

TENDER DOCUMENT
Tender No:01/SBTIC/2024

**“Supply, Installation, Testing and Commissioning 750KVA (CPCB-II)
Diesel Generator set at Society for Biotechnology Incubation Centre
Genome Valley, Hyderabad”**

Society of Biotechnology Incubation Centre (SBTIC)
Plot : 15A, Sy No : 230-243, MN Park, Synergy Square 1, Genome Valley,
Hyderabad- 500078, Telangana
Website: <http://sbtic.org/>

MARCH-2024

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1 Tender Notification
TenderNo:01/SBTIC/2024

Scope of Work	Supply, Installation, Testing and Commissioning 750KVA Diesel Generator set at Society For Biotechnology Incubation Centre, Genome Valley, Hyderabad
Estimated value of work	Rs. 69,00,000/- (Rupees Sixty Nine Lakhs only)
Period of Work Completion	1 month
Name of the Client	Society For Biotechnology Incubation Centre, Genome Valley, Hyderabad
Address of the Client	Society of Biotechnology Incubation Centre (SBTIC) MN Park, Synergy Square 1, Genome Valley, Hyderabad 500078, Telangana Contact: +91-9966886231 Email: head-btic-tls@telangana.gov.in
Submission of Tender Document	Biotechnology Incubation Centre (BTIC) MN Park, Synergy Square 1, Genome Valley, Hyderabad 500078, Telangana Contact: +91-9966886231 Email: head-btic-tls@telangana.gov.in
Processing fee (Non-Refundable)	Rs. 5,000/- (Rupees Five Thousand only) + applicable GST (@18%) amounting to Rs. 5900/- (Rupees Five Thousand and Nine Hundred only) in the form of a crossed demand draft drawn in favour of "SBTIC payable at Hyderabad" drawn on any scheduled bank
Earnest Money to be deposited with the Tender (EMD)	Rs. 69,000/- (Rupees Sixty-Nine Thousand only) in the form of a crossed demand draft drawn in favour of "SBTIC payable at Hyderabad" drawn on any scheduled bank
Last date and Time for submission of tender	20.03.2024 at 15:00hrs
Date and Time of opening of Tender (Technical Bid)	20.03.2024 at 16:00hrs
Date and Time of opening of Tender (Financial Bid)	Shall be intimated to technically qualified bidders
Pre-bid meeting	-NA-

2. Notice Inviting Tender

The Secretary, Society of Biotechnology Incubation Centre (SBTIC) invites tenders in two bid (Technical and Financial) system from eligible Bidders, for **Supply, Installation, Testing and Commissioning of 1 x 750 KVA Diesel Generator set at Biotechnology Incubation Centre (BTIC), Genome valley, Hyderabad.**

Bidders shall not be under a declaration of ineligibility for corrupt and fraudulent practices issued by the Government of India or any State Government of Union of India. (Authorized signatory should provide an undertaking). Tenders from Joint ventures are not acceptable.

- 2.1 All Bidders shall provide the required information accurately and enough as per details in Section 4: Eligibility Criteria
- 2.2 The Tenderer shall provide the valid certificate copies of the documents as mentioned in the Chapter-4 (Eligibility criteria) in technical bid, **failing which the tender will be rejected.** If necessary, bidder shall produce all the original documents for verification.
- 2.3 The work shall be carried out as per the directions of Secretary, Society of Biotechnology Incubation Centre (SBTIC).
- 2.4 Blacklisted contractors in State / Central Govt. Departments / BBMP / PSU/ Central PSUs/ Autonomous bodies / Institutions are not eligible to quote, if found such tenders will be rejected. The contractors who are penalized due to delay in completion of the previous works will be rejected.
- 2.5 The successful Bidder shall execute an Agreement within 10 days from the date of Receipt of intimation from this office, The Tender Document will form the part and parcel of the agreement, failing which the tender will deem to be get cancelled.
- 2.6 The material shall be got approved by the Secretary, Society of Biotechnology Incubation Centre (SBTIC). before execution of the work.
- 2.7 Further details of the work can be obtained from this office.
- 2.8 The rates quoted should reflect all taxes. The bid evaluation will be done inclusive of all Taxes /Cess./Royalty etc. The statutory levies as per Govt. guidelines will be deducted. The SBTIC reserves the right to accept / reject any or all the tenders without assigning any reasons.
- 2.9 The work shall be commenced with all men and machinery within 10 days from the date of work order, failing which it would be presumed that the successful tenderer is not interested in the work and action will be taken to get the work executed through alternate agency at the risk and cost of the former Tenderer.
- 2.10 Conditional tenders will not be accepted an disliable for rejection.
- 2.11 Bidders, who meet the above specified minimum qualifying criteria, shall be eligible.
- 2.12 Even though the Bidders meet the above criteria, they are subject to be disqualified if they have:
 - Made misleading or false representations in the forms, statements and attachment

submitted in proof of the qualification requirements; and/or

- Record of poor performance such as abandoning the works, not properly completed the contract, inordinate delays in completion, litigation history, or financial failures etc.

2.13 Site visit:

The Bidder at his own responsibility is encouraged to visit and examine the Site of Works and its surroundings and obtain all information that may be necessary for preparing the Tender and entering into a contract for the Works. The cost of visiting the Site shall be at the Bidder's own expense.

The Tender document can be downloaded from Biotechnology Incubation Centre website: <http://sbtic.org/>. It may be noted that all subsequent notifications, changes and amendments on the project/document would be posted only on the same website.

2.14 Content of Tender documents

The bidders should go through the Tender Document and submit at Biotechnology Incubation Centre (BTIC), MN Park, Synergy Square 1, Genome Valley, Hyderabad 500078, Telangana

2.15 Documents comprising the Tender

The Technical Bid submitted by the Bidder shall contain the documents as follows:

- 2.15.1 Earnest Money Deposit (EMD) paid in the specified form as mentioned in the Tender document.
- 2.15.2 Qualification Information as per formats to comply under General Terms and Conditions and Technical parameters and Documents required from Bidder.
- 2.15.3 Any other documents/ materials required to be completed and submitted by Bidders in accordance with these instructions. The required documents shall be filled in without exception.

The bidder shall submit the hard copies of the documents / credentials the designated office by 20.03.2024 at 15:00hrs. The Financial bid shall be submitted along with the technical bid in a separate cover.

The contract shall be for category of works / whole works based on the priced Bill of Quantities submitted by the Bidder.

All prevailing duties, taxes, and other levies like CESS/Royalty payable by the contractor under the contract, or for any other cause, shall be included in the rates, prices and total Tender Price submitted by the Bidder.

2.16 Tender validity

Tenders shall remain valid for a period not less than **90 days** after the deadline date for tender submission. A tender valid for a shorter period shall be rejected by the SBTIC as non- responsive.

In exceptional circumstances, prior to expiry of the original time limit, the SBTIC may request that the Bidders may extend the period of validity for a specified additional period. The request and the Bidders' responses shall be made in writing or by email. A Bidder may refuse the request without forfeiting his earnest money deposit. A Bidder agreeing to the request will not be required or permitted to modify his tender but will be required to extend the validity of his earnest money deposit for a period of the extension and in compliance.

2.17 Earnest money deposit:

The Bidder shall furnish, as part of their tender, earnest money deposit (EMD). The Bidder has to pay the EMD in the form a crossed demand draft drawn in favour of "SBTIC payable at Hyderabad" drawn on any scheduled bank towards processing of the Bidding Document.

The bidder should submit the original demand draft along with the Technical Bid Documents for our reference. The EMD amount will have to be submitted by the bidder taking into account the following conditions:

2.17.1 The entire amount must be paid in a single transaction.

2.17.2 The earnest money deposit of unsuccessful Bidders will be returned after awarding the contract to the successful bidder.

The earnest money deposit may be forfeited:

- a) If the Bidder withdraws the tender after tender opening during the period of tender validity,
- b) If the Bidder fails within the specified time limit to
 - Sign the Agreement; or
 - Furnish the required Security deposit

2.18 Format and signing of Tender

Successful Bidder shall sign all the pages of the tender document as a token of acceptance of all the terms and conditions of the contract.

2.19 Deadline for submission of the Tenders

Tenders must be submitted offline at the Society of Biotechnology Incubation Centre (SBTIC) Plot : 15A, Sy No : 230-243, MN Park, Synergy Square 1, Genome Valley, Hyderabad 500078, Telangana on or before 20.03.2024 at 15:00hrs.

The SBTIC may extend the deadline for submission of tenders by issuing an amendment, in which case all rights and obligations of the SBTIC and the Bidders previously subject to the original deadline will then be subject to the new deadline.

2.20 Tender Opening

The SBTIC will open all the Tenders received in the presence of the Bidders or their representatives who choose to attend on the specified date, time and place specified. In the event of the specified date of Tender opening being declared a holiday for the SBTIC, the Tenders will be opened at the appointed time and location on the next working day.

The BTIC will evaluate and determine whether each tender meets the minimum qualification eligibility criteria.

2.21 Process to be confidential

Information relating to the examination, clarification, evaluation, and comparison of Tenders and recommendations for the award of a contract shall not be disclosed to

Bidders or any other persons not officially concerned with such process until the award to the successful Bidder has been announced.

2.22 Clarification of Tenders

To assist in the examination, evaluation, the SBTIC may, at his discretion, ask any Bidder for clarification of his Tender. The request for clarification and the response shall be in writing or bye-mail along with the section number, page number and subject of clarification, but no change in the price or substance of the Tender shall be sought, offered, or permitted.

No Bidder shall contact the SBTIC on any matter relating to its Tender from the time of the Tender opening to the time the contract is awarded. If the Bidder wishes to bring additional information to the notice of the SBTIC, he/she should do so in writing.

Any effort by the Bidder to influence the SBTIC in the Tender evaluation, or contract award decisions may result in the rejection of the Bidders Tender.

2.23 Examination of Tenders and determination of responsiveness

Prior to the detailed evaluation of Tenders, the SBTIC will determine whether each Tender (a) meets the eligibility criteria (b) is accompanied by the required earnest money deposit and; (c) is substantially responsive to the requirements of the Tender documents.

A substantially responsive Tender is one which conforms to all the terms, conditions, and specifications of the Tender documents, without material deviation or reservation. A material deviation or reservation is one (a) which affects in any substantial way the scope, quality, or performance of the Works; (b) which limits in any substantial way, inconsistent with the Tender documents, the SBTIC's rights or the Bidder's obligations under the Contract; or (c) whose rectification would affect unfairly the competitive position of other Bidders presenting substantially responsive Tenders.

If a Tender is not substantially responsive, it will be rejected by the SBTIC., and may not subsequently be made responsive by correction or withdrawal of the nonconforming deviation or reservation.

2.24 Negotiations

The Bidder though technically qualified and whose financial offer is the lowest, fails to convince the Tender Evaluation Committee of his capability, capacity, credibility, his offer may be reviewed, and the Bidder intimated accordingly.

2.25 Award criteria

The SBTIC will award the Contract to the Bidder whose Tender has been determined to be substantially responsive to the Tender documents and who has offered the lowest evaluated Tender Price. After technical evaluation the technically qualified bidders will be considered for opening of the financial bids provided that such Bidder has been determined to be eligible in accordance with the provisions of this tender document and subsequent technical clarifications offered by the responsive bidders.

2.26 Right to accept any Tender and to reject any or all Tenders

The SBTIC reserves the right to accept or reject any Tender, and to cancel the Tender process and reject all Tenders, at any time prior to the award of Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the SBTIC's action.

2.27 Notification of award and signing of Agreement

The Bidder whose Tender has been accepted will be notified of the award by the SBTIC. Prior to expiration of the Tender validity period by e-mail or confirmed by letter. This letter (hereinafter and in the Conditions of Contract called the "Letter of Acceptance") will state the sum that the SBTIC will pay the Contractor in consideration of the execution, completion, and maintenance of the works by the Contractor as prescribed by the Contract (herein after and in the Contract called the "Contract Price").

The Agreement will incorporate all agreements between the SBTIC and the successful Bidder /Bidders. It will be kept ready for signature of the successful Bidder in the office of SBTIC. Following the notification of award along with the Letter of intent. The successful Bidder will sign the Agreement and deliver it to the SBTIC.

Upon the furnishing by the successful Bidder of the Security deposit, the SBTIC will issue formal work order.

The successful bidder is required to sign an agreement for the due fulfillment of the contract and start the work immediately on the acceptance of his tender. A draft of the Articles of the Agreement is enclosed. The Earnest Money will be forfeited and at the absolute disposal of the Employer if the Contractor defaults from signing the Agreement of in starting the work.

2.28 Corrupt or Fraudulent practices

The SBTIC requires that the Bidders observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, SBTIC.

2.28.1 will reject a proposal forward if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question.

2.28.2 will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a SBTIC contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a SBTIC contract.

2.29 Payment Terms

80% against the supply of material and 10% after installation and 10% after testing and commissioning, subject to the other provisions of the tender document.

2.30 Work done as a sub- contractor under a prime contractor will not be considered for qualification. "Prime Contractor" means a firm that performs a construction work itself and that the work is directly entrusted to the firm by the owner/ government/ local body/ quasi government/ Government undertaking bodies.

3 Declaration of Tenderer

Name of Work: Supply, Installation, Testing and Commissioning 750KVA Diesel Generator set at Society For Biotechnology Incubation Centre (SBTIC), Genome Valley, Hyderabad.

- 3.1 I/We, declare that specifications, plans, designs and conditions of contract on which the rates have been quoted are completely studied by me/us before submitting this tender.
- 3.2 I/We declare that I/We have inspected the work spot and have made myself/ourselves thoroughly conversant and satisfied as regards the field conditions prevalent there, regarding the materials, labour and the particulars of various leads with which the materials required to be brought for the work.
- 3.3 I/We, declare that the rates quoted for items of works for which now tenders are called for are inclusive of leads with which I/We propose to bring the materials. I/We will not have any claims for higher leads, and my/our quoted rates are with all leads and lifts etc.,
- 3.4 I/We, declare that the rates tendered by me/us for this work have not been witnessed by any other contractor/s who has/have tendered for this work.
- 3.5 I/We, declare that I/We, have understood all the conditions mentioned above and also the specifications stipulated in tender condition either by going through myself/ourselves or by getting translated into my/our own mother tongue.

