shall indemnify and hold the Procuring Entity harmless against and from any other claim which arises out of or in relation to (i) the manufacture, use, sale or import of any Goods, or (ii) any design for which the Contractor is responsible.</p> <p>The Procuring Entity shall indemnify and hold the Contractor harmless against and from any claim alleging an infringement which is or was:</p> <ul style="list-style-type: none"> <li>i. an unavoidable result of the Contractor’s compliance with the Contract, or</li> <li>ii. a result of any Works being used by the Procuring Entity: <ul style="list-style-type: none"> <li>(a) for a purpose other than that indicated by, or reasonably to be inferred from, the Contract, or</li> <li>(b) in conjunction with anything not supplied by the Contractor, unless such use was disclosed to the Contractor prior to the Base Date or is stated in the Contract</li> </ul> </li> </ul> <p>If a Party is entitled to be indemnified under this Sub-Clause, the indemnifying Party may (at its Cost) conduct negotiations for the settlement of the claim, and any litigation or arbitration which may arise from it. The other Party shall, at the request and Cost of the indemnifying Party, assist in contesting the claim. This other Party (and its Personnel) shall not make any admission which might be prejudicial to the indemnifying Party, unless the indemnifying Party failed to take over the conduct of any negotiations, litigation or arbitration upon being requested to do so by such other Party.</p>
<b>Limitation of Liability</b>	<b>18.6</b>	Neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any Contract or for

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		<p>any indirect or consequential loss or damage which may be suffered by the other Party in connection with the Contract, other than as specifically provided in Sub-Clause 8.9 [Compensation/ Damages for Delay]; Sub-Clause 13.3 [Cost of Remedying Defects]; Sub-Clause 16.4 [Payment after Termination]; Sub-Clause 17.4 [Payment on Termination]; Sub-Clause 18.1 [Indemnities]; Sub-Clause 18.2 [Contractor's Care of the Works], Sub-Clause 18.4 [Consequences of Procuring Entity's Risks] and Sub-Clause 18.5. [Intellectual and Industrial Property Rights].</p> <p>The total liability of the Contractor to the Procuring Entity, under or in connection with the Contract shall not exceed twice the Accepted Contract Amount. This amount does not include charges, if any, for consumption of Electricity, Water and Gas provided by the Procuring Entity under Sub-Clause 4.18 [Electricity, Water and Gas], and use of Procuring Entity's Equipment and Materials under Sub-Clause 4.19 [Procuring Entity's Equipment and Issue of Materials].</p> <p>This Sub-Clause shall not limit liability of the Contractor in any case of fraud, deliberate default or reckless misconduct by the Contractor or Sub-Contractors or their personnel or offences under any other Law for the time being in force.</p>
<b>Use of Procuring Entity's Accommodation/ Facilities</b>	18.7	<p>The Contractor shall take full responsibility for the care of the accommodation and facilities, if any, provided by the Procuring Entity as detailed in the Specifications, from the respective dates of hand-over to the Contractor until cessation of occupation (where hand-over or cessation of occupation may take place after the date stated in the Taking-Over Certificate for the Works).</p> <p>If any loss or damage happens to any of the above items while the Contractor is responsible for their care arising from any cause whatsoever other than those for which the Procuring Entity is liable, the Contractor shall, at his own cost, rectify the loss or damage to the satisfaction of the Engineer-in-Charge.</p>
<b>19. Force Majeure</b>		
<b>Definition of Force Majeure</b>	19.1	<p>In this Sub-Clause, "Force Majeure" means an exceptional event or circumstance:</p> <ul style="list-style-type: none"> <li>i. which is beyond a Party's control,</li> <li>ii. which such Party could not reasonably have provided against before entering into the Contract,</li> <li>iii. which, having arisen, such Party could not reasonably have avoided or overcome, and</li> <li>iv. which is not substantially attributable to the other Party.</li> </ul> <p>Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed</p>



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		<p>below, so long as conditions (i) to (iv) above are satisfied:</p> <ul style="list-style-type: none"> <li>(a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies,</li> <li>(b) rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war,</li> <li>(c) riot, commotion, disorder, strike or lockout by persons other than the Contractor's Personnel,</li> <li>(d) munitions of war, explosive Materials, ionizing radiation or contamination by radio-activity, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity, and</li> <li>(e) natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.</li> </ul>
<b>Notice of Force Majeure</b>	<b>19.2</b>	<p>If a Party is or will be prevented from performing its substantial obligations under the Contract by Force Majeure, then it shall give notice to the other Party of the event or circumstances constituting the Force Majeure and shall specify the obligations, the performance of which is or will be prevented. The notice shall be given within 14 Days after the Party became aware, or should have become aware, of the relevant event or circumstance constituting Force Majeure.</p> <p>The Party shall, having given notice, be excused performance of its obligations for so long as such Force Majeure prevents it from performing them.</p> <p>Notwithstanding any other provision of this Clause, Force Majeure shall not apply to obligations of either Party to make payments to the other Party under the Contract.</p>
<b>Duty to Minimize Delay</b>	<b>19.3</b>	<p>Each Party shall at all times use all reasonable endeavors to minimize any delay in the performance of the Contract as a result of Force Majeure.</p> <p>A Party shall give notice to the other Party when it ceases to be affected by the Force Majeure.</p>
<b>Consequences of Force Majeure</b>	<b>19.4</b>	<p>If the Contractor is prevented from performing its substantial obligations under the Contract by Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], and suffers delay and/ or incurs Cost by reason of such Force Majeure, the Contractor shall be entitled subject to Sub-Clause 21.2 [Contractor's Claims ] to:</p> <ul style="list-style-type: none"> <li>i. an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.6 [Extension of Time for Completion], and</li> <li>ii. if the event or circumstance is of the kind described in Sub-Clause 19.1 [Definition of Force Majeure] and, in the case of sub-paragraphs (a) to (e), occurs in the</li> </ul>

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		<p>Country, payment of any such Cost incurred rectifying or replacing the Works and/ or Goods damaged or destroyed by Force Majeure, to the extent they are not indemnified through the insurance policy referred to in Sub-Clause 20.2 [Insurance for Works and Contractor's Equipment].</p> <p>After receiving this notice, the Engineer-in-charge shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.</p>
<b>Force Majeure Affecting Subcontractor</b>	<b>19.5</b>	<p>If any Subcontractor is entitled under any Contract or agreement relating to the Works to relief from force majeure on terms additional to or broader than those specified in this Sub-Clause, such additional or broader force majeure events or circumstances shall not excuse the Contractor's non-performance or entitle him to relief under this Sub-Clause.</p>
<b>Optional Termination, Payment and Release</b>	<b>19.6</b>	<p>If the execution of substantially all the Works in progress is prevented for a continuous period of 84 Days by reason of Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], or for multiple periods which total more than 140 Days due to the same notified Force Majeure, then either Party may give to the other Party a notice of termination of the Contract. In this event, the termination shall take effect 7 Days after the notice is given, and the Contractor shall proceed in accordance with Sub-Clause 17.3 [Cessation of Works and Removal of Contractor's Equipment].</p> <p>Upon such termination, the Engineer-in-charge shall determine the value of the work done and issue a Payment Certificate which shall include:</p> <ul style="list-style-type: none"> <li>i. the amounts payable for any acceptable work carried out for which a price is stated in the Contract;</li> <li>ii. the Cost of Plant and Materials ordered for the Works which have been delivered to the Contractor, or of which the Contractor is liable to accept delivery: this Plant and Materials shall become the property of (and be at the risk of) the Procuring Entity when paid for by the Procuring Entity, and the Contractor shall place the same at the Procuring Entity's disposal;</li> <li>iii. other Costs or liabilities which in the circumstances were reasonably and necessarily incurred by the Contractor in the expectation of completing the Works;</li> <li>iv. the Cost of removal of Temporary Works and Contractor's Equipment from the Site.</li> </ul>

## SECTION VI: GENERAL CONDITIONS OF CONTRACT

<b>Release from Performance</b>	<b>19.7</b>	<p>Notwithstanding any other provision of this Clause, if any event or circumstance outside the control of the Parties (including, but not limited to, Force Majeure) arises which makes it impossible or unlawful for either or both Parties to fulfill its or their Contractual obligations or which, under the Law governing the Contract, entitles the Parties to be released from further performance of the Contract, then upon notice by either Party to the other Party of such event or circumstance:</p> <p>i. The Parties shall be discharged from further performance, without prejudice to the rights of either Party in respect of any previous breach of the Contract, and</p> <p>ii. the sum payable by the Procuring Entity to the Contractor shall be the same as would have been payable under Sub-Clause 19.6 [Optional Termination, Payment and Release] if the Contract had been terminated under Sub-Clause 19.6.</p>
<b>20. Insurance</b>		
<b>General Requirements for Insurance</b>	<b>20.1</b>	<p>In this Sub-Clause, “insuring Party” means, for each type of insurance, the Party responsible for effecting and maintaining the insurance specified in the relevant Sub-Clause.</p> <p>Wherever the Contractor is the insuring Party, each insurance shall be effected with insurers and in terms approved by the Procuring Entity. These terms shall be consistent with any terms agreed by both Parties before the date of the Letter of Acceptance. This agreement of terms shall take precedence over the provisions of this Sub-Clause.</p> <p>Wherever the Procuring Entity is the insuring Party, each insurance shall be effected with insurers and in terms acceptable to the Contractor. These terms shall be consistent with any terms agreed by both Parties before the date of the Letter of Acceptance. This agreement of terms shall take precedence over the provisions of this Sub-Clause.</p> <p>If a policy is required to indemnify joint insured, the cover shall apply separately to each insured as though a separate policy had been issued for each of the joint insured. If a policy indemnifies additional joint insured, namely in addition to the insured specified in this Sub-Clause, (i) the Contractor shall act under the policy on behalf of these additional joint insured except that the Procuring Entity shall act for Procuring Entity’s Personnel, (ii) additional joint insured shall not be entitled to receive payments directly from the insurer or to have any other direct dealings with the insurer, and (iii) the insuring Party shall require all additional joint insured to comply with the</p>

