

PART – I

TECHNICAL BID

ITEM RATE PERCENTAGE TENDER

FOR

**SEWERAGE TREATMENT PLANT WORK OF
SARAGARHI SARAI**

AT

SRI AMRITSAR

DECEMBER 2015

TENDER DOCUMENTS

FOR STP WORK OF SARAGARHI SARAI FOR SRI DARBAR SAHIB, SECRETARY, SGPC, SRI AMRITSAR

**Architects : architects atelier pvt. ltd.,
s.c.o. 8, sector 17-e,
chandigarh.**

**Owner : Secretary
SGPC, SRI AMRITSAR**

Project : STP work of SARAGARHI SARAI for SGPC at SRI AMRITSAR

Cost of Tender Document Rs. 1000/- (Non Refundable)

Tender issued to

dated

architects atelier pvt. ltd.,
s.c.o. 8, sector 17-e,
chandigarh

Secretary
SGPC, SRI AMRITSAR

TENDER DOCUMENTS

FOR STP WORK OF SARAGARHI SARAI FOR SGPC AT SRI AMRITSAR

1.01 NOTICE INVITING TENDERS

1.02 Sealed item rate Tenders are hereby invited by the SGPC, Sri Amritsar for the following works :

Name of Project	:	STP work of SARAGARHI SARAI for SGPC, SRI AMRITSAR
Estimated Cost	:	Rs. 36,50,000/- (Thirty Six lacs and Fifty thousand)
Earnest Money	:	Rs. 73,600/- (Seventy Three thousand and Six hundred)

1.03 The Tender Documents can be downloaded from www.sgpc.net against payment of Rs. 1000/- per tender, by crossed D.D. in favour of Secretary, SGPC Payable at Amritsar downloaded tenders shall attach the D.D with the technical bid document failing which the tender document shall be rejected

1.04 The Notice Inviting Tenders and enclosed Specifications, General Conditions, Schedule of Quantities along with its tender drawings etc. shall form the Tender Documents.

1.05 The rates should be quoted on item rate basis and to assist him, item wise tentative quantities are stated in Schedule of Quantities. Although all precautions have been taken while working out the quantities but owner does not take any guarantee for correctness of the same. The payment will be made for the actually executed and measured quantities at agreed rates.

1.06 The rates should be quoted in figures and words and the respective amounts or total shall be given by each Tenderer. In case of any difference in rates in figures/word, those given in words shall hold good as quoted rate.

1.07 The tenders shall remain valid for acceptance for 90 days from the last date of submission.

1.08 The site is available and is free from any encumbrances and each Tenderer shall be deemed to have visited the site and seen the site conditions before quoting his Tender. No claim on ground for want of such knowledge/site inspection shall be entertained at any stage.

1.09 The Owner reserves the right to reject any/all Tenders without assigning any reason and shall not be bound to accept the lowest or any other Tender.

1.10 Incomplete and late Tenders shall be rejected without any further reference.

1.11 The Time for completion of work is 2 months (Two Months) from date of letter of award.

1.12 The tender proceedings shall be held as per the following schedule.

Date of issue of tender : _____

Last date for receipt of tender : _____

Date of opening of tender : _____
SGPC Sub office, house no-30, sector-5, Chandigarh

- 1.13 Tender Document consisting of Specifications, the Schedule of Quantities of the various classes of work to be done and the set of terms and conditions of contract to be complied with by the contractor whose tender may be accepted and the other necessary documents can be downloaded before the last date of receipt of tender.
- 1.14. **The Secretary, SGPC** does not bind himself to accept the lowest or any other tender, and reserves to himself the authority to reject any or all of the tenders received without the assignment of a reason. All tenders, in which any of prescribed conditions is not fulfilled or any condition including that of conditional rebate is put forth by the tenderer shall be summarily rejected.
- 1.15. **The Secretary, SGPC** reserves to himself the right of accepting the whole or any part of the tender and the tenderer shall be bound to perform the same at the rate quoted.
- 1.16. The Tenderers are not allowed to make additions and alterations in the tender document. Any additions and alterations shall be at tenderers risk. Conditional / modified Tenders are liable to be rejected.
- 1.17. It will be obligatory on the part of the tenderer to sign the tender document for all the components (The Schedule of Quantities, Conditions and Special Conditions etc.) on each page.
- 1.18. The tender for the works shall remain open for acceptance for a period of ninety days from the date of opening of tenders. If any tenderer withdraws his tender before the said period or makes any modifications in the terms and conditions of the tender which are not acceptable to the competent authority, then **The Secretary, SGPC** shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid.
- 1.19. This Notice Inviting Tender shall form a part of the contract document. The successful tenderer contractor, on acceptance of his tender by the Accepting Authority, shall within **10 days** from the stipulated date of start of the work sign the contract consisting of:
 - a) The Notice Inviting Tender, all the documents including additional conditions, specifications and drawings, if any, forming the tender as issued at the time of the invitation of tender and acceptance thereof together with any correspondence leading thereto.

C. PREPARATION OF BIDS

1. LANGUAGE OF BID

The bid, and all correspondence and documents related to the bid exchanged between the bidder and the Employer shall be written in the English language. Supporting documents and printed literature furnished by the bidder may be in another language provided they are accompanied by an accurate translation of the relevant passages in the English language, in which case, for purposes of interpretation of the bid, the English translation shall prevail.

2 DOCUMENTS COMPRISING THE BID

2.1 The bids shall be submitted in two parts which comprise the following documents:-

PART-I: TECHNICAL BID

- i) **Earnest Money** for an amount of Rs. 73,600/- which shall be payable in the form of **demand draft only** at the time of submitting the tender document.
- ii) Power of Attorney of the person Authorized to sign on behalf of the firm.
- iii) Any other material / information required to be submitted in accordance with these **Instructions To Bidders (ITB)**.

PART-II: FINANCIAL BID:

- v) **Schedule 'A'** Priced Schedule of Quantities - duly filled in and signed on each page

Each part shall be separately sealed and marked.

2.2 The bidder shall prepare and submit the bid in original.

3. QUOTED RATES

3.1 The rates quoted by the tenderer shall include for transportation of men and material at higher or lower level. The quoted rates shall be inclusive and cover the cost of material including wastage, freight, all types of taxes, duties, royalties, fees, rents, erection, construction, testing of materials, samples / brought / bought for approval, tools and tackles, plants and equipments, supervision, overheads, profit and any other expenditure incurred for completion of work as per drawings, specifications and to the full satisfaction of the Employer.

3.2 The rates quoted by the tenderer in the schedule of rates will be deemed to be for the finished work and shall also include all charges for following wherever applicable.

- a) Labour, maintenance, fixing, arranging, clearing, making good hauling etc.
- b) No tools and plants shall be issued by the Employer under the Contract.

4 CURRENCIES OF BID AND PAYMENT

4.1 The unit rates and the prices shall be quoted by the bidder entirely in Indian Rupees

4.1 The unit rates and the prices shall be quoted by the bidder entirely in Indian Rupees

4.2 All payments including advances, if any, shall be made in Indian Rupees.

Dated : _____ 2015

Secretary,
SGPC
Sri amritsar.

2.0 INSTRUCTIONS TO TENDERERS

- 1 Tender not properly filled, mutilated with incorrect calculations or generally not complying with the conditions may be rejected. Conditional tenders are liable to be summarily rejected.
2. Tenderer should quote their rates both in figures and in words.
3. The schedule of quantities as mentioned must be fully priced and the total of each page along with carried over figures of the previous page shall be given in ink and signed by the tenderer.
4. If the tender is submitted by or on behalf of a company incorporated under the Company Act (1959) it shall be signed by Managing Director or by one of the Directors duly authorized on their behalf. If it is, submitted by a partnership firm it shall be signed with the Co-partnership firm name by a member of the firm who shall sign his own name and give the name and address of each partner of the firm and attach a copy of Power of Attorney with the tender authorizing him to sign on behalf of the partners. A certified copy of the registered partnership deed shall also be submitted along with the tender. The tender should be in the sealed cover.
5. A schedule of approximate quantities for various items accompanies the tender. It shall be definitely understood that the owner do not accept any responsibility for the correctness or completeness of the schedule in respect of items and quantities. This schedule is liable to alteration by omission, deductions or additions at the discretion of the owner without affecting the terms of contract and without any extra claim on account of any reason or reasons.
6. All quoted rates shall include the cost of all materials and labour and transportation of materials to the site, all Government taxes and revenues such as Sales Tax, Turnover Tax, Sales Tax on Work Contract, Royalties, Toll Tax, Income Tax, Excise Duty, Service tax and Octroi., Contractors profit and overheads ESI, PF, labour cess etc. and the fixing or placing in position for which the items of work is intended to be operated as per specifications.
7. No alteration shall be made by the tenderer in the Instructions to the Tenderers or NIT, Contract Form, conditions of the Contract, Drawings and specifications and if any such alteration are made or any special condition attached, the tender is liable to be rejected.
8. The acceptance of the tender rests with the owner, who reserves the right of rejecting any or all the tenders including the lowest tender without assigning any reasons whatsoever.
9. The owner reserves the rights of accepting the whole or any part of a tender received and the tenderer shall be bound to perform the same at the quoted rates.
10. Every tenderer shall furnish alongwith the tender, latest income tax clearance certificate and the Registration No. / certificate from Sales Deptt. for work Contract tax etc. failing which his tender is liable to be rejected.
11. From the date of actual handing over of the works to the owner, the contractor shall be responsible to make good any defects which may occur within a period of 12 months and this period is treated as "Defect Liability Period".

12. The Contractor shall not be entitled to any compensation for any loss suffered by hindrance on account of delays in commencing or executing the work, whatever the cause for such delays may be including delays in procuring Government controlled or other materials.
13. The rates of different items are of all heights, depths, curvatures, and width unless otherwise specified in the item of work.
14. The detailed schedule of programme in the form of a BAR CHART for the whole work shall be drawn and submitted by the contractor within 10 days of the award of work order. The work shall be progressed from month to month and completed in the order and according to the schedule after approval of the same by the Architects & engineer-in-charge.
15. If the Owner wants to occupy areas in part, the contractor shall have to complete the work of these areas in consultation with the owner and hand over the same without affecting any of the clauses of contract agreement.
16. After acceptance of the tender the tenderers shall sign the necessary contract papers within 7 days from the receipt of the above intimation. In case of delay the "Earnest Money" may be forfeited and the tender cancelled or the contract enforced as per the terms of the tender and the tenderer shall thus be bound to execute the work even though the formal agreement has not been executed and signed.
17. Electricity : The contractor will make his own arrangement for electricity. The electric connection if required will be arranged by the Contractor himself. Necessary cabling etc. will be done by him at his cost and he will also pay for consumption at the prevailing rates of charges to Punjab Electricity Board, Sri amritsar as per bills. The Contractor will purchase or hire generator to meet the requirement of electricity for the works and its cost for running/maintenance will be borne by contractor himself. The owner will have no responsibility in this connection/
18. Water : Water will be arranged by the contractor himself. Contractor will make his own arrangement for storage of water and further piping etc. No responsibility lies with the owner. The water used should be suitable for construction purpose and should be got tested from approved laboratory by contractor at his own cost before start of work.
19. Weather : No extension of time will be allowed to the Contractor due to weather conditions prevalent in the area. The contractor is expected to take all the precautions at his own risk and cost so that the workmanship, the materials and progress of work are not affected in the inclement weather.
20. Cleaning up and Handing over : Upon completion of the work all the site area should be cleaned. All works shall be cleaned in manner which will render the work acceptable to the owner. All rubbish shall be removed from the site and shall not be dumped in the surrounding area.
21. The work as described in the drawings and schedule of quantities shall be completed on or before the stipulated date of completion.
22. The contractor shall not be allowed to possess any space or rooms inside the premises.
23. The contractor should quote their offer keeping in view the basic minimum rates of labour wages with upto date corrections as on the day of submission of the tender as per notification by Punjab PWD & Delhi Schedule of rates.

24. The Contractor shall include in his rate all taxes viz Octroi, royalties, sales tax, work contract tax, labour cess and all duties and no claim on this account will be entertained.

25. The Income Tax and Work contract tax as specified will be deducted as per Govt. Notification/regulation from the bills for paying to the Government and by the Employer.

26. The rate quoted by the Contractor shall remain firm till the work is completed.

27. The following specified works shall be got carried out by the contractor through specialized firms or manufactures with the approval of architect/owner.

a) Water proofing : 10 years guarantee bond shall be obtained on stamp paper.

b) Anti Termite : 10 years guarantee bond shall be obtained on stamp paper.

c) AMC of equipment : 5 years guarantee bond shall be obtained on stamp paper.

28. Proper record for all the materials required for the above work shall be kept at site by the contractor jointly with Engineer-in-charge.

29. The owner reserves the right to reject any or all the tenders without assigning any reason, and at the same time is not bound to accept the lowest tenderer.

The owner also reserves the right to accept the tender in full or in parts and in the latter case the tenderer is bound to execute the work at his quoted rates.

Dated : 2015

Secretary,
SGPC,
Sri amritsar.

3.00 FORWARDING LETTER

From :

To
Secretary
SGPC
Sri amritsar

Sub : STP WORK OF SARAGARHI SARAI FOR SGPC AT SRI AMRITSAR.

Dear Sir,

With reference to the tenders invited by you for the above work, I/we do hereby offer to perform, provide, execute and complete the above work in conformity with the drawings, terms and conditions and specifications for the amount as shown in the schedule of quality attached hereto.

I/We have satisfied ourselves to the location and conditions of the site and have read the articles of agreement, conditions of contract and specifications etc. and we understand that the work are to be completed within the specified period and fully understood that the time will be the essence of this contract. I/we enclose herewith the total earnest money vide demand draft/pay order for **Rs. 73,600/-** (Rupees **Seventy three thousand six hundred only**) in the name of Secretary, SGPC payable at Amritsar. This amount shall not bear any interest and should this tender be accepted). I/we hereby agree that this amount will be forfeited if I/we, fail to start the execution within the stipulated time.

Name of the partners/Directors

1. _____

Yours faithfully

2. _____

Signatures

3. _____

Date

Address

4.0 ARTICLES OF AGREEMENT

ARTICLES OF AGREEMENT made the _____ day of 2015, between SGPC (herein after called "The owner") of one part and M/s _____ whose registered office situated at _____ (hereinafter called "The Contractor") of the other part.

WHEREAS the Owner is desirous of STP work of SARAGARHI SARAI for SGPC at Sri amritsar and has caused Drawing and bill of quantities showing and describing the work to be done to be prepared by or under the direction of architects atelier, sco 8, sector 17-e, Chandigarh.

AND WHEREAS the Contractor has supplied the Owner with a fully priced copy of the said bills of quantities (which copy is hereinafter referred to as "the contract bills" and whereas the said drawing (hereinafter referred to as "the contract drawings") and the contract bills have been signed by or on behalf of the parties hereto.

AND WHEREAS the contractor has deposited the sum of Rs. _____ (Rupees only) with the Owner for the due performance of this agreement.

NOW IT IS HEREBY AGREED AS FOLLOWS :

For the consideration hereinafter mentioned the Contractor will upon and subject to the conditions annexed carry out and complete the work shown upon the contract drawings and described by or referred to in the Contract bills in the said conditions.

The owner will pay the contractor the said amount of Rs. _____ (Rupees) or such other sum as shall become payable, hereunder at the ties and in the manner specified in the said contractors.

The term "The Architect" in the said conditions shall means the said Mr. Amit Saini / S.K Saini of architects atelier, s.c.o. 8, sector 17-e, chandigarh or in the event of his death or ceasing to be the Architect for the purpose of this contract, such other person as the firm shall nominate for that purpose.

The said conditions and Appendix thereto shall be read and constructed as forming part of this agreement and the parties hereto shall respectively abide by, submit themselves to the said conditions and perform the agreements on their parts respectively in the such conditions contained.

Notwithstanding anything contained in this agreement, the Secretary, SGPC, Sri amritsar shall have power to review the decisions/recommendations made or proposed to be made about any matter connected with the work to be executed under this contract, before/after these are

implemented, call for additional information from the Architect/Contractor or any other source, hold discussions if necessary and arrive at his decision. This decision would be applicable for the work. If the contractor feels aggrieved by this decision, he would be free to raise this matter as a dispute for arbitration, under the agreement but would not stop the work on any pretext and proceed with the work in accordance with this decision.