4. Eligibility Criteria

Technical Criteria:

- 4.1 The bidder should have satisfactorily completed as a Prime contractor during the last Seven years, ending February 2024 in any Government Department.
- 4.1.1 Three similar works each costing not less than 40% (forty percent) of the estimated cost i.e. **Rs. 27,60,000** or completed two similar works each costing not less than 60% (sixty percent) of the estimated cost i.e. **Rs. 41,40,000** or completed one similar work costing not less than 80% (eighty percent) of the estimated cost i.e. **Rs. 55,20,000**.
- 4.1.2 Work completion certificate for having completed work of similar nature of contract certified from the competent authority not below the rank of Executive Engineer or equivalent shall be uploaded. The work completion certificate shall mention the nature of work, items of work executed, the agreement number & date, the value of work, the date of commencement, the stipulated date of completion, the actual date of completion of the work and reason for delay (if any).
- 4.2 The bidder should be either OEM (Original Equipment Manufacturer) or the authorized dealer of the Engine makes mentioned in the tender document.

Financial Criteria

- 4.3 The average annual financial gross turnover should be 30% of estimated cost in that last five years.
- 4.4 The minimum annual financial turnover for the two consecutive years should be 30% of estimated cost.
- 4.5 The bidder should have not incurred any loss in more than two years.
- 4.6 The bidder should submit the solvency certificate from the bank for 30% of estimated cost
- 4.7 The average net worth of the bidder as of **2022-23** should be not less than 25% of estimated cost. Necessary certificate by the Chartered Accountant shall be submitted.
- 4.8 The bidder should have not been blacklisted by any State / Central Govt. Departments / BBMP/PSU/Central PSUs/Autonomous bodies/Institutions.
- 4.9 The bidding capacity of the bidder should be 75% or more of the estimated cost. The bidder should possess the bidding capacity as calculated by the following formula. Available bid capacity = $A \times M \times N - B$, where

A = Maximum value of engineering (Civil/ Electrical/ Mechanical as relevant to work being procured) works executed in any one year during the last five years (updated at the current price level), taking into account the completed as well as works in progress.

M=Multiplier Factor(usually1.5)

N=Number of years prescribed for completion of the work in question

B=Value (updated at the current price level) of the existing commitments and ongoing works to be completed in the next 'N' years.

4.10 Information on works for which tenders have been submitted and ongoing works as on the date of this Tender.

(A) Existing commitments and on-going works:

Description Of work	Place & State	Contract number & date	Name & address of the customer	Value of Contract in Lakhs	Stipulated period of completion	Value of work remaining to be completed in Lakhs	Anticipate d date of completion
1	2	3	4	5	6	7	8

[Details to be furnished with necessary work order signed from concerned project in-charge not below the rank of Executive Engineer or Competent Authority. The Work order/Testimonials will be verified, if required]

(B) Works for which Tenders already submitted:

Description of work	Place & State	Name & address of the customer	Estimated value of work In lakhs	Stipulated period of completion	Date when decision is expected	Remark if any
1	2	3	4	5	6	7

4.11 Certificate from Chartered Accountant stating turnover for the last five financial years is also to be uploaded.

S.No	Year	Turnover amount	Profit/(Loss)	Remark
1.	2018-19			
2.	2019-20			
3.	2020-21			
4.	2021-22			
5.	2022-23			

Litigation and Arbitral Issues:

4.12 Net pending litigations should not be more than 50% of bidder's net worth.

4.13 No consistent history of court/arbitral award decisions against the bidder for the last five years.

6. Special Conditions

- 5.1 Establishment of Labour Camp is strictly prohibited in the premises of Society of Biotechnology Incubation Centre (SBTIC). Essential labor for round the clock work at site will be allowed with prior permission of Secretary, BTIC.
- 5.2 Any damage to the existing service lines during execution of work shall be got rectified by the bidder at his own cost and risk.
- 5.3 Debris shall be disposed-off to an undisputed place of Genome Valley outskirts as per the direction of the Secretary.
- 5.4 Supply of Electricity: Electricity required for construction shall be arranged by the contractor himself. Electricity if supplied to the contractor by the SBTIC will be metered and amount will be recovered in the bills as per actual at rates fixed by the SBTIC. Supply of electricity from the Institute is not mandatory. Non-supply of electricity by the Institute cannot be held as reason for shortfall in progress.
- 5.5 Water supply: The Contractor has to make his own arrangement for water supply. However, if water supply to the site at one convenient point is made available by the SBTIC, the charges for the consumption of water will be borne by the Contractor at 1.50% of the value of the work items which requires water.
- 5.6 Schedule of Quantities (Bill of Quantities) is attached herewith. It should, however, be clearly understood that these quantities are liable to alterations by omission, addition or variation, at the discretion of the Secretary, SBTIC
- 5.7 The tenderer is expected to inspect the site and acquaint himself with the local conditions and will be deemed to have so done before submitting the tender.
- 5.8 The rates quoted shall be for finished work and shall include for all necessary incidental work. GST or any other taxes on materials/services in respect of this contract will be payable by the Contractor. The Contractors cannot presume any details regarding the contract.
- 5.9 It is entirely the responsibility of the Contractor to arrange for and provide all materials required for successful completion of the work except such special materials that may be supplied if any.
- 5.10 Where there is discrepancy between the rates in figures and in words, the lower of the two will be governed.
- 5.11 Where there is a discrepancy in entries of unit rate between the Original and Duplicate, the lower will govern.
- 5.12 The Contractor should make his own arrangements to cover the all-round construction area, by providing polyester net/polythene sheet/barricading to avoid inconvenience to other surrounding companies as directed by Secretary, SBTIC.
- 5.13 The debris arise during the period of construction will have to be cleared then and there to keep the surroundings clean and tidy. Such debris shall, if not cleared, be cleared at contractor's risk and cost.
- 5.14 The contractor shall vacate the campus premises with all his men/materials immediately after completion of the project.
- 5.15 The equipment data sheet as per the technical specification to be filled by the bidder and uploaded along with the technical bid eligibility documents.
- 5.16 These special conditions will have the overriding effect on any of the terms and conditions of the contract elsewhere included in the contract document repugnant to each other and in such events, only the condition on the issue, if any as in special condition shall only be applicable and prevails. In case of disputes in interpretation of any clause the decision of the Secretary of SBTIC is final thereof and binding.

7. GENERAL CONDITIONS

6.1 DEFINITIONS OF TERMS

In constituting these conditions and specifications, the following expressions shall have the meaning, there in assigned to them unless there is something repugnant in the subject of context in consisting with such meanings.

- 6.2** Company shall mean the “Society of Biotechnology Incubation Centre (SBTIC)”.
- 6.3** “Office” shall refer to the Office of the Secretary, SBTIC, Genome Valley, Hyderabad
- 6.4** “Contractors” shall mean the tenderer whether a firm, registered company, partnership or any individual whose tender has been accepted by Institute or by an Officer (duly authorized in this behalf) on behalf of the Institute and who has entered into agreement with Institute for due fulfillment of the contract and shall include the legal representatives, successors, heirs and assignees of the tenderer.
- 6.5** “Engineer” shall mean the “Office of the Secretary, SBTIC, Genome Valley, Hyderabad”, for the purpose of the contract and shall also mean and include other officers of equivalent rank directly in charge of the work or any part thereof under administrative control of the SBTIC.
- 6.6** When the Engineer is named as final authority, it includes all the above-mentioned officers and, in such matters, the contractors shall have the right of appeal against the orders upto the Secretary, SBTIC, Genome Valley, whose decision shall be final and legally binding on all the parties concerned.
- 6.7** The Office of the Secretary, SBTIC, Genome Valley named as final authority for any decision taken, shall mean only the SBTIC or his duly authorized assistant.
- 6.8** The Engineer in charge shall mean the Secretary, SBTIC, Genome Valley directly in charge of the work or his duly authorized assistants.
- 6.9** Plant shall mean and include any or all plants, machinery, tools and other implements of all description necessary for the execution of the work in a safe and work men like manner.
- 6.10** The expression “Works” where used in these conditions shall unless thereby something in the subject or contract repayment to such construction, be construed to mean the work or the works constructed to be executed under or virtue of the contract whether temporary or permanent and whether original, altered, substituted or additional.
- 6.11** “Contract and contract document” shall mean and include the notice inviting tenders, proceedings of the pre bid meeting, the stamped agreement, conditions of contract, specifications and all other connected documents with tender schedule.
- 6.12** “Specifications” shall mean the specifications annexed and where these are not specifically mentioned shall be as may be detailed and necessary due to particular nature of work as approved by the Office of the Secretary, SBTIC.
- 6.13** “Site” shall mean and include all the area in which operations in respect of the work are carried out. This shall also include materials stacking yards and the area where temporary Structures are put up for installing any machinery etc.
- 6.14** “Tests” shall mean such tests as are required to be carried out either by the contractor or by the Office of the Secretary, SBTIC from time to time on completion as detailed in the specifications before the work is certified as being satisfactory and is taken over by the Office of the Secretary, SBTIC

6.15 "Month" shall mean a Calendar month.

6.16 "Prime contractor" means a firm that performs construction work itself and that the work is directly entrusted to the firm by the owner / Government / local body / Quasi Government / Government undertaking. Words used in singular shall also include the plural & vice-versa where the context so demands.

6.17 CONTRACTOR TO INSPECT SITE:

The contractor shall visit and examine the construction site and satisfy himself as to the nature of the existing roads or other means of communications, the character of the soil for the excavations, the extent and magnitude of the work and facilities for obtaining materials and shall obtain generally his own information on all matters affecting the execution of the work. No extra for charges made in consequence of any misunderstanding or incorrect information on any of these points or on the grounds of insufficient description will be allowed. All expenses incurred by the contractor in connection with obtaining information for submitting this tender including his visits to the site or efforts in compiling the tender shall be borne by the Tenderer and no claims for reimbursement thereof shall be entertained.

6.18 SETTINGOUT:

The Contractor shall set out the building in accordance with the plans. All grid/center lines shall be pegged out to the satisfaction of the Engineer. The Contractor shall be responsible for the correctness of the lining out and any inaccuracies are to be rectified at his own expense. He will be responsible for taking ground levels of the site before setting out and recording them without any extra charge. The Contractor shall construct and maintain proper benchmark at the intersection of all main walls, columns, etc., in order that the lines and levels may be accurately checked at all times.

6.19 ACCESS FOR INSPECTION:

The Contractor is to always provide during the progress of the works and the maintenance period proper means of access, with ladders, gangways etc., and the necessary attendants to move and adapt as directed for the inspection of measurement of the works by the Engineer or their representatives.

6.20 ATTENDANCE UPON ALL TRADERS:

The Contractor shall be required to permit tradesmen/Specialized agencies appointed by the employer to execute works like water supply, Sanitary, Electrical installation, lifts, air, conditioning, hardware, and other specialized works. The contractor shall also permit the above-mentioned agencies to use his scaffolding and retain the scaffolding till such works are completed. The rates quoted by the contractor shall be inclusive of the above facility.

6.21 STORAGE OF MATERIALS:

The Contractor shall provide for necessary sheds of adequate dimension for storage and protection of materials like cement, steel, lime, timber and such other materials including tools and equipment which are likely to deteriorate by the action of sun, wind, rain or other natural causes due to exposure in the open. The cement storage site shall be leak proof and shall hold at least 6 months requirement. All such sheds shall be cleared away and the whole area left in good order on completion of the contract to the satisfaction of the Engineer. All materials which are stored on the site such as bricks, aggregates etc., shall be stacked in such a manner as to facilitate rapid and easy checking of quantities of such materials.

6.22 COST OF TRANSPORTING:

The Contractor shall allow in his cost for all transporting, unloading, stacking and storing of supplies of goods and materials for this work on the site and in the places approved from time to time by the Engineer. The Contractor shall allow in his price for transport of all materials controlled or otherwise to the site.

6.23 MATERIALS:

Materials shall be of approved quality and the best of their kind available and shall conform to I.S. specifications. The Contractor shall order all the materials required for the execution of work as early as necessary and ensure that such materials are on site well ahead of requirement for use in the work. The work-involved calls for high standard of workmanship combined with speed and to the entire satisfaction of the Engineer.

6.24 PROJECT PROGRAMME OF WORKS AND WEEKLY PROGRESS REPORT:

a) Organization chart:

The contractor should submit the proposed organization chart for the project including the details of staff to be deployed full time on site to the approval of Engineer, where the Engineer raises any objection to either the qualification or experience or required professionalism of any of the staff deployed by the contractor, the same shall be replaced by suitably competent person to the approval of Engineer within 7 days.

b) Program chart:

The Contractor shall furnish the detailed program of execution for timely completion of the project (inclusive of rainy season). Such a detailed program of works prepared using Industry Standard Scheduling Software like MS Project 2000 or Primavera shall be submitted by the Contractor within ten days after receiving communication of tender acceptance. As per the detailed drawings and schedule of quantities; the contractor shall work out concurrent activities with start and finish times, integrating of all tasks with interface and milestone event drawn and to evaluate for reduction in total project duration through improved over lapping of tasks and activities where feasible. The Contractor shall plan for improved planning and scheduling of activities and forecasting of resource requirements, ability to use the computer effectively to produce timely valid information for Project Management purpose. Accordingly, PERT; CPM Networking shall be drawn. GANNT charts shall also be furnished. The Contractor shall also furnish necessary particulars to the Engineer of works for compiling weekly progress reports in the form furnished by the SBTIC. A monthly financial program shall also be submitted.

6.25 CLEARING OF SITE:

The contractor shall after completion of the work clear the site of all debris and left-over materials at his own expense to the entire satisfaction of the Institute. The same should be carted out of the SBTIC at his own cost.

The contractor shall also clear the labour camp/RMC plant of all types of permanent/temporary structures, soak pits, sump, septic tanks or any other such installations as identified by the Engineer to the entire satisfaction of the Institute. The debris/excess stuff shall be carted out of the Institute at his own risk and cost.

6.26 PHOTOGRAPHS:

The Contractor shall at his own expense supply to the SBTIC photographs in duplicate copies not less than 25 cm x 20 cm. (10" x 8") along with soft copy, of the works taken from all the portions of the building at intervals of not more than one week during the progress of the work, or at every important stage of construction, as directed by the Engineer of work.

6.27 PROTECTION:

The contractor shall properly cover up and protect all work throughout the duration of work until completion, particularly masonry, moldings, steps, terrazzo or floor finishes, staircases and balustrades, doors and window frames, plaster angles corners lighting and sanitary fittings, glass, paint work and all finishing.