## SECTION VI: GENERAL CONDITIONS OF CONTRACT

		<p>conditions stipulated in the policy.</p> <p>Each policy insuring against loss or damage shall provide for payments to be made in the currencies required to rectify the loss or damage. Payments received from insurers shall be used for the rectification of the loss or damage.</p> <p>The relevant insuring Party shall, within the respective periods stated in the Contract Data (calculated from the Commencement Date), submit to the other Party:</p> <ul style="list-style-type: none"> <li>i. evidence that the insurances described in this Sub-Clause have been effected, and</li> <li>ii. copies of the policies for the insurances described in Sub-Clause 20.2 [Insurance for Works and Contractor's Equipment] and Sub-Clause 20.3 [Insurance against Injury to Persons and Damage to Property].</li> </ul> <p>When each premium is paid, the insuring Party shall submit evidence of payment to the other Party. Whenever evidence or policies are submitted, the insuring Party shall also give notice to the Engineer-in-charge.</p> <p>Each Party shall comply with the conditions stipulated in each of the insurance policies. The insuring Party shall keep the insurers informed of any relevant changes to the execution of the Works and ensure that insurance is maintained in accordance with this Sub-Clause.</p> <p>Neither Party shall make any material alteration to the terms of any insurance without the prior approval of the other Party. If an insurer makes (or attempts to make) any alteration, the Party first notified by the insurer shall promptly give notice to the other Party.</p> <p>If the insuring Party fails to effect and keep in force any of the insurances it is required to effect and maintain under the Contract, or fails to provide satisfactory evidence and copies of policies in accordance with this Sub-Clause, the other Party may (at its option and without prejudice to any other right or remedy) effect insurance for the relevant coverage and pay the premiums due. The insuring Party shall pay the amount of these premiums to the other Party, and the Contract Price shall be adjusted accordingly.</p> <p>Nothing in this Sub-Clause limits the obligations, liabilities or responsibilities of the Contractor or the Procuring Entity, under the other terms of the Contract or otherwise. Any amounts not insured or not recovered from the insurers shall be borne by the Contractor and/ or the Procuring Entity in accordance with these obligations, liabilities or responsibilities. However, if the insuring Party fails to effect and keep in force an insurance which is available and which it is required to effect and maintain under the Contract, and the other Party neither approves the omission nor effects insurance for the coverage relevant to this default, any moneys which should have been</p>
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## SECTION VI: GENERAL CONDITIONS OF CONTRACT

		<p>recoverable under this insurance shall be paid by the insuring Party.</p> <p>Payments by one Party to the other Party shall be subject to Sub-Clause 2.5 [Procuring Entity's Claims] or Sub-Clause 21.2 [Contractor's Claims], as applicable.</p>
<b>Insurance for Works and Contractor's Equipment</b>	<b>20.2</b>	<p>The insuring Party shall insure the Works, Plant, Materials and Contractor's Documents for not less than the full reinstatement Cost including the Costs of demolition, removal of debris and professional fees and profit. This insurance shall be effective from the date by which the evidence is to be submitted under Sub-Clause 20.1 [General Requirements for Insurances], until the date of issue of the Taking-Over Certificate for the Works.</p> <p>The insuring Party shall maintain this insurance to provide cover until the date of issue of the Performance Certificate, for loss or damage for which the Contractor is liable arising from a cause occurring prior to the issue of the Taking-Over Certificate, and for loss or damage caused by the Contractor in the course of any other operations including those under Clause 13 [Defect Liability].</p> <p>The insuring Party shall insure the Contractor's Equipment for not less than the full replacement value, including delivery to Site. For each item of Contractor's Equipment, the insurance shall be effective while it is being transported to the Site and until it is no longer required as Contractor's Equipment.</p> <p>Unless otherwise stated in the Special Conditions, insurances under this Sub-Clause:</p> <ul style="list-style-type: none"> <li>i. shall be effected and maintained by the Contractor as insuring Party,</li> <li>ii. shall be in the joint names of the Parties, who shall be jointly entitled to receive payments from the insurers, payments being held or allocated to the Party actually bearing the Costs of rectifying the loss or damage,</li> <li>iii. shall be extended to cover liability for all loss and damage from any cause not listed in Sub-Clause 18.3 [Procuring Entity's Risks],</li> <li>iv. shall also cover, to the extent specifically required in the Contract Data, loss or damage to a part of the Works which is attributable to the use or occupation by the Procuring Entity of another part of the Works, and loss or damage from the risks listed in Sub-Clause 18.3 [Procuring Entity's Risks], excluding (in each case) risks which are not insurable at commercially reasonable terms, and</li> <li>v. may however exclude loss of, damage to, and reinstatement of: <ul style="list-style-type: none"> <li>(a) a part of the Works which is in a defective condition due to a defect in its design, materials or workmanship</li> </ul> </li> </ul>

## SECTION VI: GENERAL CONDITIONS OF CONTRACT

		<p>(but cover shall include any other parts which are lost or damaged as a direct result of this defective condition and not as described in sub- paragraph (b) below),</p> <p>(b) a part of the Works which is lost or damaged in order to reinstate any other part of the Works if this other part is in a defective condition due to a defect in its design, material or workmanship, and</p> <p>(c) A part of the Works which has been taken over by the Procuring Entity, except to the extent that the Contractor is liable for the loss or damage.</p>
<b>Insurance against Injury to Persons and Damage to Property</b>	<b>20.3</b>	<p>The insuring Party shall insure against each Party's liability for any loss, damage, death or bodily injury which may occur to any physical property (except things insured under Sub-Clause 20.2 [Insurance for Works and Contractor's Equipment]) or to any person (except persons insured under Sub-Clause 20.4 [Insurance for Contractor's Personnel]), which may arise out of the Contractor's performance of the Contract and occurring before the issue of the Performance Certificate.</p> <p>This insurance shall be for a limit per occurrence of not less than the amount stated in the Contract Data with no limit on the number of occurrences.</p> <p>Unless otherwise stated in the Special Conditions, the insurances specified in this Sub-Clause:</p> <p>i. shall be effected and maintained by the Contractor as insuring Party,</p> <p>ii. shall be in the joint names of the Parties,</p> <p>iii. shall be extended to cover liability for all loss and damage to the Procuring Entity's property (except things insured under Sub-Clause 20.2 [Insurance for Works and Contractor's Equipment] arising out of the Contractor's performance of the Contract, and</p> <p>iv. may however exclude liability to the extent that it arises from:</p> <p>(a) the Procuring Entity's right to have the Permanent Works executed on, over, under, in or through any land, and to occupy this land for the Permanent Works,</p> <p>(b) damage which is an unavoidable result of the Contractor's obligations to execute the Works and remedy any Defects, and</p> <p>(c) a cause listed in Sub-Clause 18.3 [Procuring Entity's Risks], except to the extent that cover is available at commercially reasonable terms.</p>
<b>Insurance for Contractor's Personnel</b>	<b>20.4</b>	<p>The Contractor shall effect and maintain insurance against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury,</p>

## SECTION VI: GENERAL CONDITIONS OF CONTRACT

		<p>sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel.</p> <p>The insurance shall cover the Procuring Entity and the Engineer-in-charge against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel, except that this insurance may exclude losses and claims to the extent that they arise from any act or neglect of the Procuring Entity or of the Procuring Entity's Personnel.</p> <p>The insurance shall be maintained in full force and effect during the whole time that these personnel are assisting in the execution of the Works. For a Subcontractor's employees, the insurance may be effected by the Subcontractor, but the Contractor shall be responsible for compliance with this Sub-Clause.</p>
<b>21. Claims, disputes and Arbitration</b>		
<b>Recovery</b>	<b>21.1.1</b>	Any amount inadvertently paid as not due to the Contractor shall be treated as acknowledged recovery/ or debt due from the Contractor. The Contractor shall immediately inform the Engineer-in-charge about such amount and offer to reimburse immediately to the Engineer-in-charge.
	<b>21.1.2</b>	Whenever any claim against the Contractor for the payment of a sum of money arises out of or under the Contract, the Procuring Entity shall be entitled to recover such a sum by appropriating, in part or whole of the Performance Security, or enlistment deposit of the Contractor. In the event of the Performance Security and enlistment deposit being insufficient or if no Performance Security has been taken, then the balance or the total sum recoverable, as the case may be, shall be deducted from any sum, then due or which at any time, thereafter, may become due to the Contractor, under this Contract or other Contracts with the Procuring Entity. Should these sums not be sufficient to cover the full amount recoverable, the balance remaining due shall be recovered from the Contractor as arrears of land revenue under Section 53 of the Act.
<b>Contractor's Claims</b>	<b>21.2</b>	If the Contractor considers himself to be entitled to any extension of the Time for Completion and/ or any additional payment, under any Sub-Clause of these Conditions or otherwise in connection with the Contract, the Contractor shall give notice to the Engineer-in-charge, describing the event or circumstance giving rise to the claim. The notice shall be given as soon as practicable, but not later than 28 Days after the Contractor became aware, or should have become aware, of the event or circumstance.