As witness the hands of the said parties

Signed by the said in the
presence of witness

Owner

Name
Address :
Signed by the said

Contractor

SPECIAL CONDITIONS OF CONTRACT SCHEDULE OF FISCAL ASPECTS

Name Of Work	:	STP work of SARAGARHI SARAI for SGPC at Sri amritsar.
Defect Liability Period	:	12 months after completion of entire work. During Defect Liability Period of 12 months the contractor will depute his staff for attending to all types of construction defects included under his scope of contract and rectify the defects free of cost. The contractor shall give a performance bank guarantee of Rs 5 lacs towards the 84 months comprehensive maintenance as security for running the system.
Period of Final Measurements and Valuation	:	Within 3 months from date of handing over the work.
Date of Commencement	:	After 7 days of issue of the award letter from the owner.
Time for Completion	:	The whole works will be completed within 2 months.
Agreed Liquidated Damages	:	Architect/Owner will have the full power to decide on the quantum of liquidated damages upto 0.2% on the contract sum of the works per day of delay.
Minimum value of work for interim certificate	:	Rs. 10,00,000/- (Rs. Ten lacs)
Security Deposit Percentage	:	5% from Gross amount of each bill as per conditions of contract. Earnest Money will be adjusted towards Security Deposit.
Limit of Security Deposit	:	5% of the Gross amount of work.
Refund of Security Deposit after Completion	:	50% after 3 months of completion of the works subject to finalization of bill and rest 50% after defect liability period of 12 months to be paid after completion of each year on pro rata basis, subject to all defects rectified and complete running & maintainence by the contractor.
Period of Honouring Certificate	:	75% within 7 days of submission of bills, duly certified by the Site Engineer and Executive Engineer balance within 15 days to submission of bill duly measurement checked and verified by the accountant and certified by the Chartered Accountant.

- Erratic rates for each item : If the rates quoted by the tenderer are lower than 10% of the estimated rates then the tenderer shall have to deposit a bank guarantee of the shortfall before award of work or the owner shall release the payment of running bills after withholding the shortfall till the completion of work.
If the rates quoted by the tenderer are above 10% of the estimated cost then the owner shall withhold the extra amount over the estimates cost+10% value till the completion of the entire work.
- Splitting /withdrawal of works : The owner reserves the right to withdraw/ split any item wholly or partly from the bill of quantities at any time during/before the execution/award of work.
- Specialized works : The contractor shall use specialized agencies for carrying out specialized works wherever mentioned in the contract. In case the contractor fails to do this the owner shall have the right to award the work directly to the agency and debit the entire payment from the bill of the contractor at the rates quoted by him even if the agency has charged higher rates than quoted by the contractor.
- Taxes after award of work : Any new taxes levied by the central government after the award of work shall be borne by the owner. The owner may ask to contractor to produce the original deposit receipt of the same for release of this amount or may deposit it directly themselves. However all other increase or decrease in taxes, duties, octroi, cess, toll etc shall be borne by the contractor till the completion of the work.
- Escalation clause : No escalation shall be payable on any account
- Mobilization Advance : No mobilization advance shall be payable to the contractor. If the contractor does not start construction on the site within 15 days of award of LOI then the earnest money of the contractor shall be forfeited and his contract shall be terminated.

6.0 GENERAL CONDITIONS OF CONTRACT

1. DEFINITIONS

1.0 The contract document consists of the Agreement, the General Conditions of the Contract, Special Terms & Conditions, Specifications and Schedule of Quantities and Rates contained therein including all modifications thereof incorporated in the document before execution and the Contract Drawings prepared by the ARCHITECT from time to time.

1.1 The OWNER
The ARCHITECT
THE CONTRACTOR
ENGINEER-IN-CHARGE

Are those mentioned as such in the Agreement and shall include their legal representatives, assigns or successors. They are treated throughout the Contract Document as if each were of the singular number and masculine gender.

1.2 "The Site" shall mean the site of the contract work including any building and erections thereon and any other land allotted by the OWNER for Contractor's use.

1.3 The term "Sub-Contractor", as employed herein, includes those having a direct contract with the Contractor and it includes one who furnished material worked to a special design according to the plans or specifications of this work but does not include one who merely furnished material not so worked.

Anyone doing work on a piece rate basis shall be deemed to be a Sub-contractor.

1.4 "Written notice" shall be deemed to have been duly served if delivered in person to the individual or to a member of the firm to an office of the corporation for whom it is intended, or if delivered at or sent by registered mail to the last business address known to him who gives the notice.

1.5 The term "Work" of the Contractor or Sub-contractor includes labour or material or both.

1.6 All time limits stated in the Contract Document are the essence of the Contract.

1.7 The law of the place of work shall govern STP work under contract.

1.8 The date, of virtual: completion, of a work or specified area of a work is the date when STP work is sufficiently: completed, in accordance with the Contract Documents as modified by any change or variation orders agreed to by the parties, so that the OWNER can occupy the works for the use it was intended.

2. CONTRACT DOCUMENT

The following documents shall constitute the contract document:

- i) Articles of Agreement
- ii) General Conditions of the Contract
- iii) Special Terms & Conditions
- iv) Specifications
- v) Schedule of Quantities
- vi) Drawings

All parts of the Contract document are complementary, what is called *for* in anyone shall be binding, as if called for ball.

The Contract Document shall remain in the custody of the OWNER so as to be available at all reasonable times for the inspection of the ARCHITECT or of the Contractor Immediately after the execution of the contract one copy of the Contract Document and two copies of the Contract Drawings shall without charge be supplied by the ARCHITECT to the Contractor and one copy of the Contract Document retained with him. Original contract documents and two sets of contract drawings will be sent to the OWNER.

So soon as is possible after the execution of the contract two copies of the Specifications, descriptive schedule or other like document necessary for use in carrying the work shall without charge be supplied by the ARCHITECT to the Contractor.

Provided that nothing contained in the said Specification. Descriptive schedules or other documents shall impose any obligation beyond those imposed by the Contract Document namely by the contract Drawings, the Contract Bills, the Articles of Agreement and these conditions.

After the award of the Contract the Contractor shall without charge be supplied with all such other drawings and details as may be prepared by the ARCHITECT and his CONSULTANT, from time to time as the work proceeds as are reasonably necessary either to explain or amplify the Contract drawings to enable the Contractor to carry out and complete the work in accordance with these conditions of the contract and all such drawings shall be a reasonable development of the work described in the Contract documents.

The Contractor shall keep one copy of the Specifications, Descriptive schedule or other like documents referred to in this clause and one copy of the contract. Drawings and such other drawings and documents supplied to him from time to time and referred to in this clause and written instructions referred to clause and sub-clauses 9,16.1, 16.2 and 29 shall be kept upon the site so as to be available to the ARCHITECT or his representative at reasonable times.

None of the documents herein before mentioned shall be used by the CONTRACTOR for any purpose other than this contract and neither the OWNER nor the ARCHITECT shall divulge or use except for the purpose of this contract any of the prices in the contract bills.

Upon final payment under clause 30.6 of these conditions the Contractor shall if so requested by the ARCHITECT forthwith return to the ARCHITECT forthwith return to the ARCHITECT all Drawings, Details, Specifications, Described Schedule and other Documents of like nature which bears his name or that of the CONSULTANT.

3. TYPE OF CONTRACT

The Contract shall be an item rate contract. The contractor shall be paid for the actual quantity of work done; as measured at site, at the rates quoted by him in the "Contract Bills" and accepted by OWNER.

4. SCHEDULE OF QUANTITIES

The Schedule of Quantities given in the "Contract Bill" are provisional and are meant to indicate the intent of the work and to provide a uniform basis for tendering. The OWNER reserves the right to increase or decrease any of the quantities upto any extent or to totally omit any item of work and the Contractor shall not claim any extras or damages on these grounds.

Any error in description or in quantity or omission of items from the "Contract Bill" shall not vitiate this Contract but shall be treated as a variation.

5. CONTRACT DRAWINGS

5.1 In general the Drawings shall indicate dimensions, position and type of construction the Specifications shall indicate the qualities and the methods; and the Schedule of Quantities shall indicate the quantum and the rate for each Item of work. Any work indicated on the Drawings and not mentioned in the Specification or vice versa shall be furnished as though fully set forth in both. Work not specifically detailed marked or specified shall be the same as similar parts that are detailed, marked or specified.

5.2 The Contractor's work shall not deviate from the Drawings and Specification. The OWNER & ARCHITECT interpretation of these documents shall be final.

5.3. Errors or inconsistencies discovered in the Drawings and Specification shall be promptly brought to the attention of the ARCHITECT, through the ENGINEER-IN-CHARGE, for interpretation or correction Local conditions which may affect the work shall likewise be brought to the ARCHITECT attention. If at any time it is discovered that the work is being done which is not in accordance with the Contract Drawings and specifications, the Contractor shall correct the work immediately. Corrections of defective work shall not be a basis for any claim for extension of time or for any additional sum (s). The Contractor shall not carry on work except with the knowledge of the ENGINEER-IN-CHARGE.

5.3 Figured dimensions on the Scale Drawings and large size details shall govern. Large details shall take precedence over small scale drawings. Any work done before receipt of such details, if not in accordance with the same, shall be removed and replaced or adjusted, as directed. by the Contractor without expense to the OWNER The general conditions apply with equal force to all the work including authorised extra works.

5.4 All drawings, Schedule of Quantities and Specifications and copies thereof furnished by the ARCHITECT are his property. They shall not be used on any other work and shall be returned to the ARCHITECT at his request on completion or termination of the Contract.

5.5 Reinforcing steel bar bending schedules shall be submitted to, the Engineer-in-charge at least , fifteen days: prior to the fabrication of the reinforcement.

6. CONTRACT SUM

The "Contract Sum" shall not be adjusted' or altered' in 'any way what so ever otherwise that in accordance with express provisions; of these conditions, and subject to clause 5.2 of these conditions any error whether of Arithmetic or in the computation of the Contract :Sum shall be deemed to have been accepted by the parties hereto.

7. CONTRACT BILLS

Monthly Payments : Based on joint measurements recorded by Engineer-in-charge and contractor's representative, the Contractor will submit his bill in quadruplicate in approved proforma monthly for payment. All such payments shall be considered as advance payment against Final bill. Payment will be made to the contractor @ 75% of the billed amount within 10 days duly certified by Engineer-in-charge and balance within 20 days from the date of

submission of bill. The contractor shall raise a bill only as per provisions of the special conditions of the contract.

8. SCOPE AND INTENT

8.1 Scope: The general character and the scope of the work is illustrated and defined by the Specifications and the Schedule of Quantities herewith attached and by the signed Drawings. If the Contractor finds any discrepancy in or divergence between the "Contract Drawing" and or the "Contract Bills" he shall immediately give to the ARCHITECT a written notice specifying the discrepancy or divergence and the ARCHITECT shall issue instruction in regard thereto.

8.2 Extent: The Contractor shall carry out and complete the work in every respect in accordance with the contract and with the directions of and to the reasonable satisfaction of the ARCHITECT. The OWNER/ ARCHITECT may in his absolute discretion and from time to time issue further drawings, details and/or written instructions, written directions and written explanations all of which are collectively referred to as ARCHITECT instructions All such drawings and instructions shall be consistent with the Contract Document, true development thereof and reasonably inferable there from.

8.3 Intent: The intention of the documents is to include all labour and materials equipment and transportation necessary for the proper execution of the work. Materials of work described in word which so applied have a well known technical or trade meaning shall be held to refer to such recognized standard.

9. ARCHITECT'S INSTRUCTIONS

9.1 The Contractor shall forthwith comply with and duly execute any work comprised in such instructions issued to him by the ARCHITECT in regard to any matter in respect of which the ARCHITECT is expressly empowered by these conditions to issue instructions, provided always that verbal instructions, directions and explanations given to the Contractor or his work - representative by the ARCHITECT shall, if involving a variation, be confirmed in writing.

If within seven days after receipt of a written notice from the ARCHITECT requiring compliance with an instruction the Contractor does not comply herewith, then he may employ and pay other persons to execute work whatsoever which may be necessary to give effect to such instructions, and all cost incurred with such employment shall be recoverable from the contractor by the OWNER as a debt, or may be deducted by him from any monies due to the contractor under this contract.

9.2 All instructions issued by the ARCHITECT shall be in writing. Any instruction issued orally shall be of immediate effect but shall be confirmed in writing by the Contractor to the ARCHITECT within seven days and if not dissented in writing by the ARCHITECT to the Contractor within seven days from receipt of the Contractor's confirmation it shall be taken as from the expiration of the latter said seven days.

9.3 Provided Always that if the ARCHITECT within seven days of giving such an oral instruction himself confirms the same in writing, then the Contractor shall not be obliged to confirm as aforesaid, and the shall take effect as from the date of the ARCHITECT confirmations.

10. FACILITIES AND CO-OPERATION

In the case of works indicated on the Drawings but not included in the' contract, the Contractor shall provide necessary facilities and co-operation for any Sub-contractor or supplier who may be approved by the OWNER. The Contractor shall do all cutting, filling or patching of his work that may be required to make its several parts come together properly and fit it to receive or be received by work of other CONTRACTOR shown upon or reasonably implied by the Drawings and Specifications for the completed structure and he shall make good after them as the ARCHITECT may direct. Any cost caused by the defective or ill-timed work shall be borne by party responsible therefore.

The Contractor shall not endanger any work by cutting; excavating or otherwise altering the work and shall nor cut or alter the work of any other Contractor save with the consent of the ARCHITECT.

11. SETTING OUT : The architect/ executive engineer shall determine any lines, levels which may be required for the execution of the work and shall furnish to the Contractor by way of accurately dimensioned drawings such information as shall enable the Contractor to set out the work at ground level.

The Contractor shall set out and laid level the work and shall be responsible for the accuracy of the same. He shall provide all the instruments and attendance required by the ARCHITECT for checking the work. He shall entirely at his own cost amend to the satisfaction of the ARCHITECT/ EXECUTIVE ENGINEER any error found at any stage which may arise through inaccurate setting.

12. SITE

12.1. Visit: Before tendering. the Contractor shall have visited and examined the site and satisfied himself as to the nature of the roads or other means of communication and the character of the soil and of the excavations, the correct dimensions of the work and the facilities for obtaining any special articles, called for in the Contract. Document and shall have obtained generally his own information on all matters affecting the continuation and progress of the works.

No extra charge made in consequence of any misunderstanding or incorrect information on any of these points; or on the grounds of insufficient description, will be allowed. Should the Contractor after visiting the site; find any discrepancies, omissions, ambiguities or conflicts in or among the Contract Documents, or to be in doubt as to their meaning he shall bring the questions to the ARCHITECT's attention, not later than three days before the last date for submission of the tender.

12.2. Possession: The Contractor shall be allowed admittance to the site on the Date of Commencement stated in. the appendix and he shall there on and forthwith begin the work and shall regularly proceed with and complete the same, on or before the Date of Completion stated .in the-appendix subject nevertheless to the provision for extension of time hereinafter contained.

12.3 Treasures: Any Treasures, Coins or objects of Antiquity, which may be found at site shall be handed over to the OWNER.

Dismantled material and excavated stone to be OWNER's property: All dismantled materials and useful stone obtained during excavation shall be the property of the OWNER. All useful

stone / materials shall be stacked / stored properly and handed over to the ENGINEER-IN-CHARGE against proper receipt. No extra cost will be paid to the Contractor for such operation.

13. SAMPLES AND SHOP DRAWINGS

13.1. After the award' of the Contract, the Contractor shall furnish for the approval of the ARCHITECT, with such promptness as to cause no delay in his work or in that of any other Sub-contractor, samples and shop drawings required by the specifications or by the ARCHITECT. Samples shall be delivered as directed by the ARCHITECT.

13.2. A schedule giving dates for the submission of samples shall be included in the schedule described under clause 14. Unless specifically authorised all samples must be submitted for approval within Ten days of signing the Contract and not less than twenty days before the date the particular work involved, is scheduled to begin.

13.3 The ARCHITECT shall check and approve such samples, with reasonable promptness only for conformity with the design concept of the works and for compliance with the information in the Contract Documents. The work shall be executed in accordance with the approved samples.

