

# **NATIONAL AGRI-FOOD BIOTECHNOLOGY INSTITUTE**

(Department of Biotechnology)  
(Ministry of Science and Technology, Govt. of India)  
Knowledge City, Sector-81, Mohali, 140306, Punjab

## **TENDER DOCUMENT (VOLUME-I)**



**Expression of Interest for “Operation and Comprehensive Annual Maintenance Contract of SBR Technology- Sewage Treatment Plant (350 KLD) along with Soil Scape Filtration based Effluent Treatment Plant (20 KLD) at NABI**

**AND**

**20 KLD SBR Technology Sewage Treatment Plant (STP) cum Effluent Treatment Plant (ETP) at CIAB at Sector-81, Mohali. Mohali.”**

**NATIONAL AGRI-FOOD BIOTECHNOLOGY INSTITUTE (NABI)**  
(Dept. of Biotechnology, Ministry of Science & Technology, Govt. of India)  
Knowledge City, Sector-81, Mohali.(Pb)  
Website: [www.nabi.res.in](http://www.nabi.res.in)

**Notice Inviting Tender (NIT)**

NABI/7(147)/2018- Works

**Name of Work: - "Operation and comprehensive annual maintenance of 350 KLD SBR Technology- Sewage Treatment Plant (STP) along with Soil Scape Filtration based Effluent Treatment Plant (ETP) for NABI and 20 KLD SBR Technology Sewage Treatment Plant (STP) cum Effluent Treatment Plant (ETP)for CIAB at Sector-81, Mohali."**

Sealed e- tender is invited on behalf of the Executive Director, National Agri-Food Biotechnology Institute (NABI), Mohali for the work of **"Operation and comprehensive annual maintenance of 350 KLD SBR based STP along with Soli Scape Filtration based 20KLD ETP & 20 KLD SBR Technology- Sewage Treatment Plant cum Effluent Treatment Plant for NABI & CIAB respectively at Sector-81, Mohali"** as per terms and conditions provided in the tender document.

The tender document may be purchased directly from the office of NABI, Mohali, by paying Rs. 590/- in cash as cost of tender document OR can be downloaded directly from the website [www.nabi.res.in](http://www.nabi.res.in) or **E-Central Public Procurement portal (<https://eprocure.gov.in/eprocure/app>)** in which case the fee in the form of a Demand draft of Rs. 590/-(Rupees Five Hundred Ninety Only) in favour of National Agri-Food Biotechnology Institute, Mohali, shall be payable as cost of tender document. **Both the bids i.e., the Technical & Financial bids, must be submitted on or before 26th September 2018 (up to 3.00 PM), along with the appropriate EMD as per below mentioned schedule:**

1.	<b>Issue/download of Tender documents</b>	From 11 <sup>th</sup> September 2018
2.	<b>Last date and time for submission of sealed e-tender</b>	26th September 2018 (up to 3.00 PM)
3.	<b>Date &amp; time of opening of technical bid</b>	27th September 2018 at 3.30 PM
4.	<b>Earnest Money Deposit</b>	Rs 66,000/-
5.	<b>Time for Completion of Work</b>	Period specified in tender document

**NOTE: Only online e-tenders shall be accepted. The bids are to be submitted on E-Central Public Procurement portal (<https://eprocure.gov.in/eprocure/app>). Bids received by offline mode/FAX/email will be summarily rejected.**

The Executive Director, NABI reserves the right to accept/reject any tender in part or full without assigning any reason.

**Manager Administration**

**NATIONAL AGRI-FOOD BIOTECHNOLOGY INSTITUTE (NABI)**  
(Deptt. of Biotechnology, Ministry of Science and Technology, Govt. of India)  
Knowledge City, Sector-81, SAS Nagar, Mohali, 140306, Punjab

**TENDER NOTICE**

**Tender No. NABI/7(147)/2018- Works**

1.0 Sealed rate tenders are invited on behalf of the Executive Director, NABI from agencies who have executed similar works with Central govt/State govt. /Autonomous bodies, University, Institutes of Central/State Govt./PWDs/MES/HUDA/PUDA/CPWD/PSUs/private sector for the work of **“Operation and comprehensive annual maintenance of 350 KLD SBR Technology- Sewage Treatment Plant (STP) along with Soil Scape Filtration based Effluent Treatment Plant (ETP) for NABI and 20 KLD SBR Technology Sewage Treatment Plant (STP) cum Effluent Treatment Plant (ETP) for CIAB at Sector-81, Mohali.”**

1.1 The work is estimated to cost **Rs. 27, 88,000/-** (INR Twenty Seven Lacs Eighty Eight Thousand only exclusive of GST). This estimate, however, is given merely as a rough guide.

1.2 The following basic technical eligibility criterion is mandatory for bidders. Failure to submit shall mean to disqualification :-

1.2.1 Bidder having experience (successfully completed) in:-

- *At least one work of “Operation and annual maintenance for a period of minimum one year for SBR based Sewage Treatment Plant equal or more than 350 KLD along with Effluent Treatment Plant of capacity equal or more than 20 KLD both combined in a single contract”.*

*OR*

- *At least one work of Installation of “SBR based Sewage Treatment Plant equal or more than 350 KLD along with Effluent Treatment Plant of capacity equal or more than 20 KLD both combined in a single contract”.*

1.2.2. **The Average Annual financial turnover of the firm on construction works should be at least 100% of the estimates cost during the immediate last 03 financial years.** Copies of duly attested statement (for last 03years) by Chartered Accountant should be provided.

1.2.3 .The bidder should have enlistment with **Employees Provident Fund (EPF)**. No self-undertaking shall be entertained. Bidder may provide exemption certificate from EPFO in case they are exempted from enlistment or is not applicable to them.

1.2.4 The tender fee and earnest money deposit as per mentioned in tender document.

- For the purpose of this clause 'Similar work' means the work of *At least one work of Operation and annual maintenance for a period of minimum one year for SBR based Sewage Treatment Plant equal or more than 350 KLD along with Effluent Treatment Plant of capacity equal or more than 20 KLD both combined in a single contract.*

OR

- *At least one work of Installation of "SBR based Sewage Treatment Plant equal or more than 350 KLD along with Effluent Treatment Plant of capacity equal or more than 20 KLD both combined in a single contract".*

Department reserves the right to ask contractor for detailed schedule of quantities (BOQ) authenticated by concerned Government department to ascertain the scope of work done, in case, there is any doubt. Contractor shall fully co-ordinate in providing such documents/details.

**Note:-**The Tenderer shall produce definite proof from the appropriate authority, which shall be to the satisfaction of the competent authority, NABI of having satisfactorily completed similar works of magnitude specified above. Completion Certificates to be enclosed.

2. Agreement shall be drawn with the successful tenderer on prescribed format by the Competent Authority. Tenderer shall quote his rates as per various terms and conditions laid down in the tender document.

3. The time allowed for carrying out the work will be **12 months** from the date of start as defined in schedule 'F' or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, or as indicated in the tender documents.

**4. The site for the work is available.**

5. (i) Tender documents will be issued from the office of NABI, Mohali from 11<sup>th</sup> September 2018 up to 26<sup>th</sup> September 2018 11:00 am, on payment of Rs. 590/- as cost of tender OR can be downloaded directly from the website [www.nabi.res.in](http://www.nabi.res.in) or E-Central public procurement portal (<https://eprocure.gov.in/eprocure/app>) and is to be accompanied with a DD of Rs.590/- in favour of "National Agri-Food Biotechnology Institute" payable at Mohali as cost of tender documents.

(ii) Tender forms, NIT and all the Tender documents consisting of plans, specifications, the schedule of quantities of the works to be done and the set of terms & conditions of contract to be complied with by the contractor whose tender may be accepted and other necessary documents can be seen in the office of NABI, Mohali on all working days between 10:00am to 5:00pm.

(iii) Tenders shall be accompanied with tender cost of Rs.590/- in the form of Demand Draft in favour of "National Agri-Food Biotechnology Institute" payable at Mohali.

(iv) Tenders shall be accompanied with Earnest money of Rs 66,000/- in cash (up to Rs.10000/-)/Receipt Treasury Challan/Deposit at Call receipt of a scheduled bank/fixed deposit receipt of a scheduled bank/demand draft of a scheduled bank issued in favour of "National Agri-Food Biotechnology Institute" payable at Mohali.

(v) **Submission of Tender-** The technical bid documents shall should be uploaded in the Cover- 1 & 2 as detailed below:

**A. Cover -1 marked as Technical Bid containing the following-**

- a) Scanned Copy of demand draft of **Rs. 590/-** or cash receipt in case of issue from NABI office as cost of tender documents.
- b) Scanned Copy of EMD of Rs 66,000/-- in the prescribed format (i.e., DD/cash receipt, as the case may be)
- c) Scanned Copy of Documents related to eligibility criteria i.e., Completion certificates/proofs of the similar works completed.
- d) Scanned Copy of Tender Acceptance Letter.
- e) Scanned Copies of Average annual financial turnover statement for last 03 consecutive years duly attested by Chartered Accountant.
- f) Scanned Copy of EPF enlistment/registration.

**B. Cover-2 marked as Financial/Price Bid containing the following-**

- a) This shall contain the price for the execution of the works specified in the Volume-2 of the tender document in Excel format.

**Note:-**

*a) Documents to be uploaded in pdf format only.*

*b) The original payment instrument like Demand Draft of any Nationalized Bank against Earnest Money and Cost of Tender Form should sent to the address- National Agri-Food Biotechnology Institute, Sector-81, knowledge City, PO- Manauli, SAS Nagar Mohali 140306, Punjab by post/speed post/courier/by hand before bid opening date & time.*

6. The contractor whose tender is accepted will be required to furnish performance guarantee of **5% (Five Percent)** of the tendered amount within the period specified in Schedule 'F'. This guarantee shall be in the form of cash (in case guarantee amount is less than Rs. 10000/-) or Deposit at Call receipt of any scheduled bank/Banker's Cheque of any scheduled bank/Demand Draft of any scheduled bank/Pay order of any scheduled bank (in case guarantee amount is less than Rs. 1, 00,000/-) or Government Securities or Fixed Deposit Receipts or Guarantee Bonds of any Scheduled Bank or the State Bank of India in accordance with the prescribed form. In case the contractor fails to deposit the said performance guarantee within the period as indicated in Schedule 'F'. including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor.

Upon submission of performance bank guarantee, the EMD submitted by contractor shall be returned.

7. The description of the work is as follows:

**Operation and annual comprehensive maintenance of SBR Technology based 350 KLD - Sewage Treatment Plant (STP) along with Soil Scape Filtration based Effluent Treatment Plant (ETP) for NABI and 20 KLD SBR Technology Sewage Treatment Plant (STP) cum Effluent Treatment Plant (ETP)for CIAB at Sector-81, Mohali.**

Tenderers are advised to inspect and examine the site, and satisfy themselves before submitting their tenders as to the type of system (so far as is practicable), the form, wastage of material and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their tender. A tenderer shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed.

The tenderer shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a tender by a tenderer implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and local conditions and other factors having a bearing on the execution of the work.

9. The Competent Authority does not bind itself to accept the lowest or any other tender and reserves to itself the authority to reject any or all the tenders received without the assignment of any reason. All tenders in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the tenderer shall be summarily rejected.

10. Canvassing whether directly or indirectly, in connection with tenderers is strictly prohibited and the tenders submitted by the contractors who resort to canvassing will be liable to rejection. Bidders are advised to mark page numbering

11. The tender for the works shall remain open for acceptance for a period of **ninety(90) days** from the date of opening of tenders, if any tenderer withdraws his tender before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms and conditions of the tender which are not acceptable to the department, then the Institute shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid. Further the tenderer shall not be allowed to participate in the retendering process of the work.

12. This Notice Inviting Tender shall form a part of the contract document. The successful tenderer/contractor, on acceptance of his tender by the Accepting/Competent Authority shall within 07 days sign the contract agreement consisting of:-

a) The Notice Inviting Tender, all the documents including financial bid, additional conditions, specifications and drawings, if any, forming the tender as issued/downloaded at the time of invitation of tender and acceptance thereof together with any correspondence, award letter leading thereto.

b) Tender form.

14. No price preference to any corporate society/Registered society, Govt. Public Sector undertakings / bodies shall be given and tenders shall be exclusively dealt with on merit.

15. The contractor shall comply with the provisions of the Apprentices Act 1961, minimum wages Act 1948, Workmen's compensation Act 1923, contract labour (Regulation and Abolition Act 1970), payment of wages Act 1938, Employer's liability Act 1938, Maternity Benefits Act 1961, Employee's State Insurance Act, 1948, Employees Provident Fund Act, 1952 and the Industrial disputes Act 1947 as applicable and the rules and regulations issued there under and by the local Administration/ Authorities from time to time as well all provisions of law applicable to workmen. Failure to do so shall amount to breach of the contract and the Engineer-in-Charge may at his discretion terminate the contract. The Contractor shall also be liable for any pecuniary liability arising on account of violation by him of any of the said Acts and shall indemnify the Institute on that account. Institute will not be liable for any act or omission on the part of the contractor in so far as any violation of any of the aforementioned acts.

16. Each tenderer shall submit only one tender; either by him or as partners in a joint venture. A tenderer who submits or participates in more than one tender will be disqualified.

17. Unless otherwise stated, the contract shall be for the whole work as described in the "Schedule of items/quantities of Works" and the drawings. The contractor shall be bound to complete the whole work as described in the schedule of items of works and the drawings, including additional items, if any, as per drawings and instructions. The certificate of completion to be recorded by the Engineer-in-Charge shall be mandatory and will be conclusive proof of completion of work.

18. Interpretations, corrections and changes to the Tenders Documents shall be made by Addendum, if required.

19. Each Tenderer shall ascertain prior to submitting his Tender that he has received all Addenda issued and he shall so acknowledge their receipt in his Tender.

20. The provisions in the Tender documents shall govern over the contents of the above paragraphs if in contradiction or variation.

23. All pages of the Tender should be page numbered.

24. It is the responsibility of tenderer to go through the tender document to ensure furnishing all required documents in addition to above, if any.

25. The authorized signatory of the tenderer must sign the tender duly stamped at appropriate places and initial all the remaining pages of the tender.

26. A tenderer, which does not fulfill any of the above requirements and/or gives evasive information/reply against any such requirement, shall be liable to be ignored and rejected.

27. Tender sent by fax/telex/electronically shall be ignored.





## TENDER ACCEPTANCE LETTER

**To**

**The Executive Director  
NABI, Mohali, Punjab, India**

Dear Sir,

I/We have read and examined the following Tender Documents relating to the work of "Operation and annual comprehensive maintenance of 350 KLD SBR Technology- Sewage Treatment Plant (STP) along with Soil Scape Filtration based Effluent Treatment Plant (ETP) for NABI and 20 KLD SBR Technology Sewage Treatment Plant (STP) cum Effluent Treatment Plant (ETP) for CIAB at Sector-81, Mohali and also visited the site."