## SECTION VI: GENERAL CONDITIONS OF CONTRACT

		<p>If the Contractor fails to give notice of a claim within such period of 28 Days, the Time for Completion shall not be extended, the Contractor shall not be entitled to additional payment, and the Procuring Entity shall be discharged from all liability in connection with the claim. Otherwise, the following provisions of this Sub-Clause shall apply.</p> <p>The Contractor shall also submit any other notices which are required by the Contract, and supporting particulars for the claim, all as relevant to such event or circumstance.</p> <p>The Contractor shall keep such contemporary records as may be necessary to substantiate any claim included in the claim, either on the Site or at another location acceptable to the Engineer-in-charge. Without admitting the Procuring Entity's liability, the Engineer-in-charge may, after receiving any notice under this Sub-Clause, monitor the record-keeping and/ or instruct the Contractor to keep further contemporary records. The Contractor shall permit the Engineer-in-charge to inspect all these records, and shall (if instructed) submit copies to the Engineer-in-charge.</p> <p>Within 42 Days after the Contractor became aware (or should have become aware) of the event or circumstance giving rise to the claim, or within such other period as may be proposed by the Contractor and approved by the Engineer-in-charge, the Contractor shall send to the Engineer-in-charge a fully detailed claim which includes full supporting particulars of the basis of the claim and of the extension of time and/or additional payment claimed. If the event or circumstance giving rise to the claim has a continuing effect:</p> <ol style="list-style-type: none"> <li>this fully detailed claim shall be considered as interim;</li> <li>the Contractor shall send further interim claims at monthly intervals, giving the accumulated delay and/ or amount claimed, and such further particulars as the Engineer-in-charge may reasonably require; and</li> <li>the Contractor shall send a final claim within 28 Days after the end of the effects resulting from the event or circumstance, or within such other period as may be proposed by the Contractor and approved by the Engineer-in-charge.</li> </ol> <p>Within 42 Days after receiving a claim or any further particulars supporting a previous claim, or within such other period as may be proposed by the Engineer-in-charge and approved by the Contractor, the Engineer-in-charge shall respond with approval, or with disapproval and detailed comments. He may also request any necessary further particulars, but shall nevertheless give his response on the principles of the claim within the above defined time period.</p> <p>Within the above defined period of 42 Days, the Engineer-in- charge shall proceed in accordance with Sub-Clause</p>
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## SECTION VI: GENERAL CONDITIONS OF CONTRACT

		<p>3.5 [Determinations] to agree or determine (i) the extension (if any) of the Time for Completion (before or after its expiry) in accordance with Sub-Clause 8.6 [Extension of Time for Completion], and/ or (ii) the additional payment (if any) to which the Contractor is entitled under the Contract.</p> <p>Each Payment Certificate shall include such additional payment for any claim as have been reasonably substantiated as due under the relevant provision of the Contract. Unless and until the particulars supplied are sufficient to substantiate the whole of the claim, the Contractor shall only be entitled to payment for such part of the claim as he has been able to substantiate.</p> <p>If the Engineer-in-charge does not respond within the timeframe defined in this Sub-Clause, the matter may be brought to the attention of the Procuring Entity by the Contractor within 15 days (beyond the initial period of 42 days) for timely intervention. If the Contractor is not satisfied with the decision of the Engineer-in-charge/ Procuring Entity, the Parties may refer the dispute to the Dispute Resolution Board in accordance with Sub-Clause 21.3 [Dispute Resolution].</p> <p>The requirements of this Sub-Clause are in addition to those of any other Sub-Clause which may apply to a claim. If the Contractor fails to comply with this or another Sub-Clause in relation to any claim, any extension of time and/ or additional payment shall take account of the extent (if any) to which the failure has prevented or prejudiced proper investigation of the claim, unless the claim is excluded under the second paragraph of this Sub-Clause.</p>
<b>Dispute Resolution</b>	<b>21.3.1</b>	The procedure of reference of disputes to the Dispute Resolution Board and its functioning shall be as per Appendix B.
	<b>21.3.2</b>	The disputes which remain unresolved by the Dispute Resolution Board may be referred by either Party to Arbitration.

## APPENDIX A

### General Conditions for admissibility of Escalation

1. The exact percentage of labour/ material (excluding materials to be supplied by the Procuring Entity)/ bitumen/ diesel and petrol/ cement/ steel component for the Works shall be approved by the authority while sanctioning the detailed Estimates.

2. The breakup of components of labour/ materials (excluding materials to be supplied by the Procuring Entity)/ bitumen/ diesel and petrol/ cement/ steel as indicated in this Clause have been pre-determined as below:-

(a)	Labour -----	34 percent
(b)	Material -----	50 percent
(c)	Bitumen -----	00 percent
(d)	Petroleum -----	01 percent
(e)	Cement -----	12 percent
(f)	Steel (Basic Metal) -----	03 percent
	<b>Total-----</b>	<b>100%</b>

3. While allowing price escalation the following shall be deducted from the value of Works done (R):

(a) Cost of material supplied by the Procuring Entity.

(b) Cost of services rendered for protection of the Works.

(c) Secured Advance/ any advance added earlier but deducted now after Works is measured.

(d) Cost of extra items, the rates for which have been worked out based on market rates/ mutually agreed rates.

4. The first statement of escalation shall be prepared at the end of three months in which the Works was awarded and the Works done from the date of start to the end of this period shall be taken into account. For subsequent statement, cost of Works done during every quarter shall be taken into account. At the completion of Works, the Works done during the last quarter or fraction, thereof, shall be taken into account.

5. For the purpose of reckoning the Works done during any period, the bills prepared during the period shall be considered. The dates of recording measurements in the Measurement Book by the Assistant Engineer shall be the guiding factor to decide the bills relevant to any period. The date of completion, as finally recorded by the competent authority in the Measurement Book, shall be the criterion.

6. The index relevant to any quarter, for which such compensation is paid, shall be the arithmetical average of the indices relevant of the calendar month.

7. Price adjustment Clause shall be applicable only for the Works that is carried out within the stipulated time, or extension thereof, as are not attributable to the Contractor.

8. If during the progress in respect of Contract Works stipulated to cost Rs.50 lacs or less, the value of Works actually done excluding cost of material supplied by the Procuring Entity, exceeds Rs. 50 lacs and completion period is more than 3 months, then escalation would be payable only in respect of value of Works in excess over Rs.50 lacs

## SECTION VI: GENERAL CONDITIONS OF CONTRACT

from the date of satisfying both the conditions.

9. Where originally stipulated period is 3 months or less but actual period of execution exceeds beyond 3 months on account of reasons not attributable to the Contractor, escalation amount would be payable only in respect of extended period if amount of Works is more than Rs.50 lacs.

10. In case the Contractor does not make prorata progress in the first or another time span and the short fall in progress is covered up by him during subsequent time span within original stipulated period then the price escalation of such Works expected to be done in the previous time span shall be notionally given based upon the price index of that quarter in which such Works was required to be done.

11. No claims for price adjustment other than those provided herein, shall be entertained.

12. If the period of completion including extended period attributable to the Procuring Entity exceeds three months but cost does not exceeds more than Rs.50 lacs, no escalation is admissible.

13. Similarly, if cost of Works increases more than Rs.50 lacs but completion period including extended period attributable to the Procuring Entity is less than 3 months, no escalation is admissible.

14. No provisional escalation is payable on the basis of indices of the previous quarter in absence of non publication of indices for concerned quarter by the RBI.

15. Escalation is always payable quarterly and no provisional escalation is payable monthly or fortnightly.

16. In case at the time of executing agreement, both the conditions (completion period 3 months and amount of Works Rs.50 lacs) for admissibility of price escalation are not fulfilled and subsequent due to additional Works and extension of time attributable to Procuring Entity, both the conditions become fulfilled, in that case the escalation shall be payable from the date of satisfying both the conditions and only for Works done beyond Rs.50 lacs and in period of Works beyond 3 months.

17. The Contractor shall for the purpose of these conditions keep such books of account and other documents as are necessary to show the amount of any increase claimed or reduction available and shall allow inspection of the same by a duly authorised representative of the Government/ Procuring Entity and further shall at the request of the Engineer-in-charge furnish, verified in such a manner as the Engineer-in-charge may require any documents so kept and such other information as the Engineer-in-charge may require.