14. PROGRESS CHART

The Contractor shall prepare programme/progress charts and submit the same for approval of the ARCHITECT/ EXECUTIVE ENGINEER and for his record within twenty one-day of the award of the Contract. The charts shall indicate the expected date of commencement and completion of each of the items of the work and shall be in a form approved by the ARCHITECT/ EXECUTIVE ENGINEER. The Chart shall also indicate the scheduling of samples, submission of Shop Drawings and approvals.

15. ACCESS FOR OWNER / ARCHITECT TO THE WORKS

The architect/ executive engineer and their representatives shall at all reasonable time have access to works and to the workshop or other places of the contract and when work is to be so being prepared in workshops or other places of a Sub-contractor (whether or not a nominated Sub- contractor as defined in clause 26 of these conditions the contractor shall have a term in the Sub-contract so as to secure a similar right of access to those workshop or places for the ARCHITECT/ EXECUTIVE ENGINEER and his representatives and shall do all things reasonably necessary to make such right effective:

16. ARCHITECT & EXECUTIVE ENGINEER STATUS AND DECISIONS

16.1 The ARCHITECT shall be the OWNER's representative:-The ARCHITECT' may periodically visit the site to familiarize himself generally, with the progress and the quality of the work and to determine in general if the work is proceeding in accordance with the Contract Document. During such 'visits and on the basis; of observations while at the site he shall keep the OWNER informed of the progress of the work, shall; endeavor to guard' the OWNER against defects and deficiencies in the work of the Contractor and he shall condemn work which fails to conform to the Contract Document. He shall have authority to stop the work whenever such stoppage may be necessary in his reasonable opinion to ensure the proper execution of the Contract.

The Architect shall be in the first instance the interpreter of the conditions of the contract and the judge of its performance.

16.2 Decision: The ARCHITECT/ EXECUTIVE ENGINEER shall within a reasonable time take decisions on all claims of the Contractor and all other matters relating to the execution and progress of the work or the interpretation of the Contract Document '

The ARCHITECT may in his absolute discretion and from time to time issue further Drawings. Details and/or written instructions, written directions and written explanations in regards to :

- a) Variation or modification of the design
- b) The quality or quantity of works or the additions or omission or substitution of any work
- c) Any discrepancy in or divergence between the Drawings and / or specifications
- d) The removal and / or re-execution of any works executed by the Contractor.
- e) The dismissal from the works of any persons employed thereon.
- f) The opening up for inspection of any work covered up.
- g) The amending and making good of any defects under Defects Liability Period.
- h) The removal from the site of any materials brought thereon by the Contractor and the substitution of any other material therefore.
- i) Assignment and sub-letting.
- j) Delay and extension of time
- k) The postponement of any work to be executed under the provision of this Contract.

16.3 Dismissal: The Contractor shall on the instructions of the ARCHITECT/ EXECUTIVE ENGINEER immediately dismiss from the works any person employed thereon by him who may in the opinion of the ARCHITECT/ EXECUTIVE ENGINEER be incompetent or misconduct himself and such person shall not be again employed on the work without the permission of the ARCHITECT/ EXECUTIVE ENGINEER.

17. SECURITY DEPOSIT

The person/persons whose tender(s) may be accepted (hereinafter call the Contractor) shall permit OWNER to deduct such sum at the rate of 5 % of the Gross value of the work done from each Running Bill at the time of making any payment to him for work done under the contract, to deduct such sum as along with the sum already deposited as Earnest Money with tender, out of which 50% shall be released after 6 months of virtual completion subject to finalization of bills and rest 50% after defect liability period of 12 months subject to all defects rectified by the Contractor. All compensation of other sums of money payable by the Contractor under the terms of this contract may be deducted from or paid out of his security deposit from or may become due to the Contractor by the OWNER on any account whatsoever and in the event of Security Deposit being reduced by reasons of any such deductions the CONTRACTOR shall within 10 days make good the same in cash. The Security Deposit shall be collected from the running bills of the Contractor at the rate mentioned above and the earnest money deposited at the time of tenders will be treated as part of the Security Deposit and to be adjusted.

18. ENGINEER-IN-CHARGE

18.1 The term "ENGINEER-IN-CHARGE" shall mean the person nominated by the SGPC and appointed and paid by the OWNER and acting under the instructions of the ARCHITECT to inspect the works in the absence of the Executive Engineer. The Contractor shall afford the ENGINEER-IN-CHARGE every facility and assistance for inspecting the works and materials and for checking and measuring the work and the materials. Neither the ENGINEER-IN-CHARGE nor any representative of the ARCHITECT shall have power to set out works or to revoke, alter, enlarge or relax any requirements of the Contract or to sanction any day work, additions, alternations, deviations or omissions, of any extra work whatever except in so far as such authority may be specially conferred by a written order of the ARCHITECT and Secretary SGPC.

The ENGINEER-IN-CHARGE or any representative of the ARCHITECT, shall have power to give notice to the Contractor or to his representative of non-approval of any work or materials and such work shall be suspended or the use of such materials shall be discontinued until the decision of the ARCHITECT, is obtained. The work will from time to time be examined by the ARCHITECT, the ENGINEER-IN-CHARGE or the ARCHITECT's representative but such examination shall not in any way exonerate the Contractor from the obligation to remedy any defects which may be found to exist at any stage of the work or after the same is completed subject to the limitation of this clause, the Contractor shall take instructions only from the ARCHITECT/ EXECUTIVE ENGINEER.

19. CONTRACTOR'S FIELD ORGANISATION AND EQUIPMENT

19.1 Site Engineer : The contractor shall constantly keep on his work during its progress qualified and competent Site engineer who will be responsible for the carrying out of the works to the true meaning of the Drawings, specifications and schedule of the Quantities. ARCHITECT/ EXECUTIVE ENGINEER instructions and directions to the satisfaction of the ARCHITECT/ EXECUTIVE ENGINEER shall be deemed to have been issued to the Contractor attention is called to the importance of requesting instructions from the ARCHITECT before undertaking any work where ARCHITECT'S directions or instructions are required. Any such work done in advance of such instructions will be liable to be removed.

19.2 Equipment: The Contractor shall provide and install all necessary hoists, ladders, scaffolding, tools, tackles, plants, all transport for labour materials and plant necessary for the proper carrying on execution and completion of the work to the satisfaction of the ARCHITECT/ EXECUTIVE ENGINEER.

19.3 Office Accommodation: The contractor shall provide / erect and maintain where directed simple water tight office accommodation for the foreman and the Engineer - in - charge. This accommodation shall be well lighted and ventilated and provided with windows, doors with a lock. The engineer - in charge's office shall be a minimum of 100 sqft and shall have a table, chair and drawers for keeping drawings and tack board for displaying drawings. The accommodation to be demolished when directed by OWNER.

19.4 Watchmen: The Contractor shall make his own security arrangements to guard the site and premises at all times, at his own expense. The security arrangements shall be adequate to maintain strict control on the movement of material and labour. The Contractor shall extent the security arrangement to guard the material stored and / or fixed on the premises by the sub-contractors.

19.5 Storage of materials: The Contractor shall provide; erect and maintain proper sheds for the storage and protection of the materials etc. against fire, theft, rains etc and also for the execution of work which may be required on the site.

19.6 Sanitary conveniences: The contractor shall provide and erect all necessary sanitary convenience for the Engineer-in-charge, site staff and the workmen, maintain in a clean orderly condition and clean and deodorize the ground after removal.

19.7 Scaffolding, staging, guardrails: The contractor shall provide scaffolding, staging, guardrails, temporary stairs, which shall be required during construction. The support for the scaffolding, staging, guardrails and temporary stairs shall be strong, adequate for the particular situation. The temporary access to the various parts of the works under construction shall be rigid and strong enough to avoid and chance of mishaps. The arrangement proposed shall be subject to the approval of the ARCHITECT/ EXECUTIVE ENGINEER.

20 TAXES

The Contractor shall include in his rates the various taxes such as octroi, excise duty, sales tax, turnover/works contract tax and any other tax payable and it shall be assumed that his rates cover for all taxes. Revenues Royalties, Excise duties, Toll Tax, and duties etc. and no claim on this account will be entertained.

21 STATUTORY OBLIGATIONS, NOTICES, FEES AND CHARGES

21.1 The Contractor shall comply with and give all notices required by any government authority, and instrument, rule or order made under any Act of Parliament or any regulation or Bye-law of any local authority relating to the work or with whose system the same is or will be connected. The Contractor before making any variation from the Contract Drawings or Contract Bills necessitated by such compliance shall give to the ARCHITECT a written notice specifying and giving reasons for such variations and the ARCHITECT/ EXECUTIVE ENGINEER may issue instructions in regard thereto. If within 10 days of having given the said written notice the Contractor does not receive any instruction in regard to the matters therein specified, he shall proceed with the work conforming to the Act of parliament instrument, 'rule-order, regulations or Bye-law in question and any variation thereby necessitated shall be deemed to be a variation required by the ARCHITECT/ EXECUTIVE ENGINEER.

21.2 The Contractor shall pay and indemnify the OWNER against liability in respect of any fees or charges (including any rates and taxes) legally demandable under any Act of Parliament, instrument, rule or order or any -regulation or Bye-law or any local authority in respect of the Work.

22. ROYALTIES AND PATENT RIGHTS

All royalties or other sums payable in respect of supply and use in carrying out the work as desired by or referred to in the Contract Bills of any patented articles, process or inventions shall be deemed to have been included in the Contract Sum, and the Contractor shall indemnify the OWNER from and against all claims, proceedings, damages, costs and expenses which may be brought or made against the OWNER or to which he may be put by reason of the Contractor infringing or being held to have infringed any patent rights in relation to any such articles, processes and inventions.

23. LICENSES & PERMITS FOR MATERIALS UNDER GOVERNMENT CONTROL

Licenses and permit for all materials under Government control shall be obtained by the Contractor through the collaboration and 'help of OWNER, The contractor shall include in his tender all transport charges and other expenses likely to be incurred to bring materials to the site.

24. WATER & ELECTRICITY FOR CONSTRUCTION

Water & electricity will be arranged by the CONTRACTOR himself. CONTRACTOR will make his own arrangement for storage of water and further distribution etc. No responsibilities lies with the OWNER. The water to be used should be suitable for construction purposes and should be got tested from approved laboratory by the CONTRACTOR at his own cost before start of the work and periodically during construction. The CONTRACTOR shall also make his own arrangement for temporary electric connection and shall deposit required payment to the concerned authorities. In case of power failure, he should make arrangement for DG Sets required.

25 ASSIGNMENT OR SUB-LETTING

The Contractor shall not without the written consent of the OWNER assign or sub-let this Contract.

26 SUB-CONTRACTOR;

As soon as practicable and before awarding any sub-contract, the Contractor shall notify the ARCHITECT/EXECUTIVE ENGINEER in writing the names of the Sub-contractor proposed for the principal parts of the work and for such other parts as the ARCHITECT/ EXECUTIVE ENGINEER may direct, and shall not employ any agency to whom the OWNER may have an objection.

The ARCHITECT/ EXECUTIVE ENGINEER however, shall have power to obtain estimate and select other agencies to carry-out any of the work as described in this Contract Document.

27 ARTISTS AND TRADESMEN

The CONTRACTOR shall permit the execution of work not forming part of this contract by artists, tradesmen, or others engaged by the OWNER Every such person shall for the purposes of clause 43 of these conditions be deemed to be a person for whom the OWNER is responsible and not be Sub-contractor.

28 SEPARATE CONTRACT

The OWNER reserves the right to let other CONTRACTORS work at site in connection with this work. The Contractor shall afford other Contractor reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly co- ordinate his work with theirs. If any part of Contractor's or Sub-Contractor' s work depends for proper execution or results upon the work of any other Contractor, or Sub-Contractor, the Contractor shall inspect and promptly report to the ARCHITECT/ EXECUTIVE ENGINEER any defects in such work that render it unsuitable for such proper execution and results. Failure of the CONTRACTOR to so inspect and report shall constitute an acceptance of the other Contractor's work as fit and proper for the rejection his work, except as to defects which may develop in the

other Contractor's or Sub-contractor's work after the execution of the work, to ensure the proper execution of his subsequent work the Contractor shall measure work already in place and shall at once report to the ARCHITECT any discrepancy between the executed work and the Drawings.

29 VARIATIONS

Alteration in Specifications and Orders etc.: The ARCHITECT shall have power to make any alterations or omissions, additions, substitution for the original specifications, drawings, design and instructions, that may appear to him to be necessary during the progress of the work. The contractor shall carry out the work in accordance with any instruction which may be given to him in writing signed by the ARCHITECT and such alterations, omissions, additions to substitution shall not invalidate the contract and orders etc. Any altered additions or substituted work which the Contractor may be directed to do in the manner above specified as part of the work shall be carried out by the Contractor on the same conditions in all respect on which he agreed to do the main work.

i) If the rates for the additions, altered or substituted work are specified in the contract for the work the Contractor is bound to carry out the additional, altered or substituted work at the same rates as are specified in the contract for the work.

ii) If the rates for additional, altered or substituted work are not specifically provided in the contract for the work the rates shall be derived from the rates for a similar class of work as are specified in the contract for the work.

iii) If the altered additional or substituted work includes any work for which no rates is specified in the contract for the work and cannot be derived from the similar class of work in the contract, then such work shall be carried out at the rates entered in Schedule of Rates of CSR for Civil Works with premium list dated 23-10-2009 at PAR i.e. CSR+C.P.

iv) If the altered additional or substituted work includes any work for which no rates is specified in the contract for the work and cannot be derived from the similar class of work in the contract or from Punjab CSR, then such work shall be carried out at the rates entered in CPWD Schedule of Rates of Delhi 2007 for Civil Works with 20% premium i.e. DSR 2007 basic rate + 20% premium.

iv) If the rates for the altered, additional or substituted work cannot be determined in the manner specified in sub-clauses (i) to (iii) above, then the contractor shall within 7 days of the date of receipt of order to carry out the work inform the ARCHITECT/ EXECUTIVE ENGINEER the rates which he intends to charge for such class of work supported by analysis of the rate or rates claimed and the ARCHITECT/ EXECUTIVE ENGINEER shall determine the rate or rates on the basis of prevailing market rates through the ENGINEER - IN - CHARGE if required and pay the contractor accordingly. However, the architect/ executive engineer by notice in writing will be at liberty to cancel his order to carry out such class of work and arrange to carry it out in such manner as he may consider advisable. **But under no circumstances shall the contractor suspend the works on the plea of non-settlement of rates of extra or such item during currency of the works till completion certificate issued by the ARCHITECT & Executive Engineer. The rate for extra and substituted items shall be determined on the basis of actual cost of materials and labour etc. (for this contractor shall produce the sufficient proof) plus 10% to cover contractor's all over-heads and profits, water, electricity and works contract tax etc.**

29.2 The rates of material / labour in the extra items as forwarded by the Contractor shall be checked / verified by the ENGINEER - IN - CHARGE before forwarding to the ARCHITECT.

29.3 The rates for all above items will be finally approved by the OWNER. However the Engineer - in - charge may allow the provisional rates for such items claimed by the Contractor pending approval of final rates by the OWNER.

30 CERTIFICATES AND PAYMENTS

30.1 At the period of Interim Certificate named in the appendix to these conditions the Executive Engineer shall issue a certificate stating the amount due to the Contractor from the OWNER, and the contractor shall be entitled to payment thereof within the period for honouring certificate named in the appendix to these conditions and interim valuation shall be made whenever the ARCHITECT/ EXECUTIVE ENGINEER considers them to necessary for the purposes of ascertaining the amount to be stated as due in an interim certificate.

30.2 The amount stated as due in an interim certificate shall subject to any agreement between the parties as to stage payments, be the total value of work properly executed and of the materials and goods delivered to or adjacent to the work for use thereon upto and including a date not more than seven days before the date of the said certificate less any amount; which may be retained by the OWNER (as provided in sub-clause (3) of this condition) and less any installments previously paid under this condition provided that such certificate shall only include the value of the said materials and goods as and from such time as they are reasonably, properly and not prematurely brought to or placed adjacent to the work and then only if adequately protected against weather or other casualties.