General Conditions

- Instructions to bidders
- General Information
- Specific condition of contract
- Terms and Conditions of Contract Agreement
- Technical specification and Bill of Quantities
- Price Bid

I/We hereby offer to execute the work complete in all respects specified in the underwritten Memorandum within the time specified therein at the rates specified in the bill of Quantities and in accordance, with the specifications, designs, drawings and instructions in writing referred to in the conditions of tender.

I/We hereby certify that I/We had read the entire terms and conditions of the tender documents (including all documents like annexure(s), schedule(s), etc.) which form part of the contract agreement and I/We shall abide hereby by the terms/conditions/clauses contained therein.

The corrigendum(s) issued from time to time by your department/organization too have also been taken into consideration, while submitting the acceptance letter.

I/ We hereby unconditionally accept the tender conditions of above mentioned tender document(s) in its totality/entirety.

In case any provision of this tender are found violated, then your department/organization shall without prejudice to any other right or remedy be at liberty to reject this tender/bid including the forfeiture of the full said earnest money deposit absolutely.

**Tenderer's Signature and Seal**

**Postal Address, Stamp**

**DATED:**

**Witness:**

**Address:**

**Occupation:**

## **General Rules & Directions**

1. All work proposed for execution by contract will be notified in a form of invitation to tender pasted in public places and signed by the officer inviting tender or by publication in Newspapers or posted on website as the case may be.

This form will state the work to be carried out, as well as the date for submitting and opening tenders and the time allowed for carrying out the work, also the amount of earnest money to be deposited with the tender, and the amount of the security deposit and Performance guarantee to be deposited by the successful tenderer and the percentage, if any, to be deducted from bills. Copies of the specifications, designs and drawings and any other documents required in connection with the work signed for the purpose of identification by the officer inviting tender shall also be open for inspection by the contractor at the office of officer inviting tender during office hours.

2. In the event of the tender being submitted by a firm, it must be signed separately by each partner thereof or in the event of the absence of any partner, it must be signed on his behalf by a person holding a power-of attorney authorizing him to do so, such power of attorney to be produced with the tender, and it must disclose that the firm is duly registered under the Indian Partnership Act, 1952.

### **3. Applicable for Percentage Rate Tender only (CPWD-7) NOT APPLICABLE**

A) In case of Percentage Rate Tenders, contractor shall fill up the usual printed form, stating at what percentage below/above (in figures as well as in words) the total estimated cost given in Schedule of Quantities at Schedule-A, he will be willing to execute the work. The tender submitted shall be treated as invalid if:-

1. The contractor does not quote percentage above/below/at par on the total amount of tender or any section/sub head of the tender.
2. The percentage above/below is not quoted in figures & words both on the total amount of tender or any section/sub head of the tender.
3. The percentage quoted above/below is different in figures & words on the total amount of tender or any section/sub head of the tender.

Tenders, who propose any alteration in the work specified in the said form of invitation to tender, or in the time allowed for carrying out the work, or which contain any other conditions of any sort including conditional rebates, will be summarily rejected..

3B. In case the lowest tendered amount (estimated cost +/- amount worked on the basis of percentage above/below) of two or more contractors is same, such lowest contractors will be asked to submit sealed revised offer in the form of letter mentioning percentage above/ below on estimated cost of tender including all sub sections/sub heads as the case may be, but the revised percentage quoted above/below on tendered cost or on each sub section/ sub head should not be higher than the percentage quoted at the time of submission of tender. The lowest tender shall be decided on the basis of revised offers.

In case any of such contractors refuses to submit revised offer, then it shall be treated as withdrawal of his tender before acceptance and 50% of earnest money shall be forfeited.

If the revised tendered amount of two more contractors received in revised offer is again found to be equal, the lowest tender, among such contractors, shall be decided by draw of lots in the presence of designated officers of NABI.

In case all the lowest contractors those have quoted same tendered amount, refuse to submit revised offers, then tenders are to be recalled after forfeiting 50% of EMD of each contractor.

Contractor(s), whose earnest money is forfeited because of non-submission of revised offer, shall not be allowed to participate in the re-tendering process of the work.

In case of difference in percentage (%age) quoted in words & figures by bidder, the quote via which the amount is arrived shall be considered. Further, in case, the amount could not be arrived due to different quote in words, figures by bidder, the percentage quote in words (eg Two Thousand Three Hundred only) shall be considered.

In case of Percentage Rate Tenders only percentage quoted shall be considered. Any tender containing item rates is liable to be rejected. Percentage quoted by the contractor in percentage rate tender shall be accurately filled in figures and words, so that there is no discrepancy.

4. In **Percentage Rate Tender**, the tenderer shall quote percentage below/above (in figures as well as in words) at which he will be willing to execute the work. The same should be written in figures as well as in words in such a way that no interpolation is possible. In case of figures, the word 'Rs.' should be written before the figure of rupees and word 'P' after the decimal figures, e.g. 'Rs. 2.15P and in case of words, the word 'Rupees' should precede and the word 'Paisa' should be written at the end. NABI reserves the right to ask bidders to submit analysis of rates for items, in case the bid is higher than estimated value mentioned in tender document.

5. The Contractor, whose tender is accepted, will be required to furnish performance guarantee of 5% (Five Percent) of the tendered amount within the period specified in Schedule F. This guarantee shall be in the form of cash (in case guarantee amount is less than Rs. 10,000/-) or Deposit at call receipt of any scheduled bank/Banker's cheque of any scheduled bank/Demand Draft of any scheduled bank/Pay order of any scheduled bank (in case guarantee amount is less than Rs. 1,00,000/-) or Government Securities or Fixed Deposit Receipts or Guarantee Bonds of any Scheduled Bank or the State Bank of India in accordance with the prescribed form.

6. On acceptance of the tender, the name of the accredited representative(s) of the contractor who would be responsible for taking instructions from the Engineer-in-Charge shall be communicated in writing to the Engineer-in-Charge.

7. All the statutory levies including EPF/ESI contributions shall be deemed to be included in the quote by bidders. GST or any other statutory tax levied shall be paid extra as amended from time to time by Government of India.

8. The statutory deductions such as TDS, etc, if applicable, shall be deducted at source as per prevailing percentage/rates as amended from time to time by Central/Sate Govt.

9. The contractor shall give a list of both gazetted and non-gazetted NABI employees related to him (if any).

10. The contractor shall comply with the provisions of the Apprentices 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 the contract and the Competent Authority may in his discretion, without prejudice to any other right or remedy available in law, cancel the 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.

## CONDITIONS OF CONTRACT

### Definitions

- I. The **Contract** means the documents forming the tender and acceptance thereof and the formal agreement executed between National Agri- Food Biotechnology Institute (NABI) and the Contractor, together with the documents referred to therein including these conditions, the specifications, designs, drawings and instructions issued from time to time by the Engineer-in- Charge and all these documents taken together, shall be deemed to form one contract and shall be complementary to one another.
- II. In the contract, the following expressions shall, unless the context otherwise requires, have the meanings, hereby respectively assigned to them:-
- (i) The expression **works** or **work** shall, unless there be something either in the subject or context repugnant to such construction, be construed and taken to mean the works by or by virtue of the contract contracted to be executed whether temporary or permanent, and whether original, altered, substituted or additional.
- (ii) The **Site** shall mean the land/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.
- (iii) The **Contractor** shall mean the individual, firm or company, whether incorporated or not, undertaking the works and shall include the legal personal representative of such individual or the persons composing such firm or company, or the successors of such firm or company and the permitted assignees of such individual, firm or company.
- (iv) The Owner/Competent Authority/Institute **means** the Executive Director, National Agri-Food Biotechnology Institute.
- (v) The **Engineer-in-charge** means the **Assistant Engineer (Civil)** who shall supervise and be in charge of the work on behalf of the Competent Authority.
- (vi) **Accepting Authority** shall mean the authority Executive Director, National Agri-Food Biotechnology Institute.
- (vii) **Excepted Risk** are risks due to riots (other than those on account of contractor's Employees), war (whether declared or not) invasion, act of foreign enemies, hostilities, civil war, rebellion revolution, insurrection, military or usurped power, any acts of Government, damages from aircraft, acts of God, such as earthquake, lightening and unprecedented floods, and other causes over which the contractor has no control and accepted as such by the Accepting Authority or causes solely due to use or occupation by owner of the part of the works in respect of which a certificate of completion has been issued or a cause solely due to owner's faulty design of works.
- (viii) **Market Rate** shall be the rate as decided by the Engineer-in-Charge on the basis of the cost of materials and labour as per market at the site where the work is to be executed plus the percentage, all overheads and profits.
- (ix) **Schedule(s)** referred to in these conditions shall mean the relevant schedule(s) annexed to the tender papers or the standard Schedule of Rates of the government mentioned with the amendments thereto issued up to the date of receipt of the tender.
- (X) **Tendered value** means the value of the entire work as stipulated in the letter of award as quoted by bidders.
- (xi) **Date of commencement of work:** The date of commencement of work shall be the date of start or the first date of handing over of the site, whichever is later, in accordance with the phasing if any, as indicated in the tender document.

- III. Where the context so requires, words imparting the singular only also include the plural and vice versa. Any reference to masculine gender shall whenever required include feminine gender and vice versa.
- IV. Headings and Marginal notes to these General Conditions of Contract shall not be deemed to form part thereof or be taken into consideration in the interpretation or construction thereof or of the contract.
- V. The contractor shall be furnished, free of cost one certified copy of the contract documents except standard specifications, Schedule of Rates and such other printed and published documents, together with all drawings as may be forming part of the tender papers. None of these documents shall be used for any purpose other than that of this contract.
- VI. The work to be carried out under the Contract shall, except as otherwise provided in these conditions, include all labour, materials, tools, plants, equipment and transport which may be required in preparation of and for and in the full and entire execution and completion of the works. The descriptions given in the Schedule of Quantities shall, unless otherwise stated, be held to include wastage on materials, carriage and cartage, carrying and return of empties, hoisting, setting, fitting and fixing in position and all other labours necessary in and for the full and entire execution and completion of the work as aforesaid in accordance with good practice and recognized principles.
- VII. The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the rates and prices quoted in the Schedule of Quantities, which rates and prices shall, except as otherwise provided, cover all his obligations under the Contract and all matters and things necessary for the proper completion and maintenance of the works.
- VIII. The several documents forming the Contract are to be taken as mutually explanatory of one another, detailed drawings being followed in preference to small scale drawing and figured dimensions in preference to scale and special conditions in preference to General Conditions.
- IX. In the case of discrepancy, the following order of preference shall be observed:-
- (i) NIT scope of work.
  - (ii) Particular Specification and Special Condition, if any.
- X. If there are varying or conflicting provisions made in any one document forming part of the contract, the Accepting Authority shall be the deciding authority with regard to the intention of the document and his decision shall be final and binding on the contractor.
- XI. Any error in description, quantity or rate in Schedule of Quantities or any omission therefrom shall not vitiate the Contract or release the Contractor from the execution of the whole or any part of the works comprised therein according to drawings and specifications or from any of his obligations under the contract.

## **CLAUSES OF CONTRACT**

### **CLAUSE 1**

(i) The contractor shall submit an irrevocable Performance Guarantee of **5% (Five percent)** of the tendered amount in addition to other deposits mentioned elsewhere in the contract for his proper performance of the contract agreement, (not withstanding and/or without prejudice to any other provisions in the contract) within period specified from the date of issue of letter of acceptance. This period can be further extended by the Competent Authority up to a maximum period as specified in schedule 'F' on written request of the contractor stating the reason for delays in procuring the Performance Guarantee, to the satisfaction of the Engineer-in-Charge. This guarantee shall be in the form of Cash (in case guarantee amount is less than Rs. 10,000/-) or Deposit at Call receipt of any scheduled bank/Banker's Cheque of any scheduled bank/Demand Draft of any scheduled bank/Pay Order of any scheduled bank (in case guarantee amount is less than Rs. 1,00,000/-) or Government Securities or Fixed Deposit Receipts or Guarantee Bonds of any Scheduled Bank or the State Bank of India in accordance with the form annexed hereto. In case a fixed deposit receipt of any Bank is furnished by the contractor to the Government as part of the performance guarantee and the Bank is unable to make payment against the said fixed deposit receipt, the loss caused thereby shall fall on the contractor and the contractor shall forthwith on demand furnish additional security to the Government to make good the deficit.

(ii) The Performance Guarantee shall be initially valid up to the stipulated date of completion plus 60 days beyond that. In case the time for completion of work gets enlarged, the contractor shall get the validity of Performance Guarantee extended to cover such enlarged time for completion of work. After recording of the completion certificate for the work by the competent authority, the performance guarantee shall be returned to the contractor, without any interest. However, in case of contracts involving maintenance of building and services/any other work after construction of same building and services/other work, then 50% of Performance Guarantee shall be retained as Security Deposit. The same shall be returned year wise proportionately.

(iii) The Engineer-in-Charge shall not make a claim under the performance guarantee except for amounts to which the owner is entitled under the contract (not withstanding and/or without prejudice to any other provisions in the contract agreement) in the event of:

(a) Failure by the contractor to extend the validity of the Performance Guarantee as described herein above, in which event the Engineer-in-Charge may claim the full amount of the Performance Guarantee.

(b) Failure by the contractor to owner any amount due, either as agreed by the contractor or determined under any of the Clauses/Conditions of the agreement, within 30 days of the service of notice to this effect by Engineer-in-Charge.

(iv) In the event of the contract being determined or rescinded under provision of any of the Clause/Condition of the agreement, the performance guarantee shall stand forfeited in full and shall be absolutely at the disposal of the Competent Authority.

### **CLAUSE 1 A**

#### **Recovery of Security Deposit**

### **CLAUSE 2**

#### **Compensation for Delay/Non-compliance of NIT conditions**

***"NABI shall have the right to recover money of 10% of quoted price, which in the sole opinion of NABI is due from the Contractor under this Contract or any other contract or from the security***

***Deposit furnished by the Contractor under this contract or any other contract,***” if the contractor fails to provide services as per provisions laid in tender document, Department shall impose penalty for non-compliance of NIT conditions up to a maximum of 10% of the Tendered Value of work or of the Tendered Value of the item or group of items of work for which a separate period of completion is originally given.