18. Price variation Clause shall be applicable in case of lump sum contracts estimated to cost more than Rs.100 crores with stipulated completion period of more than 18 months.

19. The component of operation and maintenance (O&M) cost included in the Contract Price shall not be subject to price variations. The price may be adjusted by the use of prescribed formula (or formulae) which breaks down the total price into components.

20. The amount of price variation in case of lump sum contracts will be made by adding or deducting, as the case may be, from the payments made at the stages of Works specified in the Contract document.

## Appendix B

### Dispute Resolution During Execution of the Contract

#### 1.0 Dispute

Disputes are germane to any contract. A 'dispute' implies an assertion of a right or a claim by one party and repudiation thereof by the other party, either expressed or implied, and may be by words or by conduct. A mere 'difference' is not necessarily a dispute; when the parties fail to resolve it, the difference culminates in dispute.

#### 1.1 Dispute Resolution in a Construction Contract

Since arbitrations are fairly time consuming, it is always advisable to sort out the disputes mutually through the mechanism of adjudication through Dispute Resolution Board (DRB), which is a sort of voluntary arbitration. Arbitration can be resorted to if the adjudication decision is not forthcoming or is not acceptable to any party. For dispute resolution following procedure will be followed:

#### 2.0 Dispute Resolution Board (DRB)

- (a) A formal Sub-Clause of obtaining dispute resolution through DRB will be inserted in the Conditions of the Contract. A separate Dispute Resolution Agreement will also be drawn up, detailing therein provisions like: Eligibility of Members, date of commencement, manner of entry on the reference by the Members and their resignation; obligation of the Members, the Procuring Entity and the Contractor; terms of payment (monthly retainerhip fee, daily fee for travel & site visits, out-of-pocket expenses); manner of sharing the fees and expenses and of making payments; arrangements of site visits and their frequency; conduct of hearings; termination/ phasing out the activities of DRB; default of the Member, and action to be taken in case of dispute in relation to DRB Agreement, etc.
- (b) DRB should be put in place within one month of Letter of Acceptance.
- (c) The DRB for all projects costing more than Rs 10 crore will comprise of three Members, one each to be appointed by the Procuring Entity and the Contractor and approved by the other. The third Member, who will also act as the presiding Member, will be selected by the first two Members and approved by the parties. If either of the first two Members is not so selected and approved, or the parties fail to reach an agreement on the third Member then on request of either or both parties, appointment will be made by concerned Administrative Department in case of Government Departments and Head of the Organisation (Chairman, etc.) concerned in other cases.
- (d) The Members to be appointed shall be out of a panel maintained by the Department/ Organisation concerned and should be experienced in the type of construction actually involved and/ or finance and accounts and/ or contractual documents. **They should be persons of repute and integrity.**
- (e) If any dispute that arises at any stage between the Procuring Entity and the Contractor in connection with, or arising out of the Contract or the execution of the Works, including any disagreement by either party with any action, inaction, opinion, instruction, determination, certificate or valuation of the Engineer, the matter in dispute shall, in the first place, should be tried to be settled amicably. If the dispute still remains unsettled, it shall be referred to the DRB.

## SECTION VI: GENERAL CONDITIONS OF CONTRACT

- (f) Both parties shall promptly make available all information, access to the Site, and appropriate facilities, as the DRB may require for the purposes of making a recommendation on such dispute.
- (g) Within 56 days after receiving such reference, or within such other period as may be proposed by the DRB and approved by both parties, the DRB shall give its recommendation with reasons. The recommendation shall be binding on both parties, who shall promptly give effect to it unless and until it shall be revised in an amicable settlement or an arbitral award as described below. Unless the Contract has already been abandoned, repudiated or terminated, the Contractor shall continue to proceed with the Works in accordance with the Contract.
- (h) If either party is dissatisfied with the recommendation, then either party may, within 28 days after receiving the recommendation, or if the DRB fails to give its recommendation within 56 days (or as otherwise approved), within 28 days after the said period of 56 days has expired, give notice to the other party, with a copy to the Engineer-in-Charge, of its intention to commence arbitration proceedings.
- (i) If the DRB has given its decision within the stipulated period, and no notice of intention to commence arbitration as to such dispute has been given by either party within 28 days of the said decision, then the decision of DRB shall become final and binding.

### **3.0 Arbitration**

- (a) Any dispute in respect of which the recommendations (if any) of DRB has not become final and binding, shall be finally settled by arbitration in accordance with the Indian' Arbitration and Conciliation Act, 1996, or any statutory amendment thereof.
- (b) The Arbitral Tribunal will comprise three Members, one each to be appointed by the Procuring Entity and the Contractor. The third Member, who will also act as the presiding Member, will be appointed by mutual consent of the first two Members. If the parties fail to reach an agreement on the third Member then on request of either or both parties, appointment will be made by concerned Administrative Department in case of Government Departments and Head of the Organisation (Chairman, etc.) concerned in other cases.
- (c) The Tribunal shall have full power to open up, review and revise any certificate, determination, instruction, opinion or valuation of the Engineer-in-Charge, and any decision of the DRB, relevant to the dispute.
- (d) Neither party shall be limited in the proceedings before the Tribunal to the evidence or arguments previously put before the DRB to obtain its decision, or to the reasons for dissatisfaction given in its notice of dissatisfaction.
- (e) Arbitration may be commenced prior to or after completion of the Works. The obligations of the Parties, the Engineer-in-Charge and the DRB shall not be altered by reason of any arbitration being conducted during the progress of the Works.

### **4.0 Language**

All proceedings before DRB/ arbitral tribunal shall be in the Language of the Contract/ English.

### **5.0 Terms and conditions for engagement of DRB Member and Chairman**

The terms and conditions including the remuneration and other facilities to be given to the Members of DRB and Arbitrators in case of civil engineering construction contracts/ consultancies shall be as notified by the State Government from time to time. Each Party to

## SECTION VI: GENERAL CONDITIONS OF CONTRACT

the Contract (the Contractor/ Consultant) shall be responsible for paying one-half of the remuneration. Since the fee structure has to be agreed by both the parties i.e. Procuring Entity and Contractor/ Consultant, the fee structure may also be got accepted by the respective Contractor/ Consultants. In the contracts the fee structure may be included as part of the bidding documents/ contract documents and the acceptance of the fee structure by the Contractors/ Consultants may be kept as a pre-condition for signing the Contract.

**SECTION VII: Contract Data / Special Conditions of Contract**

Ref. to GCC	Subject	Data
1.1	Procuring Entity's designation and address are:	OFFICE OF THE Director and Joint Secretary, Directorate of Local BodiesG-3 Rajmahal Residency Area,Civil Lines Railway crossing, C SchemeJAIPUR – 302017, Country: India.Telephone: +91 141 2222403 Fax: +91 141 2222403 E-mail address: <a href="mailto:dlbrajasthan@gmail.com">dlbrajasthan@gmail.com</a> , <a href="mailto:cedlbp@gmail.com">cedlbp@gmail.com</a>
	The Name of Work is:	Rate Contract for Design, Supply, Construction, Testing, Trial run and commissioning of 5 KLD,10 KLD,15 KLD,20 KLD,25 KLD and 35 KLD FSTPs towards Faecal Sludge & Septage Management (FSSM) with 10 years operation and maintenance including supply, testing of vehicle mounted suction machine for faecal sludge desludging
	The Site is:	Various ULBs of Rajasthan State
	Engineer-in-Charge's Designation and Address and communication details are:	Engineer designated by the Procuring Entity"
	Defect Liability Period (DLP)/ Defect Notification Period (DNP) is	The DLP/DNP is 365 Days after the date of issue of Completion Certificate.
	The Time for Completion and the Intended Completion Date are:	250 days including trial run period.
	The Department is:	Local Self Government Department, Government of Rajasthan, Jaipur
1.1.1.6		<b>Letter of Acceptance</b> means the letter of formal acceptance,

## SECTION VII: Contract Data / Special Conditions of Contract

		signed by the Procuring Entity. NTP also issued by the Procuring Entity.
1.1.2.5		Engineer in Charge appointed by Procuring Entity
1.1.2.7	Parties and Persons	The Procuring Entities personnel shall include but not limited to any consultant appointed by the procuring entity, the Department and/ or the Representative.
1.1.6.3		Department means Local Self Government Department, Government of Rajasthan.
1.3	Communication:	Electronic transmission shall include e-mail; fax etc. and delivered shall include their transmission sent successfully to correct address.
1.4	The Language of the Contract is:	English
1.8.1	Signing of the Contract Agreement:	Within 15 Days of issue of notification of the award. The agreement shall be signed individually with each work order or NTP separately.
1.8.2	Signed copy of Contract Document to be given to Contractor	The Contractor shall provide to Engineer in charge 6 photocopies of the signed Document provided to him by the Procuring Entity.
1.14	Care and Supply of documents	Add: The Contractor shall maintain standard Site Order Books at the Site at all times during the execution of the Works for the use of the Engineer-in-charge and the Contractor. All instructions issued by the Engineer-in-charge to the Contractor shall be recorded in duplicate in the Site Order Book and shall be signed by the issuer and counter signed by the Contractor. After compliance with the instruction, the Contractor shall record the same in the Site Order Book duly signed and countersigned by the Engineer-in-charge. Acceptance of any part of the Works executed by the Contractor shall be subject to verification with respect to compliance of respective instructions of the Engineer-in-charge through the Site Order Book. The Engineer-in-charge shall retain the original copy of the site orders, while the Contractor shall retain the duplicate ones.
3.2A	Role of Consultant Appointed by Procuring Entity as per Guidelines, if	Not with standing any other provision under the Contract, the Consultant appointed by Procuring Entity as the guidelines shall be jointly responsible for all activities including Quality & Safety, if any