30.3 The OWNER may retain the percentage of the total value of the work, materials and goods referred to in sub-clause (2) of this condition which is named in the appendix to these conditions as Security Deposit. Provided always that when the sum of the amounts so retained equals the amount named in the said appendix as limit of Security Deposit or that amount, no further amount shall be retained by virtue of this sub-clause.

30.4 The amounts retained by virtue of sub-clause(3) of this conditions shall be subject to the following rules:-

30.4a The OWNER'S interest in any amounts so retained shall be fiduciary as trustee for the contractor (but without obligation to invest), and the contractor's beneficial interest therein shall be subject only to the right of the OWNER to have recourse thereto from time to time for payment of any amount which he is entitled under the provisions of this contract to deduct from any sum due or to become due to the contract.

30.5 The measurements and valuation of the work shall be completed within the period of final measurements and valuation as stated in the appendix to these conditions, and the contractor shall be supplied with a copy of the priced bills of variation not later than the end of the said period and before the issue of the Final Certificate under sub-clause (6) of this condition. Either before or within a reasonable time after Virtual completion of the work the contractor shall send to the ARCHITECT/ EXECUTIVE ENGINEER all documents necessary for the purpose of the computations required by these conditions.

30.6 As soon as is practicable but before the expiration of the period the length of which is stated in the appendix to these conditions or from the end of the "defects liabilities period" also sated in the said appendix or from completion of making good defects under Clause 40 of these

conditions or from receipt by the Executive Engineer of the document referred to sub-clause(5) of this condition, whichever is the latest, the ARCHITECT/ EXECUTIVE ENGINEER shall issue the Final Certificate. The Final Certificate shall state :-

30.6a The sum of the amount paid to the contractor under Interim Certificate and the amount named in the said appendix as limit of Security Deposit, and

30.6b The contract sum adjusted as necessary in accordance with the terms of these conditions, and the difference (if any) between the two sums shall be expressed in the said certificate as a balance due to the CONTRACTOR from the OWNER or to the OWNER from the CONTRACTOR as the case may be, and subject to any deductions authorized by these conditions, the said balance shall as from fourteenth day from the issue of the paid certificate be a debt payable as the case may be by the OWNER to the CONTRACTOR or by the CONTRACTOR to the OWNER.

30.7 No certificate of the ARCHITECT/ EXECUTIVE ENGINEER shall of itself be conclusive evidence that any works materials or goods to which it relates are in accordance with this contract documents.

31. CLAIM FOR EXTRA

31.1 When any instruction or decision given at site involve an extra or whereby the contractor may plan to claim an extra, it shall be the responsibility of the Contractor to inform the ARCHITECT/ EXECUTIVE ENGINEER the extra amount and get written authorization from the ARCHITECT & SECRETARY SGPC before proceeding with the work involved.

31.2 Any modification carried out for expanding or simplifying work at the request of the Contractor or his representatives shall not be taken as the basis for claiming an extra. However, if such modification shall also involve an extra the rate for such modification shall be settled in advance and written authorization obtained by the CONTRACTOR from the EXECUTIVE ENGINEER before proceeding with the work involved. If no such information is given by the Contractor in writing to the ARCHITECT & SECRETARY SGPC such modification shall not be accepted as the basis for extra charge.

32. DEDUCTION FOR UNCORRECTED WORK

The EXECUTIVE ENGINEER deems it independent to correct work damaged or not done in accordance with the contract, an equitable deduction from the contract price shall be made therefore.

33. FLUCTUATION

The rates quoted by the CONTRACTOR shall remain firm for entire period of construction including authorized extension of time. No escalation shall be payable for this period including authorized extension of time.

34. UNFIXED GOODS AND MATERIALS

Unfixed materials and goods intended for, delivered and placed on or adjacent to the work shall not be removed except for use upon the work unless the ARCHITECT has consented in writing to such removal which consent shall not be unreasonably withheld. Where the value of any such materials or goods has in accordance with clause 30 of these conditions been

included in any Interim Certificate under the Contract for which the Contractor has received payment, such materials and goods shall become the property of the OWNER, but the CONTRACTOR shall remain responsible for loss or damage to the same.

35. MATERIALS AND WORKMANSHIP

35.1 All materials and workmanship shall be as laid down in para 1 of special terms and conditions of this contract and of approved quality and make and the contractor shall immediately remove from the works any material and / or workmanship which in the opinion of the ARCHITECT/ EXECUTIVE ENGINEER are defective or unsuitable and shall substitute proper material and or workmanship at his own cost. The term approval used in connection with this contract shall mean the approval of the ARCHITECT/ EXECUTIVE ENGINEER.

35.2 The contractor shall if required submit satisfactory evidence as to the kind and quality of material.

35.3 All material shall be delivered so as to ensure a speedy and uninterrupted progress of the work. Such material shall be stored so as to cause no obstruction and so as to prevent overloading of any portion of the structure, and the CONTRACTOR shall be entirely responsible for damage or loss by weather or other cause.

35.4 Within 15 days after signing the contract, the CONTRACTOR shall submit for approval of the ARCHITECT a complete list of all materials which he and his sub-contractors propose to use in the work of the particular brand of any article where more than one is specified as a standard. He shall also list out items not specifically mentioned in the specifications but which are reasonably inferred necessary for the completion of the work.

35.5 **Inspection** : All materials and workmanship shall be subject to inspection, examination and test by the ARCHITECT/ EXECUTIVE ENGINEER at any and all times during manufacture and / or construction. The ARCHITECT/ EXECUTIVE ENGINEER shall have the right to reject defective material and workmanship or require its correction. Rejected workmanship shall satisfactorily replaced with proper material without additional charge therefore and CONTRACTOR shall promptly segregate and remove the rejected material for the works. If the CONTRACTOR fails to proceed at once with the replacement of rejected materials and / or the correction of defective workmanship, the ARCHITECT/ EXECUTIVE ENGINEER may by contract or otherwise replace such materials and / or correct such workmanship and charge the cost thereof to the contractor, or may terminate the right of the contractor to proceed further with the work.

The contractor shall furnish promptly without additionally charge all reasonable facilities, labour and materials necessary for the safe and convenient inspection and the test that may be required by the OWNER.

35.6 ACCOUNTABILITY OF CEMENT & STEEL

a) Variation in the consumption of cement : After the completion of the work, the theoretical quantity of cement used in the work shall be calculated on the basis of cement consumption statement given in the Punjab PWD Specifications. For the item of work not provided in this statement, the consumption shall be worked out on actual observation basis and the EXECUTIVE ENGINEER decision in this regard shall be final. Over this theoretical quantity of cement, a variation of 2% plus or minus shall be allowed. If it is discovered that the quantity of cement used is less than the theoretical consumption (allowing variation on minus side), the

cost of quantity of cement not so used shall be recovered from the Contractor at twice the market rate. However if the quality of cement used is more than the theoretical consumption (allowing variation on plus side), the cost of cement used in excess shall be recovered from the Contractor at twice the issue rate.

b) Variation in consumption of Steel: After the completion of work, and also at any intermediate stage the theoretical quantity of steel used in the work shall be calculated on the basis of the measurements recorded with cross sectional weights as per Punjab PWD Specifications CSR. 3% wastage shall be allowed due to cutting small pieces. Over this theoretical quantity, a variation of 2% plus or minus shall be allowed as variation due to wastage being more or less. The difference between quantity of steel actually issued and the theoretical required shall be recovered at twice the market rate. If it is discovered that the quantity of steel used is less than the theoretical consumption, such quantity shall be recovered "from the CONTRACTOR: at twice market rate. The steel reinforcement shall be paid as per cross sectional weights mentioned in the Punjab PWD specifications. The Contractor shall procure and submit vouchers in support of total quantum of steel brought by him at site and will also get the total weight of steel verified from Engineer -in-Charge at his cost. Engineer -in-charge will maintain steel received at site diameter wise. No sale/removal of scrap shall be allowed from the site during the currency of the contract.

35.7 Secured Advance on Materials: The OWNER may allow in the running bills payment against non-perishable materials brought to the site of work for incorporation in the works to a maximum of 75% of the value of materials. The Contractor on signing an indenture on proper stamp paper in the form to be specified by the OWNER may be entitled to be paid during progress of the execution of the work a secured advance up to 75% of the estimated value of any materials which are in the opinion of the ARCHITECT/ EXECUTIVE ENGINEER non-perishable and are in accordance with the contract and which have been brought on the site for bonafide incorporation in the work and are protected against damage by weather or other causes, but which have not at the time of advance been incorporated in the works. When materials on account of which an advance has been made under this sub-clause are incorporated in the work, the amount of such advance shall be deducted from the next payment made under any of the clauses of the contract. The contractor shall make arrangements for lockable storage at his cost for materials against which he intends to get secured advance. Under no circumstances shall the contractor remove/modify/replace any material from the site for which he has claimed or been paid secured advance. All items for which secured advance has been paid shall remain in the custody of the owners.

36. DEFECTS

36.1 The Contractor shall: make good at his own cost and to the: satisfaction-of the ARCHITECT/ EXECUTIVE ENGINEER, all defects, shrinkages or small faults, arising in the opinion of the ARCHITECT/ EXECUTIVE ENGINEER from work or materials not being in accordance-with the-drawing or Specifications or, Schedule of Quantities or the instructions of the OWNER which may appear within "Defect Liability Period" referred to in the appendix.

36.2 Such defects, shrinkage's shall upon directions in writing of the OWNER and within such reasonable time as shall be specified therein be amended and made good by the Contractor, at his own cost and in case of default the OWNER may employ and pay other Contractor to amend and make good such defects, shrinkage, settlements or other faults and all damages, loss and expense consequent thereon or incidental thereto shall be made good and borne by the contractor and such damage, loss or expense shall be recoverable from him by the OWNER 'or may become due to. the Contractor or the OWNER may, in lieu of such amending and making

good by the sum to be determined by the ARCHITECT/ EXECUTIVE ENGINEER as equivalent to the cost of amending such work and in the event of the Security Deposit being insufficient recover the balance from the Contractor, together with any expenses the OWNER may have incurred in connection therewith.

37. POSSESSION, COMPLETION AND POSTPONEMENT

37.1 On the date for commencement stated in the appendix to these conditions possession of the site shall be given to the contractor who shall there upon begin the works and regularly and diligently proceed with the same, and who will complete the same on or before the date for completion stated in the said, appendix subject nevertheless to the provisions for extension of time contained in clause 39 of these conditions.

The ARCHITECT may issue instructions in regard to the postponement of any work to be executed under provisions of this Contract.

38 POSSESSION BEFORE VIRTUAL COMPLETION

If at any time or times before *Virtual* Completion of the work the OWNER with the consent of the Contractor shall take possession of any part or parts of same for handing over to the Finishing Contractor or other agency, then not withstanding anything ex-pressed or implied elsewhere in this Contract:

38.1 Such part or parts shall not be deemed to be Virtually Complete.

38.2 Virtual Completion of such part or parts would occur on the completion of the last Part of the structure under this Contract.

38.3 The Contractor shall not claim that part or parts are complete and request for refund of Security Deposit in lieu thereof.

39. EXTENSION

Upon it becoming reasonably apparent that the progress of the work is delayed, the Contractor shall forthwith give written notice of the cause of the delay to the EXECUTIVE ENGINEER, ARCHITECT & SECRETARY SGPC and if in tile opinion of the OWNER the completion of the work is likely to be or has been delayed beyond the date (or completion stated in the appendix to these conditions or beyond any extended time previously fixed under this clause.

39.1 By Force majeure. Or

39.2 By reason of any exceptionally inclement weather, or

39.3 By reason of civil commotion, local combination; of workmen strike or lockout; affecting any of the trades' employed upon the works or any of the trades engaged in the preparation, manufacture or transportation of any of the goods or-materials required for the work, or

39.4 By reason of the Contractor not having-received in due time necessary instructions, drawings details or levels from the ARCHITECT for which he had specifically applied in writing on a date which having regard to the date for completion stated in the appendix to these conditions or to any extension of time then fixed under this clause was neither unreasonably

distant from nor unreasonably close to the date on, which it was necessary for him to receive the same.

39.5 By delay on the part of artists, tradesman or others-engaged by the OWNER executing work not forming part of this Contract, or

39.7 By reason of the opening up for inspection of any work covered up or of the testing of any of the work, materials or goods (including making good in consequence of such opening up or testing) unless the inspection of test showed that the work, materials or goods were not in accordance with this contract or

Then the ARCHITECT/ EXECUTIVE ENGINEER shall as soon as he is able to estimate the length of the delay beyond the date or time aforesaid make in writing a fair reasonable extension of time for completion of the works. Provided always that the Contractor shall use constantly his best endeavors to prevent delay and shall do all that may reasonably be required to the satisfaction of the SGPC/ARCHITECT to proceed with the work.

40.0 DAMAGE FOR NON-COMPLETION

If the Contractor fails to complete the works by the date specified in these conditions or within any extended time fixed under clause 39 of these conditions and the EXECUTIVE ENGINEER certifies in writing that in his opinion the same ought reasonably so to have been completed, the Contractor shall pay or allow to the OWNER a sum calculated at the rate stated in the appendix as agreed Liquidated Damages for the period during which the said work shall so remain or have remained incomplete, the OWNER may deduct such damages from any monies otherwise payable to the Contractor under this Contract.

41. COMPLETION AND DEFECTS LIABILITY PERIOD

41.1 When in the opinion of the ARCHITECT/ EXECUTIVE ENGINEER the works are practically completed, he shall forthwith issue a certificate to that effect and Virtual Completion of the works shall be deemed for all the purpose of this Contract to have taken place on the day named in such certificate.

41.2 Any defects, shrinkage or other faults which shall appear within the "Defects Liability Period" stated in the appendix to these conditions and which are due to materials and workmanship not in accordance with this Contract shall be specified by the ARCHITECT/ EXECUTIVE ENGINEER in a Schedule of Defects which he shall deliver to the Contractor not later than 14 days after the expiration of the said Defects Liability Period and within a reasonable time after receipt of such schedule the Defects, Shrinkage's and other faults therein specified shall be made good by the Contractor and (unless the OWNER shall otherwise instruct in which case the contract sum shall be adjusted accordingly) entirely at his own cost.

41.3 Notwithstanding sub-clause (2) of this condition the ARCHITECT/ EXECUTIVE ENGINEER may whenever he considers it necessary to do so, issue instructions requiring any defects, shrinkages or other fault which shall appear within the Defects Liability Period named in the appendix to these conditions and which is due to materials and workmanship not in accordance with this contract to be made good and the Contractor shall within a reasonable time after receipt of such instructions comply with the same entirely at his own cost, provided that no such instruction shall be issued after 14 day from the expiration of the said defect liability period.

41.4 When in the opinion of the ARCHITECT/ EXECUTIVE ENGINEER any defect, shrinkages or other defaults which he may have required to be made good under sub-clause (2) and (3) of this condition shall have been made good he shall issue a certificate to that effect and completion of making good defects shall be deemed for the all the purposes of this contract to have taken place on the day named in such certificates.

42. PAYMENT WITH HELD

The OWNER may withhold or on account of a subsequently discovered evidence nullify the whole or part of any certificate to such extent as may be necessary in his reasonable opinion to protect the OWNER from loss on account of:

42.1 Defective work not remedied.

42.2 Failure of the Contractor to make payment properly to Sub-Contractor or for materials or labour.

42.3 A reasonable doubt that the Contract can be completed for the balance then unpaid.

42.4 Damage to another Contractor or Sub-contractor.

42.5 Claims filed on reasonable evidence indicating probable filling of claims.

When the above grounds are removed, payment shall be made for amounts withheld because of them.

43. INJURY TO PERSONS AND PROPERTY OWNER

43.1 The Contractor shall be liable for and shall indemnify the OWNER against any liability, loss, claim or proceedings whatsoever arising under any statute or at common law in respect of personal injury to or the death of any person whomsoever arising out of or in the course of or caused by the carrying out of the work, unless due to any act or neglect of the OWNER or of any person for whom the OWNER is responsible.