**CLAUSE 2A (Not Applicable in this tender)**

**Incentive for early completion (Not Applicable in this tender)**

**CLAUSE-3- GENERAL CLAUSES**

- The tenderers are advised to go through the condition stipulated in the Tender document & code of conduct for Health & Safety of Contract Labourer in details. Any violation thereof will invite punitive action being taken against them. While quoting the rate all the above factors are to be taken into account.
- Quoted rates shall be firm throughout the contract period of **one year**.
- **For evaluation of lowest bidder L1, the quote of only first year shall be considered. For 2<sup>nd</sup> and 3<sup>rd</sup> year; bidder may submit the competitive rates, which shall also remain firm throughout the period.**
- **The award of work for 2<sup>nd</sup> and subsequently 3<sup>rd</sup> year shall depend upon the satisfactory services rendered by agency during first year.** Any variation in GST/other taxes shall be paid accordingly.
- The similar works executed in the own name of the tenderer only will be considered for eligibility / qualification criteria.

## SPECIAL CONDITIONS OF CONTRACT

1. The existing STP, Plant is capable of treating 370 KLD of sewage per day and EPT for 20 KLD effluent for NABI & 20 KLD for CIAB respectively under normal conditions. Technical details of the Plant and the process layout with characteristics are enclosed.
2. The contractor should engage shift skilled Operators, other staff for 24 hrs x 7 days x 365 days for Operation & Maintenance of plant.
3. During the holidays, National off days, at least the bare minimum manpower may be deployed. For 20 KLD STP-ETP of CIAB, during night, the manpower in 350 KLD STP-ETP may be shared. 350 KLD STP plant should not be left un-attended (even during shutdown condition) in any case by contractor. It is overall responsibility of contractor to operate and maintain both the plants
4. Operation and maintenance is to be carried out for all the activities of the plant maintaining pumps, blowers, pneumatic valves, dosing systems etc as listed in the **Annexure – II, III**. Any inventory which is installed but not mentioned in the list shall also be covered in Operation and maintenance. Daily log details have to be maintained for all equipment of the plant and their performance including energy, feed and permeate water qualities as instructed by NABI Engineer in charge. All equipment & valves may have to be operated / controlled manually also.
5. The scope of work shall include **monthly testing of treated water for both STPs wrt conformation of pollution control norms specified by regional Pollution Control Board or Ministry of Environment & Forest as applicable**. The monthly tests are to be got done through NABL accredited laboratory only. The tests are to be conducted generally by 15<sup>th</sup> day of each month and test report is to be submitted by 3<sup>rd</sup> week to Engineer- In- Charge.
6. The cost of above monthly tests shall be deemed to be included in rate quoted by bidder and nothing extra is payable.
7. If the system is not operated for more than a shift of 8 hours due to break-down on account of other than Power Supply, non-availability of effluent/sewage, consumable to be provided by NABI, etc., recovery will be **made on pro rata basis as per the approved and awarded rate for respective from the date of break down to the date of putting back the system to perform effectively**. The work is to be executed on all NABI working days including public holidays and Sundays.
8. **Carryout daily preventive maintenance of the equipment like greasing, oiling, cleaning of pumps, blowers valves, electric panels, pump cleaning etc as per the instructions. Attend and rectify all major breakdowns. Any kind of spare parts required for comprehensive maintenance required shall be provided by contractor.**
9. **The comprehensive annual maintenance contract shall comprise of the entire inventory installed in both the plants. Any fault/defect in part of pumps, blowers, filters, diffusers, electrical panel, dosing system, UV system, hydoneumatic system etc shall either be repaired or replaced by contractor at own cost. The charges for same shall be deemed to be included in the quoted rates.**
10. **Consumables materials such as jaggery, DAP, Urea, sodium hypochlorite (5ppm), Bio-culture, Enzyme, polyelectrolyte, belts if any, required for operation & performance maintenance of the equipment/plant will be given by NABI & CIAB respectively.**



11. Scope of work shall include **cleaning of screen, oil/grease pits, tanks, basement floor etc all for proper** functioning of plant. Un-skilled manpower to be accordingly deployed.
12. Operator shall report to Engineer-in-charge about performance and healthiness of the plant every day and any major issue shall be immediately brought to the notice.
13. The contractor shall depute alternate Operator if the shift Supervisor / Mechanic / Operator is on leave / absent / compensatory off.
14. Required Power and water for the Operation of the system will be provided by NABI free of charges.
15. Possible field tests have to be conducted on daily and routine basis. All test records and results should be maintained and produced to NABI for its verification.
16. The contractor should maintain all monitoring records w.r.t STPs operation and maintenance, Laboratory analysis, etc .
17. The Contractor should associate for collecting samples by statutory bodies like Central Pollution Control Board, Punjab Pollution Control Board etc and others if necessary. The contractor/bidder shall liaison with State Pollution Control Board/Ministry of Environment & Forest for all purposes as required w.r.t the plant within the quoted rates.
18. *The contractor shall ensure payment of Minimum wages, Bonus to the workmen employed by him at the rate at which shall not less than the minimum wage applicable under Law from time to time. **The minimum wages applicable shall be as per Central Government rates for category/city of B Area as increased from time to time by Government during the contract period including for 2<sup>nd</sup> , 3<sup>rd</sup> year, if extended.***
19. PF & ESI Act should cover the workmen as applicable and payment will be made only on verification of the documents for the remittance of ESI and PF for the personnel engaged in the work. The cost towards contribution for EPF/ESI shall be borne fully by contractor.
20. The contractor should submit the list and quantity of consumables and spares used every month for the verification by NABI.
21. The details of consumables required for all pumps and the equipments shall be given by the contractor well in advance so as to procure and keep ready to run the plant without any interruption, and the same will be issued to them on written requisition. Replacing of defective spares is in the scope of contractor under Comprehensive Annual Maintenance Contract.
22. ***The workers should be provided with personal protective equipments such as Gloves, Goggles, safety shoes, Gum boots, face masks, waste cloths, soaps, etc by the Contractor within the quoted rates. All the manpower deployed should be provided with proper uniform by contractor.***
23. The contractor should follow all procedures pertaining to safety and EMS in day to day running of the plant.
24. All the tools and plants etc as required for proper operation and maintenance of facility shall be arranged by contractor at its own cost.
25. The contractor should keep a First Aid Box with list of Aids and should be refilled as and when required.
26. **During this period the contractor should take whole responsibility of the Plant operation including treatment efficiency. Any deviation from the specific performance requirement of any equipment or quality of treated effluent as per norms, the contractor shall immediately take steps to rectify the deficiency without any extra cost to the Authority.**
27. ***The payment shall be released to contractor on monthly basis and shall be released within 21 days' time from receipt of hard copy of bill.*** Contractor shall submit an undertaking with each bill that requisite payments of staff deployed at plant has been made along with deposit of their EPF/ESI contributions.
28. Contractor shall indemnify NABI from any violation for labour bye laws as amended from time to time.

29. Table along with 02 chairs shall be provided by NABI for sitting of staff deployed by contractor, which shall be returned in good conditions upon contract expiry.
30. Any kind of civil work such as water proofing of walls, flooring and electrical work such as repair/replacement of external electrical cabling etc to the plant panel shall not be in the scope of contractor. Same shall be taken up by NABI.

### **GENERAL INSTRUCTIONS**

1. The contractor shall not resort to sub-contracting under any circumstances. If found at a later date, NABI reserves the right to take action whatever action it deems fit, including cancellation of the contract.
2. All the bills of contractors will be cleared by Engineer- in -charge subject to of compliance of all statutory requirements.
3. Disputes, grievances between the contractor and his labour, will have to be settled by the contractor.
4. If NABI engages workers to complete any part or whole of the work as per this contract for any period due to failure of the contractor or to engage adequate number of workers. He has to reimburse to NABI, the extra cost involved on this account. The extra cost of engaging such workmen/ material etc by NABI will be reckoned at the rate as per minimum wages and other payments (as mentioned in the tender reg. wages payable to the workers) of NABI for purpose of recovery from the contractor along with NABI"s administrative charges @ 15.0%.
5. NABI shall be at liberty to terminate the contract by issuing a month's notice to the contractor without assigning any reason what so ever. As regards unsatisfactory performance or non compliance with any of the terms and conditions of the contract by the contractor, NABI shall have the right to terminate the contract forthwith without notice & rearrange the balance work through other agencies at the risk and cost of the contractor & under such circumstances, the security deposit paid by the contractor shall stand forfeited.
6. The contractor shall follow such Act, rules & regulations of the state / central Govt. that are in force & that may be framed from time to time. NABI shall not be responsible for any infringement of the various statues in force by the contractor.
7. In case, the contractor fails to make payment of wages to his employees or remittance of contribution to the concerned authorities & a claim is made against NABI for whatsoever reason, the security deposit / other dues / running bills under the contract can be utilized by NABI to discharge the liability of the contractor.
8. Contractor shall indemnify NABI against all claims and losses it suffers under various labour laws, statues or any civil or criminal law in connection with employees deployed by him.
9. Contractor shall obtain necessary insurance cover for its manpower, tools , inventory installed etc at his own cost to mitigate any risk of accidents, losses, damages etc. NABI shall not be responsible for any losses, damages to the contractor or to his employees.

**Annexure - I**

**SEWAGE TREATMENT PLANT TECHNICAL PARAMETERS VIA SBR (SEQUENTIAL  
BATCH REACTOR) TECHNOLOGY**  
**NATIONAL AGRI-FOOD BIOTECHNOLOGY INSTITUTE**

The proposed STP is designed to treat domestic sewage with following Characteristics:

Mode of Operation : Semi-Automatic  
Nature of Effluent : Domestic Sewage  
Daily Average Flow : 350 cum/day  
Peak flow : 875 cum/day

<b>SN.</b>	<b>parameters</b>	<b>Raw sewage</b>	<b>Treated water</b>
1	BOD <sub>5</sub>	250-400 mg/lit	≤ 10 mg/lit
2	COD	400-600 mg/lit	≤ 60 mg/lit
3	TSS	200-450 mg/lit	≤ 10 mg/lit
4	pH	7.5 – 8.5	7.5 – 8.5
5	Oil and Grease	50 mg/lit	≤ 2 mg/lit
6	Coliform Count	< 10 <sup>6</sup> -10 <sup>7</sup> MPN/100 ml	< 10 <sup>3</sup> MPN/100 ml

## PROCESS DESCRIPTION

The process considered in the scheme for treatment is as under:

### **PRE-TREATMENT:**

Sewage shall be collected in Equalization (Collection) tank after passing through a Perforated Screen and Oil & Grease Trap chamber. In Fine Screen, floating matter and any large particles are trapped in the Screen. Removal of floating/coarse matter is essential otherwise it can choke piping/pumps etc, and hinder the normal operation of the treatment plant. The screens are made of stainless steel.

Oil and Grease Trap is designed to remove free floating Oil & Grease by the process of floatation and for the removal of Bio-degradation of oil or to be periodically manually removed.

Equalization Tank is provided equalize the irregular flow generation of sewage, homogenize the sewage & neutral the pH. To maintain homogenous conditions and avoid any settling and septicity of sewage aeration is provided through air grid in the Equalization Tank.

### **BIOLOGICAL TREATMENT**

Sewage from Equalization Tank shall be pumped to process reactor.

The main pollutants in the raw sewage are represented in the form of Bio-Chemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD). The bacterial ability to synthesize the organic matter to harmless end products like Carbon Di-Oxide ( $\text{CO}_2$ ) and water molecules is utilized to treat the raw sewage.

The bio-reactions are carried out in controlled environment in the bio-reactor. The bio-reactor comprises of a tank, fitted with aeration grid with fine bubble air diffusers. The bacterial activity needs dissolved oxygen, to synthesize the organic matter. This is supplied by passing air in form of fine bubbles. The air is passed at the bottom of the tank, so that complete volume of tank is utilized. Oxygen dissolves in liquid, which can now be used by the bacteria.

SBR (Sequential Batch Reactor) Technology is the proven process for treatment of Municipal and Industrial Wastewater. The SBR process utilizes a fill-and-draw reactor with complete mixing during the batch reaction step (after filling) and where the subsequent steps of aeration and clarification occurs in the same tank. In its most basic form, the SBR system is simply a set of tanks that operate on a fill-and- draw basis. The tanks may be an earthen or oxidation ditch, a rectangular basin, or any other concrete/ metal type structure. Each tank in the SBR system is filled during a discrete period of time and then operated as a batch reactor. After desired treatment, the mixed liquor is allowed to settle and the clarified supernatant is drawn from the tank. The essential difference between the SBR and the conventional continuous flow activated sludge system is that SBR carries out functions such as Equalization, Aeration and Sedimentation in a time rather in a space sequence.

## **SLUDGE HANDLING**

The excess sludge of SBR basins is collected into sludge holding tank where the sludge shall be aerated and thickened and conveyed to filter press unit for de-watering purpose. Cake from the filter press is disposed off or can be used as wet manure. Effluent (Filtrate) from the filter press would be transfer to Equalization Tank.

## **TERTIARY TREATMENT**

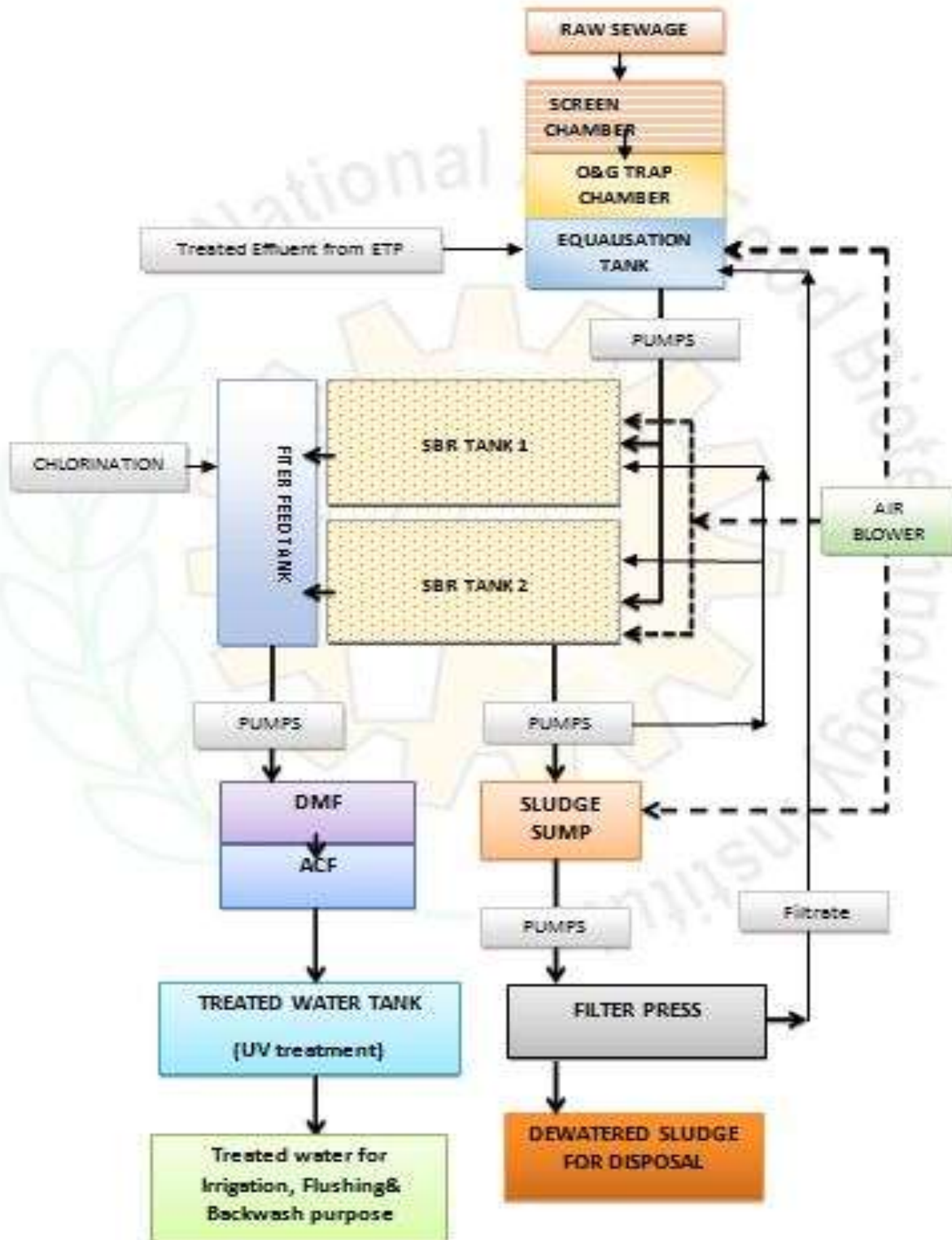
From outlet of Chlorine Contact Tank, Treated Sewage is pumped to Tertiary Treatment unit comprising of Dual Media Filter and Activated Carbon Filter to achieve the desired results and to make it fit for reuse in Horticulture& Flushing.

