

SARANAM AYYAPPA
**HIGH POWER COMMITTEE FOR THE IMPLEMENTATION
 OF SABARIMALA MASTER PLAN**

TRAVANCORE DEVASWOM BOARD HEADQUARTERS, NANTHENCODE,
 THIRUVANANTHAPURAM -695 003

Operation and Maintenance of the 5MLD Sewage Treatment Plant established at Sannidhanam, Sabarimala based on Biological Treatment Process (UASBR + SBR) for the period from 11th March 2019 to 31st January 2020 by engaging Labour, Supply of Lab Consumables etc.

1.0 SCOPE OF WORK

1.1 Definitions:

- 1.1.1 In the Contract** (as hereinafter defined) the following words and expressions shall have the meanings hereby assigned to them except where the context otherwise requires.
- 1.1.2 “Employer”** means the High Power Committee for the Implementation of Sabarimala Master Plan and the legal successors in title to HPC.
- 1.1.3 “Engineer”** means the person appointed by HPC / TDB to act as Engineer for the purposes of the Contract.
- 1.1.4 “Contractor”** means the firm/ contractor who undertaken the work.
- 1.1.5 “Contract”** means these conditions, the Specification, the Bill of Quantities, the Tender, the Letter of acceptance, the Contract Agreement (if completed) and such further documents as may be expressly incorporation in the letter of Acceptance or Contract Agreement (if completed).
- 1.1.6 “Specification”** means the specification of the Works included in the Contract and any modification thereof.
- 1.1.7 “Drawings”** means all the completion drawings, calculations and technical information of a like nature provided by the Engineer to be Contractor under the Contract and all drawings, calculations, samples, patterns, models, Repair and Repair and Maintenance manuals and other technical information of a like nature submitted by the Contractor and approved by the Engineer.
- 1.1.8 “Bill of Quantities”** means the priced and completed bill of quantities forming part of the tender.
- 1.1.9 “Tender”** means the Contractor’s priced offer to the Employer for the execution and completion of the works and the remedying of any defects therein in accordance with the provisions of the Contract, as accepted by the Letter of Acceptance. The word Tender is synonymous with “Bid” and the words “Tender Documents” with “Bidding Documents”.
- 1.1.10 “Letter of Acceptance”** means the formal acceptance of the tender by SABARIMALA SANNIDHANAM.
- 1.1.11 “Contract Agreement”** means the contract agreement (if any) referred to in Sub-Clause.
- 1.1.12 “Appendix to Tender”** means the appendix comprised in the form of Tender
- 1.1.13 “Commencement Date”** means the date upon which the Contractor receives the notice to commence the works.
- 1.1.14 “Time for completion”** means the time period for which the contract of Repair & operation and Maintenance has been awarded by the employer to the contractor.
- 1.1.15 “Taking over Certificate”** means a certificate issued by employer evidencing successful completion of the awarded work.

- 1.1.16 “Contract Price”** means the sum stated in the Letter of Acceptance as payable to the Contractor for the execution and completion of the Works and the remedying of any defects therein in accordance with the provisions of the Contract.
- 1.1.17 “Retention Money”** means the aggregate of all monies retained by the Employer.
- 1.1.18 “Works”** means the Permanent Works and the Temporary Works or either of them to be executed in accordance with the contract.
- 1.1.19 “Site”** means the places provided by the Employer at **Sabarimala Sannidhanam**
- 1.1.20 “Cost”** means all expenditure properly incurred or to be incurred, whether on or off the site, including overhead and other charges but does not include any allowance for profit.
- 1.2 Engineers Duties and Authority:** The Engineer shall carry out the duties specified in the Contract.
- 1.3 Custody and Supply of Drawings and Documents:** The Drawings shall remain in the sole custody of the employer/ Engineer, but copies as required thereof as per availability in the record shall be provided to the Contractor free solely for the purpose of this contract.
- 1.4 Sufficiency of Tender:** The Contractor shall be deemed to have based his Tender on the data made available by the employer and on his own inspection and examination of this site conditions.
- 1.5 Contractor’s Employees:** The Contractor shall provide on the site qualified and experienced technical staff in connection with the Operation and Maintenance of the STP and the remedying of any defects therein. The minimum staff shall be as per description of work mentioned.
- 1.6 Engineer at Liberty to object:** The Engineer shall be at liberty to object to and request the contractor to remove forthwith from the Works any person provided by the contractor who, in the opinion of the Engineer, misconducts himself, or is incompetent or negligent in the proper performance of his duties, or whose presence on Site is otherwise considered by the Engineer to be undesirable, and such person shall not be again allowed upon the Works without the consent of the Engineer. Any person so removed from the works shall be replaced as soon as by a qualified person approved by the Engineers.
- 2.0 Safety, Security and Protection of the Environment:** The Contractor shall, throughout the execution and completion of Works and the remedying of any defects therein:
- 2.1** 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 Employer) in an orderly state appropriate to the avoidance of danger to such persons, and
- 2.2** Provide and maintain at his own cost all lights, guards, fencing, warning signs and watching, when and where necessary or required by the Engineer or by any duly constituted authority for the protection of the Works or for safety and convenience to the public or others, and
- 2.3** Take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods or Repair.