43.2 Except for such loss or damage as at the risk of the OWNER under clause 45 of these conditions (if applicable) the Contractor shall be liable for and shall indemnify the OWNER against any expense, liability, loss, claim or proceedings in respect of any injury or damage whatsoever to any property real or personal in so far as such injury or damage arises out of or in the course of or by reason of the carrying out of the works, and provided always that the same is due to any negligence omission or default of the Contractor, his servants or agents or of any Sub-Contractor, his servants or agents.

44. INSURANCE AGAINST INJURY TO PERSONS AND PROPERTY

44.1 Without the prejudice to his liability to indemnify the OWNER under clause 43 of these conditions the Contractor shall maintain and shall cause any Sub-Contractor to maintain.

44.1a Such insurance as are necessary to cover the liability of the Contractor or as the case may be of Sub-Contractor in respect of personal injuries or death arising out of or in the course of or caused by the carrying out of the work.

44.1b Such insurance as may be specifically required by the Contract Bills in respect of injury or damage to property real or personal arising out of or in the course of or by reason of the

carrying out of the work, and caused by any negligence, omission or default of the Contractor, his servants or agents or, as the case may be of such sub-contractor, his servants or agents. The Contractor shall produce or cause any Sub-Contractor to produce for inspection the relevant policy or policies of insurance together with the receipts in respect of premiums paid under such policy or policies as and when required to do so by the ARCHITECT/ EXECUTIVE ENGINEER provided always that as and when may be reasonably required by the OWNER the production by either the Contractor or any sub-Contractor of a current certificate of insurance from the company or firm which shall have issued the policy or policies aforesaid shall be a good discharge of the Contractor's obligation to produce or to cause the production of the policy/policies and the receipts in respect of premium paid.

44.2a The Contractor shall maintain in the joint names of the OWNER and Contractor such insurance as may be required in respect of any expense, liability, loss, claim or proceedings which the OWNER may incur or sustain by reason of injury or damage to property real or personal arising out of or in the course of or by reason of the carrying out the work, and caused otherwise than by the negligence, omission or default of the Contractor, his servants, his servants or agents.

44.2b Any such insurance as is referred to in the immediately preceding paragraph shall be placed with insurers to be approved by the ARCHITECT/ EXECUTIVE ENGINEER and the CONTRACTOR shall have to deposit with him the policy or policies and the receipt in respect premiums paid.

44.3 Should the Contractor or any sub-Contractor make default in insuring or in continuing to insure as provided in sub-clause (1) and (2) of this condition the OWNER may himself insure against any risk with respect to which the default shall have occurred and may deduct a sum equivalent to the amount paid in respect of premiums from any monies due to or become due to the Contractor.

45 INSURANCE OF THE WORKS AGAINST FIRE, ETC.

45.1 The Contractor shall in the joint names of the OWNER and Contractor insure against by taking all risk policy from a Govt. approved Insurance Company against any defects, loss or damage by fire, storm, tempest, lighting, flood, earthquake, aircraft or anything dropped there from, aerial objects, riot and civil commotion for the full value thereof, all work executed and all unfixed materials and goods intended for, delivered to and placed on or adjacent to the work, but excluding, temporary building plant, tools and equipment owned or hired by the Contractor or any Sub-Contractor and shall keep such work materials and goods so insured until Virtual Completion of the work. Such insurance shall be approved by the ARCHITECT/ EXECUTIVE ENGINEER and the Contractor shall deposit with the ARCHITECT/ EXECUTIVE ENGINEER the policy or policies and the receipts in respect of premiums paid and should the Contractor make default in insuring or continuing to insure as aforesaid the OWNER may himself insure against any risk with respect of which the default shall have occurred and deduct a sum equivalent to the amount paid by him in respect of premium from any monies due to or to become due to the contractor. Provided always that if the insurance which covers (internal) the said work, materials and goods against the aforesaid contingencies to the full value thereof, then the maintenance by the contractor of such policy shall if the Owner's interest is endorsed thereon, be a discharge of the CONTRACTOR'S obligation to insure in the joint names of the OWNER and Contactor and the production by the Contractor as and when may reasonably be required by the ARCHITECT/ EXECUTIVE ENGINEER of a current certificate of insurance from the company or firm which shall have issued the said policy shall be a discharge of the

Contractor's obligation to deposit with the ARCHITECT/ EXECUTIVE ENGINEER policy or policies and the receipts in respect of premium paid.

45.1 Upon settlement of any claim under the insurance aforesaid, the Contractor with due diligence shall restore work damage, replace or repair unfixed materials or goods which have been destroyed or injured, remove or dispose of any debris and proceed with the carrying out and completion of the work. All monies received from such insurance shall be paid to the Contractor by installment under certificates of the ARCHITECT/ EXECUTIVE ENGINEER issued at the period of interim certificates named in the appendix to these conditions. The Contractor shall be not be entitled to payment in respect of the restoration of work damaged, the replacement and repair of any unfixed materials or goods and the removal and disposal and debris other than the monies received under the said insurance.

45.2 All work executed and all unfixed materials and good intended for, delivered to and placed on or adjacent to work (except temporary buildings, plant, tools and equipment owned or hired by the Contractor or any Sub-Contractor) shall be at the sole risk of the Contractor as regards loss or damage by firm, storm, tempest, lightning, flood, earthquake, aircraft or anything dropped therefrom, aerial objects, riot and civil commotion. If any loss or damage affecting the work or any part thereof or such unfixed materials or goods is occasioned by anyone or more of the said contingencies, then.

45.2(a) The occurrence of such loss or damage shall be disregarded in computing any amounts payable to the Contractor under or by virtue of this contract.

45.2(b) The Contractor with due diligence shall restore work damage, replace or repair any unfixed materials or goods which have been destroyed or injured, remove and dispose off any debris and proceed with carrying out and completion of the work. The restoration of work damaged, the replacement and repair of unfixed material and goods and the removal and disposal of debris shall be done by the Contractor at his cost.

45.3 If the Contractor fails to take insurance of the work against fire etc the OWNER can take such insurance at the cost of the contractor or recover from the Contractor the premium that he would have paid for such insurance.

45.4 All insurance policies shall be valid upto Date of expiry of Defect Liability Period.

46. DETERMINATION BY OWNER

46.1 Default: If the Contractor makes default in anyone or more of the following respects, that is say.

46.1(a) If he without reasonable cause suspends the carrying out of the works before completion thereof or

46.1(b) If he fails to proceed regularly and diligently with the works or

46.1(c) If he refuses or persistently neglects to comply with a written notice from the ARCHITECT/ EXECUTIVE ENGINEER requiring him to remove defective work or improper materials or goods and by such refusal or neglect the work is materially affected, then the ARCHITECT/ EXECUTIVE ENGINEER may give him the notice by registered post or recorded delivery specifying the default, and if the Contractor either continues such a default for 14 days after receipt of such a notice and shall at any time thereafter repeat such a default (whether

previously repeated or not) then the OWNER without prejudice to any other rights or remedies may within 10 days after such continuance or repetition of notice by registered post or recorded delivery forthwith determine the employment of the Contractor under this Contract.

46.2 Bankruptcy of Contractor: In the event of the Contractor becoming bankrupt or making a composition or arrangement with his creditors or being a company having a winding up order made or (except for purposes of reconstruction) a resolution for voluntary winding up passed or a receiver or manager of his business or undertaking duly appointed or possession taken by or on behalf of the holder of any debentures secured by a floating charge, of any property comprised in or subject to the floating charge, the employment of the Contractor under this Contract shall be forthwith automatically determined but the said employment may be reinstated and continued if the OWNER and the Contractor, his trustee in bankruptcy liquidate, receiver or manager as the case may be shall so agree.

46.3 The OWNER shall be entitled to determine the employment of the Contractor under this Contract if the Contractor has offered or given or agreed to given to any person any gift or consideration of any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any action in relation to the obtaining or execution of this contract with the OWNER, or for showing or forbearing to show favour or disfavor to any person in relation to this Contract or any other Contract with OWNER, or if the like acts have been done by any person employed by the Contractor or action on his behalf (whether with or without the knowledge of the contractor), or if in relation to this Contract or any other Contract with the OWNER, the Contractor or any person employed by him or acting on his behalf has committed any offence under the prevention of corruption act, or has given any fee or reward, the receipt of which is an offence under the Local Government Act.

46.4 In the event of the employment of the Contractor being determined as aforesaid and so long as it has not been reinstated and continued, the following shall be the respective rights and duties of the OWNER and Contractor.

46.4a. The OWNER may employ and pay other persons to carry out and complete the works and he or they may enter upon the works use all temporary buildings, plant, machinery, appliances, goods and materials intended for, delivered to and placed on or adjacent to the works and may purchase all materials and goods necessary for the carrying out and completion of the works.

46.4b. The Contractor shall if so required by the OWNER within 14 days of the date of determination assign to the OWNER without payment the benefit of any Agreement for the supply of materials or goods and or for the execution of any works for the purposes of this Contract but on the terms that a supplier or Sub-Contractor shall not be entitled to make any reasonable objection any further assignment thereof by the OWNER.

46.4c. The Contractor shall as and when required in writing by the ARCHITECT/ EXECUTIVE ENGINEER to do so (but not before) remove from the works and temporary buildings, plant, tool, equipments, goods and materials belonging to or hired by him. If within a reasonable time after any such requirements has been made, the Contractor has not complied therewith, then the OWNER may (but without being responsible for any loss or damage) remove and sell any such property of the Contractor, holing the proceeds less all cost incurred to the credit of the Contractor.

46.4 The Contractor shall allow or pay to the OWNER in the manner hereinafter appearing the amount of any direct loss and/or damage caused to the OWNER by the determination. Until

after completion of the works under paragraph (a) of this Sub-Clause that OWNER shall not be bound by any provisions of this Contract to make any further payment to the Contractor, but upon such completion and the verification within a reasonable time of the accounts therefore the ARCHITECT/ EXECUTIVE ENGINEER shall certify the amount of expense properly incurred by the OWNER and the amount of any direct loss and/ or damage caused to the OWNER by the determination and if such amount when added to the monies paid to the Contractor before the date of determination exceed the total amount which would have been payable on due completion in accordance with this Contract, the differences shall be a debt payable to the owner by the Contractor, and if the said amount when added to the said monies be less than the said total amount, the difference shall be a debt payable by the OWNER to the Contractor.

47. CO-ORDINATION OF WORK

At the commencement of work, and from time to time, the Contractor shall confer with the Sub-contractors, persons engaged on separate contracts in connection with the work, and with the ARCHITECT/ EXECUTIVE ENGINEER for the purpose of the co-ordination and execution of the various phases of the work. The Contractor shall ascertain the Sub-contractor, persons engaged on separate contracts in connection with the works, the extent of all chasing, cuttings and forming of all openings, holes, grooves, etc, as may be required to accommodate the various services, the Contractor shall ascertain the routes of all services, and the positions of all Light Points, Junctions Boxes etc, In connection with the installation of plant and services and arrange for the Construction of work accordingly. The breaking and cutting of completed work must be avoided.

48. LABOUR

The Contractor shall employ no child labour under 14 years of age on the work. If female labours engaged, the Contractor shall make necessary provision for safeguarding small children and keeping them clear of the site of operations. No labourer shall reside within the compound except authorised guards.

49. PROTECTION OF TREES AND SHRUBS

Trees and Shrubs designated by the ARCHITECT/ EXECUTIVE ENGINEER shall be protected from damage during the course of the work and the earth level shall not be changed within three feet of such tree. Where necessary such trees and shrubs shall be protected by means of temporary fencing.

50. GUARANTEE

50.1 Besides guarantees required elsewhere, the Contractor shall guarantee the work in general for one year as noted under clause of the Conditions.

50.2 All required guarantees shall be submitted to the EXECUTIVE ENGINEER by the Contractor when requesting certification of accounts for payment by the OWNER.

51. ANTIQUITIES

51.1 All fossils, antiquities, and other objects of interest or value which may be found on the site or in excavating the same during the progress of the work shall become the property of the

OWNER The Contractor shall carefully take out and preserve all such objects and shall immediately or as soon as conveniently may be after the discovery of such articles deliver the same into the possession of the ARCHITECT or of the ENGINEER-IN-CHARGE unlearned and as excavated.

51.2 If in the opinion of the ARCHITECT/ EXECUTIVE ENGINEER compliance with the provisions of the proceeding sub-clause has involved the contractor in direct loss and / or expense for which he would not be reimbursed by a payment made under any other provision in this contract, then the ARCHITECT/ EXECUTIVE ENGINEER shall ascertain the amount of such loss and / or expense, any amount from time to time so ascertain shall be added to the Contract sum, and if an Interim Certificate is issued after the date of ascertainment any such amount shall be added to the amount which would otherwise be stated as due in such certificates.

52. ARBITRATION

Except where otherwise provided in the contract all questions and disputes relating to the meaning of the specifications designs, drawings and instructions herein before mentioned and as to the quality or workmanship or materials used on the work or as to any other question, claim, right, matter or thing whatsoever in any way arising out of or relating to the contract, designs, drawings, specifications, estimates, instructions, orders or these conditions or otherwise concerning the works, or the execution or failure to execute the same whether arising during the progress of the work or after the completion of, abandonment thereof shall be referred to the sole arbitration of the person appointed by the President, SGPC. The arbitrator to whom the matter is originally referred being transferred or vacating his office or being unable to act for any reason then the PRESIDENT, SGPC, Sri amritsar at the time of such transfer, vacation of office or inability to act, shall appoint another person to act as Arbitrator in accordance with the terms of the contract. Such person shall be entitled to proceed with the reference from the stage at which his predecessor left it.

Subject as aforesaid the provisions of the latest Arbitration Act or any statutory modification or re-enactment thereof and the rules made thereunder and for the time being in force shall apply to the arbitration proceeding under this clause. It is also a term of the contract that the party invoking arbitration shall specify the dispute or disputes to be referred to arbitration under this clause together with the amount or amounts claimed in respect of each such dispute.

It is also a term of the contract that if the Contractor (s) do / does not make any demand for arbitration in respect of any claim(s) in writing within 90 days of receiving the intimation from the OWNER that the final bill is ready for payment the claim of the Contractor (s) will be deemed to have been waived and absolutely barred and the Director shall be discharged and released of all liabilities under the contract in respect of these claims. The Arbitrator shall give a reasoned award if the amount of award is more than Rs. 50,000/-.

53. PROTECTION AND CLEANING

53.1 The Contractor shall protect and preserve the work from all damages or accidents by providing necessary protections / temporary works etc. or other constructions as required by the ARCHITECT/ EXECUTIVE ENGINEER. This protection shall be provided for all property adjacent to the site as well as on the site.

53.2 The Contractor shall properly clean the work as it progresses and shall remove all rubbish and debris from the site from time to time as is necessary and as directed. On completion the contractor shall ensure that the premises and / or site are cleaned of surplus materials debris, shed etc. areas under floors cleared of rubbish, gutters and drains cleaned, doors and windows and sashes eased, locks and fastenings oiled. Keys clearly labeled and handed over to the ENGINEER-IN-CHARGE so that the whole work is left fit for immediate occupation or use and to the satisfaction of the ARCHITECT/ EXECUTIVE ENGINEER.

54. TOLERANCE

The Contractor shall exercise every care to ensure that all structural members are sufficiently plumb and true to dimensions called for on the drawings to receive finishing elements such as concrete copings, railings, gates, cladding, washed grit finishes etc. any variations may require rectification in the structural members or may involve remaking or replacing the finishing elements, fabricated to fit into the openings or spaces, as called for on the Drawings.

In case of separate contract, the contractor whose work does not conform to dimensions called for, shall be liable for all the expenses which may have to be incurred for rectification or replacement as may be required by the ARCHITECT/ EXECUTIVE ENGINEER for the proper installation of the finishing elements. The ARCHITECT/ EXECUTIVE ENGINEER decision in this respect shall be final and binding on the parties concerned.

7.00 SPECIAL CONDITIONS OF CONTRACT

1. GENERAL

i. The entire work shall be done as per Punjab PWD Specifications (with upto date correction slips) and CPWD Schedule of rates

However, in case of any discrepancy in description of any items as given in the Schedule of Quantities appended with the tender and the specification relating to the relevant item as per Punjab PWD specifications, the former shall prevail. If the specifications for any items are not available in the Punjab PWD specifications referred above, relevant ISI specifications shall be followed. In case ISI specifications are also not available the decision of the OWNER / ARCHITECT shall be final.