Treated Sewage is collected in Treated Water Tank for further pumping to the reuse end; same tank shall provide water for back washing of filter also.

## **DISINFECTION**

The Treated water shall be passed through Ultra Violet (UV) unit for disinfection purpose. An UV disinfection system transfers Electromagnetic energy from a mercury arc lamp to an organism genetic material. When UV radiation penetrates the cell wall of an organism, it destroys the cell's ability to multiply. The effectiveness of UV disinfection system depends on the wastewater characteristics and the intensity of UV radiation.

## PROCESS BLOCK DIAGRAM OF THE SCHEME



<b>Unit: BAR SCREEN</b>			
Screen type	Fine Perforated Corrugated Screen		
Quantity	02 Nos.	Clear spacing	8mm and 6 mm
Length	1.2 m	Designed velocity	0.3 m/s
Width	1.0 m	Screen	5 X 15 mm
Depth	0.8 m	MOC	Stainless Steel

<b>Unit: OIL &amp; GREASE TRAP</b>			
Process	Grit removal by settling and trapping of floating Oil & Grease at baffle wall		
Length	5.0 m	Quantity	1.0
Width	1.0 m	Construction	RCC
Depth	1.4 m	Cleaning	Manually

<b>UNIT : EQUALIZATION TANK</b>			
Construction	RCC	Air Supply	Through Air Grid
Length	8.0 m	Aeration	Perforated Air Grid
Width	6.0 m	Location for grid	Bottom of tank to cover entire surface
Depth	3.5 m		
Quantity	01 No.		

<b>EQUIPMENT : RAW SEWAGE PUMPS</b>			
Quantity	2 Nos.	Type	Non clogging type submersible
Flow rate	30 m <sup>3</sup> /hr	MOC	Cast Iron
Head	15 m	Drive	Coupled to motor

<b>UNIT : SBR TANK</b>			
MOC	RCC	No. of Chambers	2 in Parallel
length	6.0 m	Aeration	Fine bubble Diffuser
Width	4.0 m	Decanter type	Floating type
Depth	3.5 m	Decanter MOC	SS 304

<b>EQUIPMENT: AIR BLOWER</b>			
Air Flow	200 m <sup>3</sup> /hr	Quantity	2 Nos.
Drive	Belt driven	Type	Twin type rotary air blower
Belt & Pulley	V type, Pix-Graded C.I.	Power	3 Phase, 50 Hz, 415 ± 10% V

<b>EQUIPMENT: SLUDGE RE-CIRCULATION PUMP</b>			
Quantity	2 Nos.	Flow	9 LPS
Type	Centrifugal	Head	15 m
MOC	CI	RPM	2900

<b>UNIT: SUPERNATANT TANK</b>			
Length	7.0 m	Construction	RCC
Width	6.0 m	Quantity	01 No.
Depth	3.5 m		

<b>EQUIPMENT: FILTER FEED PUMPS</b>			
Quantity	2 Nos.	Flow	18 m <sup>3</sup> /hr
Type	Centrifugal	Head	30 m
MOC	CI	RPM	2900

<b>EQUIPMENT: MULTI GRADE FILTER</b>			
Quantity	01 No.	Material	MS epoxy paint
Flow Rate	18 m <sup>3</sup> /hr	Filtration rate	20 m <sup>3</sup> /m <sup>2</sup> /hr
Principal Media	Quartz grade Sand and Anthracite	Multi grade Sand Depth	900 mm
Dia	1100 mm	HOS	1800 mm

<b>EQUIPMENT : ACTIVATED CARBON FILTER</b>			
Quantity	01 No.	Material	MS epoxy paint
Flow Rate	18 m <sup>3</sup> /hr	Filtration rate	14 m <sup>3</sup> /m <sup>2</sup> /hr
Principal Media	Activated carbon	Activated carbon	900 mm
Dia	1300 mm	HOS	1800 mm

<b>UNIT: TREATED WATER TANK</b>			
Length	7.0 m	Construction	RCC
Width	6.0 m	Quantity	01 No.



Depth	3.5 m		
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<b>UNIT : UV DISINFECTION</b>			
QUANTITY	1 No.	UV dose	60,000 micro Watt/Sq.cm
MOC	SS 316L	UV lamp type	Low pressure mercury vapour
Flow rate	17.5 Cum/h		

<b>UNIT : SLUDGE HOLDING TANK</b>			
Length	4.0 m	Quantity	01 No.
Width	4.0 m	Construction	RCC
Depth	3.5 m		

<b>EQUIPMENT : FILTER PRESS FEED PUMPS</b>			
Quantity	2 Nos	Type	Screw type
Solid handling Size	35-40 mm	MOC	Cast Iron
Flow rate	1 m <sup>3</sup> /hr	Drive	V Belt Drive
Head	40 m		

<b>EQUIPMENT : FILTER PRESS</b>			
Sludge dewatering	Filter Press	Quantity	01 No.
Type	Manual	Material of plates	Polypropylene
Plate Size	450 x 450 mm	Material of frame	Cast iron
Polyelectrolyte dosing	1.5 Kg/Ton of Sludge	PE Dosing Tank	200 Lt / HDPE
Solution Concentration	Dilution to 0.075% Aq sol	PE Dosing Pump	PP

<b>EQUIPMENT : PLANT ROOM SUMP PUMP</b>			
Quantity	2 Nos.	Type	Non clogging type

			submersible
Flow rate	21.6 m <sup>3</sup> /hr	MOC	Cast Iron
Head	15 m	Drive	Coupled to motor

<b>EQUIPMENT: IRRIGATION PUMPS</b>			
Quantity	2 nos.	Purpose	Reuse of treated water
Flow	7.2 m <sup>3</sup> /hr	Type	Centrifugal
Head	30 m		

<b>EQUIPMENT: FLUSHING HYDRO-PNEUMATIC SYSTEM</b>			
Quantity	1 nos.	Purpose	Reuse of treated water
Flow	7 LPS	Type	Centrifugal
Head	80 m		

<b>ELECTRICAL LOAD DATA</b>					
<b>SR NO</b>	<b>DESCRIPTION</b>	<b>DUTY</b>	<b>CAPACITY</b>	<b>WORKING LOAD (HP)</b>	<b>CONNECTED LOAD (HP)</b>
1	SEWAGE LIFTING PUMP	1W+1S	30 m <sup>3</sup> /hr at 12-15 m head	4	8
2	SLUDGE RECIRCULATION PUMP	1W+1S	32.4 m <sup>3</sup> /hr at 15 m head	4	8
3	AIR BLOWER	1W+1S	200m <sup>3</sup> / hr @ 6000 mmwg each	7.5	15
4	FITTER FEED PUMP	1W+1S	18 m <sup>3</sup> /hr at 30-35 m head	5	10
5	PLANT ROOM SUMP PUMP	1W+1S	21.6 m <sup>3</sup> /hr at 15 m head	4	8
6	SCREW PUMP	1W+1S	4m <sup>3</sup> /hr@35m head	1	2
7	IRRIGATION PUMP	1W+1S	7.2m <sup>3</sup> at 35 mtr head	2	4
8	HPN	1W	25.2 m <sup>3</sup> /hr at 96 mtr head	15	15
9	HYDRAULIC PRESS PUMP	1W		1	1
10	DOSING PUMP	1W	0-12 lph	0.05	0.05
12	UV SYSTEM	1W	17.5 m <sup>3</sup> /hr	1.2	1.2
<b>TOTAL</b>				<b>44.8</b>	<b>77.3</b>

## EFFLUENT TREATMENT PLANT TECHNICAL DETAILS

- Wastewater generated from laboratory block.
- Volume of effluent generation is about 20 KLD

Basic for designing of scheme

### A. Expected reduction in pollution concentration

Depending on local climate-

COD/BOD	- 60 - 80 %
TSS	- 80 - 90 %
Dissolved Oxygen increment	- 10 – 20 times
Odour control & pathogen removal	- 99 %
pH	- 6 – 9

### B. Design Specifications

Treatment process	Based on vertical Eco filtration process- soil Scape Filter
Wastewater flow	20 KLD
Pre-treatment	Soil Scape Filter
Battery limit SERI's supply/services	Inlet too outlet of Soil Scape Filter

## SELECTION OF TECHNOLOGY

### SOIL SCAPE FILTER

This technology is not merely a treatment plant, but an ecosystem in itself. Soil Scape Filter is vertical filtration of wastewater through the layers of biologically activated filtration medium which absorbs pollution. It uses combination of green plants and bacteria to remove inorganic pollutants, organic matter and odour from water. There is no requirement of electricity, provided gravity benefit is available. Running cost reduces to nil as chemicals and electricity use is not required. Negligible maintenance is to be carried out by your gardener.

Soil Scape Filter- It is useful for the treatment of domestic as well as industrial effluent. It can treat the effluent from food, chemical, electroplating, textile, etc. industries.

#### **Advantages:**

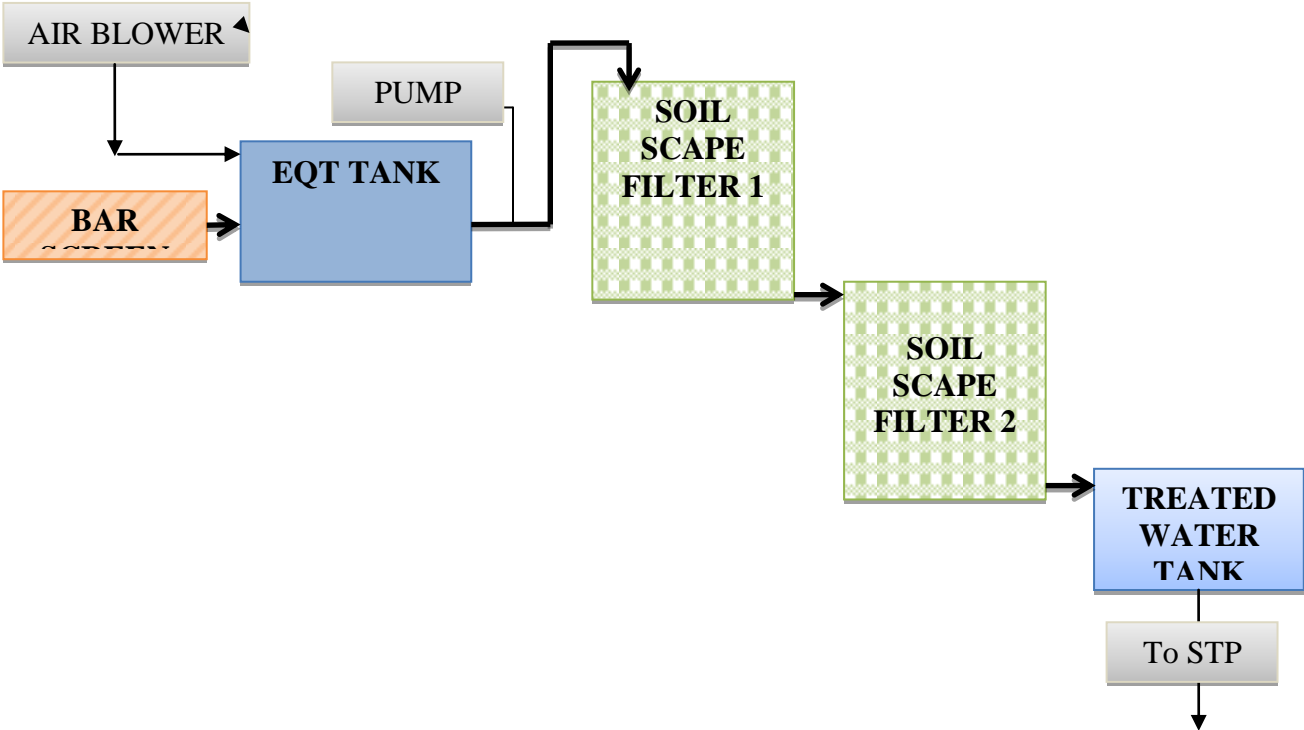
- Natural, eco-friendly system using plants and bacteria.
- No requirement of excess electricity for control of pollution because the source of energy for green plant is SUN.
- No requirement of any chemical to treat pollution.
- With minimum maintenance – man power requirement is hardly one hour per day to operate pumps or to cut densely grow plants.
- Noiseless operations.
- Odorless treatment, no nuisance of mosquitoes and other insects.
- Value addition to beautiful landscape.
- Treated water available for reuse.
- Advanced ecological cost—effective technology as compared to mechanical, energy-intensive, sophisticated conventional technology.

## PROCESS DESCRIPTION

### **Scheme of Effluent Treatment**

The Wastewater stream from the Laboratory unit will be collected in Collection/Equalization Tank after passing through the fine Bar Screen. Controlled flow of wastewater from Collection Tank will be sprinkled firstly on the Soil Scape Filter in a series. In this filtration system, the biodegradable organic matter along with oil (BOD/TSS/Colour) will be consumed by bacteria present in the specialized top layer of the Filter. Treated water shall be diverted from Treated Water Sump to Sewage Treatment Plant by gravity.