- 6.28** All the works shall be carried out as per specifications prescribed by BIS, National Building code, CPWD / TSSPDCL specifications, relevant IS codes or as directed by the Engineer in the absence thereof.
- 6.29** In case there is any conflict in the specifications and drawings the decision of the Office of the Secretary, SBTIC shall be final and binding on the contractor.
- 6.30** All the materials shall be got approved by the Office of Secretary, SBTIC before use.
- 6.31** The contractor shall take all precautions against damage from accident. No compensation will be allowed to the contractors for their tools and plant materials lost or damaged from any cause. The contractor is liable to make good the structure or plants damaged by any other cause at his own cost. The company will not pay the contractor for corrections or repairing any damaged portion of work done during construction.
- 6.32** The contractor shall employ adequate no. of skilled & unskilled labours required for successful timely execution of work. He shall submit daily reports to the Engineer in charge regarding the strength of labour employed both skilled and unskilled.
- 6.33** The contractor shall furnish a report of any accident which may occur, within 24 hours of its occurrence to the Engineer.
- 6.34** The Engineer shall have the right to direct the contractor to progress the various items of works in the manner prescribed by him.
- 6.35** Failure to adhere to any of the above will be sufficient cause for taking action under clause (2) or clause (3) or both along with their sub clauses of conditions of contract.
- 6.36** It is not possible for the Institute to release any quarry (metal and sand etc.,) for this work. The contractor has to make his own arrangements. No claim regarding leads and lift will be accepted.
- 6.37** The contractor has to make his own arrangements in regard to power supply and water required for construction and drinking water facilities.
- 6.38** The contractor shall be entirely responsible for sufficiency of the scaffolding, timbering, machinery, tools, implement and generally of all means used for fulfillment of the work. Whether such means may not be approved or recommended by the Engineer, the contractor must accept at his own cost all risks of accidents or damages.
- 6.39** Extra care shall be taken regarding the laborers by providing waist belt, Helmets scaffolding etc. at your own cost and supervision and shall be carried out as per the directions of the Engineer.

- 6.40 KEEPING DRY AND PUMPING:** Unless otherwise provided for in the contract, the contractor will at his own expense keep all portions of the work free from undue water, whether due to springs, soakage or inclement weather and will use his own implements and machinery for this purpose.
- 6.41** The contractor will make himself arrangements for necessary plant such as Pump, engines, and other materials required in this connection.
- 6.42 FACILITIESFORINSPECTION:** The work at all times be open for inspection by the Engineer or his duly authorized Assistant and the contractor shall arrange easy access to every part of the work and shall provide such ladders, scaffolding and lifts for this purpose as necessary at his own cost.
- 6.43 DELIVERYOFWORKS:** The final bill will be prepared after the work is handed over to the Secretary/Engineer or his duly authorized representative in a thoroughly complete, clean, sound and workman like state.
- 6.44 COMPLIANCE WITH BYELAWS AND PROTECTIONS AGAINST ACCIDENTS, ETC:** Contractor is responsible for complying with all acts, bye-laws, Municipal and other regulations for the provision and maintenance of lights during nights, barricading, providing any other protection that may be necessary and will be liable for all claims that may arise from accidents of nuisance caused by works.
- 6.45 DISPUTES:** Disputes on the points between the Engineer and the contractors shall be referred to the Office of the Secretary, SBTIC, whose decision shall be given in writing and shall be final and binding on the contractor.
- 6.46 MACHINERY:** All the machinery that will be employed on the work shall be approved, efficient and thoroughly, complying with the specifications of each machine or parts and shall have been manufactured by reputed and qualified firms. All the machinery employed on the work shall be open to inspection at all working hours, by the Engineer and any defect shall be rectified, repaired, replaced, renewed or remodeled so that its performance in the opinion of the Engineer is satisfactory. Any defective part of the machine, which requires replacement, shall be promptly replaced, failing which the Engineer-in-charge, shall be at liberty to cause the defective fittings removed from site of work at the cost of the contractor.
- 6.47 OPERATORS:** The machines shall be in charge of efficient and trained operators, which terms shall include drivers, mechanics or other personnel who are actually operating the machines. The Engineer in-charge has the right to test operators, etc., as deemed necessary by him for the class of machinery, which he is to operate and shall drive out such of the operators who fail in the tests.
- 6.48 SAFETY PRECAUTION:** All reasonable safety precautions for the safety of workers shall be taken. The contractors shall be responsible for the maintenance of all regulations under the Factory Act, workmen's compensation. Minimum wages act and other act for the safety and welfare of the workers employed by him. In addition, the contractors shall provide adequate protection to all workers employed by him against natural elements such as rain, sun, wind etc., during working hours and provide free, pure protected drinking water during working hours.
- 6.49 TESTS:** The Office of the Secretary, SBTIC or his authorized representatives shall have full scope and right of entry at all times to examine and test, measure, count, weigh, take bores, or in any manner satisfy himself that the work executed is according to the specifications and required strength. Any portion of work got disturbed, during such tests, shall be made good by the contractors, without extra cost. The Engineer in charge has the right to change the design proportions, mixes within reasonable limits to ensure requisite strength of the

structure. Laboratory for requisite tests shall be established by the Contractor at site only, at his own cost.

- 6.50 ADEQUATE ARRANGEMENTS TO ACHIEVE PROGRESS:** The Engineer shall have the right to advise the contractor on the strength, quality and nature of labour to be employed on work to maintain progress on the work, commensurate with the strength of structure. Similarly, he shall advise the contract or on the nature and adequacy of the machinery that are required on the work.
- 6.51** Existing service lines such as electrical, water supply, sewer lines, telephone lines etc., shall be carefully protected and preserved before commencement and during excavation, dismantling /demolition operations. Details of UG facilities shall be provided to the successful tenderer. Any damage caused to the aforesaid service lines, etc., during excavation, demolition/dismantling shall be made good at Contractor's own expense/cost. Restoration of any service lines, which needs to be shifted and found in the proposed site, is the responsibility of the contractor and the agency shall carry out the work as per the direction of Engineer the cost of such work will be borne by the SBTIC.
- 6.52** Dust nuisance to neighbor shall be minimized by providing and erecting screens to the required height as per direction of Office of Secretary, SBTIC with Aluminum sheets or canvas or other suitable material before commencement of the work. The site shall be cleared off such protection arrangement after virtual completion of work. All the operations shall be carried out strictly in accordance to regulations of municipal and other local authorities and shall be restricted to normal working hours.
- 6.53** No debris or materials got from dismantlement/demolition the building(s) shall be thrown in the public road causing inconvenience to the traffic and any fine or penalty imposed by local authority for non-compliance of this provision shall be borne by the contractor.
- 6.54** The Contractor shall be responsible for any injury to persons, animals, or things and for all structural damage to property which may arise from the operation or neglect of himself and or any nominated sub-contractors, contractor's Employees and or third party whether such injury or damage arising from carelessness, accident or any other cause whatsoever, in any way connected with the carrying out the construction/dismantling/demolition.

The contractor shall take required insurance cover with an approved insurance company as provided in the contract and deposit with the Institute well before commencement of construction/ demolition / dismantling.

- 6.55** Drawings and working Details: The work shall be carried out strictly in accordance with the approved plans and estimates and specifications and as per the instructions of the Engineer-in-charge, and no deviations or changes are permitted without the written order of the Engineer. The designs and drawings enclosed with the tender documents are only typical and tentative. The working drawings and the working details of the several components of works will be prepared and made available at the time of execution and the contractor shall carry out the work in accordance with such working drawings and working details.
- 6.56** Omissions and discrepancies in drawings and instructions: In all cases of omissions, doubts or discrepancies in the dimensions or discrepancies in the drawings and item of work, a reference shall be made to the Office of the Secretary, SBTIC, whose elucidation and elaboration shall be considered as authorized. The Contractor shall be held responsible for any error that may occur in the work through lack of such reference and precautions.
- 6.57** The contractor shall be responsible for accuracy for all shapes, dimensions, and Alignments both vertical and horizontal etc., of all the components of the work.

6.58 Lands for the use of the Contractors Camp: The contractor shall have to make his own arrangements at his own cost for construction of living accommodation outside the SBTIC premises. The Employee shall not provide any space/ building for labour camp.

6.59 Undesirable Person to be removed from site: The contractor shall not employ on site any person who is undesirable, if in the opinion of the Engineer the person or persons at site of work employed on behalf of the contractor is/are considered undesirable. The Engineer shall notify the contractor to this effect and the contractor will be bound by the decision of the Engineer to remove such person or persons from the site of work and from the labour camp. The contractor shall not be entitled to any damage or loss on this account. On the contrary, the contractor shall be liable to compensate the Institute for any loss or damage to the Institute property caused by the employment of such person.

6.60 Safety code:

- 6.60.1** The Contractor at a prominent place at work spot should bring these safety provisions to the notice of all concerned by display on notice board. The persons responsible for compliance of the safety code shall be named therein by the contractor.
- 6.60.2** To ensure effective enforcement of the rules relating to safety precautions, the arrangement made by the contractor shall be open to inspection by the Labour Officer, Engineer or his representatives.
- 6.60.3** All necessary personal safety equipment's as considered adequate by the Engineer should be kept available for immediate use of persons employed at the site and maintained in the good condition and the contractor should take adequate steps to ensure proper use of equipment by those concerned.
- 6.60.4** Workers employed on mixing concrete, cement grout, cement mortar shall be provided with protective footwear protective goggles and protective gloves. Those engaged in mixing or stacking cement or any materials injurious to the eye, nose and mouth shall be provided with a face mask and protective cover free of cost by the contractor.
- 6.60.5** Those engaged in welding work shall be provided with welder's protective eye Shield and gloves. Stone breakers shall be provided with protective goggle and protective clothing and seated at sufficiently safe intervals.
- 6.60.6** Those engaged in binding and fabricating steel shall be provided with protective gloves. Those engaged in deep cuts, large rock excavation shall be provided with helmets.
- 6.60.7** All labour/persons at work shall wear helmet compulsorily.
- 6.60.8** When the work is near any place where there is risk of drowning all necessary equipment's shall be kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provisions should be made for prompt first aid treatment of all injuries likely to be sustained during the course of work.
- 6.60.9** Adequate and suitable caution and danger signal boards shall be prominently exhibited at road/high tension overhead line/where heavy electrical machines are working where overhead cranes or hoist; derricks, winches are working where blasting zone is demarcated. The content of the board shall be in English and the local language for easy identification.
- 6.60.10** All scaffolding, ladder, stairways, gangways, staging, centering, form work and temporary support and safety devices etc., shall be sound in strength and constructed and maintained as such throughout its use. The agency shall obtain approval from Office of the Secretary, SBTIC for scaffolding, formwork etc., before commencement of work.
- 6.60.11** No materials on any site of work shall be so stacked as to cause danger or inconvenience to any persons or public.
- 6.60.12** The Contractor shall provide all necessary fencing and lighting to protect the public/working men from accident and shall be bound to bear the expense of defense of every suit action or other proceedings of law that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay any damages and cost, which may be awarded in any such suit action or proceedings to any such persons or which

may with consent of the contractor be paid to compensate any claims by any such person.

- 6.60.13** No electric cables or apparatus, which is liable to be a source of danger to persons, employed shall remain electrically charged unless a caution Board is put into that effect and close approach to the same is prohibited.
- 6.60.14** All practical steps shall be taken to prevent danger to persons employed from risk of fire or explosives. No floor, roof or other portion of any building used for residence shall be so over-loaded with debris or materials so as to render it unsafe.
- 6.60.15** The final disposal of water used for work or removed from work spot as well as the supply used for domestic consumption shall be as directed by the Engineer. The contractor shall make his own arrangement for purification of domestic water supply used by his staff and labour colony and used on the site of work to the satisfaction of the Engineer.
- 6.60.16** The source of drinking water supply/distribution system in workers colony shall be protected from chances of contamination by poisonous materials epidemic causing infections bacteria etc., by maintaining the source and system under adequate hygienic conditions.
- 6.60.17** Notwithstanding the above clauses, there is nothing in this to exempt the contractor to exclude the operations of any other Actor Rules inforce of the Central Govt., State Govt.

6.61 WORK AND WORKMANSHIP

To determine the acceptable standard of workmanship, the Engineer may order the Contract or to execute certain portions of works and services under the close supervision of the Engineer. On approval, they shall label these items as guiding samples so that further works are executed to conform to these samples.

6.62 TEST CERTIFICATES

- 6.63** The contractor shall submit copy of test certificates for all the major electrical equipment such as circuit breakers, CTs, PTs, instruments, relays, bus ducts, rising mains, bus bars, cables etc., and panel as a whole, confirming to relevant IS/BIS standards issued by manufacturers.

6.64 SAMPLES AND CATALOGUES

Before ordering the material necessary for these installations, the contractor shall submit to the Engineer-in-Charge/Consultants for approval, a sample of every kind of material such as cables, conductors, conduits, switches, socket outlets, circuit breakers, lighting fixtures, boxes etc., along with the catalogues with their dimensional details.

For major items such as sub lighting panels distribution boards, the submission of drawings/catalogues along with technical details shall be enough. Prior to ordering any electrical equipment/material/system, the contractor shall submit to the Engineer-in-Charge/Consultants the catalogues, along with the samples, where applicable, from the approved manufacturer. The contractor shall arrange inspection and testing at the manufacturer's factory or assembly shop for final approval. No material shall be procured prior to the approval of the Engineer-in-Charge/Consultant.

- 6.65** Also, the contractor shall ensure that the dimensional details of the equipment fit into the allotted space provided in the building.

6.66 COMPLETION CERTIFICATE

On completion of the electrical installation a certificate shall be furnished by the contractor counter signed by the feed supervisor, under whose direct supervision the installation was carried out.

6.67 PERFORMANCE GUARANTEE

The contractor shall indemnify the SBTIC against defective materials and workmanship for a period of one year after completion of the work. The contractor shall also hold himself fully responsible during that period for reinstallation or replacement at free of cost to institute, the following:

6.68 Any defective work or material supplied by the Contractor. Any material or equipment damaged or destroyed as a result of defective workmanship by the contractor.

6.69 RATE ANALYSIS

At anytime and at the request of the Engineer the contractor shall provide details or breakdown of costs and prices of any part or parts of the works.

6.70 The Engineer reserves the rights to delete any item from the contractor's scope of work.

7. CONDITIONS OF CONTRACT

Clause1. Security Deposit

Estimated cost of the work put to tender	E.M.D. Percentage	F.S.D. Percentage
(i)	(ii)	(iii)
Rs. 69,00,000	1%	1.5%

Note: EMD+FSD to be limited to 2.5% of the contract value

(a) **Clause -1(a)** The person/persons whose tender may be accepted (hereinafter called the contractor which expression shall unless the context otherwise requires, include his heirs, executors, administrators and assigns) shall pay Earnest Money Deposit indicated in Column (ii) of the table given below and shall permit SBTIC (a) to deduct FSD at the percentage mentioned in Column.