Wherever any reference to any Indian standard Specifications occurs in the document referring to this contract, the same shall be inclusive of all the amendments issued thereto or revisions there of, if any, upto the date of receipt of tenders.

ii. Samples of all building materials required for execution of the work shall be got approved from the ARCHITECT. Articles manufactured by firms of repute and approved by the ARCHITECT shall only be used. Articles classified as first quality by the manufacturer shall be used unless otherwise specified.

Preference shall be given to those articles, which bear ISI certification mark. In case articles bearing ISI certification mark are not available the quality of samples brought by the Contractor shall be judged by the standards laid down in the relevant ISI specifications. All materials and articles brought by the Contractor to the site for use shall conform to the sample approved which shall be preserved till the completion of the work.

iii. The work shall be carried out in the manner complying in all respects with requirements of relevant bye laws of the local body under jurisdiction of which the work is to be executed as directed by the ARCHITECT/ EXECUTIVE ENGINEER and nothing extra shall be paid on this account.

iv. The work will be carried out in accordance with the ARCHITECT drawings and structural drawings. The structural and Architectural drawings shall at all times have to be properly co-related before executing the work. ARCHITECT's requirement shall have to be fully satisfied. For finishing items samples shall be prepared for prior approval of the ARCHITECT before starting the particular items of work.

v. The Contractor shall carry out performance tests for the entire installations as per standard specifications before the work is finally accepted and nothing whatsoever shall be payable to the contractor without such tests.

vi. The contractor shall carry out all tests required and pay all charges in connection therewith including fee for testing as may be specified to be conducted by an approved testing authority by the ARCHITECT/ EXECUTIVE ENGINEER. Unless otherwise specified. In all such cases cost of samples and to and for carriage shall be borne by the Contractor. Nothing extra shall be payable to the Contractor on account of above testing charges.

- vii. The ENGINEER-IN-CHARGE / Contractor should maintain the Register for cement, steel, paints, etc. and other registers required by the ARCHITECT and these should be signed by the Contractor or his authorized agent and the ENGINEER-IN-CHARGE of the work.
- viii. The rates of all items of work shall be considered as inclusive of pumping out or bailing out water if required for which no extra payment will be made. This will include water available from any source such as rains, floods, sub-soil water table being high up or due to any other cause whatsoever.
- ix. The CONTRACTOR shall be responsible to arrange at his own cost all necessary tools and plants required for the execution of work.
- x. The CONTRACTOR shall provide suitable weighing, measuring and levelling arrangement at site for checking the weight, dimensions, and levels as may be necessary for execution of work.
- xi. The CONTRACTOR shall have such openings etc. as may be required for the electric and sanitary works and nothing extra shall be paid on this account.
- xii. The work of electrification, horticulture and other internal and external services may be carried out simultaneously by other agencies. The CONTRACTOR shall afford necessary facilities for the same. No claim in the matter shall be entertained and nothing extra over the agreement rates shall be paid for fixing, laying / burying in the work pipes, cables, conduits, clamps, junction boxes, etc.
- xiii. The rates for items of work included in the Schedule of Quantities shall be applicable for all heights and depths except for items where specified otherwise.
- xiv. Nothing extra whatsoever shall be payable to the CONTRACTOR for executing the work as per specification and conditions referred in all the above paras.

1(B) SPECIAL CONDITIONS

- i. Contractor will submit the running bills on the basis of joint measurements recorded by Engineer-in-Charge and Contractor in quadruplicate with one copy to the OWNER, two copies to Engineer-in-charge. 75% payment will be released to CONTRACTOR within 7 days of submission of bill. The engineer-in-charge after certifying the bill forward one copy of bill to Executive Engineer for certification of scrutiny and approval of balance payment against the bill Executive Engineer will certify the quality of work and work adhering to specification and drawings.
- ii. Contractor shall follow all the relevant laws including labour / provident fund / ESI / local authorities as applicable in the state or notified from time to time and will be responsible for any liability accrued on this account and keep the University indemnified of any liability, whatsoever in connection with the execution of this work.
- iii. Work contract tax shall be deducted from Contractors bill.
- iv. Necessary insurance of labour under Workman Compensation Act and the building including any injuries to labour or damage to building on any account shall be got done by Contractor and the copy of the same sent to OWNER.

v. Contractor shall make his own arrangement for water and electricity for the construction at his own cost by and the generator of suitable capacity to finish the job in time.

vi. Quantities of items are approximate and liable to change to any extent on either side. Any variation in quantities shall not vitiate the contract.

vii. Contractor shall not sub let the work to any other Contractor or Agency without written consent of the owner.

viii. The owner has right to withdraw any item of work from the contract or add / delete or change the same. Contractor shall make no extra claim for the same.

ix. The work shall be completed within the time as per appendix to General Condition of Contract Timely completion is essence of this order and Contractor shall pay liquidated damages @ 0.2% on the Contract sum of the work per day for each day of delay.

After a period of two weeks, the contract will come to end and the owner shall be at liberty to withdraw the work and get it executed from any other agency at Contractor risk and cost and the site shall be vacated by Contractor immediately.

x. No escalation in prices shall be allowed as this is a short term contract.

xi. No mobilization advance will be payable.

xii. Ready mix concrete used for RCC work should be of approved manufacturers on the approval of ENGINEER-IN-CHARGE / ARCHITECT.

xiii. Minimum amount of running bill would be as per appendix to General condition of Contract.

xiv. Tender should be unconditioned as conditional tenders are liable to be rejected.

xv. In addition to mandatory tests as specified the Contractor will get tests conducted on other materials as per instructions of the Owner / Architect/ engineer in charge. The cost of all these tests shall be borne by the Contractor.

xvi. Engineer-in-charge will work under the instructions of ARCHITECT.

The contractor shall be responsible to obtain all connections i.e. Water connection, electric connection etc. from the Concerned Authorities. The Contractor shall get all approval from concerned authorities, to obtain completion certificate and supplying 3 sets of as built - up drawings of all modifications carried out at site.

All govt. charges shall however to be reimbursed to Contractor on production of original deposit receipts.

2. MAINTENANCE

The CONTRACTOR shall maintain in good condition all work executed till the completion of entire work allotted to the CONTRACTOR.

3. TAXES

Royalty, octroi / terminal taxes, sales tax, excise duty, turn over tax, works contract tax etc. at prevalent rates shall have to be paid and borne by the CONTRACTOR on all the boulder, metal, shingle, stone, sand earth, bajri and all other material etc. collected by him for the execution of the work to the revenue authorities of states government etc. and on work / sub works executed.

4. SAFETY

The CONTRACTOR must take all safety measures and precautions to avoid accidents by exhibiting day and night necessary caution boards, speed limit boards, red flags and red lights and by providing attended barriers, railings etc. The CONTRACTOR shall be responsible for all damages and accidents caused due to negligence of his part of his labour or his SUB-CONTRACTOR. No hindrance shall be caused to traffic during execution of work.

5. CLEANING SITE

CONTRACTOR shall clean the site thoroughly of all rubbish etc. left out waste debris and his materials periodically, dress the site to be free from filth, mosquitoes, flies and unhygienic conditions like stagnant water.

6. STORAGE

The CONTRACTOR shall consult the ARCHITECT/ EXECUTIVE ENGINEER regarding place for storage stacking of material required for the work. He should not stack any material in any other than those approved by the ARCHITECT / ENGINEER - IN - CHARGE.

7. DAMAGES

Any damage done by the CONTRACTOR to the building work etc. or ground surface, drains, sewerage, existing available drainage system, pipe line etc. will be made good by the CONTRACTOR at his own cost. No compensation shall be paid to the contractor for any damage caused by rain, wind, storm or floods to the work or the material collected for the execution of the work. He will make good all such damages at his cost and no claim on this account will be entertained.

The CONTRACTOR will indemnify the OWNER against all structural damages caused by his negligence, non-conforming use of partially completed structures, non compliance of specification, like removing the shuttering prior to due date or use of faulty material or work. Under such circumstances the CONTRACTOR under written order of ARCHITECT / Engineer-in-charge shall rectify and break all the damaged work at his own cost and rectify the same for which no extra payment will be made. The ARCHITECT/ EXECUTIVE ENGINEER may deduct reasonable amount from the interim bill or final bill or security deposit or any amount due to the CONTRACTOR till it is

rectified or get rectified after 7 days notice through other agency and recover the cost there of from the bills of the CONTRACTOR.

8. FACILITIES

The CONTRACTOR will give all facilities at his own cost to the ARCHITECT/ EXECUTIVE ENGINEER and OWNER, their engineers and representative for proper execution of the contract including access to the site works, inspection of all materials and works measurements of quantities etc. and shall work to their entire satisfaction and shall provide, sign board, proper site office with necessary lighting, toilets, furniture (table & chair & drawings racks etc.) at site of work at his own cost.

9. INSTRUCTIONS OF ARCHITECT

All verbal instructions given by the ARCHITECT will be considered as acted upon but the contractor should confirm the same in writing within 7 days from the date of such instruction falling which architect/ executive engineer may not account for items of work arising out of such instructions in the approved bills of the work.

10 INCOME TAX/ WORKS CONTRACT TAX

The Income Tax / W.C.T. as applicable shall be deducted by the OWNER as per Govt. notification / regulation from the bills of payments to the Government.

11 Occupancy

The OWNER shall have the right to occupy the works in parts as and when such parts are completed and declared fit for occupation by the ARCHITECT/ EXECUTIVE ENGINEER. Occupation certificate for the work shall be given by the ARCHITECT/ EXECUTIVE ENGINEER as per conditions for contracts before such occupation.

12. QUOTED RATES/ UNITS

Units of rates as shown in the Schedule of Quantities should be carefully scrutinized and once given by the CONTRACTOR shall remain unchanged and no excuse on this account will be entertained, after the tenders are opened.

13. SITE ORDER BOOK

A site order book will be kept at the site for the work in which instruction shall be recorded by Owner / Architect / Engineer – In- Charge and their representatives. The CONTRACTOR or his authorised agent shall sign the site order book to acknowledge the instruction in all event and their compliance.

14. Specifications Applicable

The CONTRACTORS are expected to have read the relevant specification and I.S. code which will be applicable to the work and with upto date correction slips & the conditions which are mentioned in these contract documents.

15. Samples

Samples of items of work to be executed should be prepared and got approved from the ARCHITECT before execution of such items of work is taken up. If the materials of approved make are not used, the items of work of such materials shall be out rightly rejected and not paid for at all. Sample of each finishing items and others as desired

shall also be prepared for approval of the architect before the execution and no extra cost shall be paid towards preparation of sample.

16. WATER & POWER DISTRIBUTION

The CONTRACTOR, shall have to make their own arrangement for pumping and distribution of water and electricity. The CONTRACTOR will make adequate provision by spreading G.I. pipe lines and cables at site for ensuring proper curing etc. as directed by the ARCHITECT/ EXECUTIVE ENGINEER at no extra cost payable to CONTRACTOR.

17. EXTRA WORKS

Any extra item beyond the tender item shall not be executed without the written approval of the ARCHITECT/ EXECUTIVE ENGINEER. (In spite of its being mentioned in the drawings/ verbal instructions)

18. SITE VISIT

The TENDERERS are advised to see the site of the work and they will be deemed to have familiarised themselves with the scope of work, local conditions, drawings, specification conditions of contract, etc before submitting their tenders.

19. DEPUTING REPRESENTATIVE

On acceptance of the tender, the name of the accredited representative of the CONTRACTOR, who would be responsible for taking instruction from the ARCHITECT/ OWNER should be communicated in writing to the OWNER.

20. THE DEVIATION LIMITS :

The quantities of any items hence forth mentioned in schedule of quantities are liable to vary (increase of decrease) upto any extent and can even be deleted or substituted as per scope of work or as per ARCHITECT/ EXECUTIVE ENGINEER'S instructions. The CONTRACTOR shall not have any claim whatsoever on these varied quantities. This condition shall supersede all other clauses regarding the deviation limit.

21. Reinforcement cutting & Bending Schedule

The CONTRACTOR will have to prepare bar bending schedule of reinforcement in triplicate and the same forwarded to Engineer-in-charge and architect for approval. Reinforcement will have to be placed strictly in accordance with approved schedule only.

22. REQUEST FOR DRAWINGS

The drawing will be supplied by the ARCHITECT to the CONTRACTOR. At any stage he will have no excuse to delay the work on this account & would ask well in advance within 15 days, in writing to architect with copy to OWNER.

23. WORKING LATE HOURS

No work shall be done at night (6PM to 8AM) and on National Holiday without the instructions in writing of the ARCHITECT/ Engineer-in-charge.

24. MIXING OF CEMENT CONCRETE OR CEMENT MORTARS

The mixing of cement concrete, cement mortars shall be done in mechanical mixer operated by diesel or by power, Mixer and vibrators would be kept at site all the time.

25. Tests

All mandatory tests shall be carried out as per Punjab PWD specifications. The Contractor shall establish a laboratory at site. He shall have all sievers, weighing balance, measuring glass, cylinders etc. Whenever desired by Owners Architect/ executive engineer, he shall get the tests conducted in PWD / Sri Ram Test Laboratory. No charges shall be paid to the contractor for carrying the samples & testing the samples from the laboratory.

26 Final Bill

Final bill as based on joint measurements of the work executed and duly accepted by the CONTRACTOR shall be submitted by him within 90 days of the completion of work. The final bill shall then be verified and checked by the ENGINEER IN CHARGE and returned to the OWNER for payment. Should the CONTRACTOR fail to take appropriate action as above, within the period prescribed, the ENGINEER-IN-CHARGE shall take the measurements jointly with the Executive Engineer's representative and prepare final bill which will be final and binding on the CONTRACTOR and the CONTRACTOR shall have no right to dispute the same.

27 CLAIM FOR INTEREST

No claim for interest will be entertained by the OWNER with respect to any earnest money, Security Deposit or balance payments etc. owing to a dispute between owner and the CONTRACTOR or with respect to any delay on the part of the OWNER in making interim or final payment or otherwise.

28 SITE -ENGINEER

The contractor shall appoint full time experienced Graduate Engineers at site, who will be responsible for quality and measurement of the work. In case contractor does not appoint such Engineer Rs. 15,000/- p.m. per person shall be deducted from his bill for the period he has not employed.

29. REJECTION OF BAD WORK

The Architect/ executive engineer shall have full power to accept or reject any work due to bad quality, poor workmanship or poor quality of materials used. No payment will be made for the rejected work.

36. MEETINGS

Pre-fixed weekly meeting will be held which should be attended by the contractor or his authorised representative. In case no desired results are achieved ARCHITECT/ OWNER will terminate the contract.

37. Safe Storage

38.1 The contractor shall make all arrangements for storage and safe custody of materials issued by owner or arranged by himself. The contractor shall construct suitable godown at the site of work for storing materials safe against damage due to sun, rain, dampness, fire, theft etc. He should also employ necessary watch & ward establishment for purpose.

38.2 Cement bags shall be stored in separate godown with weather proof roofs and walls. Each godown shall be provided with single door with two locks. The key of one lock shall remain with ENGINEER-IN-CHARGE and that of other lock with the authorized agent of the CONTRACTOR at the site of work so that the cement is removed from the godown

according to the daily requirement with the knowledge of both the parties. The cement bags shall be stacked on proper floors consisting of two layers of dry bricks laid on well consolidated earth at a level at least one foot above ground level. These stacks shall be in rows of 2 and 10 high with a minimum of 2 feet space clear all around.

38.3 All materials shall be used by the CONTRACTOR from his own stocks.

38.4 All material supplied by the OWNER to the CONTRACTOR shall remain the absolute property of the OWNER and shall not be removed by the CONTRACTOR from the site of the work on any account. The CONTRACTOR shall not be entitled to sell, mortgage, loan or dispose off the material in any other way except to use the same in the construction of works. Any material remaining unused and in perfectly good condition at the time of the completion of the contract shall have to be returned to the OWNER in good condition.

39.0 VIOLATION OF CONDITIONS

In case the CONTRACTOR breaks any of the above stipulated conditions, he shall, in addition to throw away himself open to action for contravention of the terms of the Contract and criminal breach of trust he will be liable to pay to the OWNER the cost of such materials at double the market rate.