**PROCESS BLOCK DIAGRAM OF THE SCHEME**



## TECHNICAL SPECIFICATIONS

<b>Unit: BAR SCREEN</b>			
Screen type	Fine Bar Screen		
Length	0.5 m	Clear spacing	6 mm
Width	0.5 m	MOC	SS 304
Depth	0.7 m	Cleaning	Manually

<b>UNIT : EQUALIZATION TANK</b>			
Construction	RCC	Quantity	01 No.
Length	2.0 m	Mixing	Aeration
Width	2.0 m	Air provided	30 m <sup>3</sup> /hr
Depth	2.5 m		

<b>EQUIPMENT : AIR BLOWER</b>			
Quantity	1 Nos.	Flow	30 m <sup>3</sup> /hr
Type	Centrifugal	Head	5500 mmwc

<b>EQUIPMENT : SOIL SCAPE FILTER FEED PUMPS</b>			
Quantity	2 Nos.	Flow	2.5 m <sup>3</sup> /hr
Type	Centrifugal	Head	8-10 m

<b>UNIT : SOIL SCAPE FILTER</b>			
Length of Each filter	5.0 m	No. of filters	2 Nos.
Width of each filter	3.0 m	Supporting material for filter bed	Rubble, gravels, stone & fine sand
Depth	1.2 m	Organotreat	Specific media for growth of plant & microbial species

<b>UNIT: TREATED WATER TANK</b>			
Length	2.0 m	Construction	RCC
Width	3.0 m	Quantity	01 No.
Depth	1.5 m		



<b>EQUIPMENT: MEASURING INSTRUMENTS</b>			
pH	pH Meter	Effluent Flow	Flow meter
Type	Digital type	Type	Water Flow Meter

<b>ELECTRICAL LOAD</b>					
SR NO	DESCRIPTION	DUTY	CAPACITY	WORKING LOAD (HP)	CONNECTED LOAD (HP)
1	SEWAGE LIFTING PUMP	1W+1S	2.5 m <sup>3</sup> /hr at 12-15 m head	1	2
2	AIR BLOWER	1W	30 m <sup>3</sup> / hr @ 5500mmwg each	3	3
<b>TOTAL</b>				<b>4</b>	<b>5</b>

# **ANNEXURE-II**

## **SEWAGE TREATMENT PLANT (CIAB)**

### **DESIGN BASIS**

The proposed STP is designed to treat domestic/office sewage with following Characteristics:

Operating Hours : 20

Process type : Continuous operation Sequential Batch Reactor

Nature of Effluent : Office Sewage

Daily Average Flow : 20 KLD

SN.	parameters	Raw sewage	Treated water (After ACF)	Treated water (After UF)
1	pH	7.5	7.0 - 7.5	7.0 – 7.5
2	BOD	<250 PPM	<15 PPM	<5 PPM
3	COD	<450 PPM	<100 PPM	<60 PPM
4	TSS	<300 PPM	<10 PPM	<5 PPM
5	Oil and Grease	<10 PPM	<10 PPM	<1 PPM
6	TDS	<2100 PPM	<2100 PPM	<2100 PPM

### **SELECTION OF TECHNOLOGY**

SBR (Sequential Batch Reactor) Technology is the proven process for treatment of Municipal and Industrial wastewater. The SBR process utilizes a fill-and-draw reactor with complete mixing during the batch reaction step (after filling) and where the subsequent steps of Aeration and Clarification occurs in the same tank. The system offers great flexibility in comparison with other Activated Sludge Systems.

All SBR systems have five steps in common, which are carried out in sequence as follows:

- Fill
- React
- Settle (sedimentation/clarification)
- Draw (decant)
- Idle

Silent features of SBR Technology:

- Small Footprint
- Simple Design.
- Maintains consistent Effluent quality due to batch settling method.

- Suitable for variable Organic and Hydraulic load.
- Biological Nutrient removal.
- A higher degree of operational flexibility with respect to effluent quality and Dissolved Oxygen (DO) controlled aeration system.
- Complete quiescent settling for improved Total Suspended Solids (TSS) removal.
- No separate clarifiers.
- Proven treatment process capacity upgrades and phasing do not require modification or interruption of current treatment process.
- Significantly smaller footprint requires less site work on yard plumbing.
- Power consumption is typically less than that of a conventional plant with substantial power savings at lower flows (i.e., greater turndown capability)

## PROCESS DESCRIPTION

The process considered in the scheme for treatment is as under:

### **PRE-TREATMENT:**

Sewage shall be collected in Equalization (Collection) tank after passing through a Bar Screen and Oil & Grease Trap chamber. In Fine Screen, floating matter and any large particles are trapped in the Screen. Removal of floating/coarse matter is essential otherwise it can choke piping/pumps etc. and hinder the normal operation of the treatment plant. The screens are made of stainless steel.

Oil and Grease Trap is designed to remove free floating Oil & Grease by the process of floatation and for the removal of Bio-degradation of oil or to be periodically manually removed.

Equalization Tank is provided to equalize the irregular flow generation of sewage, homogenize the sewage & neutral the pH. To maintain homogenous conditions and avoid any settling and septicity of sewage aeration is provided through air grid in the Equalization Tank.

### **BIOLOGICAL TREATMENT**

Sewage from Equalization Tank shall be pumped to process reactor.

The main pollutants in the raw sewage are represented in the form of Bio-Chemical Oxygen Demand (BOD) and Chemical Oxygen Demand (COD). The bacterial ability to synthesize the

organic matter to harmless end products like Carbon Di-Oxide (CO<sub>2</sub>) and water molecules is utilized to treat the raw sewage.

The bio-reactions are carried out in controlled environment in the bio-reactor. The bio-reactor comprises of a tank, fitted with aeration grid with fine bubble air diffusers. The bacterial activity needs dissolved oxygen, to synthesize the organic matter. This is supplied by passing air in form of fine bubbles. The air is passed at the bottom of the tank, so that complete volume of tank is utilized. Oxygen dissolves in liquid, which can now be used by the bacteria.

SBR (Sequential Batch Reactor) Technology is the proven process for treatment of Municipal and Industrial Wastewater. The SBR process utilizes a fill-and-draw reactor with complete mixing during the batch reaction step (after filling) and where the subsequent steps of aeration and clarification occurs in the same tank. In its most basic form, the SBR system is simply a set of tanks that operate on a fill-and- draw basis. The tanks may be an earthen or oxidation ditch, a rectangular basin, or any other concrete/ metal type structure. Each tank in the SBR system is filled during a discrete period of time and then operated as a batch reactor. After desired treatment, the mixed liquor is allowed to settle and the clarified supernatant is drawn from the tank. The essential difference between the SBR and the conventional continuous flow activated sludge system is that SBR carries out functions such as Equalization, Aeration and Sedimentation in a time rather in a space sequence.

## **SLUDGE HANDLING**

The excess sludge of SBR basins is collected into sludge holding tank where the sludge shall be aerated and thickened and conveyed to Basket Centrifuge unit for de-watering purpose. Cake from the centrifuge is disposed off or can be used as wet manure. Effluent (Centrate) from the Centrifuge would be transfer to Equalization Tank.

## **CHLORINATION & POLISHING**

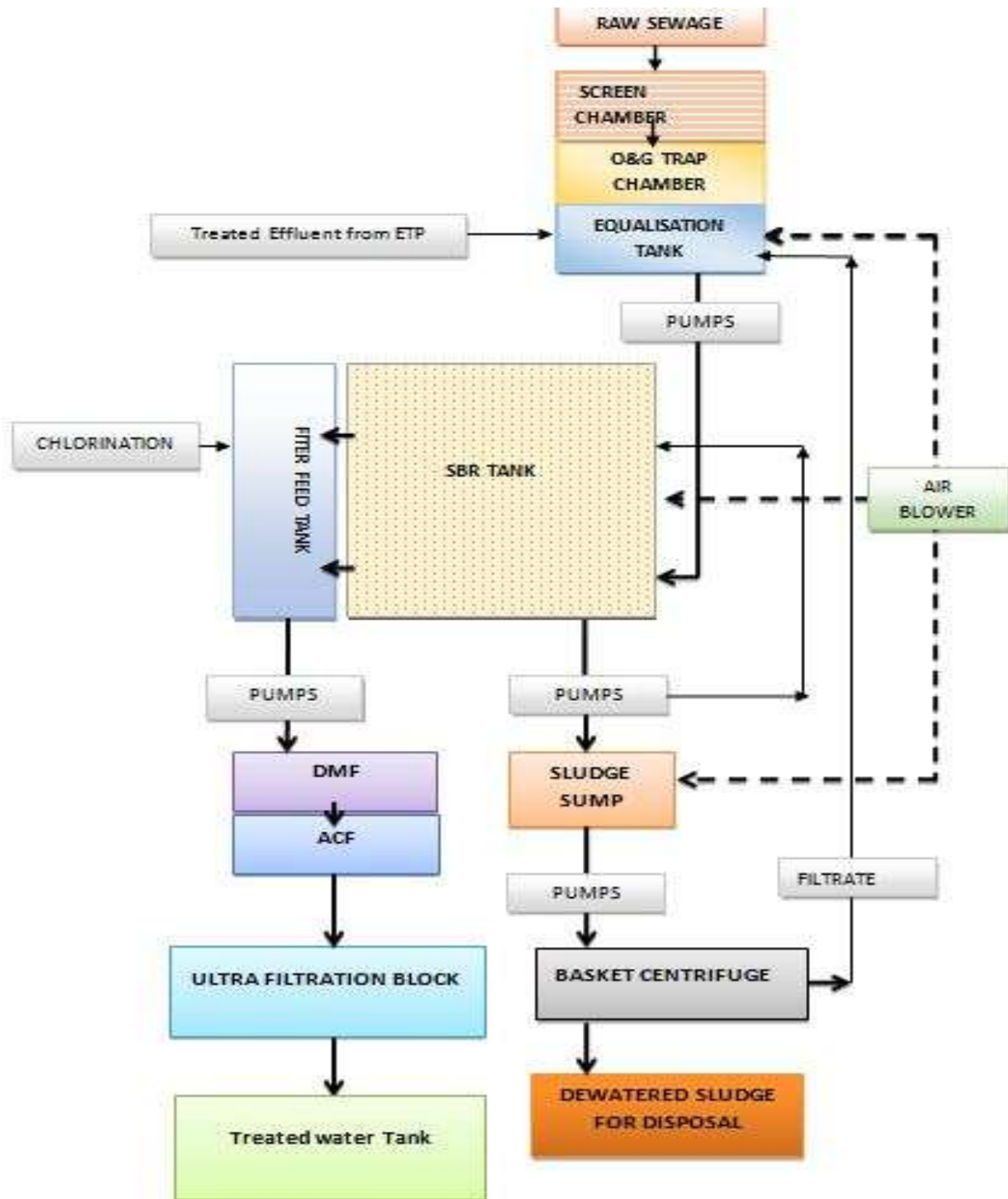
The Effluent from the SBR basins will be collected in Chlorine Contact Tank. The supernatant thus collected will get disinfected in Chlorine Contact Tank by adding suitable dose of chlorine and finally it is discharged in to nearby body.

From outlet of Chlorine Contact Tank, Treated Sewage is pumped to Tertiary Treatment unit comprising of Dual Media Filter and Activated Carbon Filter to achieve the desired results and finally to the Ultrafiltration system to make it fit for reuse in Horticulture & Flushing. Ultrafiltration (UF) is a variety of membrane filtration in which forces like pressure or concentration gradients lead to a separation through a semipermeable membrane. Suspended solids and solutes of high molecular weight are retained in the so-called retentate, while water and low molecular weight solutes pass through the membrane in

the permeate (filtrate). Ultrafiltration membranes are defined by the molecular weight cut-off(MWCO) of the membrane used. Ultrafiltration is applied in cross-flow or dead-end mode.

Treated Sewage is collected in Treated Water Tank for further pumping to the reuse end; same tank shall provide water for back washing of filter also.

## PROCESS BLOCK DIAGRAM OF THE SCHEME



## TECHNICAL SPECIFICATIONS

<b>Unit: BAR SCREEN</b>			
Screen type	Fine Perforated Corrugated Screen		
Quantity	01 Nos.	Clear spacing	6 mm
Width	0.3 m	Designed velocity	0.3 m/s
Depth	0.8 m	Screen	25 X 10 mm
MOC	MS epoxy Painted		

<b>Unit: OIL &amp; GREASE TRAP</b>			
Process	Grit removal by settling and trapping of floating Oil & Grease at baffle wall		
Length	1.5 m	Quantity	1.0
Width	0.7 m	Construction	RCC
Depth	0.5 m	Cleaning	Manually

<b>UNIT : EQUALIZATION TANK</b>			
Construction	RCC	Air Supply	Through Air Grid
Length	4.5 m	Aeration	Perforated Air Grid
Width	1.5 m	Location for grid	Bottom of tank to cover entire surface
Depth	1.5 m		
Quantity	01 No.		