## SECTION VII: Contract Data / Special Conditions of Contract

	any	
4.1.5	Requirement of designing by the Contractor:	<p>All designs, drawings, etc shall be done by the contractor at his own cost.</p> <p>Detailed Project Inception Report of each towns will also be prepared by the contractor and will submit three copies to Procuring entity in 30 days after award of work but before commencement of work. Necessary modification/corrections as suggested by the Procuring entity/consultants appointed by Procuring Entity, if any/ULB shall be done by the contractor. Total 2.0 lacs for each Detailed Project Inception Report will be paid to the contractor through Provisional Sum.</p> <p>Prior to commencement of the Tests on Completion, the Contractor shall prepare, and submit to the Engineer-in-charge operation and maintenance manuals in accordance with the Procuring Entity's Requirements and in sufficient detail for the Procuring Entity to operate, maintain, dismantle, reassemble, adjust and repair the Works. The Works shall not be considered to be completed for the purposes of taking-over until such operation and maintenance manuals have been submitted to the Engineer-in-charge for the entire system.</p>
4.3.1	Performance Security	<p>Replace GCC Clause 4.3.1 (i to vi) with the following:</p> <p>Performance Security amounting to total 3% of contract value shall be submitted as follows:</p> <p>(v) Contractor shall submit Performance Security @ 3% in advance at the time of signing of agreement in form of BG as per latest rules under RTPP act. The BG should be issued by any nationalized / schedule bank and shall remain valid up to 60 days beyond defect liability period. Bank Guarantee submitted against the performance guarantee, shall be unconditional and encashable/inviolable at the respective town for which tenders are invited or at Jaipur when presented in specified Branch Office.</p> <p>(vi) The Contract value shall be split town wise for the purpose of Performance Security. The Performance Security shall be submitted for each work order/NTP of value 3% of the Contract amount of those towns.</p> <p>If there is no reason to retain the Performance Security, it shall be returned back to the contractor within 60 days after the satisfactory completion of the defect liability period, subject to submission of fresh Performance Security valid for the entire O&amp;M period, of an amount equal to 1.5% of total contract value or 50% of the total O&amp;M cost, whichever is higher.</p> <p>Or</p> <p>Contractor may opt option of deduction of 3% of the gross amount of the running bill from each running bill and same shall</p>

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		<p>be refunded as per rules on completion of the contract as per terms and conditions.</p> <p><b>Additional Performance Security-</b> In addition to Performance Security as specified in rule 75, an Additional Performance Security shall also be taken from the successful bidder in case of unbalanced bid. The Additional Performance Security shall be equal to fifty percent of Unbalanced Bid Amount. The Additional Performance Security shall be deposited in lump sum by the successful bidder before execution of Agreement. The Additional Performance Security shall be deposited through e-Grass, Demand Draft, Banker's Cheque, Government Securities or Bank Guarantee.</p> <p><b>D.</b> Unbalanced Bid means any bid below more than fifteen percent of Estimated Bid Value.</p> <p><b>E.</b> Estimated Bid Value means value of subject matter of procurement mention in bidding documents by the Procuring Entity.</p> <p><b>F.</b> Unbalanced Bid Amount means positive difference of eighty five percent of Estimated Bid Value minus Bid Amount Quoted by the bidder.</p> <p><b>G.</b> As per FD rules</p>
4.3.5	Refund of Performance Security	<p>Add:</p> <p><b>C.</b> Security deposit deposited as per clause 4.3 (i) above, shall be refunded within 60 days after the satisfactory completion of the Defect Liability Period subject to submission of fresh PG (for O&amp;M) as per clause 4.3.1 (iii) above.</p> <p><b>D.</b> 50% of this SD deposited for O&amp;M, as per 4.3.1 (iii), shall be refunded at completion of O&amp;M at the end of 5<sup>th</sup> year. The remaining PG of last five years shall be refunded after completion of contract in all respect.</p> <p><b>Refund of Additional Performance Security:</b></p> <p>The Additional Performance Security shall be refunded to the contractor after satisfactory completion of the entire work. The Additional Performance Security shall be forfeited by the Procuring Entity when work is not completed within stipulated period by the contractor. Provision for 'Unbalanced Bid' and 'Additional Performance Security' shall be mentioned in the Bidding Documents by the Procuring Entity."</p>
4.4	Commencement of the Works	The Works shall be commenced within a period of 7 Days from the date of Notice to Proceed.
4.9.1	Third Party Quality Inspections	<p>Shall be conducted</p> <p>Consultant Referred in clause 3.2A (Role of Consultant appointed by Procuring Entity, if any shall be responsible for</p>

## SECTION VII: Contract Data / Special Conditions of Contract

	as per ISO 17020 by a Departmental Authority or QCI approved/ accredited	ensuring safety and quality during execution of the contract.
4.14	Avoidance of Interference with public conveniences	<p><b>Add</b></p> <p><b>In case any operation connected with the works necessitates diversion, obstruction or closure of any road, railway, waterway or any other right of way, the approval of the Engineer-in-charge or the Engineer's Representative and the respective competent authorities shall be obtained well in advance by the Contractor. In case the Contractor's operations obstruct access to adjacent properties, the Contractor shall be responsible to provide reasonable temporary access to the affected parties. In case the Contractor fails to provide adequate temporary facilities, this shall be deemed to be an uncorrected Defect under the terms of Clause 31 and the Procuring Entity shall have the right to engage a third party to correct the Defect and the cost of such correction will be deducted from the Contract Price.</b></p> <p><b>The contractor will also be responsible to ensure completion of his work with utmost effort in earliest possible period to ensure minimum inconvenience to the public at large. If in the opinion of the Engineer in Charge, the work has not been done in time and the passage way not restored satisfactorily in time, he may after giving a notice of seven days have the work done through any other agency. He will in these circumstances enter the work done as work done by the contractor in measurement book and pay for the same to the contractor and also recover the actual cost paid by him for the work plus 5% of the value of this work from the payments or any other money due to the contractor.</b></p>
4.18	Cost of water & electricity	<p><b>Add:</b></p> <p><b>Charges for power connection for trial run, commissioning and O&amp;M purpose shall be deposited by contractor from provisional sum and the same shall be reimbursed to contractor. Power bill payment during O&amp;M period shall not be part of O&amp;M cost.</b></p>
4.19	Issue of Procuring Entity' equipments and materials, if	None

## SECTION VII: Contract Data / Special Conditions of Contract

	any:																												
4.24	<b>Completion Plans to be Submitted by the Contractor</b>	Replace 30 days by 50 days																											
6.3.1	Employment of Technical Staff and other Employees	<p>Add:</p> <p>The list of technical staff and personnel required during the execution period and during the O&amp;M period is given in the Tender Document.</p> <p>In case the contractor does not engage the staff as specified in this section, the EIC shall deduct amount from the running bills as indicated below and shall engage staff on his own:</p> <p>During Design - Build</p> <table border="1"> <thead> <tr> <th>S.No</th><th>Position required</th><th>Salary to be deducted if not engaged by contractor</th></tr> </thead> <tbody> <tr> <td>1.</td><td>Project Manager</td><td>Rs. 5000 per month</td></tr> <tr> <td>2.</td><td>Site Engineer</td><td>Rs. 3000 per month</td></tr> </tbody> </table> <p>During O &amp; M</p> <table border="1"> <thead> <tr> <th>S.No</th><th>Position required</th><th>Salary to be deducted if not engaged by contractor</th></tr> </thead> <tbody> <tr> <td>1.</td><td>Plant Supervisor</td><td>Rs. 5000 per month</td></tr> <tr> <td>2</td><td>Plant Supervisor</td><td>Rs. 3000 per month</td></tr> <tr> <td>3</td><td>Chemist</td><td>Rs. 3000 per month</td></tr> <tr> <td>4</td><td>Security Guard</td><td>Rs. 3000 per month</td></tr> <tr> <td>5</td><td>Gardner-cum-helper</td><td>Rs. 3000 per month</td></tr> </tbody> </table>	S.No	Position required	Salary to be deducted if not engaged by contractor	1.	Project Manager	Rs. 5000 per month	2.	Site Engineer	Rs. 3000 per month	S.No	Position required	Salary to be deducted if not engaged by contractor	1.	Plant Supervisor	Rs. 5000 per month	2	Plant Supervisor	Rs. 3000 per month	3	Chemist	Rs. 3000 per month	4	Security Guard	Rs. 3000 per month	5	Gardner-cum-helper	Rs. 3000 per month
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6.7	The normal working hours at the Site and Days of rest shall be:	<p>Add</p> <p>9 AM to 5 PM or as per relevant Labour Laws.</p> <p>However, when work is stopped, it should be ensured by the contractor that all safety measures have been taken to avoid any untoward incident during non-working hours.</p>																											
7.3	Inspection	<p>Add:</p> <p><b>The Contractor shall place order for the material and the equipment only after approval of the Engineer-in-charge. The Contractor shall submit the detailed drawings to the Engineer-in-charge for approval.</b></p> <p><b>The Contractor shall inform the Engineer-in-charge about the likely dates of manufacturing, testing and dispatching of the material. The Contractor shall notify the Engineer-in-</b></p>																											