- 3.0 Damage to Persons and Property :**The sole responsibility lies with the contractor of the persons employed by his agency/ firm against all losses and claims in respect of:
- 3.1** Death of or injury to any person, or
- 3.2** Loss or damage to any property (other than the Works):
Which may arise out of or in consequence of the Repair and Maintenance of the works and the remedying of any defects therein, and against all claims, proceedings, damages, costs, charges and expenses whatsoever in respects thereof.
- 4.0 Accident or injury to Workmen:** The Employer shall not be liable for or in respect of any damages or compensation payable to any workman for death or injury resulting from any act or default of the contractor. The Contractor shall indemnify and keep indemnified the Employer against all such damages and compensation and expenses whatsoever in respect thereof or in relation thereto.
HPC shall not be liable for or in respect of any damages or compensation payable to any workman under Compensation – Act for death or injury resulting from any act or default of the contractor. The contractor shall indemnify and keep indemnified the HPC against all such damages and compensation and expenses whatsoever in respect thereof or in relation thereto.
- 5.0 Evidence and Terms of Insurance:** The Contractor shall take out appropriate insurance to cover his work and workers and staff employed by him fully. The contractor shall provide evidence to the Engineer/ Employer as soon as practicable after the respective insurance has been taken out but in any case prior to the start of work at the Site that insurance required under the Contract have been effected.
It shall be the responsibility of contractor to notify the Insurance Company of any change in the nature and extent of the works and to ensure the adequacy of the Insurance cover at all times during the period of contract.
- 6.0 Compliance with Statutes, Regulations:** The Contractor shall confirm in all respects, including by the giving of all notices and the paying of all fees, with the provision of: Any National or State statute, Ordinance, or other Law, or any regulation, or bye-law of any local or other duly constituted authority in relation to the execution and completion of the Works and the remedying of any defects therein, and
The rules and regulations of all public bodies and companies whose property or rights are affected or may be affected in any way by the Works, and the contractor shall keep the Employer indemnified against all penalties and liability of every kind for breach of any such provision.
Any changes required for approval due to revision of the local laws.
- 7.0 Time for Completion:** The Operation and Maintenance of the STP shall be from March 2019 to January 2020.
- 8.0 CERTIFICATES**
- 8.1 Monthly Statements:** The Contractor shall submit a bill in 3 copies to the Engineer by 7th day of each month for the work executed up-to the end of previous month in tabulated form approved by the Engineer, showing the amounts to which the Contractor

considers himself to be entitled. The bill must be supported with the following documents:-

- 8.2** Attendance sheet along-with salary certificates, wages sheets of all the workers and staffs deployed.
 - 8.3** Certified bills miscellaneous materials purchased under different heads with the approval of the HPC Authority
 - 8.4** Details of defects/complaints attended and rectified within time,
 - 8.5** Details of complaints attended late,
 - 8.6** Test certificates of materials used and tests carried out for quality control as required by the specifications and the Engineers.
- 9.0 Deduction of Income Tax:** The amount to be deducted towards the advance income tax shall be at the rate applicable.
- 10.0 Security Deposit / Performance Guarantee:**
- 10.1** The Agency shall furnish a Security Deposit in the form of Bank Guarantee within two weeks of award of work from any of the Nationalized / Scheduled Banks for an amount equal to 5% of the contract value which shall be released after 2months of the satisfactory completion of the work.
- 11.0 Correction of Certificates:** The Engineer at his discretion for any Interim Payment Certificate make any correction or modification in any previous Interim payment Certificate which has been issued by him, and shall have authority, if any work is not being carried out to his satisfaction, to omit or reduce the value of such work in any Interim Payment Certificate.
- 12.0 Final Certificate:** The Engineer incharge shall issue the final certificated regarding the satisfactory completion the work within 15days from the date of completion.
- 13.0 Default of Contractor:**
- 13.1** If the performance of the contract is not satisfactory and not corrected within three days of receiving notice, then employer shall be at liberty to terminate the contract and get the work executed through other means at the risk and cost of the Contractor.
 - 13.2** In the event of termination of the contract, employer shall be at liberty to get balance work done at the risk and cost of the contractor and due payment of the contractor, if any, shall be released after the completion of whole works as per agreement.
- 14.0 Conciliation:** In the event of any dispute, the party shall use their best efforts to settle amicably all disputes arising out of or in connection with this contract or the interpretation thereof.
- 15.0 Operations**
- 15.1 Daily Operations of Sewage Treatment Plant**
- The Contractor shall carry out all facility operation and waste water disposal operations indicated below; in accordance with Good Operating Practices, as set out in this Contract. The Facility operation and waste water disposal operations shall include, but not be limited to the following.
- 15.1.1** Operating Sewage Pumping Station and Treatment Plant include screening and grit removal, primary treatment in UASB, secondary treatment in SBR, disinfection with

ozone and/or chlorine, sludge dewatering using decanter centrifuges, and removal of dewatered sludge to maintain the quality of treated sewage within the standards prescribed by the KSPCB.

- 15.1.2 Carrying out daily cleaning of grit channels and removal of screenings and disposal of floating matter in grit dewatered sludge out of premises.
- 15.1.3 Carrying out continuous flow measurements of treated & untreated sewage and recording the same online.
- 15.1.4 Collecting samples of influent and effluent and analyzing them daily to determine the quality of sewage and performance of the treatment plant and
- 15.1.5 Providing security for facilities and system at all times.

16.0. Contingency plan

Developing and implementing contingency plans in respect of responses to natural disasters, periods of power failure, storm water inflow into sewers during monsoon, de-silting of units of treatment plants, constraint operations or other similar emergencies to maintain the quality of treated sewage.

17.0 Energy Audit

The Operator shall take all necessary measures to minimize the power consumption in carrying out its operations. The energy audit operations shall include, but not be limited to the following.