(iii) of the table given below of all moneys payable of work done under the Contract, at the time of making such payments to him/them and (b) to hold such deductions as further Security Deposit. The EMD + FSD will be limited to 2.5% of the contract value.

E.M.D-Earnest Money Deposit

F.S.D-Further Security Deposit

No Interest will be paid on EMD/Further Security deposit.

(b) Additional or Reduction in Security Deposit

The EMD for the tendered work and additional amount of Security Deposit at the rates mentioned in **Sub-clause 1(a)** above should be, paid by the contractor. The Office of the Secretary, SBTIC may allow if a portion of the work is withdrawn from the Contractor under the provisions of Clause 12(a) a proportionate reduction in the amount of Security Deposit.

- a) EMD paid along with the tender shall be refunded only after the completion of the defect liability period without any interest.
- b) 1% labour cess towards workers Welfare Fund on the works expenditure will be recovered from RA bills for depositing the same to the welfare board as per Telangana Govt. Order. Rates quoted should be inclusive of cess.
- (c) However, if the Contractor desires, agency may furnish a BG issued by a Scheduled Commercial Bank infavour of the **SBTIC, Hyderabad** amounting to 2.5% of the total contract value valid up to completion of defect liability period in which case EMD deposited by them will be refunded and no recoveries towards security deposit will be effected in the running account bills.
- (d) **Refund of Security Deposit (EMD&FSD):**
- i) EMD paid by the contractor at the time of tendering and FSD deducted from the R.A bills at the prescribed rates shall be refunded to the contractor immediately after the virtual completion of the work against production of bank guarantee for an equal amount from any of a Scheduled commercial Bank valid for a period as mentioned in clause (ii) below.
- ii) The bank guarantee received as stipulated in (i) above, will be treated as performance guarantee and shall be returned to the contract or after the final bill is paid or after **twelve months including monsoon period** from the date of virtual completion of the work during which period the work should be maintained by the contractor in good order, whichever is later. The validity of the bank guarantee shall be maintained for the above period.
- iii) In case of BG's furnished towards security deposit same shall be returned after completion of the defect liability period.

Clause 2. PENALTY OR DELAY

(e) Written Order to Commence Work

After acceptance of the tender, the Office of the Secretary, SBTIC shall issue a written order to the successful tenderer to commence the work. The Contractor shall enter upon or commence any portion of work only with the written authority and instructions of the Office of the Secretary, SBTIC. Without such instructions the Contractor shall have no claim to demand for measurements of or payment for, work done by him.

(f) Programme of work

The time allowed for carrying out the work as entered in the tender shall be strictly observed by the contractor. It shall be reckoned from the date of handing over the site to the Contractor or not less than 75 percent of work site area comprising a continuous block. The work shall throughout the stipulated period of the contract be proceeded with, all due diligence (time being deemed to be the essence of the contract on the part of the Contractor). To ensure good progress during the execution of the work, the contractor shall be bound (in all cases in which the time allowed for any work exceeds one month) to comply with the time schedule according to the programme of execution of the work as agreed upon and enclosed by the contractor during execution of agreement.

(g) Review of progress and responsibility for delay etc.,

The Office of the Secretary, SBTIC shall review the progress of all works with the contractor at least once every month. Such a review shall take into account the programme fixed for the previous week, obligations on the part of the SBTIC for issue of drawings etc, and also the obligations on the part of the Contractor. The review shall also examine the accumulated delays by the contractor if any and mitigation measures proposed by the contractor to overcome the delay.

Apportioning of responsibility for delay between Contractor and Institute.

In case the progress achieved falls short by more than 25 percent of the cumulative programme, the reasons for such shortfall shall be examined and a record made thereof apportioning the responsibilities for the delay between the contractor and the SBTIC. This record should be signed in full and dated both by the Office of the Secretary, SBTIC and the contractor. If the contractor refuses to sign the said record, approval of the reasons for delay may be submitted to SBTIC for approval and such approval is binding on the contractor.

Short fall in progress made up subsequently

To the extent the short fall is assessed, as due to the delay on the part of the contractor, a notice shall be issued to him by the Office of Secretary, SBTIC to make up the shortfall. If the shortfall is not made up before the progress of the work is reviewed during the second month succeeding the month in which the shortfall was observed, the Contractor shall be liable to pay penalty as indicated in **Clause 2(d)** below.

Grant of extension of time

If the delay is attributable to reasons beyond the control of the Contractor, requisite extension of time shall be granted by the Office of the Secretary, SBTIC in accordance with **Clause 5** after obtaining the approval of his higher authorities, wherever necessary.

Review of progress by Office of the Secretary, SBTIC

The Office of the Secretary, SBTIC shall review the progress periodically, preferably more number of times as required. These reviews are in addition to the monthly reviews required to be done by the Office of the Secretary, SBTIC. The results of such review by the Office of the Secretary, SBTIC, wherever necessary, be incorporated in the next review of Office of the Secretary, SBTIC.

If the Contractor stops the work for 45 days when no stoppage of work is shown on the current Program and the stoppage has not been authorized by the Employer, then The Employer may terminate the Contract at the risk and cost of the contractor.

Settlement of dispute regarding shortfall in progress

In case of dispute between the Office of the Secretary, SBTIC and Contractor regarding the responsibility for the shortfall in progress, the matter shall be referred to the SBTIC who shall there upon give a decision within fifteen days from the date of receipt of reference. The decision of the Office of the Secretary, SBTIC shall be final and binding on the contractor and the Engineer.

(d) Penalty for delay

In respect of the shortfall in progress, assessed as due to the delay on the part of contractor as per **Clause 2(b)** and **2 (c)**, the contractor shall be liable to pay as penalty an amount equal to half percent of the contract value of the balance work assessed according to the programme, for every week that the due quantity of work remains incomplete; provided always that the total amount of penalty to be paid under the provisions of this clause subjected to a maximum of 10 percent of the contract value of the entire work as shown in the tender, provided further that in the event of the contractor making up the short fall in progress within the stipulated or extended time of completion, the penalty so recovered may be refunded on an application in writing by the contractor.

Note: If the Office of the Secretary, SBTIC considers it necessary, he shall be entitled to take action as indicated in **Clause 3 (d)** also.

d.1 Liquidated damages

The Contractor shall pay liquidated damages to the Employer at the rate per day stated in the Contract Data for each day that the Completion Date is later than the Intended Completion Date (for the whole of the works or the milestone as stated in the Contract Data). The total amount of liquidated damages shall not exceed the amount defined in the Contract Data. The Employer may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages does not affect the Contractor's liabilities.

If the Intended Completion Date is extended after liquidated damages have been paid, the Employer shall correct any over payment of liquidated damages by the Contractor by adjusting the next payment of bill.

(e) Adjustment of excess/overpayments.

Excess/over payments as soon as they are discovered should be adjusted in the next running account bill of the contractor and in case the final bill has already been paid, the excess/over payment made shall be recovered from the Security Deposit of the contractor together with interest at such percentages as company may decide from time to time, from the date of such excess or over payment to the date of recovery.

ACTION WHEN WHOLE OF SECURITY DEPOSIT IS FORFEITED

Clause 3. In any case in which under any clause or clauses of this contract the contractor shall have rendered himself liable to pay compensation and/or penalty amounting to the whole of his security deposit including the amount deducted in instalment from his bills as Further Security Deposit, the Office of the Secretary, SBTIC on behalf of the Secretary, SBTIC shall have power to adopt any of the following courses as he may deem best suited in the interest of Institute.

(a) Forfeiture of Security Deposit

Without prejudice to Institute's right to recover any loss from the Contractor under sub-clauses (b) and (c) of Clause 3 of the Contract, to rescind the contract (of which rescission notice in writing to the contractor under the hand of the Office of the Secretary, SBTIC shall be conclusive evidence). And in that case, the security deposit of the contractor including whole or part of the lump sum deposited by him and also the amount deducted from his bills as Further Security Deposit, shall stand forfeited and be absolutely at the disposal of the Company.

a) Debiting cost of labour and materials supplied.

To employ labour paid by the Institute and to supply materials to carry out the work or any part of the work, debiting the contractor with the cost of the labour and the price of the materials (as to the correctness of which cost and price the certificate of the Office of the Secretary, SBTIC shall be final and conclusive against the contractor) and crediting him with the value of the work done; in all respects in the same manner and at the same rates as if it had been carried out by the contractor under terms of this contract, and in that case the certificate of the Office of the Secretary, SBTIC as to the value of the work done shall be final and conclusive against the contractor.

b) Recovery of extra cost on unexecuted work

To measure up the work of the contractor and to take such part there of as is remaining unexecuted out of his hands and to give it to another contractor to complete it in which case any expenses which may be incurred in excess of the sum which would have been paid to the original contractor, if the whole work had been executed by him (as to the amount of which excess expenses the certificate in writing of the Office of the Secretary, SBTIC shall be final and conclusive) shall be borne and paid by the original contractor and shall be deducted from any money due to him by Institute. Otherwise the amount will be treated as outstanding due from the agency.

c) Action against unsatisfactory progress

If the contractor does not maintain the rate of progress as required under **Clause 2** and if the progress of any particular portion of work is unsatisfactory even after taking action under **Clause 2(c)** and **2(d)**, the Office of the Secretary, SBTIC shall be entitled to take action under **Clause 3(b)** or **3(c)** at his discretion in order to maintain the rate of progress after giving the contractor 10 days notice in writing whereupon the contractor will have no claim for any loss sustained by him owing to such actions.

d) No compensation for loss sustained on advance action

In the event of any of the above courses being adopted by the Office of the Secretary, SBTIC, the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased, or procured any materials, entered into any agreements, or made any advances on account of, or with a view to the execution of the work or the performance of the contract. And in case the contract shall be rescinded under the provision aforesaid the contractor shall not be entitled to recover or be paid any sum for any work thereof actually performed by him under his contract, unless and until the Office of the Secretary, SBTIC shall have certified in writing the performance of such work and the amount payable in respect thereof, and he shall only be titled to be paid the amount so certified.

- e) Recovery of 1% of the contract value towards the laborer's welfare fund created by the Government of Telangana will be affected in the running account bills of the contractor.

Clause 4. CONTRACTOR TO REMAIN LIABLE TO PAY COMPENSATION IF ACTION IS NOT TAKEN UNDER CLAUSE-3.

In any case in which any of the powers conferred upon the Office of the Secretary, SBTIC by **Clause 3** there of shall have become exercisable and the same shall not have been exercised, the non-exercise thereof shall not constitute a waiver of any of the conditions here of and such powers shall notwithstanding be exercisable in the event of any future case of default by the contractor for which under any clause hereof he is declared liable to pay compensation or penalty amounting to the whole of his security deposit and the liability of the contractor for past and future compensation or penalty shall remain unaffected.

Power to take possession of or require removal of or sell contractor's properties.

In the event of the Office of the Secretary, SBTIC taking action under **sub-clause (a) or (c) of Clause 3**, he may, if he so desires, take possession of all or any tools, plant, materials and stores, in or upon works or the site thereof or belonging to the contractor, or procured by him and intended to be used for the execution of the work or any part thereof, paying or allowing for the same in account at the contract rates; or in the case of contract rates not being applicable, at current market rates, to be certified by the Office of the Secretary, SBTIC whose certificate thereof shall be final. In the alternative, Office of the Secretary, SBTIC may after giving notice in writing to the contractor or his clerk of the works, foreman or other authorized agent, require him to remove such tools, plant, materials or stores from the premises within a time to be specified in such notice; and in the event of the contractor, failing to comply with any such requisition, the Office of the Secretary, SBTIC may remove them at the contractor's expense or sell them by auction or private sale on account of the contractor and at his risk in all respect, and the certificate of the Office of the Secretary, SBTIC as to the expense of any such removal; and the amount of the proceeds and expense of any such sale shall be final and conclusive against the contractor.

Clause 5. GRANT OF EXTENSION OF TIME

- (a) If the contractor shall desire an extension of the time for completion of the work, he shall apply in writing to the Office of the Secretary, SBTIC before the expiry of the period stipulated in the tender or before the expiry of 30 days from the date on which he was hindered as aforesaid or on which the cause for asking for extension occurred, whichever is earlier and the Office of the Secretary, SBTIC or other competent authority may if in his opinion, there are reasonable grounds for granting an extension, grant such extension as he thinks necessary or proper. The decision of such competent authority in this matter shall be final.

- (b) The time limit for completion of the work shall be extended commensurate with its increase in cost occasioned by alterations or additions and the certificate of the Office of the Secretary, SBTIC or other competent authority as to such proportion shall be conclusive.

Clause 6. ISSUE OF FINAL CERTIFICATE-CONDITIONS REGARDING

On completion of the work the contractor shall report in writing to the Office of the Secretary, SBTIC the completion of the work. Then he shall be furnished with a certificate by Office of the Secretary, SBTIC of such completion, but no such certificate shall be given nor shall the work be considered to be complete until the contractor shall have removed from the premises on which the work shall have been executed, all scaffolding, surplus materials and rubbish, and shall have cleaned thoroughly all wood work, doors, windows, wall, floor or other parts of any building, in or upon which the work has been executed, or of which he may have had possession for the purpose of executing the work, nor until the works shall have been measured by the Engineer or other competent authority, or where the measurements have been taken by his Engineer until they have received the approval of the Office of the Secretary, SBTIC or other competent authority, the said measurements being binding and conclusive against the contractor. If the contractor shall fail to comply with the requirements of this clause as to the removal of scaffolding, surplus materials and rubbish, and cleaning on or before the date fixed for the completion of the work the Office of the Secretary, SBTIC or other competent authority may, at the expense of the contractor, remove such scaffolding, surplus materials and rubbish, and dispose of the same as he think fit and clean off such dirt etc., as aforesaid and contractor shall be liable to pay the amount of all expenses incurred but shall have no claim in respect of any such scaffolding or surplus materials as aforesaid except for any sum actually realized by the sale thereof.

Note: CLOSURE OF CONTRACT PENDING COMPLETION OF MINORITEMS

In cases where it is not desirable to keep the building contract open for minor items, such as flooring in the bathrooms, etc., which can be carried out only after installation of sanitary work the main contract may be finalized after getting a supplementary agreement executed in the prescribed form by the same contractor for doing the residual work.

Clause7. Contractor to submit bills monthly in printed form.

- (a) A bill shall be submitted by the contractor on or before 15th of each month for all items of work executed in the previous month as required by SBTIC. The Running account bills will be paid within three weeks from the date of submission of the bill in complete acceptable form after duly checked and certified by concerned Engineer, under normal circumstances.