<b>EQUIPMENT : RAW SEWAGE PUMPS</b>			
Quantity	2 Nos.(1W+1S)	Type	Centrifugal self-priming
Flow rate	8 m <sup>3</sup> /hr	MOC	Cast Iron
Head	Suitable	Drive	Coupled to motor

<b>UNIT : SBR TANK</b>			
MOC	RCC	No. of Chambers	1
length	3.0 m	Aeration	Fine bubble

			Diffuser
Width	1.5 m	Decanter flow	4 m <sup>3</sup> /batch
Depth	2.7 m	Decanter MOC	UPVC
Air Grid	Bubble diffuser	Type	fine

<b>EQUIPMENT: AIR BLOWER</b>			
Air Flow	60 m <sup>3</sup> /hr	Quantity	2 Nos. (1W+1S)
MOC	Cast Iron	Type	Twin type Positive displacement

<b>EQUIPMENT: SLUDGE RE-CIRCULATION PUMP</b>			
Quantity	2 Nos.	Flow	8 m <sup>3</sup> /hr
Type	Centrifugal	Head	15 m
MOC	CI	RPM	2900

<b>UNIT: CHLORINE CONTACT TANK</b>			
Volume of tank	3 m <sup>3</sup>	Disinfectant	Free Chlorine
Chlorine Dosage	4 ppm	Process of dosing	Hypo solution through dosing pump
Solution making tank	1	Solution tank volume	50 Lt./HDPE
No. of dosing pumps	1	Pump capacity	0-2 Lph
Pump MOC	PP		

<b>EQUIPMENT: FILTER FEED PUMPS</b>			
Quantity	2 Nos. (1W+1S)	Flow	1 m <sup>3</sup> /hr
Type	Centrifugal Monoblock	Head	26 m
MOC	CI		

<b>EQUIPMENT: DUAL MEDIA FILTER</b>			
Quantity	01 No.	Dia	13 inch
Flow Rate	1 m <sup>3</sup> /hr	MOC	FRP

<b>EQUIPMENT : ACTIVATED CARBON FILTER</b>			
Quantity	01 No.	Dia	13 inch
Flow Rate	1 m <sup>3</sup> /hr	MOC	FRP

Principal Media	Activated carbon		
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<b>UNIT: ULTRAFILTRATION FEED TANK</b>			
Length	1.3 m	Construction	RCC
Width	1.0 m	Quantity	01 No.
Depth	1.6 m		

<b>UNIT: ULTRAFILTRATION</b>			
Flow	2 m <sup>3</sup> /hr	Feed Pump Quantity	2 (1W+1S)
Instrumentation	1	UF membrane	1

<b>UNIT: TREATED WATER TANK</b>			
Length	1.3 m	Construction	RCC
Width	2.4 m	Quantity	01 No.
Depth	1.6 m		

<b>EQUIPMENT : BASKET CENTRIFUGE</b>			
QUANTITY	1 No.	Type	Motor Pulley driven
Capacity	0.5 m <sup>3</sup> /hr	MOC	MS body, SS-304 Basket

<b>EQUIPMENT : CENTRIFUGE FEED PUMPS</b>			
Quantity	2 Nos (1W+1S)	Type	Centrifugal
Capacity	0.5 m <sup>3</sup> /hr @ 1.0kg/cm <sup>2</sup> , 10 M head	MOC	Casing & Rotor- Cast Iron

<b>UNIT : SLUDGE HOLDING TANK</b>			
Length	1.3 m	Quantity	01 No.
Width	1.0 m	Construction	RCC
Depth	1.6 m		



<b>EQUIPMENT : PLANT ROOM SUMP PUMP</b>			
Quantity	2 Nos.	Type	Non clogging type submersible
Flow rate	13 m <sup>3</sup> /hr	MOC	Cast Iron
Head	10 m	Drive	Coupled to motor

<b>EQUIPMENT: MEASURING INSTRUMENTS</b>			
<b>Pressure</b>	Pressure Gauge	Pressure sensing	By diaphragm
Type	Bourdon's tube/Glycerin filled	Dia. of dial	100 mm
Location	Outlet of Pumps & Blower		
<b>Water Level</b>	Level Control Switch	<b>AIR Rotameter</b>	01
Type	Liquid Bouncy	Location	SBR air inlet
Location	With pumps in respective tanks		

<b>ELECTRICAL LOAD</b>					
SR NO	DESCRIPTION	DUTY	CAPACITY	WORKING LOAD (HP)	CONNECTED LOAD (HP)
1	SEWAGE LIFTING PUMP	1W+1S	8 m <sup>3</sup> /hr at 10 m head	1	2
2	SLUDGE RECIRCULATION PUMP	1W+1S	3.6 m <sup>3</sup> /hr at 10 m head	1	2
3	AIR BLOWER	1W+1S	60m <sup>3</sup> / hr @ 6000 mmWC each	5	10
4	FITTER FEED PUMP	1W+1S	1 m <sup>3</sup> /hr at 26 m head	1.02	2.04
5	UF PUMP	1W+1S	1 m <sup>3</sup> /hr at 26 m head	1.02	2.04
6	PLANT ROOM SUMP PUMP	1W+1S	13 m <sup>3</sup> /hr at 15 m head	1	2
7	CENTRIFUGE	1W+1S	0.5 m <sup>3</sup> /hr@ 10m head	1	2

	FEED PUMP				
8	DOSING PUMP	1W	0-2lph	0.05	0.05
9	CENTRIFUGE SYSTEM	1W	0.5 m3/hr	2	2
<b>TOTAL</b>				<b>13.09</b>	<b>24.13</b>

## EFFLUENT TREATMENT PLANT

### DESIGN BASIS

#### Design Specifications

Treatment process	Physicochemical treatment
Wastewater flow	5 KLD
Type of Effluent	Laboratory Effluent

### SELECTION OF TECHNOLOGY

#### PHYSICO-CHEMICAL PROCESS

The type of treatment selected depends on the size of particles present in the wastewater. In practice, treatment efficiency also depends on particle size. Solids of the size that are visible to the naked eye can be separated either by settling under the influence of gravity. However, very fine particles of a colloidal nature (called colloids, size  $< 1 \mu\text{m}$ ) which have high stability are significant pollutants. It is not possible to separate these solids by filtration because they pass through any filter. However, separation by Physico-Chemical Treatments is possible.

Physico-chemical treatment of wastewater focuses primarily on the separation of colloidal particles. This is achieved through the addition of chemicals (called Coagulants and Flocculants). These change the physical state of the colloids allowing them to remain in an indefinitely stable form and therefore form into particles or flocks with settling properties.

#### Stages of the Physico-Chemical Process

##### Coagulation

Coagulation refers to destabilization or neutralization of the negative charges contained in the wastewater by the addition of a coagulant applied during rapid mixing. The quantity of coagulant applied during coagulation depends on the quality of water (domestic or industrial).

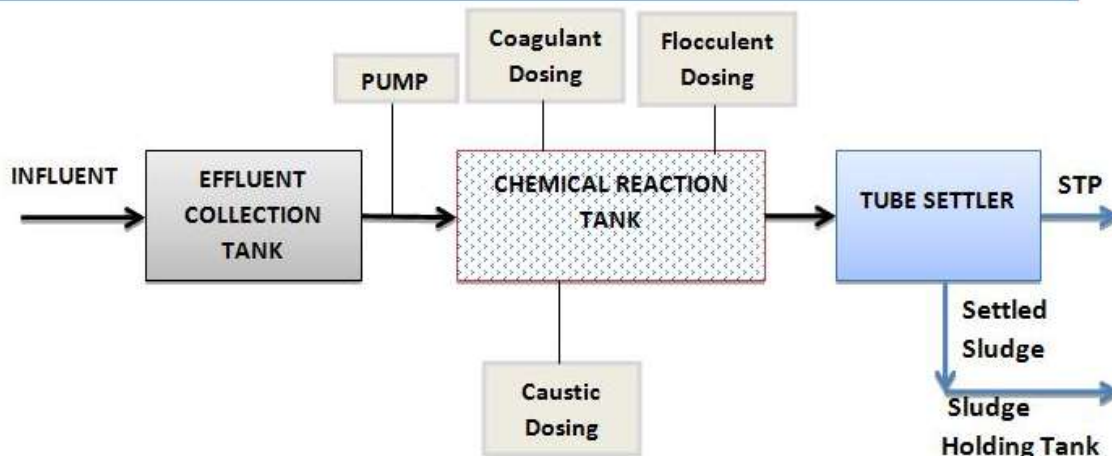
## Flocculation

In this stage, previously formed flocks group together, increasing in volume and density, allowing them to be sedimented. During the flocculation stage, chemicals referred to as flocculants are applied (assisted flocculation). These products allow flocks to come together and adhere, increasing their size and density.

## Sedimentation or clarification

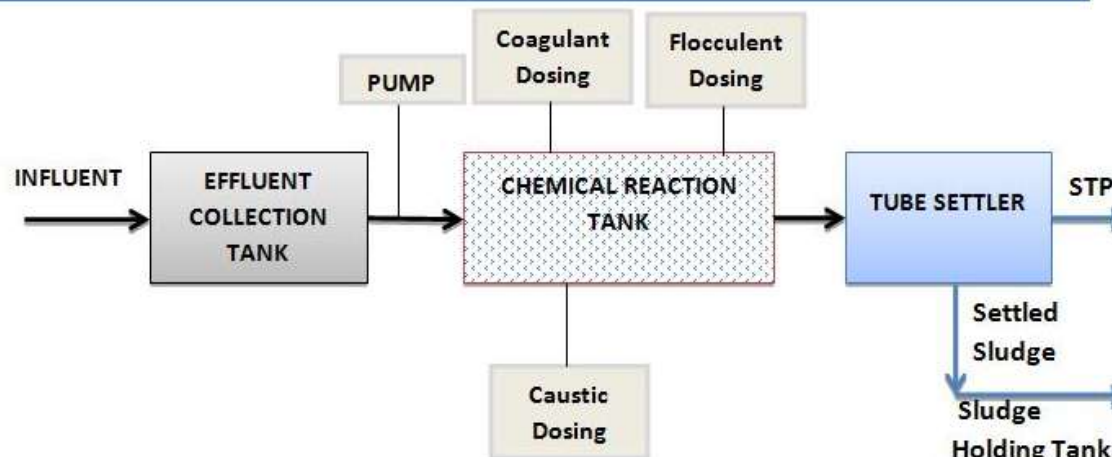
This is the stage of flock removal by solid - liquid separation. For this, low, medium and high rate settlers are commonly used. The rate is determined by the speed at which water and sludge are

### PROCESS BLOCK DIAGRAM OF THE SCHEME



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### PROCESS BLOCK DIAGRAM OF THE SCHEME



## TECHNICAL SPECIFICATIONS

<b>UNIT: EFFLUENT COLLECTION TANK</b>			
Length	1.5 m	Construction	RCC
Width	1.0 m	Quantity	01 No.
Depth	1.5 m		

<b>EQUIPMENT: RAW EFFLUENT PUPM</b>			
Quantity	2 no. (1W+1S)	Type	Centrifugal self-Priming
Flow	0.625 m <sup>3</sup> /h	MOC	Cast Iron
Head	Suitable		

<b>UNIT :CHEMICAL REACTION TANK</b>			
Volume	0.5 m <sup>3</sup>	Air mixing	Through Air grid
MOC	MS-FRP (inside)	Quantity	01 No.
PE Dosing system	HDPE tank of 100 Lt.	PE dosing Pump	0-6 LPH, 1 no.
ALUM Dosing system	HDPE tank of 100 Lt.	ALUM dosing Pump	0-6 LPH, 1 no.
CAUSTIC Dosing System	HDPE tank , 1 of 100 Lt.	CAUSTIC Dosing Pump	0-6 LPH, 1no.

<b>UNIT : PRIMARY SETTLING TANK</b>			
Settling Area	1 m <sup>2</sup>	Type	Tube Type
Settling media	Square Tube type	Modules	PVC
MOC of tank	MS-FRP (inside)		

<b>ELECTRICAL LOAD</b>					
<b>SR NO</b>	<b>DESCRIPTION</b>	<b>DUTY</b>	<b>CAPACITY</b>	<b>WORKING LOAD (HP)</b>	<b>CONNECTED LOAD (HP)</b>
1	RAW EFFLUENT PUMP	1W+1S	0.625 m <sup>3</sup> /hr at suitable m head	1	2
2	PE DOSING PUMP	1W	0-6 LPH	0.05	0.05
3	ALUM DOSING PUMP	1W	0-6 LPH	0.05	0.05
4	CAUSTIC DOSING PUMP	1W	0-6 LPH	<b>0.05</b>	<b>0.05</b>
<b>TOTAL</b>				<b>1.15</b>	<b>2.15</b>

**ANNEXURE-III**  
**Sampling and**  
**analysis**

Sl. No.	Parameter	Periodicity
<b>FOR BOTH SEWAGE TREATMENT PLANTS</b>		
1	PH of feed	Field test daily as required
2	PH of permeate	(All apparatus, testing
3	Dissolved oxygen	Chemicals & Testing at
4	MLSS	contractor"s cost)
	<b>Permeate to be Tested in PPCB/MOEF approved NABL Lab</b>	
1	pH	<b>At least once in a month</b>
2	Total suspended solids	(All sampling & testing
3	Total dissolved solids	charges at contractor"s cost –
4	Oil & Grease	To be tested at a
5	Chemical oxygen demand	PPCB/MOEF
6	BOD	approved NABL accredited lab) <b>at expenditures within the quoted rates</b>

Note:- Any other test required by PPCB/MOEF/NABI for ascertaining quality parameters of treated water shall be done by contractor within quoted rates.

## **Annexure - IV**

### **List of records to be maintained**

1. Consumption of chemicals on weekly basis.
2. Hours of Operation of all pumps, blowers, etc.,
3. Flow meter reading of Permeate, sludge bleed etc.
4. Breakdown and corrective/preventive actions.
5. Process failures and corrective/preventive actions.
6. Lab monitoring records for all parameters of feed & permeate.
7. Records for receipt and use of spares, dosing chemicals, etc.
8. Pay quittance and attendance register.
9. EPF, ESI, Service Tax and Pan No

## **GENERAL SAFETY PRECAUTION TO BE FOLLOWED AT WORK SITE DURING EXECUTION**

1. The following safety measures should be strictly adhered to during execution of works at sites.
2. Providing the working platform with toe – board and handrail for continuous working at heights
3. Providing safety belt and life – line at all times for men working at heights
4. Providing dust or fume respirator in places where dust and fume concentration exist
5. Providing goggles and welding screens
6. Providing acid and alkali – proof rubber gloves for handling acid and alkali and chemical which are corrosive
7. Providing rubber gloves for working on electrical works
8. Ensuring proper lashing of the components while being transported in vehicles
9. The vehicles must have side supports or have body to support the materials conveyed
10. The materials should not be allowed to extend or overflow the sides of the vehicles
11. Materials should not be allowed to overhang from the rear edge of the body of the vehicle
12. Driver of the vehicle must possess valid license
13. Vehicle must not be overloaded beyond the prescribed limits.
14. Red flags and lights for parts projecting from the body of vehicle must be provided.
15. The speed restrictions within the factory premises must be strictly adhered to.
16. The gas cylinders must be always handled on trolleys or kept tied down when not in use. They should never be rolled as Roller for conveying.
17. Cylinders should not be used without Regulators.
18. All excavations must be barricaded and red lamps must be provided.
19. All electrical connections must be properly earthed.
20. No work should be taken up of execution inside shop floor, without obtaining necessary work permit.
21. Providing helmet for high level work



22. The contractor should maintain a register regarding the driver license particulars
23. All personal protective equipment conforms to standard specification as per the details given in the code of conduct.

All Contractors including their sub-contractors, agents and labour engaged on the work are required to scrupulously adhere to the safety regulations, safety precautions and measures. Any violation thereof will invite punitive action being taken against them. Also contractors with frequent violations of safety regulations will not be entrusted with further work in this organization.