- 17.1 Reducing electricity consumption by regulating pumping through suitable modifications to the operating schedules.
- 17.2 Maintaining power factor and demand to avoid penalty

18.0 Repairs and Maintenance (in STP premises)

The Contractor shall carry out preventive, routine maintenance and break down maintenance Operations for proper upkeep of plant in accordance with good operating practices. The following items shall be included in such maintenances.

19.0 Pumping Machinery and Treatment Plant Equipment

- 19.1 Dewatering and de-silting of grit trap, ozone contact/chlorine contact tank chemical dosing tanks as per approved programs and disposal of silt.
- 19.2 Cleaning and maintaining all rising mains/sewers in the plant area.
- 19.3 Repairing and routine maintenance of damaged pipes, fittings and valves for suction and delivery pipe.
- 19.4 Repairing and routine maintenance of pump impellers, body, bearings shafts column pipes.
- 19.5 Repairing and routine maintenance of motors.
- 19.6 Repairing and routine maintenance of starters, circuit breakers, capacitors
- 19.7 Repairing and routine maintenance of vanes and/or gears of agitators
- 19.8 Repairing and routine maintenance of transformer.
- 19.9 Repairing of blowers, decanter, diffusers, chlorinator, chemical dosing equipments & centrifuge.
- 19.10 Decanter SBR repairs/routine maintenance and calibration.
- 19.11 Repairs and routine maintenance of Decanter centrifuge, Automatic bar screen, Automatic channel gates etc.
- 19.12 Flow distribution boxes, weirs to be cleaned and adjust routinely to ensure uniform flow distribution in to and out of UASB reactor.
- 19.13 Ozonator repairs and maintenance

- 19.14** Routine maintenance of SCADA system, field mounded instruments for flow, levels dissolved oxygen etc.

20.0 Office works and Reports

The Contractor shall utilize the office space, provided by HPC/ TDB to establish its monitoring and reporting office along with computer and peripherals.

The Contractor shall carry out all reporting indicated below and as set out in this Contract. The reporting shall include, but not be limited to the following

- 20.1** Daily summary of Operations at Sewage Treatment Plant – A daily report of operation of the diffuses, agitators, decanter and other equipment at the sewage treatment plants providing information on the quantity of sewage treated, hours of operation of equipment, energy consumed and use of chemicals.
- 20.2** Sewage Quality Monitoring – A daily report monitoring the quality of raw and treated sewage through the analysis of samples.
- 20.3** Sewer / Storm Water Drains / wet well & other units etc. Monthly cleaning report sewer / storm water drain de-silted and record of silt disposed at disposal sites.

21.0 HPC's Responsibilities

The Authority shall be responsible for procuring obtaining and maintaining Clearances required, however that the Contractor shall be responsible for maintaining the conditionality of any such clearance, if such maintenance falls within the preview of the Contractor.

Engineer In Charge / HPC shall supervise the Contractor's Operations at all times and notify the Contractor of any defects that are found. Such checking shall not affect the Contractors responsibilities. The Engineer may instruct the Contractor to search for a defect and to uncover and test any work that the HPC considers may have a defect.

HPC shall be responsible for

- Energy charges and treated effluent testing charges from State PCB if required.
- Maintaining administrative control over the personnel, facilities and system.

22.0 Contractor's Responsibilities

The contractor shall maintain properly and keep intact all assets / works/facilities / system of the HPC/ TDB throughout the contract period and shall hand over the same in good working condition at the end of the Contract. The Contractor shall not modify or alter any operations regarding the facilities and / or system without prior written permission of the HPC or its representative.

The contractor shall procure all spare parts required for the maintenance of equipment excluding those to be supplied by the HPC. The Contractor shall warrant to the effect that all the spares shall be procured from the authorized sources and be of the best quality and fit for the purpose for which it is being used.

The Contractor is expected to carry out the work in such a manner as not because any damage to public property on account of negligence or otherwise. The contractor shall be fully responsible for making good the damages so caused by him entirely at his own cost.

The assets / works / facilities / systems of the HPC/ TDB shall be at the risk and in the sole charge of the Contractor and it shall be responsible for making good any loss or damage there to arising from any cause whatever including that due to a theft or robbery.

The Contractor shall provide adequate engineering equipment, maintenance staff, inventories plant and machinery and all other things, whether of a temporary or permanent nature required for carrying out operations under the Contract.

The Contractor shall carry out its Operations, so far as compliance with the requirement of the Contract permits, so as not to interfere unnecessarily or improperly with:

- The convenience of the public
- The access to use and occupation of public or private roads and footpaths to or of properties.

23.0 Permissions: The Contractor shall obtain all required permissions, sanctions clearances and permits for carrying out its Operations, including Contractors clearances and shall be fully responsible for carrying out the operations in a safe and secure manner, consistent with the law of the land, laws and regulations regarding such facilities and / or System and directives of any Authority and planning permissions.

24.0 Safety: The Contractor shall be responsible for the safety of all activities on the site and shall be absolutely and solely responsible for any and all kinds of injuries or damages to persons and property of any description whatever may be caused by or result from the operations carried out, whether these may have been carried out skilfully and carefully and strictly in conformity with the provision of the specifications or not.

The Contract shall strictly provide safe conditions for workers and employees as per Factories Act. In case installation in the STP are unsuitable for safe working the contractor bring it to the notice of the Engineer- in-charge in writing for rectification. Till such rectifications, the contractors liability as per clause No. 12 is suspended for accident in the installation so notified.