All bills shall be prepared in the prescribed printed and electronic form in PDF format in quadruplicate and handed over to the Engineer in charge of the work/Office of the Secretary, SBTIC and acknowledgment obtained. The charges to be made in the bills shall always be entered at the rates specified in the tender in full or in part as the case may be, in the case of any extra work ordered in pursuance of these conditions, and not mentioned or provided for in the tender, the charges in the bills shall be entered at the rates here in after provided for such work.

(b) Scrutiny of Bills and measurement of work

The details furnished by the Contractor in the bill will be completely scrutinized and the said work will be measured by the Engineer in the presence of the Contractor or his duly authorized agent. The countersignature of the contractor or the said agent in the measurement book shall be sufficient proof to the correctness of the measurements,

along with the Test certificates to be produced with the bill, which shall be binding on the contractor in all respects.

(c) One copy of the passed bill shall be given to the Contractor without any charge.

Clause 8. PAYMENT PROPORTIONATE TO WORK APPROVED AND PASSED

No payment shall be made for any work estimated to cost rupees five thousand or less until after the whole of the work shall have been completed and certificates of completion given. But in the case of works estimated to cost more than Rs. 5,000 the contractor shall on submitting the bill and after due verification by the Engineer as per Clause 7(b) entitled to necessary Payment proportionate to the part of the work then approved and passed by the Office of the Secretary, SBTIC or other competent authority whose certificate of such approval and passing of the sum so payable shall be final and conclusive against the contractor i.e. part payment of submitted RA bills is admissible to contractor. Any such reduced payment amount is admissible for adjustment in the successive RA Bills or Final Bill.

Payment at reduced rates

The rates for several items of works agreed to within shall be valid only when the items concerned are accepted as having been completed fully in accordance with the stipulated specifications. In cases where the items of work are not accepted as so completed, The Office of the Secretary, SBTIC or other competent authority may make payment on account of such items at such reduced rates as he may consider reasonable in the preparation of final or on account bills.

Payment or intermediate certificates be regarded as advances:

All such intermediate payments shall be regarded as payments by way of advance against the final payments only and not as payments for work actually done and completed, and shall not preclude the Office of the Secretary, SBTIC or other competent authority from requiring any bad, unsound imperfect or unskillful work to be removed or taken away and reconstructed or re-erected nor shall any such payment be considered as an admission for the due performance of the Contractor any part thereof in any respect or the accruing of any claim, nor shall it conclude determine or affect in any other way the powers of the Office of the Secretary, SBTIC or other competent authority as to the final settlement and adjustment of the accounts, or otherwise or in any other way vary or affect the contract.

Submission of Final bill and its settlement

The contractor shall submit the final bill within one month from the date of actual completion of the work in all respects. His claims shall be settled within five months from the date of submission of the bill in complete acceptable form after duly checked and certified by concerned Engineer, under normal circumstances.

Disputed items

Note: The contractor shall submit a list of the disputed items within 30 days from the disallowance thereof and if he fails to do this, his claim shall be deemed to have been fully waived and absolutely extinguished.

Clause9. Definition of Work:

- (i) The expression 'Work' or 'Works' where used in the conditions, shall unless there be something in the subject or context repugnant to such construction, be construed to mean the work or works contracted to be executed under or in virtue of the contract, whether temporary or permanent and whether original, altered, substituted or additional.

(j) **Work to be executed in accordance with specifications, drawings, orders etc.**

The contractor shall execute the whole and every part of the work in the most sound and substantial and workmanlike manner, and in strict accordance with the specifications both as regards materials and workmanship. The contractor shall also conform exactly, fully and faithfully to the designs, drawings and instructions in writing relating to the work signed by the Office of the Secretary, SBTIC or other competent authority and lodged in his office and to which the contractor shall be titled to have access at such office, or on the site of the work for the purpose of inspection during office hours. The contractor shall also be responsible for the delivery of structure in sound conditions and the execution of the work strictly in accordance with the specifications of the work.

(k) **Action where there is no specification**

In the case of any class of work for which there is no such specification, then in such a case of the work shall be carried out in all respects in accordance with the instructions and requirements of the Office of the Secretary, SBTIC or other competent authority.

(l) **Work as per Specifications and IS Codes.**

The detailed specification, which forms a part of contract, accompanies the tender document. In carrying out the various items of work as described in Schedule B of the tender documents and the additional, substituted, altered items of work, this detailed specification shall be strictly adhered to, supplemented by relevant provisions of Indian standard specifications, the code of practice; etc. The Indian standard specification, National Building Code and the code of practice to be followed shall be the latest versions of those listed in the detailed technical specifications. Any class of work, not covered by the detailed technical specifications, shall be executed in accordance with the instructions and requirements of the Office of the Secretary, SBTIC and the relevant provisions of the Indian standard specifications.

Clause 10. Alteration in quantity of work, specifications and designs, Additional work, deletion of work

- i. The Office of the Secretary, SBTIC shall have power to make any alternations in, omissions from additions to or substitutions for the original specification, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the work. For that purpose or if for any other reason it shall in his opinion be desirable, he shall have power to order the Contractor to do and the contractor shall do any or all the following: -
- ii. Increase or decrease the quantity of any work included in the contract
- iii. Omit any such work
- iv. Change the character or quality or kind of any such work
- v. Change the levels, lines, positions and dimensions of any part of the work
- vi. Execute additional work of any kind necessary for the completion of the works and
- vii. Change in any specified sequence, methods or timing of construction of any part of the work.

Contractor bound by Office of the Secretary, SBTIC's instructions

The Contractor shall be bound to carry out the work in accordance with any instructions in this connection which may be given to him in writing signed by the Office of the Secretary, SBTIC or other competent authority and such alteration shall not in any way vitiate or invalidate the contract.

Standard Quantity Take-off (SQT)

Contractor within **07 days** of Issue of LOI to submit the Project Manager & seek approval for the Standard quantity Take-off sheets for all the items mentioned in the Tender BOQ, after due referencing the Tender/ GFC drawings and the Technical Specification. Upon approval, the SQT shall remain the base document for initiating any change orders/ variation in accordance to Clause 31, tracking the daily project progress, and for the measurement sheets.

Orders for variations to be in writing

- (i) No such variations shall be made by the Contractor without an order in writing of the Office of the Secretary, SBTIC; provided that no order in writing shall be required for increase or decrease in the quantity of any work where such increase or decrease is the result of the quantities exceeding or being less than those stated in the 'Schedule B' provided also that if for any reason the Office of the Secretary, SBTIC shall consider it desirable to give any such order verbally, the Contractor shall comply with such order without any confirmation in writing of such verbal order given by the Office of the Secretary, SBTIC, whether before or after the carrying out of the order, shall be deemed to be an order in writing within the meaning of the clause; provided further that if the Contractor shall within seven days confirm in writing to the Office of the Secretary, SBTIC and if such confirmation is not contradicted in writing within fourteen days by the Office of the Secretary, SBTIC, it shall be deemed to be an order in writing by the Office of the Secretary, SBTIC.
- (ii) **(a)** Any additional work which the contract or may be directed to do in the manner above specified as part of the work shall be carried out by the Contractor on same conditions in all respects on which he agreed to do the main work and same rates as are specified in the tender for the main work. However, change in the Undertaking rates tendered and accepted shall be considered in respect of items under which the quantity of work performed exceeds tendered quantity by more than 25 percent and this actual change in rate will be restricted only to such excess quantity (i.e. beyond 125 percent to the tendered quantity).

(b) Rate for excess quantity beyond 125 percent of tendered quantity

The Additional quantity which exceeds 125 percent of the tendered quantity shall be paid at the rates entered in or derived from Schedule of Rates prevalent at the time of executing additions and alterations plus or minus the overall percentage of the original tendered rates over the current Schedule of Rates (TSSPDCL) of the year in which the tender is accepted (as per the comparative Statement prepared at the time of acceptance of the tender).

(c) Rates for additional, substituted, altered items of work

If the additional, substituted or altered work includes any class of work for which no rate is specified in the contract, then such work shall be carried out at the rates specified for or derived from similar item of work in the agreement. In the absence of similar items in agreement, rate shall be as specified for or derived from similar items in the schedule of rates of TSSPDCL prevalent at the time of execution of such additional substituted or altered items of works, plus or minus the over all percentage of original tendered rates over the current schedule of rates of (TSSPDCL) the year in which tender is accepted as mentioned in sub clause (b) above. With regard to the question whether the additional, substituted or altered item/items of work/works is / are similar or not, to that/those in the agreement / in the Schedule of Rates of TSSPDCL

and the decision of the Office of the Secretary, SBTIC shall be final and binding on the contractor.

(d) Determination of rates for items not found in Estimate or Schedule of Rates

If the rates for additional, substituted or altered work cannot be determined in the manner specified in sub **clauses (b) and (c)** above, then the contractor shall within 7 days of the date of receipt by him of the order to carry out the work, inform the Office of the Secretary, SBTIC of the rates which it is his intention to charge for such class or work, supported by analysis of the rate or rates claimed. There upon the Office of the Secretary, SBTIC shall determine the rate or rates on the basis of observed data and failing this, on the basis of prevailing market rates. Under no circumstances the contractor shall suspend the work on the plea of non-settlement of rates for items falling under this clause. In the event of any dispute regarding the rates for such items the decision of Office of the Secretary, SBTIC shall be final.

Working out the data rates for non-SR/ non tendered items shall be based on the procedures laid down in the standard rate analysis format of TSSPDCL. The data rates shall be approved by the Office of the Secretary, SBTIC, and shall be binding on the contractor.

Clause 11. TIME LIMITS UNFORSEEN CLAIMS

Under no circumstances whatever shall the contractor be entitled to any compensation from SBTIC on any account unless the contractor shall have submitted claim in writing to the Office of the Secretary, SBTIC or other competent authority within 30 days of the cause of such claim occurring.

Clause 12. NO CLAIM TO ANY PAYMENT OR COMPENSATION FOR DELETION OF WHOLE OR PART OF WORK

(a) If at any time after the execution of the contract documents, the Office of the Secretary, SBTIC or other competent authority shall, for any reason whatsoever, require the whole or any part of the work as specified in the tender, to be stopped for any period or require the whole or part of the work (i) not to be carried out at all or (ii) not to be carried out by the tendered contractor, he shall give notice in writing of the fact to the contractor who will there upon suspenders top the work totally or partially as the case may be. In any such case, except as provided here under, the contractor shall have no claim to any payment of compensation whatsoever on account of any profit or advantage which he might have derived from the execution of the working full but which he did not so derive in consequence of the full amount of the work not having been carried out, or on account of any loss that he may be put on account of materials purchased or agreed to be purchased, or for unemployment of labour recruited by him. He shall not also have any claim for compensation by reason of any alterations having been made in the original specifications, drawings, designs and instructions, which may involve any curtailment of the work, as originally contemplated.

(b) **Payment for materials already purchased or ordered by contractor.**

Where, however, materials have already been purchased or agreed to be purchased by the contractor before receipt by him the said notice the contractor shall be paid for such materials, at the rates determined by Office of the Secretary, SBTIC or other competent authority provided they are not in excess of requirements and are of approved quality, and/or shall be compensated for the loss, if any, that he may be put to, in respect of

materials agreed to be purchased by him, the amount of such compensation to be determined by the Office of the Secretary, SBTIC or other competent authority whose decision shall be final.

(c) Labour charges during stoppage of work

If the contractor suffers any loss on account of his having to pay labour charges during the period during which the stoppage of work has been ordered under this clause, the contractor shall on application, be entitled to such compensation on account of labour charges as the Office of the Secretary, SBTIC or other competent authority, whose decision shall be final, may consider reasonable. Provided that the contractor shall not be entitled to any compensation on account of labour charges if in the opinion of the Office of the Secretary, SBTIC or other competent authority, the labour could have been employed in the same locality by the contractor for the whole or part of the period during which the stoppage of the work has been ordered as aforesaid.

(d) Time limit for stoppage of work

The period of stoppage ordered by the Office of the Secretary, SBTIC or other competent authority should not ordinarily exceed six months. There after the portion of works stopped may be treated as deleted from this agreement if a notice in writing to that effect is given to the Office of the Secretary, SBTIC or other competent authority by the contractor within seven days after the expiry of the above period.

Execution of work deleted:

The portion of work thus deleted may be got executed from the same contractor on supplemental agreement on mutually agreed rates, which shall not exceed current Schedule of Rates plus or minus tender percentage.

Clause 13. ACTION AND PENALTY IN CASE OF BAD WORK

If at any time before the security deposit is refunded to the contractor, it shall appear to the Office of the Secretary, SBTIC or other competent authority that any work has been executed with unsound, imperfect or unskillful workmanship or with materials of inferior quality, or that any materials or articles provided by him for the execution of the work are unsound or of a quality inferior to that contracted for, or are otherwise not in accordance with the contract, it shall be lawful for the Office of the Secretary, SBTIC or other competent authority to intimate this fact in writing to the contractor and then notwithstanding the fact that the work, materials or articles complained of may have been paid for, the contractor shall be bound forthwith to rectify, or remove and reconstruct the work so specified on whole or in part as the case may require, or if, so required shall remove the materials or articles at his own charge and cost and in the event of his failing to do so within a period to be specified by the Office of the Secretary, SBTIC the competent authority in the written intimation aforesaid, the contractor shall be liable to pay a penalty not exceeding one percent on the amount of the estimate for every day not exceeding ten days during which the failure, so continues and in the case of any such failure the Office of the Secretary, SBTIC or other competent authority may rectify or remove, and re-execute the work or remove and replace the materials or articles complained of, as the case may be the risk and expense in all respect shall be borne by the contractor should the Office of the Secretary, SBTIC or other competent authority for any valid reasons consider that any such inferior work or materials as described above is to be accepted or made use of, it shall be within his discretion to accept the same at such reduced rates he may fix thereof.

Clause14. WORK TO BE OPEN TO INSPECTION-CONTRACTOR OR RESPONSIBLE AGENT TO BE PRESENT

All works under or in course of execution or executed in pursuance of the contract shall at all time be open to the inspection and supervision of the Office of the Secretary, SBTIC or other competent authority and his Engineer-in-charge, and the contractor shall at all times during the usual working hours, and at all other times at which reasonable notice of the intention of the Office of the Secretary, SBTIC or other competent authority Engineer to visit the work shall have been given to the contractor, either himself be present to receive orders and instructions or have a responsible agent duly accredited in writing present for the purpose. Orders given to the contractor duly authorized agents shall be considered to have the same force and effect as if they had been given to the contractor himself.