40 STORAGE OF CEMENT & STEEL

a) Cement shall be arranged by the Contractor himself.

b) **Safe Storage**

i) The CONTRACTOR shall at his own cost, make all arrangements for storage and safe custody of material. The CONTRACTOR shall construct suitable godown at the site of work for storing material safe against damage due to sun, rain, dampness, fire theft etc. He should also employ necessary watch and ward establishment for purpose.

ii) Cement bags shall be stored in separate godown with weather proof roofs and walls. Each godown shall be provided with single door with two locks. The key of one lock shall remain with Engineer-in-charge and that the cement is removed from the godown according to the daily requirement with the knowledge of both the parties. The cement bags shall be stacked on proper floors consisting of two layers of dry bricks laid on well consolidated earth at a level at least one foot above ground level. These stacks shall be in rows of 2 and 10 high with a minimum of 2 feet space clear all around.

iii) The day to day receipt and issue accounts of cement shall be maintained by the Engineer-in-charge and signed daily by the Contractor or his authorized agent. The proforma is given below :-

1. Date of receipt
2. particulars of receipt quantity received
3. progressive total
4. Date of issue
5. Quantity issued
6. Item of work for which issued
7. Quantity returned at the end of day
8. Total issue
9. Progressive total of issues

10. Daily balance in hand
 11. Contractor's initial
 12. Engineer-in-charge's initial
 13. Apart from the above receipt and issue bills to the site shall also be kept by the contractor & duly signed by the Engineer in Charge & maybe scrutinized by the owner at any time.
- iv) No material shall be removed by the contractor from the site of the work on any account without the knowledge of engineer - in - charge. The contractor shall not be entitled to sell mortgage, loan or dispose off the material in any other way except to use the same in the construction of works. Any material remaining unused at the time of the completion of the contract shall be removed by contractor with the knowledge of Engineer - in - charge.

Dated :

Signature of tenderer

PROJECT: SEWAGE TREATMENT PLANT 100 KLD FOR SARAGHARI SARAI

SUBHEAD : Supplying, Installing, Testing and Commissioning of Sewage Treatment Plant

SPECIAL CONDITIONS

1. The prices quoted shall be inclusive of excise, all taxes, sales tax, works contract tax, service tax, freight, octroi etc.
2. The Owner has the right to delete any item from the scope of this contract.
3. The quantities as given in the Bill of Quantities are tentative. These can be increased or decreased as per the actual requirement at site.
4. Tenderer can quote for any additional item, which he thinks is required for successful operation of the machinery being offered by him
5. The contractor shall submit the **shop drawings** of the complete installation for the Consultant's approval with in 7 days of the award of the contract. The shop drawings shall give sufficient information for the required civil work to be done by other agency. The Contractor shall also submit the single line diagram (SLD) and the fabrication drawings of the pump control panels.
6. The contractor shall be responsible for the proper functioning of the **Sewage Treatment Plant** in terms of its performance.
7. **Statutory Approvals: The Contractor shall be responsible for obtaining the statutory approval from the Pollution Control Board or any other statutory clearance as required and shall submit the NOC from PPCB.**
8. Any equipment/item having any manufacturing/ running defect shall be replaced free of cost.
9. The Contractor shall hand over all the catalogues, performance curves and warranty cards of the equipment supplied to the Owner.
10. **Electricity & Water:** Electricity and water will be provided at site by the Owner. However, the Contractor shall make temporary arrangement on his own for tapping off from the nearest available distribution point and pay the bill of hi consumption.
12. **The offer shall have the following enclosures:**
 - a) System diagram
 - b) Details of the required electric load — installed as well as operational.
 - c) Operational and maintenance cost
 - d) Details of Civil Work required (in terms of sizes and volume)
 - e) A note on the Ventilation requirement for the STP area

PROJECT: SEWAGE TREATMENT PLANT 100 KLD FOR SARAGARI SARAI

SUBHEAD : Supplying, Installing, Testing and Commissioning of Sewage Treatment Plant

SCOPE OF WORK

1.1 TURNKEY NATURE OF PROJECT:

This Contract is for execution of Sewage Treatment Plant based on **FAB / MBBR Technology** on 'Turnkey Basis', the plant shall be over ground and which shall include but not limited to the following :

a) Designing of Sewage Treatment Plant :

Designing shall essentially include but not limited to the following:

- i) Process Design
- ii) Preparation of general arrangement drawing with sufficient information for the Structural Engineering Consultant to design the structure of various components.
- iii) Selection of all mechanical and electrical equipment like pumps, motors, pipes, sleeves, valves and other appurtenances, switchgear, cables etc.
- iv) Preparation of detailed engineering drawings

b) Supply and Installation of Mechanical & Electrical Equipment like automatic bar screens, raw sewage transfer pumps, all mechanical and electrical equipment for the reactor, sludge recycling / lifting pumps, plant room drainage pumps, filters, disinfecting units etc. as generally described in Section D and of makes as mentioned in Section E of Scope of Work.

IMPORTANT NOTES

- i) It is understood that this Contract includes supply, installation, testing and commissioning of all the equipment, components etc. whether explicitly mentioned above or not for the successful commissioning of the Sewage Treatment Plant as per the parameters mentioned herein.
- ii) The major Civil Work like construction of underground tanks, equipment foundations etc. are **not included** in the Scope of this work. However, the Contractor will have to provide complete detailed drawings including regarding the requirements of Civil Works, so that these can be executed by a separate agency.
- c) **Interconnecting Pipe work** : All interconnecting pipe work should be in MS C class with outer epoxy painted starting from Screen Chamber to the discharge header of the treated effluent transfer pumps including making arrangement for STP bypass and surplus effluent disposal, supplying and fixing all pipe sleeves in the civil work is also included in the scope of work.
- d) **Electrical Works:** Pump control panel and all interconnecting power and control cabling for pumps, drives etc. interlocking of dosers etc.
- e) MS Structural works for the walkways, ladders, pipe supports, manhole covers etc.

- f) **Testing and commissioning of the Plant (including the cost of the consumables).**
- h) **Training the personnel of the Employer for operation and maintenance of the plant.**
- i) **Full comprehensive maintenance including consumables & operation of the plant for 84 months commencing immediately after the commissioning including submitting monthly test reports of the treated water from labs.**
- j) **Obtaining statutory approvals from Local Pollution Control Board or any other statutory approvals required for the STP and getting NOC etc for operating etc..**
However, the statutory fee, if any, shall be born by the Client.

SECTION B. BASIC PARAMETERS

The following basic parameters are to be considered for the designing:

1. Nature of Waste Water : Domestic sewage including waste water from Toilets and Kitchens from the Dwelling Units.
2. Expected Daily Flow : 100 M³/day
3. Average Flow Rates for Primary and Secondary Treatment
Average Flow Rate : 5 M³/hr.
4. **Tertiary Treatment**
:
a) **Basic:** Multi Grade Sand Filtration, Activated Carbon Filter, Chlorine Disinfection system.

Average Hourly Flow for designing of Tertiary Treatment units : Two streams of 5 M³/hr. each

b) **Polishing:** Skid Mounted Ultra Filtration System comprising UF Feed Pumps, UF Membranes, CIP Pump, Backwash Pump, Piping, Power and control wiring, Control Panel etc
Capacity: 5 M³/hr.
5. **Expected Raw Waste**
Characteristics :
pH : 6-5 to 8-5
BOD : 250 mg/litre — 350 mg/litre
Suspended Solids : 300 mg/litre — 400 mg/litre
COD : 600 mg/litre — 800 mg/litre
Oil & Grease : Upto 100 mg/litre

6. **Desired Treated Effluent Characteristics**

A) After Basic Tertiary Treatment

pH	:	7.0 to 8.5
BOD	:	Less than 20 mg/litre
Suspended Solids	:	Less than 50 mg/litre
COD	:	Less than 50 mg/litre
Oil & Grease	:	Less than 5 mg/litre

B) After Ultra Filtration (UF)

pH	:	7.0 to 8.5
BOD	:	Less than 5 mg/litre
Suspended Solids	:	Less than 1 mg/litre
COD	:	Less than 20 mg/litre
Oil & Grease	:	Less than 1 mg/litre
Colour and Odour	:	Treated Effluent for flushing shall be aesthetically acceptable and odour free.

7. **Reuse of Treated Effluent** : a) **WC Flushing**
b) **Landscape Irrigation**
c) **Surplus Effluent to be discharged into existing public sewer / Vending to Farmers**

8. **Statutory Requirement** : Effluent quality shall meet the requirements of Local Pollution Control Board and Central Pollution Control Board and LEEDS certification.

SECTION C. SITE CONDITIONS

The tenderer must carefully consider the site constraints of the site while offering the technology/preparing the proposal.

ACCEPTABLE TECHNOLOGY FOR THE REACTOR

a) Fluidized Aerated Bed (FAB)/ Moving Bed Bio Reactor (MBBR)

SECTION D. GENERAL SPECIFICATION AND REQUIREMENTS FOR MECHANICAL AND ELECTRICAL EQUIPMENT

1. Coarse Screen — 2 Nos.

- Duty : To trap any floating matter and large solids from the raw waste water
- Type** : **Automatic rotor inclined screen / perforated screen, suitably inclined with automatic cleaning**
- Material of Construction : Stainless Steel. (Grade SS-316)
2. Raw Sewage Transfer Pumps — 2 Nos. (1 working + 1 standby)
(Lubi/ Grundfos / Mather & Platt)
- Type : Non-clog fully floodable submersible type suitable to handle raw sewage.
- Material of Construction : Corrosion Resistant in general Pump & Motor
- | | | |
|----------|---|---|
| Housing | — | Cast Iron |
| Impeller | — | Cast Iron |
| Shaft | — | Stainless Steel 304 AISI |
| Bearings | — | Anti friction, pre-lubricated ball bearings, packed with grease for life. |
- Motor — Dry Motor
Protection degree IP68 Insulation class F. Built-in thermal overload protection
- Installation — In Equalisation / holding tank. Permanent installation with lifting system incorporating duck foot and stainless steel guide.
3. Sludge recirculation & Disposal Pumps — 2 Nos. (1 working + 1 standby)
(Lubi/ Grundfos / Mather & Platt)
- Type : Non-clog Centrifugal type suitable to handle sludge.
- Material of Construction : Corrosion Resistant in general Pump & Motor
- | | | |
|----------|---|-----------------------------------|
| Housing | — | Cast Iron |
| Impeller | — | Cast Iron |
| Shaft | — | Carbon Steel with mechanical seal |
4. Air blowers : 2 Nos. (1 working + 1 standby)
(Usha / Kay /Everest)

- Type : Twin Lobe type
Material of Construction : Casing — Cast Iron
: Shaft — Alloy Steel
5. Media for MBBRB Reactor : Virgin Poly propylene Plastic Floating Media
(Cool Deck /Welcome /Ewaltz)
6. Media for Settling Tanks : PVC Tube Settler
(Cool Deck /Welcome /Ewaltz)
7. Equipment for Tertiary Treatment: The equipment shall be selected and designed to render the effluent fit for reuse for landscape Irrigation and flushing toilets.
- a) Tertiary Treatment Feed Pumps: 2 Nos. (1 working + 1 standby)
(Lubi/ Grundfos / Mather & Platt)
- Type : Centrifugal Mono block pumps suitable to handle waste water
- Material of Construction : Corrosion Resistant Pump & Motor
Casing — Cast Iron
Impeller— Cast Iron
Shaft — Carbon Steel
With mechanical seal
- b) Filter Vessels : MSRL/ FRP
(Pentair /Ventura)
- c) Chemical Doser : Electronic Metering Pumps with 100 liter SS 304 Solution Tank
(Asia LMI / Etatron /Milton Roy)
- d) Ultra Filtration (UF) Block : The equipment shall be selected and designed to further polish the effluent after basic tertiary treatment and render it completely free from suspended solids and odor. The unit shall be mounted on a separate skid with its own control panel.
(Hydranautic /Dow /Olttramare)
7. Interconnecting Pipe work: All interconnecting pipe work starting from Bar Screen Chamber to the header of the treated effluent transfer pumps including pipe work for air supply.
- Material of Pipe and Fittings : Non corrosive material suitable for raw and treated sewage. The preferred material is MS C class pipe & fittings of minimum 10 Bar pressure rating with outer epoxy painted. All piping material shall conform to relevant Indian

		Standards of BIS and International Standards for which Indian Standards are not available.
	Valves and other appurtenances:	Non-corrosive material, of construction suitable to handle raw and treated sewage.
	Method of laying, fixing, jointing, testing and commissioning :	Relevant Codes of Practice Manufacturers Instructions CPWD Specifications
11.	Flow Meters :	As specified.
12.	Electrical Works:	<p>a) All interconnecting power and control cabling from control panel to respective motors and drives, level controllers.</p> <p>a) Main Control Panel: Metal clad cubicle type suitable for 415 V AC three phase 4 wire 50Hz supply system. The panel shall have separate compartments for incomer , Bus bar and outgoing feeders. The panel shall be complete with MCCBs, metering devices including energy meter, relays, contactors, protective switches for each motor, starters, single phase preventers for three phase motors, level controllers, sequential controllers, auto manual change over switches, metering devices, indicating lights, Aluminium Bus Bars, designation labels as per requirement, Continuous earth bar, panel separators, protective screens, cable clamping support system, panel illuminating lamps, top/bottom cable gland plates for incoming and out going cable entries.</p> <p>The panel shall have powder coated finish of an approved shade. The panel should preferably be from the same Vendor who is supplying the main electrical panels for this project.</p> <p>b) Automation: The operation of the pumps shall be controlled by the programmable logic control.</p>

Important Note:

It is understood that this Contract includes designing, supply, installation, testing and commissioning of all the equipment, components etc. whether explicitly mentioned above or not for the successful commissioning of the Sewage Treatment Plant as per the parameters mentioned above.

SECTION E. LIST OF APPROVED MAKES/MANUFACTURES OF MATERIALS

NOTE:

- i) Tenderer must tick (☐) the brand being offered. In case some other brand is being offered, it must be clearly stated and supporting document must be enclosed.
- ii) All Brand Names/Manufacturers are Indian unless specified otherwise.