The Contractor shall take full responsibility for the adequacy stability and safety of all Site operations.

25.0 Staff & Labour:

25.1 Engagement of Staff & Labour

The Contractor shall employ skilled, semi-skilled and unskilled labour as detailed in section 3.3 to carry out its operations at the required rate of progress and of quality to ensure workmanship of the degree specified in the Contract for timely fulfilling of the Contractor's obligations under the Contract and to the satisfaction of the HPC .

The Contractor shall not employ in connection with the operations any child who has not completed his/her fifteenth year of age. It shall also not employ an adolescent who has not completed his / her eighteenth year unless he/she is certified fit for carrying out operations as an adult as prescribed under clause b) of such section (2)(of Section 69 of the factories Act 1948.

The Contractor shall provide its staff, a minimum of two sets of uniforms. Each worker on duty shall wear a clean uniform whenever on duty.

The Contractor shall be required by the Engineer deliver to it, to such forms and at such intervals as the Engineer may prescribed a return showing the numbers of the several classes of staff employed by the Contractor on the site and such other information as the Engineer may require.

If the HPC asks the Contractor to remove a person who is a member of the Contractor's staff stating the reasons, the Contractor shall ensure that the person leave the site within seven (7) days and has no further connection with operations under the Contract.

At all times during continuance of the Contract, the Contractor and its sub-contractors shall abide by all existing and future labour enactment and rules made there under, regulations, notifications and bye-laws of the Central, State or Local Government. The Contractor shall keep the Authority indemnified in case any action is taken against HPC by any Authority on account of contravention of any of the provisions of any Act or rules made there under, regulations or notifications including amendments.

If the Authority is caused to pay or reimburse such amounts as may be necessary to carry or observe, or for non-observance of the provisions stipulated in the **customs of temple**/notifications/bye-laws/acts/rules/ regulations including amendments if any, on the part of the Contractor and in connection with labor enactment, the Engineer shall have the right to deduct any money due to the Contractor including its amount of security deposit. The Engineer shall also have the right to recover from the Contractor, any sum required or estimated to be required for making good the loss or damage suffered by the Authority.

26.0 Contractor's Superintendence

The Contractor shall provide all necessary superintendence while carrying out its operations and as long thereafter as the HPC may consider necessary for the proper fulfilling of the Contractor's obligations under the Contract. The Contractor shall nominate a competent and authorized representative (Contractor Representative) approved of by the Engineer which approval may at any time be withdrawn. The Contractor's Representative shall give its whole time to the superintendence of the operations. The Contractor's Representative shall receive, on behalf of the Contractor, instructions from the Engineer which shall be deemed received by the Contractor.

27.0 Contract Performance

Review and Progress

Management Meetings:

Either the HPC / TDB/ Engineer in Charge or the Contractor may require the other to attend a management meeting. The business of a management meeting shall be to review the plans for remaining Operations and to deal with matters raised in accordance with any advice. The HPC / TDB shall record the business of management meetings and is to provide copies of its record to those attending the

meeting and to the HPC either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.

The HPC may instruct the Contractor to rectify defects and deficiency in its Operations. Alternatively, the Authority shall carry out the operations on its own and deduct the amount incurred in attending to such defaults from the next payment due to the operation. The deduction of such damages shall not relieve the Contractor from its obligations to carry out the operations, or from any other of its obligations and liabilities under the Contract.

Notwithstanding anything stated above:

If the Authority is of the opinion that the actions of the Contractor is deemed as an event of default of services and the event persists beyond one (1) day the Authority shall be entitled as invoke the Security deposit and carry out the operations through a another Contractor or departmentally. The Authority shall then proceed as per tender conditions.

28.0 Liquidated Damages and Penalties for O/M works:

The basis for applying penalties is to restrict Contractor from deviating from disposing all raw/treated waste water efficiently from the Sannidhanam area – as per fixed schedule and as per stipulations prescribed in the tender.

The Contractor is also expected to carry out the instructions of the Engineer or its representative from time to time, maintain the System in accordance with good Operating Practices attend to Customer complaints, refrain from offering operations without due authorization where so required and follow other requirements under this Contract.

29.0 Intellectual Property & Confidential Information

The Parties agree that all details, plans, manuals documentation, specifications, schedules, programs, reports, calculations and other work relating to the Facilities and / or Systems and the provision of operations pursuant to this Contract (hereafter referred to as “Proprietary Material”) which have been or are hereafter written, originated or made by any of them or any of their respective employees, sub-contractors or agents and by the persons related to the Contractor in connection with this contract shall be owned by and be the property of the Employer. The determination of information as Proprietary Materials shall be made at the sole discretion of the Authority.

The Contractor shall have an irrevocable royalty-free, non-exclusive license to use the Proprietary Material during the term of this contract for all purposes connected with fulfilling its obligations hereunder. However, this license shall not be transferable to any party other than to a permitted assignee under this Contract. Such license shall not continue after the suspension or termination of this Contract or the discharge by the Contract of its duties hereunder.

30.0 Confidentiality

The Contractor shall cause the persons related to the Operator not to, without the prior written consent of the Authority, at any time, divulge or disclose to any person or published in media or use for any purpose unconnected with the operations, proprietary material under this contraction. This shall not apply to information.

- Already in the public domain otherwise than by breach of this Contract.
- Already to the possession of the receiving party before it was received from the office party in connection with this Contract and which was not obtained under any obligation of confidentiality; or
- Obtained from a third person who is free to develop the same and which was not obtained under any obligation of confidentiality.