Clause15. NOTICE TO BE GIVEN BEFORE WORK IS COVERED UP

The contractor shall give not less than five days' notice in writing to the Office of the Secretary, SBTIC or his Engineer in charge of the work before covering up or otherwise placing beyond the reach of the measurement any work in order that the same may be measured; and correct dimensions there of taken before the same is so covered up or placed beyond the reach of measurement, and shall not cover up or place beyond the reach of measurement, and work without the consent in writing of the Office of the Secretary, SBTIC or other competent authority or his Engineer in charge of work; and if any work shall be covered up or placed beyond the reach of measurement, without such notice having been given or consent obtained, the same shall be uncovered at the contractor's expense, and in default thereof no payment or allowance shall be made for such work or for the materials with which the same was executed.

Clause16. CONTRACTOR LIABLE FOR DAMAGED ONE, AND FOR IMPERFECTIONS FOR TWELVE MONTHS AFTER CERTIFICATE OF COMPLETION

If the Contractor or his workmen or servants shall break, deface, injure or destroy any part of a building in which they may be working, or any building, road fence, enclosure or grassland or cultivated ground contiguous to the premises on which the work or any part thereof is being executed, or if any damage shall be done to the work, while it is in progress from any cause whatever or if any imperfections become apparent in it within Twelve months of the grant of a certificate of completion, final or otherwise, by the Office of the Secretary, SBTIC or other competent authority the contractor shall make good the same at his own expenses, or in default the Office of the Secretary, SBTIC other competent authority may cause the same to be made good by other workmen, and deduct the expenses (of which the certificate of the Office of the Secretary, SBTIC other competent authority shall be final) from any sums that may be due or may thereafter become due to the contractor, or from his Security Deposit or the proceeds of sale thereof, or of a sufficient portion thereof.

The Defects liability period shall be extended for as long as defects remain to be corrected. Every time notice of a Defect is given, the Contractor shall correct the notified Defect with in the length of time specified by the Institute.

Clause17. CONTRACTOR TO SUPPLY PLANT, LADDERS, SCAFFOLDINGS, ETC., AND IS LIABLE FOR DAMAGES ARISING FROM NON-PROVISION OF LIGHT, FENCING ETC

The contractor shall supply at his own cost all materials, plant, tools, appliance, implements, ladders, scaffolding, and temporary works required for the proper execution of the work whether in the original, altered or substituted form and whether included in the specification, or other documents forming part of the contract or referred to in these conditions or not, and which may be necessary for the purpose of satisfying or complying with the requirements of the Office of the Secretary, SBTIC or other competent authority as to any matter as to which under these conditions he is entitled to be satisfied, or which he is entitled to require together with carriage therefore, to and from the work. The contractor shall also supply without charge the requisite number of persons with the means and materials necessary for the purpose of setting out works, and counting, weighing and assisting in the measurement or examination at any time and from time to time of the work or the materials. Failing this, the same may be provided by the Office of the Secretary, SBTIC or other competent authority at the expense of the contractor and expense may be deducted from any money due to the contractor under the contract or from his security deposit or the proceeds of sale thereof, or of a sufficient portion thereof.

The contractor shall provide necessary fencing and lights required to protect the public from accident, and shall also be bound to bear the expense of defense of every suit, action or other legal proceedings, that may be brought by any person for injury sustained owing to neglect of the above pre cautions and to pay any damages and costs which may be awarded in any suit, action or proceedings to any person, or which may with the consent of the contractor be paid for compromising any claim by any such person.

Clause18. Measures for prevention of fire

The contractor shall not set fire to any standing jungle, trees, brushwood or grass without a written permit from the Office of the Secretary, SBTIC. When such permission is given, and also in all cases when destroying cut or dug up trees, brush wood grass, etc., by fire the contractor shall take necessary measures to prevent such fire spreading to or otherwise damaging surrounding property.

Clause19. Liability of contractor for any damages done in or outside work Area.

Compensation for all damages done by contractor or his men whether in or beyond the limits of Institute property including any damage caused by spreading of fire mentioned in Clause 18 shall be estimated by the Office of the Secretary, SBTIC and the estimate of the Office of the Secretary, SBTIC, subject to the decision of the Centre for Campus Management and Development on appeal shall be final and the contractor shall be bound to pay the amount of the assessed compensation on demand failing which the same will be recovered from the contractor as the damages in the manner prescribed in clause 1(c) or deducted by the Office of the Secretary, SBTIC other competent authority from any sums that may be due or become due from Institute to the contractor under this contract or otherwise.

The contractor shall bear the expenses of defending any action or other legal proceedings that may be brought by any person for injury sustained by him owing to neglect of precautions to prevent the spread of fire and shall pay any damages and cost that may be awarded by the court in consequence.

Clause20. Work on Notified Holiday

No work shall be done on any notified holiday without the sanction in writing of the Office of the Secretary, SBTIC or other competent authority.

Clause 21. WORK NOT TO BE SUBLET

- (a) The contract shall not be assigned or sublet by the contractor. However, any specific portion of the work which is of a specialized nature and normally not executable by a general contractor could be got done by the specialized agencies which are executing such works, after obtaining the specific approval of the Office of the Secretary, SBTIC in writing in each case. Such consent to sublet the work, if given, shall not relieve the contractor from any liability or obligation under the contract and he shall be responsible for the acts, defaults and neglects of any sub-contractor or his agents, servants or work mate as fully as if they were the acts, defaults or neglects of the contractor, his agents, servants or workmen.

Consequences of subletting work without approval, becoming insolvent, bribing etc., by contractor and action against the contractor.

If the contractor shall assign or sublet his contract or any portion thereof without the specific approval of the Office of the Secretary, SBTIC or attempts to do so or become insolvent or commence any proceedings to get himself adjudicated as insolvent or make any composition with his creditors or attempts so to do or if any bribe, gratuity, or indirectly be given, promised or offered by the contractor or any of his servants or agents to any officer or person in the employ of company in any way relating to his office or employment or if any such officer or person in the employment or if any such officer or person shall become in any way directly or indirectly interested in the contract, the Office of the Secretary, SBTIC or other competent authority may there upon by notice in writing rescind the contract and the security deposit of the contractor shall thereupon stand forfeited and be absolutely at the disposal of Institute and the same consequences shall ensue as if the contract had been rescinded under Clause 3 here of and in addition, the contractor shall not be entitled to recover or be paid for any work actually performed under contract.

- (b) **Recovery of excess payments based on excess measurements and action against contractor.**

Whenever it is noticed that excess payments have been made to the contractor based on excess measurements recorded by the Engineer in the measurement book and countersigned by the contractor or his duly authorized agent, action shall be taken to recover the excess payments together with interest immediately. Action may also be taken to remove the name of the contractor from the approved list of contractors and also to blacklist him.

Change in classification of excavations accepted not permitted.

Once the measurements mentioning the classification of the excavations are recorded in the measurement book and the same is signed by the contractor or his authorized agent in token of acceptance, no request for reclassification by the contractors shall be entertained.

- (c) **Criminal proceedings against SBTIC Officer and Contractor for the lapses.**

SBTIC also reserve the right to initiate criminal proceedings against the concerned SBTIC Officers who are directly responsible for the lapse and the contractors who have colluded with the officers of the Institute in the lapse and fraudulently received amounts not due to them legitimately.

Clause 22. SUM PAYABLE BY WAY OF COMPENSATION TO BE CONSIDERED AS REASONABLE COMPENSATION WITHOUT REFERENCE TO ACTUAL LOSS.

All sums payable by a contractor by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied for the use of SBTIC without reference to the actual loss or damage sustained and whether any damage has or has not been sustained.

Clause 23. SETTLEMENT OF DISPUTES- TIME LIMIT FOR DECISION

If any dispute or difference of any kind whatsoever were to arise between the Office of the Secretary, SBTIC and the contractor regarding the following matters namely,

- (i) The meaning of the specification's designs, drawing and instructions here in before mentioned,
- (ii) The quality of workmanship or materials used on the work and
- (iii) Any other question, claim right, matter, thing whatsoever, in any way arising out of or relating to the contract, designs, drawings, specification, estimates, instructions, or orders, or those conditions, failure to execute the same whether arising during the progress of the work, or after the completion, termination or abandonment thereof, the dispute shall, in the first place, be referred to the Centre for campus management and Development who have jurisdiction over the work specified in the contract. The Centre for campus management and Development shall within a period of fifteen days from the date of being requested by the Contractor to do so give written notice of its decision to the Contractor.

(b) Secretary decision final

Subject to other form of settlement hereafter provided, the Secretary decision in respect of every dispute or differences referred shall be final binding upon the contractor. The said decision shall forth with be given effect to and contractor shall proceed with the execution of the work with all due diligence.

(c) Remedy when Secretary decision is not acceptable to contractor.

In case the decision of the Secretary is not acceptable to the contractor, he may approach the Law Court at Hyderabad for settlement of dispute after giving due written notice in this regard to the Secretary within a period of ninety days from the date of receipt of the written notice of the decision of the Secretary. Further, the Hyderabad courts alone shall have the exclusive jurisdiction.

(d) Time limit for notice to approach Court of law by contractor

If the Secretary has given written notice of his decision to the contractor and no written notice to approach the law court has been communicated to him by the contractor within a period of ninety days from receipt of such notice, the said decision of Secretary shall be final and binding upon the contractor.

(e) Time limit for notice to approach law court by contractor when decision is not given by Secretary, SBTIC as at (b).

If the Secretary fails to give notice of his decision within a period of ninety days from the receipt of the contractor's request in writing for settlement of any dispute or difference as aforesaid, the Contractor may within ninety days after the expiry of the first named period of ninety days approach the Law Courts at Hyderabad giving due notice to the Secretary.

(f) Contractor to execute and complete work pending settlement of dispute.

Whether the claim is referred to the Secretary or to the Law Courts, as the case may be, the contractor shall proceed to execute and complete the works with all due diligence pending settlement of the said dispute or differences.

(g) Obligations of the Office of the Secretary, SBTIC and contractor shall remain unsettled during considerations of dispute.

The reference of any dispute or difference to the Secretary or the Law Court may proceed notwithstanding that the works shall then be or be alleged to be complete, provided always that the obligations of the Office of the Secretary, SBTIC and the contractor shall not be altered by reason of the said dispute or difference being referred to the Secretary or the Law Court during the progress of the works.

Clause 24. CONTRACTOR TO PAY COMPENSATION UNDER WORKMEN'S COMPENSATION ACT.

(a) The contractor shall be responsible for and shall pay any compensation to his own workmen payable under the relevant Workmen's Compensation Act for injuries caused to the workmen. If SBTIC pays such compensation on behalf of the contractor, it shall be recoverable by SBTIC from the contract or under as per relevant clauses.

(b) Contractor to pay expenses of providing medical aid to workmen.

The contractor shall be responsible for and shall pay the expenses of providing medical aid to any workman who may suffer a bodily injury because of an accident. If Institute incurs such expenses, the same shall be recoverable from the contractor forthwith and be deducted without prejudice to any other remedy of Institute, from any amount due or that may become due to the contractor.

Clause 25. CONTRACTOR TO PROVIDE PERSONAL SAFETY EQUIPMENT FIRST AID APPARATUS, TREATMENT etc.

The contractor shall provide all necessary personal safety equipment and first aid apparatus for the use of the persons employed on the site and shall maintain the same in good condition suitable for immediate use, at any time and shall comply with the following regulations in connection therewith:

- (i)** The worker will be required to use the equipment so provided by the contractor and the contractor shall take adequate steps to ensure proper use of the equipment by those concerned.
- (ii)** When work is carried on in proximity to any place where there is a risk of drowning; all necessary steps shall be taken for the prompt rescue of any person in danger.
- (iii)** Adequate provision shall be made for prompt first-aid treatment of all injuries likely to be sustained during the course of the work.

Clause 26. Minimum age of persons employed by

contractor (a): No contractor shall employ

- (i)** Any person who is under age of 18 years.
- (ii)** Who does not produce a valid certificate of vaccination against epidemic diseases in respect of himself/herself as well as all the members of his/her family.
- (b)** The contractor shall provide potable water facilities to the workers. Similar

- amenities shall be provided to the workers engaged on large works in urban area.
- (c) Removal of persons not satisfying conditions (a)(i) & (ii)
The Office of the Secretary, SBTIC or other authority is authorized to direct the removal or to remove through his own agency, from the work any person referred to in sub-clauses (a) above not satisfying these conditions and no responsibility shall be accepted by the Institute for any delay caused in the completion of the work by such directions for removal.
- (d) Payment off air and reasonable wages by contractor.
The contractor shall pay fair and reasonable wages, which shall not be less than the minimum wages fixed by Govt. of Telangana from time to time to the workmen employed by him in the contract undertaken by him. In the event of any dispute arising between the contractor, and his workmen on the ground that the wages paid are not fair and reasonable the dispute shall be referred without delay to the Office of the Secretary, SBTIC or other competent authority, who shall decide the same. The decision shall not in any way affect the conditions in the contract regarding the payment to be made by Institute at the agreed tender rates.

Clause 27. CONTRACT OR NOT ENTITLED TO ANY CLAIM OR COMPENSATION FOR DELAY IN EXECUTION OF WORK IN BORROW PITS.

The contractor shall not be entitled to claim compensation if there is any delay in the execution of the work on account of water standing in borrows pits and Compartments. The rates are inclusive for hard or cracked soil, excavation in mud, sub-soil water or water standing in borrow pits and no claim for extra rate shall be entertained, unless otherwise specified.

Clause 28. METHOD OF PAYMENT OF BILLS

Payment to contractors shall be made by RTGS/ cheque by the SBTIC.

Clause 29. SET OFF AGAINST ANY CLAIM OF SBTIC

Any sum of money due and payable to the contractor (including the security deposit refundable to him) under this contract may be appropriated by the Institute and set off against any claim of Institute in respect of a payment of a sum of money arising out of or under any other contract made by the contractor with the Institute.

Clause 30. RATES INCLUSIVE OF GST AND LABOUR CESS AND ROYALTY

- (a) The rates to be quoted by the contractor shall be inclusive of all taxes like GST, Labour cess, Royalty etc., No extra payment on this account will be made to the contractor.
- (b) When there is a change in existing taxes from time to time i.e. upward or downward is admissible accordingly.
- (c) All quarry fees, octroi duties levied by the state or any local body or authority and ground rent, if any, charged by the Office of the Secretary, SBTIC for stacking materials should be paid by the contractor.

Clause 31. IMPORTANCE OF SAFETY

In addition to Contractor's Contractual Obligations on Safety as per the relevant clauses stated, The Contractor shall comply with all safety standards to the satisfaction of the Employer's Representative.