24. **Contractor shall provide thick hat, safety glass with side shield, full face shield, ear plug set, face mask, protective & chemical resistant gloves, safety shoe, gum boots, safety belt, rain coat, chemical resistant protective clothing, gas detector and breathing apparatus to the operators & supervisor within the quoted rates.**

**TERMS AND CONDITIONS REGARDING COMPLIANCE WITH VARIOUS LABOUR LAWS BY THE CONTRACTORS FOR NABI**

- The Contractor shall not employ in connection with the work any person who has not completed 14 years of age.
- The Contractor shall in respect of labour employed by him either directly or through subcontractors, company with or cause to be complied with the following statutory provisions and rules and in regard to an all matters provided therein.
  - a. The Contract Labour (Regulation & Abolition) Act 1970 and the related Rules
  - b. The Minimum Wages Act 1948
  - c. The payment of Wages Act 1936 and the related Rules
  - d. The Factories Act 1948 and the related Ruled
  - e. The Employee"s Provident Fund & Miscellaneous Provisions Act 1952.
  - f. The Employees State Insurance Act 1948
  - g. The Workmen Compensation Act. 1923
  - h. The Industrial Disputes Act 1947.
  - i. **The Payment of Bonus act 1965.**

And any other law or modifications to the above or there to the Rules made thereunder from time to time.

- The Contractor employing 20 or more workmen or as per bye laws is required to obtain license from the authorities (The Deputy Chief Inspector of Factories / Assistant Commissioner of Labour as the case may be). The license shall be amended and / or renewed wherever, there is an increase in the workmen employed by him or in the event or contract being extended or renewed. The Contractor shall inform the license number to the NABI Management before taking up the work.
- The Contractor (Licensed or unlicensed) shall promptly furnish every information and document required by NABI authorities for the purpose of fulfilling their obligations as Principal Employer and / or Occupier of the Factory and shall render all necessary assistance for the same.
- The Contractor shall fix wage periods in respect of which wages shall be payable. No wage period shall exceed one month.
- Where the employment of worker is terminated by or on behalf of the Contractor, the wages earned by him shall be paid before the expiry of the second working day from the day on which his employment is terminated.
- Wages due to every worker shall be paid to him direct or to the person authorized him in this behalf. All wages shall be paid in current coin or in both.

## **REGISTERS AND RECORDS AND COLLECTION OF STATISTICS**

- The following documents / formats under Contract Labour (Regulation & Abolition) Act 1970 and Punjab/ central Rules thereunder shall be maintained by each contractor.
  - a. Register of persons employed by the Contractor
  - b. Employment Card
  - c. Service Certificate
  - d. Muster Roll, Wage Register, Deduction Register, wage slip, Overtime Register, register of Fines, Register of Advances etc.,
- The Contractor shall display the abstract of the Contract Labour (Regulation & Abolition) Act and the Rules thereunder both in English and Tamil.
- Half yearly Return shall be by the Contractor in duplicate to the Licensing Officer, if applicable.
- All the above registers and records shall be preserved in original for a period of three years. All the registers, records and notice maintained under the Act and rules shall be produced on demand by Inspector or any authority under the Act.

## **WORKING HOURS AND WORKING CONDITIONS**

- Workers/operators should have a rest day in week. Reliever staff, operators etc should accordingly be arranged by contractor.
- The Contractor shall inform NABI in the prescribed form details of the contract workers scheduled to work on Sunday, the way of rest and also indicate the substituted holiday in lieu thereof. This shall be intimated two days in advance before his workmen and booked for work Sunday.
- The contract labour working for more than nine hours in any day or for more than 48 hours in any week shall be paid wages at the rate of twice the ordinary rate of wages in accordance with the provisions of Sections 59 of the Factories Act 1948.
- The Contractor shall provide all safety devices and personal protective equipment to his workmen at his own cost and shall ensure that his workmen wear / use such devices or equipment provided to them while doing the work and there should not be any relaxation on this.
- The Contractor shall give at least four paid National Holidays to his workers, viz., 26th January, 1st May, 15th August and 2nd October.
- The Contractor shall ensure that his workmen vacate the premises after the shift is over.
- The Contractor shall comply with the provisions relating to Welfare and Health facilities as provided in the Contract Labour (Regulation and Abolition) Act 1970 read with the Tamil Nadu Contract Labour Rules 1975.

## **NOTICE OF ACCIDENTS**

- Notwithstanding anything contrary to this, in the event of accident the contractor shall be required to fill injury report and submit the Engineer in charge immediately and ensure the compliances of ESI / workmen's compensation Act, Factories Act and Rules made there under. He shall also maintain a register of accident as per the Act.
- The Contractor shall get the contract labour engaged by him insured under Workmen's Compensation policy from general should be for the entire period of Contract. The Contract shall comply with the provisions of the Workmen's Compensation Act 1923. (This should be read in conjunction with the provisions of ESI Act).

## **COVERAGE UNDER THE ESI ACT / PF AND MISCELLANEOUS PROVISIONS ACT**

- The contractor shall ensure that all his workmen are covered under the Employee's State Insurance Act and producer to NABI such Registration Number / Enrolment Number.
- The Contractor shall regularly pay the amount of all such EPF,ESI contributions as amended from time to time by Government . The cost of same shall be deemed to be included in the quoted rates by bidder.
- The Contractor shall take note of any amendment in the rate of contribution payable under the scheme from time to time.
- Whenever any sum of money is found to be recoverable from or payable by the contractor under the above Act, the sum shall be deducted from any sum that may be due or which at any time thereafter may become due to the Contractor under this contract or under any other contract or from his security deposit, the contractor shall immediately thereafter such further sums as may be required to replenish the shortage caused by such recoveries in amount of security deposit.
- The Contractor shall abide by all the labour and other laws applicable to contract labour / worker under this contract and shall at all times keep NABI indemnified against all losses, claims, prosecutions under any law.
- In case of non-compliance of any of the provisions of the Acts and in case NABI having complied with the same NABI will be entitled to recover the same from the contractor / sub-contractor.
- Non-exercise of any of the powers of rights available to NABI hereunder to under any law shall not in any way operate as waiver thereof.

**CERIFICATE OF NO DEVIATION/CONDITION**

I / We ..... of M/s .....

hereby certify that **there is no deviation/condition** from the tender conditions either technical or commercial and I am / we are agreeing to all the terms and conditions mentioned in the Tender Specification.

I / We have submitted our offer for this tender. I / We have fully gone through, understood and accepted all specifications, terms & conditions of the whole tender documents uploaded in NABI web site including all corrigenda, addenda etc published in the website time to time for this tender.

Date:

Signature of the tenderer

## **GENERAL CONDITIONS OF CONTRACT**

### **LABOUR**

The contractor shall employ labour in sufficient numbers either directly or through sub-contractors to maintain the required date of progress and of quality to ensure workmanship to the degree specified in the contract and to the satisfaction of the Engineer – in – charge. The contractor shall not employ, in connection with the works, any person who has not completed eighteen years of age.

The Contractor shall pay to labour employed by him, either directly or through sub-contractors, wages not less than fair wages, as defined in the Contractor"s Labour Regulations.

The Contractor shall in respect of labour employed by him, either directly or through sub-contractors, complies with or cause to be complied with contractor"s labour Regulations in regard to all matters provided therein.

The Contractor shall comply with the provisions of the payment of Wages Act, 1936, Minimum Wages Act, 1948, Workmen"s Compensation Act 1923, Industrial Disputes Act, 1947, Maternity Benefit Act 1961, or any modifications thereof or any other law relating there to and rules made there under from time to time.

The Contractor shall be liable to pay his contribution and the employee"s contribution of the State Insurance Scheme in respect of all labour employed by him for the execution of the contract, in accordance with the provision of "The Employees" State Insurance Act, 1948" as amended from time to time. The Contractor shall apply to the ESI Authorities, get himself registered with them and obtain a code Number. He shall pay the remittances under his Code Number only.

The Contractor shall be liable to his contribution and the employee"s contribution towards PF as per Provident Fund Rules and Regulations, in respect of all labour employed by him for the execution of the contract. The Contractor shall apply to the PF Authorities, get himself registered and obtain a code number from them. He shall pay the remittances towards PF under his code number only.

The Engineer-in-charge shall, on a report having been made by an Inspecting Officer as defined in the Contractor"s Labour Regulations, have the power 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 workers, non-payment of wages or of deductions made a from his or their wages which are not justified by the terms of the Contract of non observance of the said Contractor"s Labour Regulations.

The Contractor shall indemnify NABI against any payment to be made under and for observance of the Regulations aforesaid without prejudice to his right to claim indemnity from his sub-contractors.

In the event of the Contractor committing a default or breach of any of the provisions of the aforesaid contractor's Labour Regulations, as amended from time to time or furnishing any information or submitting or filling any form / Register / Slip under the provisions of these Regulations which is materially incorrect, then, on the report of the Inspecting Officers as defined in the Contractors Labour Regulations, the Contractor shall without prejudice to any other liability pay to NABI a sum not exceeding Rs. 50/- as liquidated damages for every default, breach, or furnishing, making, submitting, filling materially incorrect statements as may be fixed by the Engineer-in-charge and in the event of the contractor's default continuing in this respect, the liquidated damages may be enhanced to Rs. 50/- per day for each day of default subject to a maximum percent of the estimated cost of works put to tender. The Contractor shall defend the case by himself any action brought in by such Government Agencies for non-compliance of any Labour Regulations and / or reimburse the expenses incurred by NABI in this regard.

The Engineer-in-charge shall deduct such amount from bills or security deposit of the Contractor and credit the same to the welfare fund constituted under Regulations. The decisions of the Engineer-in-charge in this respect shall be final and binding.

### **MODEL RULES FOR LABOUR WELFARE**

The Contractor shall, at his own expense, comply with or cause to be complied with Model Rules for Labour Welfare as appended to these conditions or rules framed by Government from time to time, for the protection of health and for making sanitary arrangements for workers employed directly or indirectly on the works. In case the Contractor fails to make arrangements as aforesaid, the Engineer-in-charge shall be entitled to do so and recover the cost there from the contractor.

### **SAFETY CODE**

#### **RESPONSIBILITIES OF THE CONTRACTOR IN RESPECT OF SAFETY OF MEN, EQUIPMENT, MATERIAL AND ENVIRONMENT**

1. Before commencing the work, the contractor is required to submit a "SAFETY PLAN" to the authorized NABI official. The „safety plan" shall indicate, in detail, the measure that would be taken by the contractor to ensure safety of men, equipment, material and environment during execution of work. The plan shall take care to satisfy all requirements specified hereunder. The contractor shall submit safety plan along with his offer. During negotiations before placing of work order and during execution of the contract, NABI shall have right to review and suggest modification in the safety plan. The contractor shall abide by NABI's decision in this respect.
2. The contractor shall take all necessary safety precautions and arrange for appropriate appliances as per direction of NABI, or its authorized officials, to prevent loss to human lives, injuries to personnel engaged, and damage to property and environment.
3. The contractor shall provide to its work force and ensure the use of the following personal protective equipment as found necessary and as directed by the authorized NABI officials:-
  - (i) Safety helmets conforming to IS-2925: 1984.
  - (ii) Safety Belts conforming to IS-3521:1983
  - (iii) Safety Shoes conforming to IS-1989:1978.

- (iv) Eye and Face protection devices conforming to IS-8520:1977. And IS-8940:1978.
- (v) Hand and body protection devices conforming to

1. IS-2573:1975 (2) IS-6994:1973 (3) IS-8807:1978 (4) IS-8519:1977.

All tools, tackles, lifting appliances, material handling equipment, scaffolds, cradles, safety nets, ladders, equipment etc. used by the contractor shall be of safe design and construction. These shall be tested and certificate of fitness obtained, before putting them to use and from time to time as instructed by authorized NABI official who shall have the right to ban the use of any item.

All the electrical equipment, connections and wiring for constructions, power, its Distribution and use shall conform to the requirement of Indian Electricity Act and Rules. Only electricians licensed by the appropriate statutory authority shall be employed by the contractor to carry out the all types of electrical works. All electrical appliances including portable electric tools used by the contractor shall have safe plugging system to source of power and be appropriately earthed.

The contractor shall not use any hand – lamp energized by electric power with supply voltage of more than 24 Volts. For work in confined spaces, lighting shall be arranged with power source of not more than 24 Volts.

The contractor shall adopt all fire safety measures as laid down in the “Code for Fire Safety at Construction sites” issued by the safety department of NABI and as per the directions of the authorized NABI official. A copy of the above referred “Code for Fire Safety at Construction sites” shall be made available by NABI to the contractor for reference, on demand by the contractor, during tendering stage itself.

Where it becomes necessary to provide and/or store Petroleum Products, explosives, chemicals and liquid or gaseous fuel or any other substance that may cause fire or explosion, the contractor shall be responsible for carrying out such provisions and / or storage in accordance with the rules and regulations laid down in the relevant government acts, such as Petroleum Act, Petroleum and Carbides of Calcium Manual of the Chief Controller of Explosives, Govt. of India etc., Prior approval of the authorized NABI official at the site shall also be taken by the contractor in all such matters.

The contractor shall arrange at his cost (wherever not specified), appropriate illumination at all work spots for safe working when natural daylight may not be adequate for clear visibility.

The contractor shall be held responsible for any violation of statutory regulations local, state or central and NABI instructions, that may endanger safety of men, equipment, material and environment in his scope of work or another contractor’s or agency’s. Cost of damages if any, to life and property arising out of such violation of statutory regulations and NABI instructions, shall be borne by the contractor.

In case of fatal or disabling injury/accident to any person at construction / work sites due to lapses by the contractor, the victim and/or his/her dependents shall be compensated by the contractor as per statutory requirements. However, if considered necessary, NABI have the right to impose appropriate financial penalty on the contractor and recover the same from payments due to the contractor for suitably compensating the victim and/or his/her dependents. Before imposing any such penalty, appropriate enquiry shall be held by NABI giving opportunity to the contractor to present his case.



In case of any damage to property due to lapses by the contractor, NABI shall have the right to recover cost of such damages from payments due to the contractor after holding an appropriate enquiry.

In case of any delay in the completion of a job due to mishaps attributable to lapses by the contractor, NABI shall have the right to recover cost of such delay from payments due to the contractor, after notifying the contractor suitably and giving him opportunity to present his case.

If the contractor fails to improve the standards of safety in its operation, to the satisfaction of NABI, after being given a reasonable opportunity to do so and / or / if the contractor fails to take appropriate safety precautions or to provide necessary safety devices and equipment or to carry out instructions regarding safety issued by the authorized NABI official, NABI shall have the right to take corrective steps at the risk and cost of the contractor, after giving a notice of not less than seven days, indicating the steps that would be taken by NABI.

The contractor shall submit report of all accidents, fires and property damage, dangerous occurrence to the authorized NABI official immediately after such occurrence, but in any case not later than twelve hours of the occurrence. Such reports shall be furnished in the manner prescribed by the contractor to the authorized NABI official from time to time as prescribed.

Before commencing the work, the contractor shall appoint/nominate a responsible office to supervise implementation of all safety measures and liaison with his counterpart of NABI.

If the Safety record of the contractor is to the satisfaction of Safety Department of NABI, issue of an appropriate certificate to recognize the safety performance of the contractor may be considered by NABI after completion of the job.