S.NO.	MATERIAL	BRANDNAME / MANUFACTURER
A) Plant & Equipments		
1.	Submersible Sewage Pump	a) Grundfos b) Mather & Platt c) Lubi
2.	Self Priming Monoblock Sewage and Sludge Transfer Pumps	a) Grundfos b) Mather & Platt c) Lubi
3.	Filter Feed Pump/Treated Water Transfer Pumps	a) Grundfos b) Matter & Platt c) Lubi
4.	Screw Pumps	a) Rotomech b) Tushaco c) Roto
5.	Air blowers	a) Usha b) Everest c) Kay
6.	Filter Press	a) Pharmatech b) Weeco
7.	MSRL Vessels (Filter Shell)	a) Pentair b) Aventura c) MMP
8.	FRP Vessels (Filter Shell)	a) Well-Mate, USA b) Aventura c) Pentair
9.	Metering Pumps	a) Asia, LMI b) Milton Roy c) Etatron, Italy
10.	HDPE Solution Tanks	a) SS 304
11.	U.F. Membranes	a) DOW, USA

- | | | |
|-----|----------------------|---|
| | | c) Hydranotics, USA
d) Oltremare |
| 12. | Membrane Housing | a) Ecoline
b) Eventura |
| 13. | Pressure Guage
b) | a) H. Guru
Fiebig |
| 14. | Diffusers | a) Welcome
b) Weeco |
| 15. | MBBR/ Tubedeck Media | a) Cool deck
b) Welcome
c) Ewartz |
| 16. | Rota Meters | a) Aster
b) Flowstar
c) Instrumentation
Engineers Ltd. |
| 17. | pH Indicator | a) Aster |

S.NO.	MATERIAL	BRANDNAME / MANUFACTURER
B) Pipes and Fittings		
1.	MS Pipes and Fittings	a) Jindal b) Tata
C) Valves		
1.	Butterfly Valves	a) Audco b) Advance c) Danfoss
2.	Gunmetal Gate Valves, Non-return Valves	a) Leader b) Zoloto
3.	Water Level Controller (Magnetic Float Type)	a) Janus b) Elegant Control c) Swlitzer
D) Electric Switch Gear and Starters		
1.	Electric Switch Gear	a) Siemens b) L & T c) ABB d) Merlin Gerin e) Legrand f) GE - Power

- | | | |
|----|---|--|
| 2. | PVC Insulated Armoured Power and Control Cables | a) Skytone
b) Polycab
c) Havell's |
| 3. | MCCB | a) L & T
b) Merlin Gerin
c) ABB |
| 4. | MCB | a) L & T - Hager
b) Merlin Gerin
c) MDS - Lexic |
| 5. | Starters, Relays etc. | a) L & T
b) ABB
c) Control & Switch Gear
d) GE – Power |
| 6. | Push button and indication lights | a) L & T
b) Siemens
c) Telemenaque
d) Vaishno
e) BCH |
| 7. | Digital Voltmeter & Ammeter | a) AE
b) Cadel
c) Enercon |

S.NO.	MATERIAL	BRANDNAME / MANUFACTURER
8.	Selector Switches	a) L & T b) Keycell c) Salzar
9.	HRC Control Fuses	a) L & T b) Siemens
10.	Digital Water Quality Monitoring Equipment	a) Fluid Control System, USA b) Impell
11.	Electro Magnetic Flow Meter	a) Electronet b) Rose Mount c) IOTA d) Rockwin

PROJECT: SEWAGE TREATMENT PLANT 100 KLD FOR SARAGHARI SARAI

SUBHEAD : Supplying, Installing, Testing and Commissioning of Sewage Treatment Plant

SPECIAL CONDITIONS

1. The prices quoted shall be inclusive of excise, all taxes, sales tax, works contract tax, service tax, freight, octroi etc.
2. The Owner has the right to delete any item from the scope of this contract.
3. The quantities as given in the Bill of Quantities are tentative. These can be increased or decreased as per the actual requirement at site.
4. Tenderer can quote for any additional item, which he thinks is required for successful operation of the machinery being offered by him
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6. The contractor shall be responsible for the proper functioning of the **Sewage Treatment Plant** in terms of its performance.
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9. The Contractor shall hand over all the catalogues, performance curves and warranty cards of the equipment supplied to the Owner.
10. **Electricity & Water:** Electricity and water will be provided at site by the Owner. However, the Contractor shall make temporary arrangement on his own for tapping off from the nearest available distribution point.
12. **The offer shall have the following enclosures:**
 - a) System diagram
 - b) Details of the required electric load — installed as well as operational.
 - c) Operational and maintenance cost
 - d) Details of Civil Work required (in terms of sizes and volume)
 - e) A note on the Ventilation requirement for the STP area

PROJECT: SEWAGE TREATMENT PLANT 100 KLD FOR SARAGARI SARAI

SUBHEAD : Supplying, Installing, Testing and Commissioning of Sewage Treatment Plant

SCOPE OF WORK

1.1 TURNKEY NATURE OF PROJECT:

This Contract is for execution of Sewage Treatment Plant based on **FAB / MBBR Technology** on '**Turnkey Basis**', the plant shall be over ground and which shall include but not limited to the following :

a) **Designing of Sewage Treatment Plant :**

Designing shall essentially include but not limited to the following:

- i) Process Design
- ii) Preparation of general arrangement drawing with sufficient information for the Structural Engineering Consultant to design the structure of various components.
- iii) Selection of all mechanical and electrical equipment like pumps, motors, pipes, sleeves, valves and other appurtenances, switchgear, cables etc.
- iv) Preparation of detailed engineering drawings

b) **Supply and Installation of Mechanical & Electrical Equipment** like automatic bar screens, raw sewage transfer pumps, all mechanical and electrical equipment for the reactor, sludge recycling / lifting pumps, plant room drainage pumps, filters, disinfecting units etc. as generally described in Section D and of makes as mentioned in Section E of Scope of Work.

IMPORTANT NOTES

- i) It is understood that this Contract includes supply, installation, testing and commissioning of all the equipment, components etc. whether explicitly mentioned above or not for the successful commissioning of the Sewage Treatment Plant as per the parameters mentioned herein.
- ii) The major Civil Work like construction of underground tanks, equipment foundations etc. are **not included** in the Scope of this work. However, the Contractor will have to provide complete detailed drawings including regarding the requirements of Civil Works, so that these can be executed by a separate agency.
- c) **Interconnecting Pipe work :** All interconnecting pipe work should be in MS C class with outer epoxy painted starting from Screen Chamber to the discharge header of the treated effluent transfer pumps including making arrangement for STP bypass and surplus effluent disposal, supplying and fixing all pipe sleeves in the civil work is also included in the scope of work.
- d) **Electrical Works:** Pump control panel and all interconnecting power and control cabling for pumps, drives etc. interlocking of dosers etc.

- e) MS Structural works for the walkways, ladders, pipe supports, manhole covers etc.
- f) **Testing and commissioning of the Plant (including the cost of the consumables).**
- h) **Training the personnel of the Employer for operation and maintenance of the plant.**
- i) **Full comprehensive maintenance including consumables & operation of the plant for 60 months commencing immediately after the commissioning including submitting monthly test reports of the treated water from labs.**
- j) **Obtaining statutory approvals from Local Pollution Control Board or any other statutory approvals required for the STP and getting NOC etc for operating etc..**
However, the statutory fee, if any, shall be born by the Client.

SECTION B. BASIC PARAMETERS

The following basic parameters are to be considered for the designing:

1. Nature of Waste Water : Domestic sewage including waste water from Toilets and Kitchens from the Dwelling Units.
2. Expected Daily Flow : 100 M³/day
3. Average Flow Rates for Primary and Secondary Treatment
Average Flow Rate : 5 M³/hr.
4. **Tertiary Treatment**
:
a) **Basic:** Multi Grade Sand Filtration, Activated Carbon Filter, Chlorine Disinfection system.

Average Hourly Flow for designing of Tertiary Treatment units : Two streams of 5 M³/hr. each

b) **Polishing:** Skid Mounted Ultra Filtration System comprising UF Feed Pumps, UF Membranes, CIP Pump, Backwash Pump, Piping, Power and control wiring, Control Panel etc
Capacity: 5 M³/hr.

5. **Expected Raw Waste**

Characteristics	:	
pH	:	6-5 to 8-5
BOD	:	250 mg/litre — 350 mg/litre
Suspended Solids	:	300 mg/litre — 400 mg/litre
COD	:	600 mg/litre — 800 mg/litre
Oil & Grease	:	Upto 100 mg/litre

6. **Desired Treated Effluent Characteristics**

A) After Basic Tertiary Treatment

pH	:	7.0 to 8.5
BOD	:	Less than 20 mg/litre
Suspended Solids	:	Less than 50 mg/litre
COD	:	Less than 50 mg/litre
Oil & Grease	:	Less than 5 mg/litre

B) After Ultra Filtration (UF)

pH	:	7.0 to 8.5
BOD	:	Less than 5 mg/litre
Suspended Solids	:	Less than 1 mg/litre
COD	:	Less than 20 mg/litre
Oil & Grease	:	Less than 1 mg/litre
Colour and Odour	:	Treated Effluent for flushing shall be aesthetically acceptable and odour free.

7. **Reuse of Treated Effluent** :

- a) **WC Flushing**
- b) **Landscape Irrigation**
- c) **Surplus Effluent to be discharged into existing public sewer / Vending to Farmers**

8. **Statutory Requirement** : Effluent quality shall meet the requirements of Local Pollution Control Board and Central Pollution

SECTION C. SITE CONDITIONS

The tenderer must carefully consider the site constraints of the site while offering the technology/preparing the proposal.

ACCEPTABLE TECHNOLOGY FOR THE REACTOR

- a) Fluidized Aerated Bed (FAB)/ Moving Bed Bio Reactor (MBBR)

SECTION D. GENERAL SPECIFICATION AND REQUIREMENTS FOR MECHANICAL AND ELECTRICAL EQUIPMENT

- 1. Coarse Screen — 2 Nos.
 - Duty : To trap any floating matter and large solids from the raw waste water
 - Type : **Automatic rotor inclined screen / perforated screen, suitably inclined with automatic cleaning**
 - Material of Construction : Stainless Steel. (Grade SS-316)
- 2. Raw Sewage Transfer Pumps — 2 Nos. (1 working + 1 standby) **(Lubi/ Grundfos / Mather & Platt)**
 - Type : Non-clog fully floodable submersible type suitable to handle raw sewage.
 - Material of Construction : Corrosion Resistant in general Pump & Motor
 - Housing — Cast Iron
 - Impeller — Cast Iron
 - Shaft — Stainless Steel 304 AISI
 - Bearings — Anti friction, pre-lubricated ball bearings, packed with grease for life.
 - Motor — Dry Motor Protection degree IP68 Insulation class F. Built-in thermal overload protection
 - Installation — In Equalisation / holding tank. Permanent installation with lifting system incorporating duck foot and stainless steel guide.

3. Sludge recirculation & Disposal Pumps — 2 Nos. (1 working + 1 standby)
(Lubi/ Grundfos / Mather & Platt)
- Type : Non-clog Centrifugal type suitable to handle sludge.
- Material of Construction : Corrosion Resistant in general Pump & Motor
- Housing — Cast Iron
Impeller — Cast Iron
Shaft — Carbon Steel
with mechanical seal
4. Air blowers : 2 Nos. (1 working + 1 standby)
(Usha / Kay /Everest)
- Type : Twin Lobe type
Material of Construction : Casing — Cast Iron
Shaft — Alloy Steel
5. Media for MBBRB Reactor : Virgin Poly propylene Plastic Floating Media
(Cool Deck /Welcome /Ewaltz)
6. Media for Settling Tanks : PVC Tube Settler
(Cool Deck /Welcome /Ewaltz)
7. Equipment for Tertiary Treatment: The equipment shall be selected and designed to render the effluent fit for reuse for landscape Irrigation and flushing toilets.
- a) Tertiary Treatment Feed Pumps: 2 Nos. (1 working + 1 standby)
(Lubi/ Grundfos / Mather & Platt)
- Type : Centrifugal Mono block pumps suitable to handle waste water
- Material of Construction : Corrosion Resistant Pump & Motor
Casing — Cast Iron
Impeller— Cast Iron
Shaft — Carbon Steel
With mechanical seal
- b) Filter Vessels : MSRL/ FRP
(Pentair /Ventura)

- c) Chemical Doser : Electronic Metering Pumps with
100 liter SS 304 Solution Tank
(Asia LMI / Etatron /Milton Roy)
- d) Ultra Filtration (UF) Block : The equipment shall be selected and designed to further polish the effluent after basic tertiary treatment and render it completely free from suspended solids and odor. The unit shall be mounted on a separate skid with its own control panel.
(Hydranautic /Dow /Oltramare)
7. Interconnecting Pipe work: All interconnecting pipe work starting from Bar Screen Chamber to the header of the treated effluent transfer pumps including pipe work for air supply.
- Material of Pipe and Fittings : Non corrosive material suitable for raw and treated sewage. The preferred material is MS C class pipe & fittings of minimum 10 Bar pressure rating with outer epoxy painted. All piping material shall conform to relevant Indian Standards of BIS and International Standards for which Indian Standards are not available.
- Valves and other appurtenances: Non-corrosive material, of construction suitable to handle raw and treated sewage.
- Method of laying, fixing, jointing, testing and commissioning : Relevant Codes of Practice
Manufacturers Instructions
CPWD Specifications
11. Flow Meters : As specified.
12. Electrical Works:
- a) All interconnecting power and control cabling from control panel to respective motors and drives, level controllers.
- a) Main Control Panel: Metal clad cubicle type suitable for 415 V AC three phase 4 wire 50Hz supply system. The panel shall have separate compartments for incomer , Bus bar and outgoing feeders. The panel shall be complete with MCCBs, metering devices including energy meter, relays, contactors, protective switches for each motor, starters, single phase preventers for three phase motors, level controllers,

sequential controllers, auto manual change over switches, metering devices, indicating lights, Aluminium Bus Bars, designation labels as per requirement, Continuous earth bar, panel separators, protective screens, cable clamping support system, panel illuminating lamps, top/bottom cable gland plates for incoming and out going cable entries.

The panel shall have powder coated finish of an approved shade. The panel should preferably be from the same Vendor who is supplying the main electrical panels for this project.

- b) Automation: The operation of the pumps shall be controlled by the programmable logic control.

Important Note: It is understood that this Contract includes designing, supply, installation, testing and commissioning of all the equipment, components etc. whether explicitly mentioned above or not for the successful commissioning of the Sewage Treatment Plant as per the parameters mentioned above.

SECTION E. LIST OF APPROVED MAKES/MANUFACTURES OF MATERIALS

NOTE:

- i) Tenderer must tick () the brand offered, it must be clearly stated and supporting document must be enclosed.
- ii) All Brand Names/Manufacturers are Indian unless specified otherwise.

S.NO.	MATERIAL	BRANDNAME / MANUFACTURER
A) Plant & Equipments		
1.	Submersible Sewage Pump	a) Grundfos b) Mather & Platt c) Lubi
2.	Self Priming Monoblock Sewage and Sludge Transfer Pumps	a) Grundfos b) Mather & Platt c) Lubi
3.	Filter Feed Pump/Treated Water Transfer Pumps	a) Grundfos b) Matter & Platt c) Lubi

- | | | |
|-----|-----------------------------|--|
| 4. | Screw Pumps | a) Rotomech
b) Tushaco
c) Roto |
| 5. | Air blowers | a) Usha
b) Everest
c) Kay |
| 6. | Filter Press | a) Pharmatech
b) Weeco |
| 7. | MSRL Vessels (Filter Shell) | a) Pentair
b) Aventura
c) MMP |
| 8. | FRP Vessels (Filter Shell) | a) Well-Mate, USA
b) Aventura
c) Pentair |
| 9. | Metering Pumps | a) Asia, LMI
b) Milton Roy
c) Etatron, Italy |
| 10. | HDPE Solution Tanks | a) SS 304 |
| 11. | U.F. Membranes | a) DOW, USA
c) Hydranotics, USA
d) Oltremare |
| 12. | Membrane Housing | a) Ecoline
b) Eventura |
| 13. | Pressure Guage | a) H. Guru
b) Fiebig |
| 14. | Diffusers | a) Welcome
b) Weeco |
| 15. | MBBR/ Tubedeck Media | a) Cool deck
b) Welcome
c) Ewartz |
| 16. | Rota Meters | a) Aster
b) Flowstar
c) Instrumentation Engineers Ltd. |
| 17. | pH Indicator | a) Aster |

S.NO.	MATERIAL	BRANDNAME / MANUFACTURER
B)	Pipes and Fittings	
1.	MS Pipes and Fittings	a) Jindal b) Tata
C)	Valves	
1.	Butterfly Valves	a) Audco b) Advance c) Danfoss
2.	Gunmetal Gate Valves, Non-return Valves	a) Leader b) Zoloto
3.	Water Level Controller (Magnetic Float Type)	a) Janus b) Elegant Control c) Swlitzer
D)	Electric Switch Gear and Starters	
1.	Electric Switch Gear	a) Siemens b) L & T c) ABB d) Merlin Gerin e) Legrand f) GE - Power
2.	PVC Insulated Armoured Power and Control Cables	a) Skytone b) Polycab c) Havell's
3.	MCCB	a) L & T b) Merlin Gerin c) ABB
4.	MCB	a) L & T - Hager b) Merlin Gerin c) MDS - Lexic
5.	Starters, Relays etc.	a) L & T b) ABB c) Control & Switch Gear d) GE – Power
6.	Push button and indication lights	a) L & T b) Siemens c) Telemenaque d) Vaishno e) BCH
7.	Digital Voltmeter & Ammeter	a) AE

- b) Cadel
- c) Enercon

S.NO.	MATERIAL	BRANDNAME / MANUFACTURER
8.	Selector Switches	<ul style="list-style-type: none"> a) L & T b) Keycell c) Salzar
9.	HRC Control Fuses	<ul style="list-style-type: none"> a) L & T b) Siemens
10.	Digital Water Quality Monitoring Equipment	<ul style="list-style-type: none"> a) Fluid Control System, USA b) Impell
11.	Electro Magnetic Flow Meter	<ul style="list-style-type: none"> a) Electronet b) Rose Mount c) IOTA d) Rockwin