In respect of all labour, directly or indirectly employed on the project for the performance and execution of the Contractor's Work under the Contract, the Contractor shall at its own expense arrange for all the safety provisions as listed in (i) Safety codes of C.P.W.D. and Bureau of Indian Standards, (ii) The Electricity Act, (iii) The Mines Act, and Regulations, Rules and Orders made there under and such other acts as applicable. Precautions as stated in the safety clause are the minimum necessary and shall not preclude the Contractor taking additional safety precautions as may be warranted for the particular type of work or situations. Also mere observance of these precautions shall not absolve the Contractor of his liability in case of loss or damage to property or injury to any person including but not limited to the Contractor's labour, the Employer's, Architect's, Employer's Representative's and Project Manager's representatives or any member of the public or resulting in the death of any of these.

The Contractor shall institute and implement to the satisfaction of the Project Manager a construction safety programme, including:

- Preparing a Site-specific written safety programme consistent with the EHS Plan, Indian law and best practices. As a minimum, the programme shall require applicable safety equipment for all workers, use of barriers and barricades around potentially dangerous areas, protection of workers working under elevated conditions, accident reporting, first aid provisions etc.
- Weekly safety reviews and 'risk assessments' shall be carried out in conjunction with the Project Manager and the Employer in order to identify potential safety hazards and to mitigate against them.
- Attending weekly or as scheduled safety meetings at site conducted by the site safety representative of project manager
- The Contractor will be required to provide all personnel entering the Site an Identity and safety rules card and verbal explanation of the safety programme.
- Requiring all Sub-Contractors and other workers under the responsibility of the Contractor (including the Vendors or later phases of the construction of the Project) to adhere to the written safety programme as per approved format.

Experienced safety officers with adequate number of supporting personnel shall be appointed by the Contractor for full time on the site during the Contract period.

NON-COMPLIANCE OF REGULATIONS

If the Project Manager or the Employer's Representative notifies the Contractor of non-compliance with the foregoing regulations, the Contractor shall immediately, if so directed, or in any event not more than eighteen (18) hours after receipt of such notice, make all reasonable efforts to correct such non-compliance. If the Contractor fails to do so, the Employer may suspend all or any part of the Work. When the Contractor has undertaken satisfactory corrective action, Employer shall lift the suspension of the Work. The Contractor shall not claim any extension of time to complete the Work or additional fees due to any such work suspension.

The Client reserves the right to levy penalty if the safety norms such as not wearing helmets, safety gloves/belts/shoes/jackets. etc., even after a written notice by the enforcing authority, a penalty of Rs.10,000/- per day per event or till the safety norms are adhered to in addition to stopping of work till the safety norms are adhered.

Clause 32. Refund of Security Deposit (EMD & FSD):

The Security Deposit lodged/ paid by a Contractor shall be refunded to him after the final bill is paid or after the successful completion of defect liability period, during which period the work should be maintained by the Contractor in good order, whichever is later.

Clause 33. PENALTY FOR DELAY

(a) Written Order to Commence Work

After acceptance of the tender, The Office of the Secretary, SBTIC shall issue a written order to the successful tenderer to commence the work. The Contractor shall enter upon or commence any portion of work only with the written authority and instructions of The Office of the Secretary, SBTIC. Without such instructions the Contractor shall have no claim to demand for measurements of or payment for, work done by him.

(b) Programme of work

The time allowed for carrying out the work as entered in the tender shall be strictly observed by the contractor. It shall be reckoned from the date of handing over the site to the Contractor or not less than 75 percent of work site area comprising a continuous block. The work shall throughout the stipulated period of the contract be proceeded with, all due diligence (time being deemed to be the essence of the contract on the part of the Contractor). To ensure good progress during the execution of the work, the contractor shall be bound (in all cases in which the time allowed for any work exceeds one month) to comply with the time schedule according to the programme of execution of the work as agreed upon and enclosed to the agreement.

(c) Review of progress and responsibility for delay etc.,

The Office of the Secretary, SBTIC shall review the progress of all works with the contractor during the first fortnight of every month. Such a review shall take into account the programme fixed for the previous month, obligations on the part of the Contractor.

(d) Apportioning of responsibility for delay between Contractor and Institute.

In case the progress achieved falls short by more than 25 percent of the cumulative programme, the reasons for such shortfall shall be examined and a record made thereof apportioning the responsibilities for the delay between the contractor and the SBTIC. This record should be signed in full and dated both by The Office of the Secretary, SBTIC and the Contractor.

6 THE ARTICLES OF AGREEMENT

This Agreement is made at Hyderabad, on this ---- **day of** ----- in the year-----

BY AND BETWEEN

Society of Biotechnology Incubation Centre (SBTIC) herein referred as SBTIC, a Society registered under the Register under the Andhra Pradesh Societies Registration Act. No. 35 of 2001 having its office at **Plot : 15A, Sy No : 230-243, MN Park, Synergy Square 1, Genome Valley, Hyderabad 500078, Telangana**, (here in after referred to as the SBTIC which expression shall unless repugnant to the context or meaning thereof, mean and include its successors in interest, trustees and permitted assigns) of the ONE PART

AND

M/s -----, here in after referred to as the "CONTRACTOR", (which expression shall unless repugnant to the context or meaning thereof, mean and include their partners, their respective heirs, executors, administrators and assigns) on the OTHER PART.

RECITALS

- A. WHEREAS the SBTIC is desirous of getting the work of Supply, Installation, Testing and Commissioning 750KVA Diesel Generator set at Society For Biotechnology Incubation Centre, Genome Valley, Hyderabad (hereinafter called the work) executed by the Contractor at the rates quoted by him amounting to Rs. ----- (Rupees ----- only) inclusive of all Taxes which is ----- % the estimated amount put to tender.
- B. WHEREAS the Contractor has agreed to execute the aforesaid work on terms and conditions mentioned herein and subject to Tender Conditions of Contract and in accordance with the particular specifications, general notes and the schedule of quantities, schedule of rates, payment, and penalty condition, to the satisfaction of the SBTIC

NOW THIS AGREEMENT WITNESSE TH AND THE PARTIES HERE TO AGREE AND SOLEMNLY AFFIRM AS FOLLOWS:

1. Inconsideration of the payment to be made to them as here in after provided, the contractor shall, subject to the terms, conditions, specifications, schedule of quantities, drawings, etc., more particularly stated in the Schedules aforesaid, execute and complete the work within 1 Month for the work after 10 days of issuance of work order or from the date of handing over of site, whichever is later.
2. SBTIC shall pay to the contractor such sums as shall become payable hereunder at the time and in the manner specified in the conditions contained in the schedule aforesaid.
3. The time allowed for carrying out the work as entered in the tender Agreement shall be strictly observed by the contractor and shall be deemed to be the essence of the contract on the part of the contractor and shall be reckoned from 10 days after the date on which the work order to commence the work is issued to the Contractor or the date of handing over of site, whichever is later. The work shall throughout the stipulated period of the contract be proceeded with all due diligence and the Contractor shall pay compensation an amount equal to one percent, or such smaller amount, as the Secretary, SBTIC (whose decision shall be final) may decide on the amount of estimated cost of the whole work as shown in the tender for everyday that the work remains un-commenced or unfinished, after proper dates.

4. The contractor shall ensure good progress during the execution of the work be bound in all cases in which the time allowed for any work exceeds one month (save for special jobs) to complete one-eighth of the whole work before, one-fourth of the whole time allowed under the contract has elapsed, three-eighths, of the work before one-half of such time has elapsed, and three-fourths of the work before three-fourths of such time has elapsed.
5. However, for special jobs if a time schedule has been submitted by the contractor and the same has been accepted by the Engineer, the contractor shall comply with the said schedule. In the event of the Contractor failing to comply with the conditions he shall be liable to pay as compensation an amount equal to one percent or such smallest amount, as the Secretary, SBTIC (Whose decision in shall be final), may decide on the said estimated cost of the whole work for every day that the due quantity of work remains incomplete; provided always that the entire amount of compensation to be paid under the provisions of this clause shall not exceed seven and a half (7.5) percent of the estimated value of the contract as shown in the tender, provided further that in the event of contractor making up the short fall in progress within the stipulated or extended time of completion, the penalty so recovered may be refunded on an application in writing by the Contractor.
6. The Engineer in charge shall review the progress of all works with the contractor once every week. Such a review shall take into account the programme fixed for the previous week, obligations on the part of the Institute for issue of drawings etc., and also the obligations on the part of the Contractor. The review shall also examine the accumulated delays by the contractor if any and mitigation measures proposed by the contractor to overcome the delay. In case the progress achieved falls short by more than 25 percent of the cumulative programme, the reasons for such short fall shall be examined and are cord made there of apportioning the responsibilities for the delay between the SBTIC and the contractor. This record should be signed in full and dated both by the Engineer and the Contractor.
7. SBTIC, without prejudice to its rights under the contract in any respect of any delay or inferior workmanship or otherwise, or to any claim for damages in respect of any breaches of the Contract and without prejudice to any rights of remedies under any of the provisions of this contractor otherwise and whether the date of completion has or has not elapsed, by notice in writing absolutely determine the contract in any of the following cases:
 - a. If the contractor having been given by the Office of the Secretary, SBTIC a notice in writing to rectify reconstruct or replace any defective work or that the work is being performed in any inefficient or otherwise improper or un work man like manner, shall omit to comply with the requirements of such notice for a period of seven days of such notice thereafter or if the contractor shall delay or suspend the execution of the work so that in the judgment of the Office of the Secretary, SBTIC (which shall be final and binding)either they will be unable to secure completion work by the date for completion of the work or they had already failed to complete the work by that date.
 - b. If the Contractor being a company passes a resolution or if the Court passes an order to wind up the company or if a receiver or a manager is appointed on behalf of the creditors of the company or under circumstances which entitles the Court or the creditors to appoint a receiver or manager which would entitle the Court to make a winding-up order.
 - c. If the Contractor commits breach of any of the terms or conditions of this contract.

- d. If the contractor assigns or sublets without written approval of the Office of the Secretary, SBTIC or becomes insolvent.

The Office of the Secretary, SBTIC on behalf of the Secretary of the SBTIC shall have powers:

- a) To determine or rescind the Contract as aforesaid (in which termination or recession notice in writing to the Contractor underhand of the Office of the Secretary, SBTIC shall be conclusive evidence). Upon such determination or recession, the security deposit of the Contractor shall be liable to be forfeited and shall absolutely be at the disposal of SBTIC.
- b) To employ labour paid by the Institute and supply materials to carry out the work or any part by debiting the Contractor with the cost of the labour and the price of the materials (of the amount of which cost and price certified by the Office of the Secretary, SBTIC shall be final and conclusive against the Contractor) and crediting him with the value of the work done in all respect on the same manner and at the same rates as if it has been carried out by the contractor under the term of his contract. The certificate of the Office of the Secretary, SBTIC as to the value of the work done shall be final and conclusive against the contractor, provided always that action under the sub-section shall only be taken after giving notice in writing to the contractor. Provided also that if the expenses incurred by the Institute are less than the amount payable to the contractor at his agreement rates, the difference shall not be paid to the Contractor.
- c) After giving notice to the contractor to measure up the work of the contractor and to take such part thereof as shall be un-executed out of their hands and to give it to another contractor to complete in which case any expenses which may be incurred in excess a sum of which would have been paid to the original contractor if the whole work had been executed by him (of the amount of which excess the certificate in writing of Office of the Secretary, SBTIC shall be final and conclusive) shall be borne and paid by the original contractor and may be deducted from any monies due to him from the SBTIC under this contract or any other account whatsoever, of from his security deposit or the proceeds of sales thereof, or a sufficient part thereof as the case may be.

In the event of any one or more of the above courses being adopted by the Office of the Secretary, SBTIC, the contractor shall have no claim to compensation for any loss sustained by them by reason of having purchased or procured any materials or entered into any engagements or made any advances on account or with a view to the execution of the work or the performance of the contract. And in case of action is taken under any of the provisions, aforesaid, the contractor shall not be entitled to recover or be paid any sum for work thereto/for actually performed under this contract unless the Office of the Secretary, SBTIC has certified in writing the performance of such work and the value payable in respect thereof and they shall only be entitled to be paid the value so certified.

1. The schedules above mentioned include the General Rules and Directions to Contractors and the following documents, viz.,
 - i) Letter of Intent
 - ii) Letter of Acceptance
 - iii) Work Order
 - iv) Conditions of Contract
 - v) Contractor's Bid-Bill of Quantities
 - vi) Technical Specifications
 - vii) Drawings
 - viii) Any other document listed in the Contract Data as forming part of the contract shall form an integral part of the agreement and the decision of the Office of the Secretary, SBTIC in reference to all matters of a dispute as to material and workmanship shall be final and binding on both the parties.
8. The SBTIC reserves the right of altering the drawings of the works and of adding to

or omitting any item of work from or of having portions of the same carried out departmentally or otherwise and such alterations or variations shall not violate this agreement.

9. This agreement comprises the work aforesaid, and all subsidiary works connected there with even though such works may not be shown on the schedule appended hereto.
10. In the event the contractor or their employees, agents, sub-contractors deface or destroy the property or the establishment belonging SBTIC, the same shall be made good by the contractor at their own expenses.
11. The Contractor shall ensure cleanliness at the premises of SBTIC ensure cleaning of site and removal of debris every week. In any event the contractor ceases to comply the foregoing the SBTIC shall ensure the site cleaned at the expense of the contractor.
12. The Contractor shall at all-time be responsible for the safety of their employees, agents, sub- contractors, and in any event during the commission of work or in their due course of work the SBTIC shall not be held responsible. The contractor shall defend, indemnify and hold the Institute harmless from any liability or damage, lawsuits, penalties imposed by any State or Central Government or statutory body or by a third party for reasons of violation of any of statutory provisions or requirements by the contractor.
13. The Contractor shall adhere to the working conditions and its scope strictly and any act not in confirmation with the scope of work which is mutually accepted by both the parties shall only be done after prior approval and acceptance in writing by the Secretary.
14. The Contractor shall at any time be responsible for the completion of work in time, also the contractor shall be responsible to submit the final bill within one month after completion of the work.
15. Notwithstanding anything contained in the tender submitted by the contractor, all the clauses of this agreement shall be binding on both parties.
16. Where counter-terms and conditions, printed or copied, are offered by the contractor, the same shall not be deemed to have been accepted by the SBTIC, unless specific written acceptance thereof is furnished by the SBTIC. Notwithstanding the foregoing, no verbal agreement or inference from a conversation with any office members/representatives/employees of the SBTIC before, during, or after the execution of the agreement, shall in any way affect or modify any of the terms/obligations contained herein.
17. In the event the contract is terminated by the SBTIC due to any aforementioned act/omission on the part of the contractor, or for any reason whatsoever, the SBTIC shall be entitled to engage the services of any other person, agency or Contractor to meet its requirement, without prejudice to its rights including claim for damages against the Contractor.
18. This agreement can be terminated by SBTIC with the prior written notice of Seven (7) days in the event of a breach of any of its terms of this agreement and even otherwise this Agreement may be terminated by SBTIC by giving a minimum of 7 days prior written notice to the Contractor.
19. The SBTIC shall be indemnified for all losses due to commissions and omissions of persons deployed by the contractor. If any loss or damage is caused to the SBTIC on account of any negligence, carelessness, acts of omissions. Commissions of contractors, its employees, or staff, the same shall be made good by the contractor. The contractor shall defend, indemnify and hold the SBTIC harmless from any liability or damage, lawsuits, penalties imposed by any State or Central Government or statutory body or by a third party for reasons of violation of any of statutory provisions or requirements by the contractor. The SBTIC shall not be liable for any

damage or compensation payable to any workmen or to any person as a consequence of this work and the SBTIC shall be completely indemnified accordingly.