SECTION VII: Contract Data / Special Conditions of Contract

		<p><b>charge for inspection and testing, at least twenty eight (28) days prior to packing and shipping and shall supply the manufacturer's test results and quality control certificates.</b></p> <p><b>The inspection and test categories shall be applied prior to delivery of the equipment, of various categories as indicated in the technical specifications for each type of equipment.</b></p> <p>Further details has been provided in Scope of Work.</p>
8.6,	<b>Extension of Time for Completion</b>	<p>ADD</p> <p>Extension of time, Rate of progress of work, Liquidity Damages for each work order/NTP shall be considered separately based on reason of delays in the work pertaining to that town only as per SOP and Rules of Local Self Government department/ state government for similar nature of works</p>
8.10.1	<b>Suspension of Work</b>	<p>ADD</p> <p>Suspension of work and other related clauses to each work order/NTP shall be considered separately</p>
8.10.2		<p>ADD</p> <p>Suspension of work and other related clauses to each work order/NTP shall be considered separately</p>
8.11	<b>Consequences of Suspension</b>	<p>ADD</p> <p>Suspension of work and other related clauses to each work order/NTP shall be considered separately</p>
8.12	<b>Payment for Plant and Materials in Event of Suspension</b>	<p>ADD</p> <p>Suspension of work and other related clauses to each work order/NTP shall be considered separately</p>
8.13	<b>Prolonged Suspension</b>	<p>ADD</p> <p>Suspension of work and other related clauses to each work order/NTP shall be considered separately</p>
8.14	<b>Resumption of Work</b>	<p>ADD</p> <p>Suspension of work and other related clauses to each work order/NTP shall be considered separately</p>
9.0	<b>Deviations Variations &amp; Adjustments</b>	<p>ADD</p> <p>All Deviations, Variations and Adjustments shall be dealt individually for each work order/NTP.</p>
9.2.1	<b>Deviations/ Variations Extent and</b>	<p>Competent authority is as per prevailing SOP and Rules of Local Self Government department/ state government for similar nature of works. . RTTP rules 2013 shall prevail on the</p>

## SECTION VII: Contract Data / Special Conditions of Contract

	<b>Pricing</b>	<p>final decision under this clause.</p> <p>All deviations, variations and adjustments shall be dealt individually for each work order/NTP</p>
9.2.2	(In case of Lump Sum Contract, Rates of measured up additions and alterations shall be as per applicable BSR or rates of Day Work given be the Contractor and forming part of the Contract)	<p>The concerned Schedule of Rates of the district/ area shall be the prevailing Rajasthan State SOR. RTTP rules 2013 shall prevail on the final decision under this clause.</p> <p>ADD</p> <p>All deviations, variations and adjustments shall be dealt individually for each work order/NTP separately.</p>
9.2.3		<p>ADD</p> <p>All deviations, variations and adjustments shall be dealt individually for each work order/NTP.</p>
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9.60		<p>ADD</p> <p>Detailed Project Inception Report of each towns will also be prepared by the contractor and will submit three copies to Procuring entity in 30 days after award of work but before commencement of work. Necessary modification/corrections as suggested by the Procuring entity/consultants appointed by Procuring Entity, if any/ULB shall be done by the contractor. Total 2.0 lacs for each Inception Report will be paid to the contractor through Provisional Sum.</p> <p>Payment break up will be :</p> <p>1 On Draft submission : 60000/-</p> <p>2 On approval : 60000/-</p> <p>3 On 50% completion of work :40000/-</p> <p>4 On completion of work :40000/-</p> <p>PS may also be used for payment to Third Party Inspection agencies.</p>

## SECTION VII: Contract Data / Special Conditions of Contract

10.3	General Conditions for admissibility of Price Variation	The following is stipulated in the Appendix A, point 18 and 19 of GCC;															
15.3	Schedule of Payments <i>(in case of Lump Sum Contract payments shall be linked to various stages of completion of Works given in the Activity Schedule)</i>	<p>Add:</p> <p><b>5. <u>Payments for FSTP/STP &amp; Associated works</u></b></p> <p><b>a. Payment for Material: With respect to materials and Plant brought by the Contractor to the site for incorporation in the permanent works, No claim shall be made by the Contractor unless the following conditions have been met to the Engineers satisfaction.</b></p> <p>j. The materials and plant are in accordance with the relevant BIS specifications for the works.</p> <p>k. The materials and the plant have been delivered to the site and are properly stored and protected against loss, damage or deterioration.</p> <p>l. The materials are to be used within a reasonable time as decided by the Engineer and the Contractor shall not unnecessarily procure any material or equipment too much in advance.</p> <p><b>b. Other Payments: Payment shall be made in stages for each component as envisaged under</b></p> <table border="1"> <thead> <tr> <th>SI No</th><th>Milestone</th><th>% Payment</th></tr> </thead> <tbody> <tr> <td><b>1</b></td><td><b>Submission &amp; Approval of Design and Drawings of individual site</b></td><td><b>30</b></td></tr> <tr> <td>a.</td><td>Topographical Survey Plan of Site</td><td></td></tr> <tr> <td>b.</td><td>Site Layout Plant</td><td></td></tr> <tr> <td>c.</td><td>GFC (Good for Construction) Drawings (Plan, Sections, elevation) for Individual Components such as Plant Building, Toilet, RCC Tanks, Road, drainage, compound wall, Electrical, Piping &amp; Instrumentation.</td><td></td></tr> </tbody> </table>	SI No	Milestone	% Payment	<b>1</b>	<b>Submission &amp; Approval of Design and Drawings of individual site</b>	<b>30</b>	a.	Topographical Survey Plan of Site		b.	Site Layout Plant		c.	GFC (Good for Construction) Drawings (Plan, Sections, elevation) for Individual Components such as Plant Building, Toilet, RCC Tanks, Road, drainage, compound wall, Electrical, Piping & Instrumentation.	
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## SECTION VII: Contract Data / Special Conditions of Contract

		d	Detailed specifications for bought out items and electromechanical works: make, functional and technical specifications, drawings as applicable.	
		<b>2</b>	<b>Proof of placement of order.</b>	<b>30</b>
		a	Solar system	
		b	Dewatering unit	
		c	Dryer	
		d	Pyrolizer	
		e	Pumps	
		f	Desludging vehicle	
		<b>3</b>	<b>On completion of 30 % of construction works</b>	<b>15</b>
		a	Completion of Plant Building	
		b	Set up of UG Tank	
		c	Completion of compound wall	
		<b>4</b>	<b>On completion of 90 % of construction works</b>	<b>15</b>
		a	Completion of all installation at site and plant is ready for trial run and PG test	
		<b>5</b>	<b>On commissioning of Treatment Plant</b>	<b>10</b>
		a	Trial Run	
		b	Performance Guarantee Test	
			Total	100
		<p>All electricity costs and initial connection charges etc associated with operations shall be paid by Employer directly to the electricity service provider. The power connections shall be obtained in the name of Employer, the charges of which will be paid by Employer directly to electricity department or reimbursed under provisional sum if paid by the Contractor.</p> <p><b>1.1.1 Fixed Payment</b></p> <p><b>Maximum Eligible fixed payment shall be 90% of eligible monthly payment.</b></p> <p>The Fixed Payment shall be paid to the Contractor on monthly basis subject to fulfillment of the following conditions:</p> <p>(a) Maintaining the minimum personnel as specified in contract during the previous month.</p> <p>(b) Compliance with the obligations under the Contract.</p>		



Contractor is eligible to get full 90% of the agreed Operation Services Payment as fixed Payment only if he achieves performance indicators sufficient enough to get 50% of the maximum Performance Payment. In case the Contractor gets less than 50% of the maximum Performance Payment of 30%, deductions shall be made from the fixed Payment for below satisfactory or inferior performance.

Performance Payment payable to the Contractor during the payment period (As percentage of total agreed Payment for Operation Services for the corresponding payment period)	Fixed Payment payable to the Contractor (As percentage of total agreed Payment for Operation Services for the corresponding payment period)
10% or More	90%
Less than 10% but more than or equal to 5%	80%
Less than 5%	70%

## 1.2 Performance payment and damages

Payment will be made from date of commissioning of FSTP and initial/final taking over of plant. Performance payment for each indicator will be made only after meeting the performance criteria.