No photographs of the Facilities or System or any part there of or equipment employed thereon shall be taken or permitted by the Contractor to be taken by any of its employees or any employees of its sub-contractor without the prior approval of the Engineer in writing and no such photographs shall be published or otherwise circulated without the approval of the Engineer in writing.

The HPC/ TDB shall use its best efforts to ensure that the confidential proprietary information relating to the Contractor is not made public. However, the Authority shall not be liable in any manner whatsoever in case such information becomes public.

31.0 Assignment

The Contractor shall not subcontract the whole of the operations or a substantial part thereof. Except where otherwise provided by the Contract, the Contractor shall not subcontract any part of the operations without the prior consent of the Engineer. Any such consent shall not relieve the Contractor from any liability or obligations under the Contract and it shall be responsible for the acts, defaults and neglects of any subcontractor, its agents, servants or workmen as fully as if they were the acts, defaults or neglects of the Contractor, its agents, servants or workmen.

The Contractor shall not be required to obtain such consent for:

- The provision of labour
- The purchase of materials specified in the contract.

In the event of a Subcontractor having undertaken towards the Contractor in respect of the work executed or the goods, materials, plant or operation supplied by such Subcontractor, any continuing obligation extending for a period exceeding that the of the contract period under the Contract, the Contractor shall at any time, after the expiration of such period assign to the HPC, at the HPC's request and cost, the benefit of such obligation for the unexpired duration thereof.

32.0 Default of Contractor

32.1 Consequences of Default

It is a default by the Contractor is said to have occurred pursuant to the Authority may after giving three days notice to the Contractor enter upon the Site, the facilities and / or system and terminate the Contract without thereby releasing the Contractor from any of its obligations under the contract, or affecting the rights and authorities conferred on the Authority by the Contract. The Authority may use so much of the Contractor's equipment, temporary works and materials as it may think proper.

- 32.2** If the Contract is terminated because of an Contractor's event of default, the Authority shall be entitled to invoke the Security Deposit and carry out the Operations through a successor Contractor or departmentally and at the risk and cost of the Contractor. If

the total amount due to the Authority exceeds any payment due to the Contractor the difference shall be a debt payable to the Authority,

- 32.3** If the Contract is terminated because of an Contractor's event of default, all materials on the site, plant, equipment and temporary works shall be deemed to be the property of the Authority.
- 32.4** Unless prohibited by law, the Contractor shall, if so instructed by the Engineer within 3 days of such entry and terminated referred to, assigns to the Authority the benefit of any Contract for the supply of any goods or materials or operations which the contractor may have entered into for the purposes of the contract.

33.0 Risks, Indemnification's & Insurance

33.1 Risks

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 risks stated, is the responsibility of the Contractor.

33.2 Indemnification

- 33.2.1** The Contractor shall indemnify and keep indemnified the Authority against all losses and claims for injuries or damage to any property whatsoever which may arise out of or in consequence of the operations and against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in respect of or in relation thereto.
- 33.2.2** The Contractor shall at all times indemnify the Authority against all claims, damages or compensation under the provision of:

- Payment of wages Act 1936
- Minimum Wages Act 1948
- Employers Liability Act 1938
- The Workmen's Compensation Act 1923
- Industrial Dispute Act 1947.
- Indian Factories Act 1948 and
- Maternity Benefit Act 1961.

Or any modifications thereof and rules made there under from time to time or as a consequence or any accident or injury to any workman or other persons in or about the Operations, whether in the employment of the Contractor or not save and except where such accident or injury have resulted from any act of the Authority, their agents or servants and also against all cost, charges and expenses of any suit, action of proceedings arising out of such accident or injury and against all sum and sums which may with the consent of the Contractor be paid to comprise or compound any such claim without limiting its obligations and liabilities as above provided. The Contractor shall insure against all claims damages or compensation payable under the various acts mentioned above or any modifications thereof or any other law relating thereto.

34.0 Insurance

The Contractor shall provide in the joint names of the Authority and the Contractor insurance cover from the Commencement date to one year beyond the end of the Contract Period for the Contractor's risks covering:

- 34.1** Loss of or damage of property (except the Facilities, System and Equipment) in connection with the Contract.
- 34.2** Personal injury or death; and
- 34.3** The Contractor's All risk (CAR) Insurance Policy.
- 34.4** The covers shall be obtained from the Directorate of Insurance, Maharashtra State only.

The Contractor may at its own discretion provide for the following insurance covers

- Loss or damage to the Facilities and / or System and
- Loss of or damage to equipment.
- Such cover may be taken either from the Directorate of Insurance, UP State or from any other Insurance company with the approval of the Authority.

The Contractor shall deliver policies and certificates to the Engineer for an approval before the Commencement Date. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.

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

Alterations to the terms of insurance shall not be made without the approval of the Engineer and both parties shall at all times comply with any conditions of the insurance policies.

35.0 Taking over Process

At the end of the Contract period and subject to the provisions or its earlier terminations except on account of default of the Contractor, the Contractor shall request the Engineer to take over the Facilities and / or System. The Authority shall take over the facilities and / or System within 7 days of such a request being made. The Contractor shall:

- Cease all further operations except for such operations as may be necessary and instructed by the Engineers' Representative for the purpose of making safe or protecting those parts of the Facilities and / or System and any operations required to leave the Site in a clean and safe condition.
- Hand over all documents and supplies for which the Contractor has received payment and
- Remove Contractor's equipment which is on the Site and repatriate its entire staff and labor from the site.
- Provide adequate training to ensure complete transfer of technology of entire operation & maintenance of systems/automation etc. to the successor Contractor to the satisfaction of the Engineer.