## **Goods and Service Tax**

**Operation and annual comprehensive maintenance of 350 KLD SBR Technology- Sewage Treatment Plant (STP) along with Soil Scape Filtration based Effluent Treatment Plant (ETP) for NABI and 20 KLD SBR Technology Sewage Treatment Plant (STP) cum Effluent Treatment Plant (ETP) for CIAB at Sector-81, Mohali.**

The Bidder shall not include GST in their quoted rates; but the bidder has to separately indicate the GST rate, amount and workings thereof in the Price bid schedule included in the bid documents.

If GST/tax amount is not indicated separately in the price bid schedule included in the Bid documents, it will be presumed that the quoted rate is inclusive of applicable tax and bids will be evaluated accordingly.

**Any statutory variation in Tax Rate during contract period shall be reimbursed by the NABI based on claim by the Agency.**

### **Contractor to Keep Site Clean**

When the annual repairs and maintenance/finishes of works are carried out, the splashes and droppings from white washing, colour 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 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 days notice in writing to the contractor.

### **Payment of Bill**

*The payment shall be released on monthly basis based on quoted rates by contractor. Monthly bills shall be cleared within 21 days from date of submission of hard copy of bill, subject to satisfactory services provided by contractor.*

**No additional payment shall be release on Account of Increase in Prices/Wages due to Statutory Order(s)**

### **Contractor to Supply Tools & Plants etc.**

The contractor shall provide at his own cost all materials , machinery, tools & plants as specified in schedule F. In addition to this, appliances, implements, other plants, ladders, cordage, tackle, scaffolding and temporary works required for the proper execution of the work, whether original, altered or substituted and whether included in the specifications or other documents forming part of the contract or referred to in these conditions or not, 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 work. 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 expense of the contractor and the expenses may be deducted, from any money due to the contractor, under this contract or otherwise and/or from his security deposit or the proceeds of sale thereof, or of a sufficient portions thereof.

No labour below the age of fourteen years shall be employed on the work.

#### **Termination of Contract on death of contractor**

Without prejudice to any of the rights or remedies under this contract, if the contractor dies, the Engineer-In-charge on behalf of the Executive Director, NABI shall have the option of terminating the contract without compensation to the contractor.

#### **If relative working in department then the contractor not allowed to tender**

The contractor shall not be permitted to tender for works if officials responsible for award and execution of contracts. He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any Officer in NABI. Any breach of this condition by the contractor would render him debarred from tendering .

*NOTE: By the term "near relatives" is meant wife, husband, parents and grandparents, children and grandchildren, brothers and sisters, uncles, aunts and cousins and their corresponding in-laws.*

#### **No Gazetted Engineer to work as Contractor within one year of retirement**

No engineer of gazetted rank or other gazetted officer employed in NABI engineering division or administrative duties shall work as a contractor or employee of a contractor for a period of one year after his retirement from NABI service without the previous permission of Competent Authority at NABI in writing. This 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 the permission of Competent Authority at NABI as aforesaid, before submission of the tender or engagement in the contractor's service, as the case may be.

#### **Apprentices Act provisions to be complied with**

The contractor shall comply with the provisions of the Apprentices 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 the contract and the owner may, in his discretion, cancel the 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.

## **LIST OF ACTS AND OMISSIONS FOR WHICH FINES CAN BE IMPOSED**

In accordance Labour Regulations to be displayed prominently at the site of work both in English and local Language.

1. Willful insubordination or disobedience, whether alone or in combination with other.
2. Theft fraud or dishonesty in connection with the contractors beside a business or property of CPWD.
3. Taking or giving bribes or any illegal gratifications
4. Habitual late attendance.
5. Drunkenness lighting, riotous or disorderly or indifferent behavior
6. Habitual negligence.
7. Smoking near or around the area where combustible or other materials are locked
8. Habitual indiscipline.
9. Causing damage to work in the progress or to property of the CPWD or of the contractor.
10. Sleeping on duty.
11. Malingering or slowing down work.
12. Giving of false information regarding name, age father's name, etc.
13. Habitual loss of wage cards supplied by the employers.
14. Unauthorised use of employer's property of manufacturing or making of unauthorised particles at the work place.
15. Bad workmanship in construction and maintenance by skilled workers which is not approved by the Department and for which the contractors are compelled to undertake rectifications.
16. Making false complaints and/or misleading statements.
17. Engaging on trade within the premises of the establishments.
18. Any unauthorised divulgence of business affairs of the employees.
19. Collection or canvassing for the collection of any money within the premises of an establishment unless authorised by the employer.
20. Holding meeting inside the premises without previous sanction of the employers.
21. Threatening or intimidating any workman or employer during the working hours within the premises.

# Form of Contract

**THIS CONTRACT is made on ..... day of ..... 2018**

## **BETWEEN**

National Agri-Food Biotechnology Institute (NABI) which is a society registered under the Societies Registration Act, XXI of 1860 and having its Office at Knowledge City, Sector-81, Mohali (hereinafter called Owner, which expression shall where the context so admits include its successors and permitted assigns) of the one part,

## **AND**

CONTRACTOR, having its registered office at ..... (Hereinafter referred to as CONTRACTOR) which expression shall, include its successors and permitted assigns, of the other part.

**WHEREAS OWNER** intends to have certain Services for “**Operation and annual comprehensive maintenance of 350 KLD SBR Technology- Sewage Treatment Plant (STP) along with Soil Scape Filtration based Effluent Treatment Plant (ETP) for NABI and 20 KLD SBR Technology Sewage Treatment Plant (STP) cum Effluent Treatment Plant (ETP)for CIAB at Sector-81, Mohali.** at NABI campus at Sector 81, Mohali (hereinafter referred to as PROJECT),

**AND WHEREAS** said CONTRACTOR is in the business of providing inter-alia management, construction works and possesses experience, expertise and knowledge in this regard,

**AND WHEREAS OWNER** has selected CONTRACTOR to undertake the said services hereinafter referred to and specified in this CONTRACT as “**Operation and annual comprehensive maintenance of 350 KLD SBR Technology- Sewage Treatment Plant (STP) alongwith Soil Scape Filtration based Effluent Treatment Plant (ETP) for NABI and 20 KLD SBR Technology Sewage Treatment Plant (STP) cum Effluent Treatment Plant (ETP)for CIAB at Sector-81, Mohali.**”

**AND WHEREAS** said CONTRACTOR agrees to perform such WORKS, SERVICES as the terms and conditions for the performance of the said WORKS, SERVICES as detailed herein.

**NOW THEREFORE**, in consideration of the premises and the covenants set forth in this CONTRACT, OWNER & CONTRACTOR mutually agree and confirm the agreement detailed herein and witnesseth as follows:

## **Clause -1: CONTRACT DOCUMENT**

The following documents shall constitute the CONTRACT in addition to Form of Contract

1. Tender Document with terms & conditions, technical eligibility criteria.
2. Financial bid submitted by contractor.
3. All correspondence / Minutes of meetings/Negotiation etc. between NABI & CONTRACTOR after the issue of NIT document till the award of work.
4. Award letter

## **Clause-2 EFFECTIVE DATE OF CONTRACT**

This CONTRACT shall be deemed to have come into force with effect from..... day of issue of letter of Award by NABI

**Clause-3 SERVICES TO BE PERFORMED**

CONTRACTOR shall perform the SERVICES as herein specified upon the general terms and conditions and within time frame specified in the CONTRACT.

**Clause-4 REMUNERATION AND CONTRACT PRICE**

OWNER shall, in considerations of the SERVICES performed pay to CONTRACTOR remuneration based on work done by contractor at site.

**Clause-5 CONTRACT PERIOD**

On signing by OWNER and CONTRACTOR this CONTRACT shall be deemed to have come into force from the effective date of CONTRACT i.e. from issue of letter of award by NABI and shall remain in force for 12 months beyond the completion of work at site or completion of defect liability mentioned in tender document whichever is later. In the event of increase in the contract time period, nothing extra will be payable to CONTRACTOR beyond the quoted rates.

**Clause-6 ENTIRE CONTRACT**

The Contract documents hereof embody the entire CONTRACT between the PARTIES hereto, and the PARTIES declare that in entering this CONTRACT they do not rely upon any previous representation, whether express or implied and whether oral or written, or any inducement, understanding or agreement of any kind not included within the Contract documents, and unless herein incorporated all prior negotiations, representations, and/or agreements and understandings relating to the subject matter are hereby treated as null and void.

**Clause-7 JURISDICTION & APPLICABLE LAW**

Notwithstanding any other Court or Courts having jurisdiction to decide the question(s) forming the subject matter of the reference, any/all actions and proceeding arising out of or relative to the CONTRACT (including any arbitration in terms thereof) shall lie only in the Court of Competent Civil Jurisdiction in this behalf at Mohali and only the said Court(s) shall have jurisdiction to entertain and try any such action(s) and/or proceeding(s) to the exclusion of all other Courts. NABI may make any byelaw(s), rules or regulation and carry out any amendment at any stage, in the rules or procedure necessary for the accomplishment of the purpose.

**The laws of India for the time being in force shall govern this CONTRACT.**

**Clause-8 NOTICES**

1. Any notice, consent, document or other communication required or permitted to be given under this contract shall be deemed to have been validly served if it is in writing and is signed by an authorized officer of the party giving the notice, and delivered or sent by registered post or by speed mail or courier to the address of the parties set out

below or such other address as may be notified as the appropriate address from time to time for the purpose of this contract.

**NABI:** Executive Director, NABI or his nominee  
Knowledge City, Sector-81, Mohali

**CONTRACTOR:**

.....  
.....

2. Date of notice of instruction shall be the day on which said notice or instruction is received.

3. Any PARTY may change its notice address at any time by so advising the other PARTY thereof in writing.

IN WITNESS WHEREOF the PARTIES hereto have duly executed this CONTRACT in two originals at the place, and date as follows:

**For and on behalf of  
NABI**

**For and on behalf of  
CONTRACTOR**

Name

Name

Designation

Designation

Place

Place

Date

Date

**Witness**

**Witness**

1.

1.

**FORM OF PERFORMANCE  
SECURITY (GUARANTEE)**

**Form of Performance Security (Guarantee)  
Bank Guarantee Bond**

In consideration of the Executive Director, NABI (hereinafter called "The Institute") having offered to accept the terms and conditions of the proposed agreement between.....and .....(hereinafter called "the said Contractor(s)") for the work..... (hereinafter called "the said agreement") having agreed to production of an irrevocable Bank Guarantee for Rs. .... (Rupees ..... only) as a security/guarantee from the Contractor(s) for compliance of his obligations in accordance with the terms and conditions in the said agreement.

1. We, ..... (hereinafter referred to as "the Bank") hereby undertake to pay to the Institute an amount not exceeding Rs. .... (Rupees..... Only) on demand by the Institute.
2. We, .....(indicate the name of the Bank) do hereby undertake to pay the amounts due and payable under this guarantee without any demure, merely on a demand from the Institute stating that the amount claimed as required to meet the recoveries due or likely to be due from the said Contractor(s). Any such demand made on the bank shall be conclusive as regards the amount due and payable by the bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. .... (Rupees .....only)
3. We, the said bank further undertake to pay the Institute any money so demanded notwithstanding any dispute or disputes raised by the Contractor(s) in any suit or proceeding pending before any court or Tribunal relating thereto, our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment thereunder and the Contractor(s) shall have no claim against us for making such payment.
4. We, ..... (indicate the name of the Bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till all the dues of the Institute under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged or till Engineer-in-Charge on behalf of the Institute certified that the terms and conditions of the said agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharges this guarantee.
5. We, ..... (indicate the name of the Bank) further agree with the Institute that the Institute shall have the fullest liberty without our consent and without affecting in any manner our obligation hereunder to vary any of the terms and conditions of the said agreement or to extend time of performance by the said Contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Institute against the said Contractor(s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor(s) or for any forbearance, act of omission on the part of the Institute or any indulgence by the Institute to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.
6. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor(s).



7. We, ..... (indicate the name of the Bank) lastly undertake not to revoke this guarantee except with the previous consent of the Institute in writing.
  
8. This guarantee shall be valid up to satisfactory completion of work at site and as per successful completion of time schedule period given in tender document.....unless extended on demand by the Institute. Notwithstanding anything mentioned above, our liability against this guarantee is restricted to Rs. .... (Rupees .....) and unless a claim in writing is lodged with us within six months of the date of expiry or the extended date of expiry of this guarantee all our liabilities under this guarantee shall stand discharged.

Dated the .....day of .....for.....(indicate the name of the Bank)

**INDEMNITY BOND (B- VIOLATION OF LAWS, NORMS, ACCIDENTS, DAMAGES ETC)**

**(On Non-Judicial Stamp Paper of appropriate value)**

Name of the work \_\_\_\_\_

KNOW all men by these presents that I/We \_\_\_\_\_ (Name of Contractor

with address)do hereby execute Indemnity Bond in favour of National Agri- Food Biotechnology Institute having their office at Knowledge City, Sector-81, Mohali and for the project of **“Operation and annual comprehensive maintenance of 350 KLD SBR Technology- Sewage Treatment Plant (STP) along with Soil Scape Filtration based Effluent Treatment Plant (ETP) for NABI and 20 KLD SBR Technology Sewage Treatment Plant (STP) cum Effluent Treatment Plant (ETP)for CIAB at Sector-81, Mohali.”** under consideration.

On this day of .....2017

THIS DEED WITNESSETH AS FOLLOWS:

I/We, (Name of Contractor) hereby do indemnify and save harmless NABI having their office at Knowledge City, Sector-81,Mohali from the following:-

1. Any third party claims, civil or criminal complaints/liabilities/material/life loss during site mishaps and other accidents such as snake bites, electrocution etc or disputes and/or damages occurring or arising out of any mishaps at the site due to faulty work, negligence, faulty construction and/or for violating any law, rules and regulations in force, for the time being while executing/executed civil works by me/us.
2. Any damages, loss or expenses due to or resulting from any negligence or breach of duty on the part of me/us or any sub-Contractor/s if any, servants or agents.
3. Any claims by an employee of mine/ours or of sub-Contractors if any, under the workman compensation act and employers' Liability act, 1939 or any other law rules and regulations in force for the time being and any acts replacing and/or amending the same or any of the same as may be in force at the time and under any law in respect of injuries to persons or property arising out of and in the course of execution of the Contract work and/or arising out of and in the course of employment of any workman/employee.
4. Any act or omission of mine/ours or sub-Contractor/s if any, our/their servants or agent which may involve any loss, damage, liability, civil or criminal action.
5. For any kind of violation of labour laws, acts , wages contributions and duty timings.

IN WITNESS WHEREOF THE HAS SET HIS/THEIR HANDS ON THIS DAY OF  
SIGNED AND DELIVERED BY THE AFORESAID  
IN THE PRESENCE OF WITNESSES:

- 1.
- 2.