### 1.2.1 Performance-based payment for FSTP

Breakup for various criteria in sewerage system is as given below:

S.N.	Parameter & reference	% of eligible monthly Operation Service payment
1	B-I-(i) Achieving effluent parameters	5
2	B-I-(ii) Continuous operation of FSTP	5
	<b>TOTAL</b>	<b>10%</b>

## 6. Performance Target and Measurement

		<p><b>A. Definitions</b></p> <p><b>Sewerage Services</b> shall include but not limited to, the operation, maintenance and repairs of all new assets created for the Sewerage system to be kept in operation to deliver the services, and its sewage treatment including pumping station/s, operation &amp; maintenance and recycling &amp; reuse of treated sewage etc within specified time period etc.</p> <p><b>C. Methodology for Measurement of Performance</b></p> <p>The Contractor shall develop a robust methodology and framework for measurement and monitoring of Performance Standards stipulated under this clause. The Employer shall review the same and upon agreement between the Parties, the agreed methodology shall form the basis for monitoring the performance of the Contractor and apply the Performance Payment.</p> <p><b>D. Parameter, Minimum Service Level, Measurement and Monitoring System of Performance Indicators/Standards</b></p> <table border="1"> <thead> <tr> <th>S.No.</th><th>Description</th><th>Details</th></tr> </thead> <tbody> <tr> <td>1.</td><td>Parameter</td><td>Achieving effluent parameters</td></tr> <tr> <td></td><td>Minimum Service Level</td><td>           98% of the daily composite sample tested for various parameters stated below shall be within limits specified against each of them             BOD –            G. To be less than 10 mg/l            H. TSS - To be less than 20 mg/l            I. COD – To be less than 50 mg/l         </td></tr> <tr> <td></td><td>Measured By</td><td>           Daily composite sample made out of 24 hourly samples taken from the outlet of the CCT of the FSTP shall be tested in the in house lab and the results obtained are converted into electronic register.             100 X no. of samples complying to individual parameter standard / Total number of samples         </td></tr> </tbody> </table>	S.No.	Description	Details	1.	Parameter	Achieving effluent parameters		Minimum Service Level	98% of the daily composite sample tested for various parameters stated below shall be within limits specified against each of them  BOD – G. To be less than 10 mg/l H. TSS - To be less than 20 mg/l I. COD – To be less than 50 mg/l		Measured By	Daily composite sample made out of 24 hourly samples taken from the outlet of the CCT of the FSTP shall be tested in the in house lab and the results obtained are converted into electronic register.  100 X no. of samples complying to individual parameter standard / Total number of samples
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## SECTION VII: Contract Data / Special Conditions of Contract

				This figure shall be minimum 98%.
			Monitored By	An electronic registry/online monitoring system developed and maintained by the Contractor; from the laboratory results received.  The database shall include:  I. Date of sampling.  J. Date of testing by laboratory.  K. Results against each parameter.
			Allowable Exclusions	Nil
		<b>2</b>	<b>Parameter</b>	<b>Continuous Operation of FSTP</b>
			Minimum level	100% of times
			Measured by	For the period under review:  The number of hours FSTP is operating X 100 / Total number of hours
			Monitored by	Electronic registry from the PLC log data of operating time of pumps / all working units for the period under review
15.5	Minimum amount of an Interim Payment Certificate shall be:	Generally be 1% of the Accepted Contract Amount however it can be reduced as per decision of Engineer in Charge.  <b>The certified running payment shall be made within 28 days to expedite the progress of work by Engineer in charge or procuring Entity.</b>		
15.12	<b>Payment of Final Bill</b>	With in 60 days of submission of bill		
15.15	Advance Payment for mobilization for execution of the Works:	There is no provision of mobilization advance.		
15.16	<b>Secured Advance on Non-Perishable</b>	Within Five months		

## SECTION VII: Contract Data / Special Conditions of Contract

	<b>Materials</b>  <i>(Not applicable in case of Lump Sum Contract)</i>	
15.20	<b>Levy or Taxes payable by Contractor</b>	All applicable taxes prevailing as on date and amended time to time
20	Insurance	<p>The details of Insurance covers to be obtained by the Contractor and the Procuring Entity, including their value, terms and extent of coverage and other terms and conditions shall be as under:</p> <p>The minimum amount of Third Party Liability insurance cover shall be <b>Rs 10,00,000</b> (Rupees Ten Lakhs only) for each town per occurrence or event, with the number of occurrences not less than four. The Contractor shall promptly notify the Project Manager of each claim made under the Third Party Liability coverage, and shall renew the Third Party Insurance after each such occurrence in order to maintain the number of covered occurrences at not less than four.</p> <p>The minimum coverage against damage to the Works and materials during construction shall be <b>Rs. 12,00,000</b> (Rupees Twelve Lakhs only) for each town.</p> <p>The entire cost of insurance as stipulated in clause 20 of GCC shall be borne by the contractor. The Insurance covers shall be handed over by one Party to the other Party at the time of signing of the Contract Agreement. Insurance covers should be renewed by the contractor before its expiry.</p>
21.2	<b>Contractor's Claims</b>	Contractor's claim will not be more than 10% of Contract Price.

## SECTION VIII: Contract Forms

### 1 Letter of Intent

#### Letter of Intent

***[on letterhead paper of the Representative]***

No. ....

***Dated*** .....

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

Subject: . . . . . ***[Notification of Award for the Works]*** .....

This is to notify you that your Bid dated . . . . ***[date]*** . . . . for execution of the . . . . .  
***[name of the contract and identification number, as given in the Contract Data]*** . . . .  
. . . . . for the Accepted Contract Amount of the equivalent of . . . . . ***[amount in numbers and words and name of currency]*** . . . . ., as corrected and modified in negotiations and in accordance with the Instructions to Bidders has been accepted by Director and Joint Secretary, Directorate of Local Bodies(DLB)..... The date of commencement and completion of the Works shall be: .....

You are requested to furnish the Performance Security/ within ..... Days in the form given in the Contract Forms for the same for an amount equivalent to Rupees ..... within ..... days of notification of the award valid up to 60 days after the date of expiry of Defects Liability Period and maintenance period, if applicable, and sign the Contract, failing which action as stated in sub-section 2 of section 42 of the Rajasthan Transparency in Public Procurement Act, 2012 and Instructions to Bidders shall be taken.

Authorized Signature: .....

Name and Title of Signatory: .

Designation:

## 2 Contract Agreement

### Contract Agreement

THIS AGREEMENT made the . . . . . day of . . . . ., . . . . ., between the Governor of Rajasthan/ . . . . . [ULB Name]. . . . . (hereinafter “the Procuring Entity”) which expression shall, where the context so admits, be deemed to include his successors in office and assigns, of the one part, and . . . . . [***name of the Contractor***] . . . . . (hereinafter “the Contractor”), which expression shall, where the context so admits, be deemed to include his heirs, successors, executors and administrators, of the other part:

WHEREAS the *Procuring Entity* desires that the Works known as ----- (Name of Work) ----- should be executed by the Contractor, and has accepted a Bid by the Contractor for the execution and completion of these Works and the remedying of any defects therein, and for which the Contractor has submitted Performance Security for Rupees ----- in the form of ----- (For ULB Name)

The Procuring Entity and the Contractor agree as follows:

- (i) In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
- (ii) The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents.
  - a. the Letter of Acceptance;
  - b. the Bid of the Contractor as accepted along with the correspondence done on it, if any;
  - c. the Special Conditions of Contract/ Contract Data;
  - d. the General Conditions of Contract;
  - e. the Specifications;
  - f. the Drawings; and
  - g. the Instructions to Bidders and Notice Inviting Bids.
- (iii) In consideration of the payments to be made by the Procuring Entity to the Contractor as indicated in this Agreement, the Contractor hereby covenants with the Procuring Entity to execute the Works and to remedy defects therein (and, if applicable, maintain the Works for a period of -----) in conformity in all respects with the provisions of the Contract.
- (iv) The Procuring Entity hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein (and, if applicable, maintain the Works for a period of -----), the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of India and Rajasthan on the day, month and year indicated above.

Signed by .....

Signed by .....

for and on behalf of the Governor/ Procuring Entity for and on behalf the Contractor

in the presence of

in the presence of

## SECTION VIII: CONTRACT FORMS

Witness, Name, Signature, Address, Date  
Address, Date

Witness, Name, Signature,

### 3 Performance Security

#### Performance Security

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

**Beneficiary:** ..... ***ULB*** .....

**Date:** .....

**Performance Guarantee No.:** .....

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

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

At the request of the Contractor, we . . . . . ***[name of the Bank]*** . . . . . hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of Rupees\* . . . . . ***[amount in figures]*** . . . . . (Rupees..... ***[amount in words]*** . . . . . ) such sum being 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.

The Guarantor agrees to extend this guarantee for a specified period in response to the Procuring Entity's written request for such extension for that specified period, provided that such request is presented to the Guarantor before the expiry of the guarantee.