The Contractor shall supply to the Engineer a detailed account of the total amount that the Contractor considers payable under the Contract before the end of the Contract Period. The Engineer within 28 days of receiving the Contractor's account shall certify any final payment that is due to the Contractor, or indicate to the

Contractor the corrections or additions that are necessary. If the final account is still unsatisfactory, after the Contractor resubmits it, the Engineer shall decide on the amount payable to the Contractor and issue a payment certificate.

The Authority shall any time, within a period of 90 days from the Completion Date or Termination Date as applicable, carry out an independent assessment of the facilities and / or system departmentally or through a Successor Contractor. Any deficiencies in the facilities and/ or System shall be made good by or at the cost of the Contractor so as to bring the facilities and or /system into Good Repair and proper working condition as handed over at the Commencement Date and subsequent works done pursuant and normal wear and tear excepting.

36.0 Repairs and Maintenance Schedules

36.1 Treatment Plant Complex:

As per indicated period checking the operation, correcting defects, attending to calibration and setting is required attending to minor repairs and proper upkeeping) such as cleaning and painting) required for the following :

36.2 Pumping Machinery and Treatment Plant Equipment:

As per indicated period checking the operation, correcting defects attending to calibration and setting is required attending to minor repairs and proper up keeping) such as cleaning and painting) required for the following:

36.3 Daily

- Screens/ Grit Channels
- Moving parts of screens and grit removal equipment, Blowers /Agitators / Pumps/ Agitators /Return Sludge pumps/ Chemical mixer/Centrifuge/Decanter/Ozonator/UASB flow distribution system
- Stuffing box
- Bearing and
- Vibration, balancing on Decanter, chemical dosing and mixing, Motors
- Contact tightness
- Cable insulation near the lugs.
- Panels Breaker and Starter
- Contacts of relay and circuit breaker and
- Setting of over-current relay, no-volt coil and tripping mechanism and off in the dash pot relay.
- Transformer Sub-station
- Ground Operated Dis-connectors (GOD)
- Contacts of GOD and of Over Current (OC) relays
- Radiators and
- Earth pit

36.4 Monthly

- Screens and Grit channels/SBR Decantor/SCADA
- Chains in mechanically operated components
- Screens performance
- Relay alarm circuit
- Load (Amperes) and
- Voltage

36.5 Quarterly

- Transformer
- Bushing and
- Dehydrating breathers

36.6 Half-Yearly

- Pumps / Blowers /Agitators / Compressor /Decanters/Centrifuge
- Gland of stuffing box
- Gland bolts
- Gland packing
- Alignment of pump aerator and drive and
- Oil lubricated bearings
- Motors
- Tripping elements for motor protection
- Contact points and
- Fuse ratings

36.7 Annual

- Paint screens, grit removal mechanism, scrapers, scrapers , motors, pipes,
- Dram, inspect diffusers, replace damaged diffusers, clean diffuser membrane as per manufacture's protol
- Fill and test gas colder and associated gas collection hoods and pipe lines for gas leak.
- Valves, fittings agitators and inlet/outlet weirs with two coats of anticorrosive paints.
- Replace worn out parts of mechanical equipment in sewage pumping station and sewage treatment plant.

37.0 Buildings and Civil Structures:

Carry out routine maintenance and minor repairs including cleaning, repairs to plaster, doors, windows and painting.

37.1 Daily

- Sweep the premises
- Clean the floors and parts inside the building
- Clear the cobwebs and other biological growth
- Maintenance of horticulture
- Disposal and transportation of dewatered sludge

38.0 General Requirements for Operation and Maintenance

The Contractor shall operate and maintain the entire Plant within its contract price for a total operation and maintenance period from 18.11.2018 to 31.01.2019. The operation and maintenance period shall include the defect liability period and shall commence from the date of taking over by the Employer. All necessary repairs, maintenance, overhaul, replacements etc., shall be made during the O & M to maintain the Plant at the status of formal handing over after the P G test. At the end of O & M period the plant shall be handed over to the Employer in fully functional and new condition except normal wear and tear.

The price for O & M bill shall include supply of all tools, tackles, spares, lubricants, laboratory chemical, glassware and polyelectrolyte. The water and power supply shall be made by the Contractor but power and water bills shall be paid by the Employer as per actual directly to the concerned authorities. The power consumed

shall be within the guaranteed figures as indicated by the bidder in the section X technical schedule of volume 1. Power consumption exceeding this is subject to penalty as said in the above section. The scope shall include but not limited to the following items.

1. Operation and Maintenance including Civil, Electrical, Mechanical and all allied works
2. Sampling and testing of influent sewage based on the tests and frequency desired by the Employer's representative and in general in accordance with the CPHEEO manual on Sewerage and Sewage Treatment.
3. Complete record of plant in online monitoring data of SCADA shall be maintained as soft copy with backup.
4. Sampling and testing of additional samples for the day to day O & M of the STP and as mutually agreed from time to time between the Contractor and the Employer's representative.
5. Sampling of final treated effluent to ensure that the guarantee parameters are as stipulated in the bid document. The sampling frequency to be as per relevant norms of Rajasthan Pollution Control Board or higher as decided by Employer's representative. The Employer reserves right to collect samples at random at the will of the Employer through any agency nominated by him. Employer shall have right to seek part of sample collected by the Contractor without any prior intimation to cross check the results on random basis. However the analysis charges of such samples shall be borne by Employer.
6. O & M of all functional and utility buildings, infrastructure and common areas Within the Plant campus.
7. Proper maintenance of Water Supply, Sewerage, Roads, Paths, and electrical etc.
8. Maintenance of Proper records of sampling as per approved Performa.
9. Loading, Unloading and Transportation of screenings, Wet sludge and wet grit out of treatment Plant site at his cost as directed by Employer's representative within 20 km from the Plant at the place as directed by the Employer's representative from time to time. The wet sludge shall be collected and disposed of by the contractor. Any revenue accruals by sale of sludge shall be to the benefit of the Contractor.
10. Maintenance of log books of all the machinery not connected to the PLC / SCDA shall be done separately & collectively, at the STP fortnightly and monthly reports of all such machinery and parameters monitored by the PLC shall be generated and hardcopy along with soft copy shall be got approved by the Employer's representative. These reports shall contain sufficient appropriate and adequate data to make the records meaningful and amenable to analysis for evaluating the performance of the Plant as well as to help in O & M decisions.
11. Security of the campus and contents therein shall be Contractor's responsibility.

12. The records maintained by the Contractor shall be produced periodically to the Employer's representative for proper monitoring. The Employer's representative's remarks shall be attended to on next submission. The Contractor shall also maintain history sheets of overhauling, maintenance, replacement of all the important electrical and mechanical equipment
- The O & M shall include the appropriate preventive maintenance of equipment as per the manufacturer's recommendation.
- The operation, maintenance and repairs services shall be performed according to the following..

Operation of the Plant as per O & M Manual:

The Plant shall be operated according to the rules and procedures laid down in the O & M manual. The Plant must be in position to work at the design capacity at any time.

Awareness & Cleanliness

The Contractor and his staff shall maintain a high degree of awareness in operation and maintenance of the Plant and all relevant safety codes and procedures. At all times the Plant, its equipment and surrounds shall be kept clean and in order' including the buildings, floors, walls, roofs, windows, etc.

Frequency of Preventive maintenance

The preventive maintenance shall be carried out according to the preventive maintenance schedule of the Plant. The regular staff may be reinforced with short-term specialists by the Contractor for special maintenance tasks, after duly informing the Employer's representative of the need and the schedule.

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|----------------|--|
| Repairs | Repairs shall be made as and when needed very promptly on the spot or at the Contractor's / Manufacturer's workshop. The need of repair on the spot or at the Contractor's workshop has to be defined in co-ordination with the Employer's representative and according to the status of spare parts availability. |
| Spare parts | The Contractor shall keep a reasonable stock of spare parts so that the down time of equipment can be kept within the limits specified. The contents of the stock and the reorder level of the inventory have to be approved by the Employer's representative. |
| Transportation | All necessary transportation shall be arranged and made by the Contractor at his own expense.
Consumables The Contractor has to ensure that there is always there is sufficient stock of 15 days of consumables, laboratory chemical, Chemical for H ₂ S scrubbing (if provided), glass ware etc., |

Chemicals	The Contractor has to ensure that there is always there is minimum stock of 30 days requirement of Polyelectrolyte & chemical for H ₂ S scrubbing (if applicable).
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39.0 OPERATION

39.1 Operational services

The Contractor shall operate the complete sewage treatment Plant and associated services on a continuous 24-hour basis.

The Contractor shall operate and utilize the control and monitoring systems provided. If found necessary, he shall make adjustments (within the operation range) of the control system and equipment, so that the Plant operation matches the treatment process requirements.

If it is determined that the facility is not capable of meeting the design parameters for any reason beyond the Contractor's control and not attributable to him, the Contractor shall determine the specific cause of failure/ abnormality in the Plant functioning and report to the Employer's representative and seek his directives on the necessary corrective action to be taken/adopted.

The Contractor will be required to furnish the details of electricity consumption in the format prescribed by the Employer's representative.

All consumables, Polyelectrolyte, and spare required operating and maintaining the Contractor shall provide the Plant in good condition. The grit, Screenings, Wet sludge and other garbage generated in the plant shall be removed from the site on daily basis. No accumulation of such residues shall be permitted within the Plant campus without express application by Contractor giving adequate reasons as well as permission of Employer's representative. The Contractor shall such residues in conformity to Environmental regulations/ rules in force. The Employer's Representative may, if required, decide the mode and timing of disposal of such residues in consultation with concerned Environmental and Civic Authorities. Such directions shall be followed by the Contractor promptly, both in letter and spirit, without any reservations and without any increase in O&M /other costs. The loading, unloading and transportation cost of these shall be borne by the Contractor and shall be included in the price quoted by the Contractor for O&M.

The Contractor at his own expense shall provide all tools, cleaning, and house keeping equipment, security and safety equipment

40.0 Laboratory services

40.1 The Contractor shall perform all tests, sampling and analyses regularly as approved by the Employer's requirement and as per the O & M standards

40.2 The Contractor will submit in his offer a complete list of laboratory equipment and materials in accordance with the analysis program required, if in addition to the mandatory list of laboratory equipment said in annexure 'C'

The bidder shall propose in his tender a staff management structure for the operation and maintenance of works. The suggested structure (minimum) shall be as follows at each STP):

Plant Manager*	-	1	full time				
Shift - in Charge*	-	2	(one at each STP)				
Electrician	-	1	(General Shift)				
Mechanic	-	1	(General shift)				
Chemist	-	2	(1-Sr chemist* and 1-Jr Chemist)				
Operator / helpers	-	8					
Security staff	-		as required for round the clock security.				
* Key staff							

The Employer may require a suitable change in the structure on the basis of design, automation and other relevant parameters it deems fit.