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

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

***\* The Guarantor shall insert an amount representing the percentage of the Contract Price specified in the Contract***

***\*\* Insert the date sixty days after the expected completion date, including defect liability period and maintenance period, if any.***

***Notes: 1. All italicized text is for guidance on how to prepare this advance payment guarantee and shall be deleted from the final document.***

***2. The Procuring Entity should note that in the event of an extension of the time for completion of the Contract, the Procuring Entity would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee.***



## **Section IX- Preamble to Bill of Quantities (BoQ)**

- 1.1 The Contract is a to provide faecal sludge and septage management system (collection, transportation, desludging and treatment of faecal sludge and septage) for urban local bodies in the stipulated quantities and of the stipulated quality, including but not limited to design, manufacture, including procurement, delivery, construction, installation, testing, commissioning and completion of the faecal sludge treatment facilities, as well as operation and maintenance of the of same for the specified period, all in consonance with the Employer's Requirements including supply, testing & commissioning of vehicle mounted suction machine for faecal sludge desludging. All works essential to arrive to the goal are part of the contract. The specifications and the price schedules endeavor to cover all the essential features of the Contract. However, if any items are missing and have not been included in the BoQ and are essential for satisfactory completion of the Works and their subsequent operation and maintenance, such work will be deemed to have been included as a part of the Contract Price under the prices quoted for other items.
- 1.2 The Bidder is required to acquaint himself about the site conditions, access to the Site, and availability of sites for treatment plant and equipment. No extra item will be paid on account of site-specific requirements to complete the work.
- 1.3 Nomenclature of Items in BoQ:
  - 1.3.1 The prices of various items of work are to be quoted either as Item Rates or as Lump Sums (LS), as deemed suitable to complete the work in all respect.
  - 1.3.2 Items for which prices are to be quoted on an item rate basis shall be paid on measurement in the units as prescribed for the work actually carried out.
  - 1.3.3 Items for which prices are to be quoted on a LS basis are to be carried out in full as per the details provided in the employer's requirement, as specified elsewhere in the document, and as per normal and good engineering practice to ensure its completeness and functionality. This will also include all necessary finishing and site clearance.
  - 1.3.4 The Bidder is advised to examine all instructions, forms, terms, specifications and other information in the bidding documents and consider and evaluate fully the price implications therein contained before filling the lump sum prices.
  - 1.3.5 Item nomenclature do not generally give a full description of the work to be executed and the services to be performed under each item. Bidders shall be deemed to have read the Employer's Requirements and other sections of the bidding documents and reviewed the drawings to ascertain the full scope of the requirements included in each item prior to filling in the rates and prices.
  - 1.3.6 Any minor items that are not specifically mentioned in the BoQ or specifications, but which are required to be carried out for satisfactory completion of the item as per good engineering practice, shall be deemed to form a part of the scope of the relevant item. The tendered rates and prices shall be deemed to include for the full scope as aforesaid, including overheads and profit.
  - 1.3.7 Sundry and miscellaneous works are required to be done to complete the work under any BoQ item or part thereof. The Bidder is required to include the costs of all such work in his tendered prices for the relevant item(s), and the Employer will not be liable for any additional costs that may be incurred for satisfactory completion of the work.
  - 1.3.8 Bidder has to check the field data related to the FSTP site before bidding and no extra payment will be made towards unforeseen geotechnical condition i.e. rock, water table, drains, nallah, river protection etc.

## SECTION IX : PREAMBLE OF BoQ

- 1.3.9 In view of the site location and their prevailing condition, it is mandatory to the Contractor to visit the site and make himself thoroughly familiar with the site conditions, access and account for all possible difficulties and other requirements mentioned elsewhere in his bid prior to submission. When a contractor submits his bid for this work, it will be considered that he has quoted for this work with full and complete knowledge of the site and prevailing conditions, and no claim for additional compensation shall be entertained on this account.
- 1.3.10 To facilitate progress payments, the Lump Sum items may be split into further sub-heads during execution, with appropriate prices assigned to each of the sub-heads so that their total equals the agreed price. The successful bidder will have to make the proposal during or before the initial stage of starting the relevant work, and the cost breakdown will be applicable after approval of the Employer's Representative.
- 1.3.11 Submissions shall be strictly in accordance with the documents and shall not be qualified in any way. The Bidder shall not alter the text of the BOQ.
- 1.3.12 The Bidder shall, in the course of studying the bid document, point out all his/her remarks on the documents and make all his/her queries to the Employer who will study these remarks and clarify any discrepancy between the Bidding Documents.
- 1.3.13 Extra and excess items of work shall not vitiate the Contract. The Contractor shall be bound to execute extra items of work as directed by the Engineer. The rates for extra items will be as per rates decided under Contract Conditions.
- 1.3.14 For the evaluation process, if requested by the Evaluation Committee, the Contractor shall provide a sheet analysis for all priced items showing how the rate entered was derived.
- 1.3.15 The Bidder is advised to cover all taxes and duties etc. applicable in the quoted rates i.e. all taxes and duties to be borne by the successful bidder.
- 1.3.16 All dismantling/ excavation items will include disposal of excavated surplus soil/material will all lead and lift. No extra payment for transportation for disposal of material or stacking in store etc will be paid.
- 1.3.17 The Bidder shall be deemed to have included in his tendered prices provisions for all things necessary for completing the item in accordance with the specifications and terms of the biddings documents, including but not limited to site clearance, maintenance, provisions and removal of all temporary works of whatsoever nature required for construction including temporary accesses, diverting water, pumping, dewatering, etc., and site restoration and cleanup upon completion. The prices shall also be deemed to include any works and setting out that may be required to be carried out for laying out of all the works involved, liaison with the State Electricity Board and other Government/ Regulatory bodies for obtaining clearances/ approval, and co-ordination among various Government/ Regulatory bodies.
- 1.3.18 Provisional Sum items normally include payments that are required to be made by the Contractor to other government/ semi-government agencies and/or third party inspection agencies and/or nominated subcontractors for plant, materials, works, services or facilities which are not otherwise included under or implied by the terms of contract, Employer's Requirements, Detailed project inception report preparation, and/ or the BoQ. Such items may include, but will not necessarily be limited to, third party inspection fees as well as payments to other departments for works or services related to design approvals, relocation of utilities, connection charges, supervision and inspection fees levied by the Department, etc. Provisional sums will only be used, in whole or in part, in accordance with the instructions of the Employer's Representative. Payment will be made under the Provisional Sum item in accordance with the terms and conditions set forth in the document.

## SECTION IX : PREAMBLE OF BoQ

- 1.4 Measurements - Measurements for the various items of work will be carried out as per the stipulations in Section 5, Employer's Requirements, Standard Specifications (Civil Works), BIS and QA-QC manual.
- 1.5 The Bidder shall satisfy himself/herself as to the meaning of every item in the BOQ. The rates and prices inserted in the BOQ by the bidder shall be deemed to cover all costs, taxes, customs and import duties, levies, profits, risks, liabilities, insurance, and obligations set forth or implied in the bid, as well as proper operation, maintenance and management of the Works including, but not limited to the following:
  - (i) All labour and Materials including consumables.
  - (ii) All temporary work of every description required including over ground pumping and other requirements to avoid disruption to the service whilst maintenance or repair work is carried out.
  - (iii) The provision and use of all equipment, tools and Plant of every kind, whether mechanical or non-mechanical, required for the expeditious carrying out of the Works in their proper sequence.
  - (iv) Provision for scaffolding, staging, guard rails, temporary stairs, temporary access during execution, approach roads up to the Site for the movement of vehicles, and heavy excavation machinery with supporting transport facility.
  - (v) Provision for excavation, back-filling, bringing to the Site extra fill for back-fill, making good and reinstating surfaces, disposing of surplus material, dealing with all ground water and wastewater flows, and for work in close proximity to other utility apparatus including protecting that apparatus.
  - (vi) Provision for work on pipeline corridors such as traffic control measures, safety barriers, obtaining any approvals and permits from authorities, and reinstatement of surfaces.
  - (vii) Cooperation and coordination of the work with related authorities, other contractors, and utilities, including obtaining their permission before starting the related Works if required; and
  - (viii) Providing security arrangements to guard the Site and premises at all times and to maintain strict control on the movement of Materials and labor until the completion of the work.
  - (ix) Excise exemption/ custom duty exemption certificates in the format provided in the Bid document will be issued in favour of named supplier proposed by the Contractor.
- 1.6 All electricity costs and initial connection charges etc associated with operations shall be paid by Employer directly to the electricity service provider. The power connections shall be obtained in the name of Employer, the charges of which will be paid by Employer directly to electricity department or reimbursed under provisional sum if paid by the Contractor.
- 1.7 The serviceable materials, recovered while shifting of utilities as ascertained by the Engineer, shall be deposited at designated store yards or as directed by the Engineer. No payment shall be made to the Contractor in this regard.
- 1.8 All rules and regulations of the labor department, contract labor Laws, provident fund and employee state insurance and connected Laws, and all other Laws of the land are to be complied with by the Bidder within the quoted rates.
- 1.9 No land will be provided by the Employer to the Contractor for constructing any structure for his labor, workman and supervisory camps, un-authorized hutments, at the Site or within the premises. The Contractor shall make his/her own arrangements for the same outside the premises/boundary. These, if any, shall be with the knowledge of and prior approval of the Employer's Representative.
- 1.10 Bidder has to do registration of desludging vehicle in the name of concerned ULB and charges for this will be reimbursed from the Provisional Sum.
- 1.11 Provisional Sum Rs 20.00 lacs fixed for the proposes as per bid document for 5 KLD, 10 KLD, 15 KLD, 20 KLD, 25 KLD, 35 KLD for each lot separately.