The Contractor shall ensure that all labour welfare laws and regulations are followed, including weekly rests, rotation of duties

The C V resumes of the Contractor personnel shall be submitted to the Employer's representative for acceptance at least two months before anticipated commencement of the pre-commissioning of test. Normal time duty hours for the Contractor's O & M personnel may be modified as necessary and agreed by the Employer's representative. A rotating shift schedule shall be established by the Contractor and approved by the Employer's representative who will ensure that an adequate number of the Contractor's staff will be available for duty at Plant 24 hours each day, 7 days week, including national holidays.

In the event that it is necessary for more than one of the Contractor's O & M personnel to be absent from the Plant, for whatever reason, the Contractor shall provide a qualified replacement at his own expense and ensure that specified project duty coverage is maintained. If substitute key personnel are required for a period longer than 15 days, their CV must be approved in advance by the Employer's representative.

The O & M personnel shall be dedicated solely to the specified duties and responsibilities and shall not be diverted to perform Contractor's administrative duties, construction arrangement, office management, or other non- O & M activities. Adequate support staff shall be provided by the Contractor in order avoid any such diversion.

The bidder shall provide justification of the labour cost proposed by him for all personnel

The Contractor shall include in his cost medical and accident insurance expenses of all the staff employed by him along with all provisions of the labour welfare acts prescribed from time to time by the State and Central Government. Adequate insurance cover shall also be maintained during O & M period for all short-term employees, as well as casual, temporary employees and visitors.

Employer is not liable for any situation arising due to any accident/mishap of whatever nature occurring in the Plant premises.

41.0 Safety

The Contractor shall be responsible for safety of his staff during O & M of the Plant and shall procure, provide and maintain all safety equipment necessary for satisfactory O & M such as gasmasks, gloves, boots, mats etc.,

41.1 The Contractor shall utilize safety awareness procedures in every element of operation and maintenance.

41.2 The Contractor shall emphasize site safety including adoption of

41.3 Safe working procedures

41.4 Cleanliness and care of the plant as a whole

41.5 Accident and hazardous conditions prevention and reporting.

41.6 Safe practice while working near digester / gas holder areas

The Contractor shall impart safety training to all members at regular intervals, especially for new comers.

The Contractor shall provide Notice boards and display boards at appropriate locations detailing precautions to be taken by O & M personnel to work in conformity to regulations and procedures and by the visitors to the Plant.

The Contractor shall notify the Employer's representative immediately if any accident occurs whether on-site or off site in which Contractor is directly involved and results in any injury to any person, whether directly concerned with the site or a third party. Such initial notification may be verbal and shall be followed comprehensive report within 24 hours of the accident.

42.0 Operation and Maintenance records

The following are a typical sample form of records (not an exhaustive and comprehensive) that are required to be maintained by the O & M Contractor. The details of complete records shall be prepared and submitted by the O & M Contractor to the Employer's representative for approval prior to commissioning.

43.0 Record of Screen Chamber

The record of screen chamber contains the information about the duration of operation of manual and mechanical screen and quality of Screenings discharged from the Plant. This record shall be kept by the Shift -in- charge and contains data on Plant functioning.

45.0 Performance data of SBR units

The performance data sheet shall contain the records of the analytical results at the inlet and outlet all the parameters. These parameters are pH, Dissolved Oxygen, BOD & COD, TSS, VSS, Sulphate and Temperature.

Grit removed: time

Date	SBR UNITS					SBR UNITS				AFTER OZONE/ CHLORINATION TANK					Officer on duty	Operator
	Inlet					outlet				a	b	C	d	e		
	a	b	c	d	f	a	b	c	d	a	b	C	d	e		

a- BOD

b - COD

c- Suspended solids/ MLSS

d- pH

e - Dissolved oxygen

f - VSS content

g -solid concentration in the underflow

SCADA record should provide sludge wasting flow rate record.

46.0 Other Records

The contractor shall maintain detailed record of consumption of Polyelectrolyte and other scrubbing chemicals (if used). Record of wet sludge transported out of the plant site shall be maintained. Similarly record of material movement shall also be maintained as appropriate and approved by Employer's Representative.

These records shall be available to the Employer's Representative for scrutiny and copies shall be furnished on demand.

47.0 LIST OF ESSENTIAL LABORATORY EQUIPMENT (for each Laboratory)

1. Analytical Balance
2. Autoclave
3. Centrifuge
4. Chlorine Comparator
5. Colony Counters
6. Demineraliser
7. Dissolved Oxygen Sampler
8. Drying oven (hot air)
9. Fume cupboards
10. Hot plates
11. Incubator 20^o C (BOD)
12. Kjehldahl Digester Unit
13. Magnetic Stirrers
14. Microscope, binocular with oil immersion and movable stage counting cell
15. Membrane Filter Assembly
16. Muffle Furnace
17. pH meter with reference & spare electrodes
18. pH meter (portable)
19. Refrigerator
20. Sludge sampler
21. Soxhlet extraction unit
22. Spectrophotometer with or without U-V range or photo electric colorimeter
23. Vacuum pump
24. Water bath (thermostat controlled)
25. Glassware and analytical chemicals as required.