20. The contractor shall pay wages directly to its personnel. The contractor shall also ensure that no amount by way of commission or otherwise is deducted from the wages of the workmen. The contract labourers deployed by the agency shall not involve in any theft/pilferage/damage to Institute property. After necessary investigations, if proved that the contractor or their personnel are responsible for the incident, the contractor is liable and will be penalized to the extent of the value of the loss and additionally Rs. 50,000/- for each such incident.
21. All terms and conditions, the scope of work, and other conditions as mentioned in the tender document will be diligently complied with by the contractor. The terms and conditions, the scope of work, and other conditions mentioned in the tender documents shall form a part and parcel of this agreement.
22. The Contractor hereby agrees and affirms that during or subsequent to the performance of the duties under this Agreement, the Contractor shall maintain confidentiality and shall not divulge, communicate, use or appropriate any of the SBTIC Information, except to the extent necessary for the Contractor to fulfil his obligations or duties to the SBTIC under this Agreement. The Contractor shall not cause transmission, removal or transfer of tangible embodiments of, or files from the SBTIC place of business, without the prior written consent of the SBTIC and shall not disclose any information of the SBTIC to any third party.
23. In case of disputes including all questions relating to the performance of the obligations under this agreement and all the dispute and differences which shall arise either during or after the agreement period or other matters arising out of or relating to this agreement or payments to be made in pursuance thereof shall be decided by the Secretary of SBTIC whose decision shall be binding on the contractor. The Contractor here by agrees to be bound by the decision of the Secretary.

24. COURT

Courts of appropriate jurisdiction situated in Hyderabad City shall have exclusive jurisdiction

25. GOVERNINGLAW

This Contract shall be governed by the Law of India for the time being inforce. IN WITNESS WHEREOF the parties here to have set their respective hands the day and the year here in above written.

In the presence of:
Contractor
Witness 1:

Signed by for and on behalf of the said

(Company Name)

In the presence of:
theSBTIC Witness 2:

Signed by for and on behalf of

Secretary
SBTIC

Society of Biotechnology Incubation Centre (SBTIC)
Genome Valley, Hyderabad
ITEM RATE TENDER FOR WORK

I/We, hereby tender for the execution for the Society of Biotechnology Incubation Centre (SBTIC), Genome Valley, Hyderabad of the works specified in the under mentioned memorandum within the time specified in such memorandum at the rates specified therein and in accordance, in all respects, with the specifications, designs, drawings and instructions in writing which have been read by me/read and explained to me and with such materials as provided for by and in all other respects in accordance with such conditions as for as possible.

MEMORANDUM OF WORK

1	General Description	Supply, Installation, Testing and Commissioning 750KVA (CPCB-II) Diesel Generator set at Society For Biotechnology Incubation Centre Genome Valley, Hyderabad
2	Estimated Cost	Rs.69,00,000/-
3	Earnest Money	Rs.69,000/-
4	Date of Commencement of work	Within ten days from the date of issue of work order or the date of handing over the site whichever is later
5	Further Security Deposit	Further Security Deposit 1.5% to be provided in the time of agreement. The bank guarantee should be valid till the completion of the defect liability period.
6	Time allowed for the completion of work in all respects from the date of commencement Of work	1 Month
7	Bills of Quantities	As per enclosure
8	Defects liability period /release of security deposit	The security deposit lodged/paid by a contractor shall be refunded to him after the final bill is paid or after twelve months from the date of completion of the work, during which period the work so executed should be maintained by the contractor in good order, whichever is later.
9	Specifications	The work shall be carried out strictly in accordance with the enclosed specifications and wherever items are not covered by those specifications in accordance with specifications/drawings /designs/requirements and directions of the Office of the Secretary, SBTIC

I/We hereby agree to abide by and fulfil all the terms and provisions of the conditions contained in the articles of agreement, which have been read by me/us or in default thereof to forfeit and pay to the Secretary, SBTIC or his successors the sums of monies mentioned in the said conditions.

The sum of **Rs. 69, 000/- (Rupees Sixty Nine thousands Only)** has been deposited by demand draft as Earnest Money the full value which is to be absolutely forfeited to the SBTIC or his successors in Office should I/We fail to commence the work specified in the above memorandum and complete the same.

Dated this **xxrd** day of **xxxxxx** 2024.

Signature of the Contractor

Witness to Contractor/s Signature:

NAME

ADDRESS

OCCUPATI

ON

The above tender is hereby accepted by me on behalf of the Secretary, SBTIC, Genome Valley.

**Secretary
SBTIC**

7 REFERENCE CODES
I.S. STANDARDS OF ELECTRICAL WORKS

S.No	STANDARDS	TITLE
	Code of Practice/Guide	
1	IS:732-1989	Code of Practice for Electrical wiring installations
2	IS:4648-1968	Guide for Electrical layout in residential buildings
3	IS:80614-1976	Code of Practice for Design, installation And maintenance of service lines upto and including 650V.
4	IS:7752(Part-1)-1976	Code of Practice for interior Illumination: General requirements and recommendations for welding interiors.
5	IS:4347-1967	Code of Practice for hospital lighting
6	IS:6665-1972	Code of Practice for industrial lighting
7	IS:2672-1966	Code of Practice for Library lighting
8	IS:10118(Part-1) -1982	Code of Practice for selection, installation and maintenance of switcher and Control gear: Installation.
9	IS:4146-1983	Application guide for voltage transformers
10	IS:3043-1987	Code of practice for earthing
11	IS: 5216(Part-2)-1982	Guide for safety procedures and Practices in electrical work: General
12	IS:4237-1982	General requirements for switchgear and control gear for voltages not exceeding 1000 V AC or 1200 V DC.
13	IS:6875-(Part-1)-1973	Control switches (Switching devices for Control and auxiliary circuits including 1000VAC and 1200 VDC: General requirements and tests
14	IS:10027-2000	Composite units of Air-Break switches and rewirable type fuses for voltages not exceeding 650VAC.
15	IS:4064(Part-1)-1978	Composite units of Air-Break disconnecter, Air-Break switch disconnecter and fuse- combination units for voltages not exceeding 1000V AC or 120VDC: General requirements.
16	IS:8828-1996	Electrical accessories-circuit breakers for over current protection for household and similar installation.
17	IS:2516 (Part-1/Sec01)-1985	Circuit-Break: Requirements and tests: Voltages not exceeding 100VAC or 1200V DC
18	IS:5039-1983	Distribution pillars for Voltages not exceeding 1000VAC or 1200VDC

19	IS:8544(Part-4)-1979	Motor starters for voltages not exceeding 1000 V: Reduced voltage AC starters, two- step auto transformer starters
20	IS :9537(Part-1) -1980	Conduits for electrical installations General requirements
21	IS : 9537(Part-4) -1983	Conduits for electrical installations: Pliable self recovering conduits of Insulating materials
22	IS:3854-1997	Switches for domestic and similar Purposes
23	IS:1293-1988	Plugs and sockets outlets of rated voltage Upto and including 250Volts and current up to and including 16 Amperes.
24	IS : 2418(Part-1) -1977	Tubular Fluorescent lamps for general lighting services: Requirements and tests.
25	IS :9900(Part-1) -1981	High pressure mercury vapour lamps : Requirements and tests.
26	IS :1913(Part-1) -1978	General and safety requirements for Luminaries: Tubular fluorescent lamps.
27	IS:10322(Part-1)-1982	Luminaries: General requirements
28	IS:302(Part-1)-1979	General and safety requirements for household and similar electrical appliances.
29	IS:6236-1971	Direct recording electrical measuring Instruments
30	IS :2705(Part-1) -1992	Current transformers : General Requirements
31	IS : 2448(Part-1) -1963	Adhesive insulating apes for electrical purposes: Tapes with cotton textile Substrates.
32	IS:8130-1984	Code for Conductor Construction
33	IS:5831-1984	Code for Insulation& sheath material
34	IS:694-1990	PVC insulated Flexible Single Core Wire/ Un armoured Multi core/Flat Cables. For working voltage upto & including 1100V.
35	IS:1554(Part-1)-1988	Copper or Aluminium Conductor, PVC insulated, extruded inner sheathed PVC, galvanised steel wire/strip armoured, extruded PVC sheathed LT Control/Power Cable. For working Voltage upto & including 1.1KV.

36	IS:3975-1990	Code for Number of Strips in armouring construction.
37	IS:7098/II/85	XLPE insulated HT & AB Cables. For working voltage 6.35/11KV
38	IS:14255-1995	Code for Aerial Bunched Cables. For Working voltage upto 1.1KV
39	IS:13573/VDE 0278/IEC 60502/HD 629.1.S2 CENELEC	Code of Type tests for HT termination jointing kit
40	IS7569:1987	Cast Acrylic Sheets for use in Luminaires
41	IS8030:1976	Specifications for Luminaires for Hospitals
42	IS10242: Part3:Sec6:1986	Electrical installations in ships: Part 3 Equipment, Section 6 Luminaires & accessories
43	IS10322:Part2:1982	Specification for Luminaires - Part 2: Constructional Requirements
44	IS10322:Part3:1984	Specification for Luminaires - Part 3: Screw & Screw Less Terminals
45	IS10322: Part4:1984	Specification for Luminaires - Part 4: Method of Tests
46	IS10322:Part5: Sec1:2012	Luminaires: Part5 Requirements, Sec 1 General Purpose Luminaires
47	IS10322:Part5: Sec2:2012	SpecificationsforLuminaires-Part5: Particular Requirements- Section 2: Recessed Luminaires
48	IS10322:Part5: Sec4:1987	Luminaires: Part 5 Particulars requirements, Section 4 Portable general-Purpose luminaires
49	IS13383:Part1:1992	Photometry of Luminaires - Method of Measurement - Part 1: Luminaires for use in interior Lighting
50	IS13383:Part2:1992	Methods of Photometry of luminaires: Part 2 Luminaires for road & street lighting
51	IS13383:Part3:1992	Photometry of Luminaires - Method of Measurement - Part 3: Luminaires for Flood lighting
52	BSEN 10025Grade5,355JO (or)ASTMA572-50	Steel sheet thickness
53	IS875Part3	Wind Velocity
54	IS2062(or)ASTMA572-50	Base Plate
55	BSEN ISO 1461 (or) ASTM A123 (or) IS 2629	Galvanizedinsinglehotdip/WithAverage70 Microns

56	BS5135	Welded Single L-Seam Joint
57	AISI304Grade	Stainless Steel Wire Rope (Factor of Safety: TR No. 7)
58	IS1239	Maximum Load Carrying Capacity(Lantern)
59	IS9595(or)IS10178AWS	Single Section & Single Joint welded
60	ASTM-A123 and153	Hot dip Galvanizedin Single dipping with not less than 65 Microns

8 TECHNICAL SPECIFICATION

The work shall be carried out as per CPWD/ TSSPDCL Specification and relevant IS codes. In case of discrepancy between technical specification and BOQ, the BOQ prevails.

SECTION-I

SPECIFICATIONS (GENERAL)

10.0 SCOPE

- A. The specification covers the general requirement for manufacturing, inspection, testing & supply, installation, testing & commissioning of 750 KVA (CPCB-II) SILENT Diesel Engine driven alternator suitable for operation with Auto Mains Failure system along with AMF panel cum Synchronizing panel, cabling etc as per the site. Loading, unloading, transportation of new D.G., new AMF/Synchronizing Panel are in the scope of Supplier/Contractor including requisite Civil works.
- B. The alternator is driven by I. C. Diesel Engine as per following technical specifications.
Specification for the Alternator – Section II
Specification for Engine- Section III
Specification for sound proof enclosure-Section IV
Specification for AMF Panel (inclusive of- Section V Control & Monitoring Panel)
- C. Vendor to obtain statutory permissions like CEA, PCB/CPCB as per the requirement. The offered DG set must have type approval meeting CPCB-II norms for smoke emission and also noise emission.

10.1 Documents to be submitted with Technical Bid:

- a) Alternator
- b) Engine
- c) AMF/Synchronizing Panel
- d) Documentation
- e) drawing of the complete assembly shall be submitted for approval before commencement of work.

10.2 ENVIRONMENT

- The DG set shall be suitable for operating satisfactorily in humid and highly corrosive atmosphere prevailing in Refineries and other petroleum installations.
- Ambient Temperature range: 8°C (min.) to 50°C (max.)
- Precipitation during monsoon: Heavy rain fall Relative Humidity: 98%

10.3 Installation location

The DG set shall be installed outdoor in acoustic enclosure (specification for which has been provided in the document) at Biotechnology Incubation Centre, Genome Valley, Hyderabad, Telangana.

10.4 Existing facilities at BTIC

- A 2.73 m X 6.80 m foundation bed is available at present. This may be utilized or if find existing foundation is not sufficient, that bed can be extended as required based on design . The Land is available for extension. For payment, the actual quantities will be considered as approved by the Engineer in charge and rates will be TS SOR rates
- Trench
- Earth pit

10.5 General

- a. All the supply & work shall be in accordance with the relevant IS Specifications, recognized standards, modern approved practice and shall meet the requirements of the latest issue of applicable codes, factory rules and regulations, supply codes.
- b. All the materials & accessories provided by Contractor under terms of this contract shall confirm to relevant IS Specifications samples of all equipment's, materials, and accessories to be supplied by Contractor shall be submitted for the approval of Engineer

before the use.

- c. Contractor shall provide all necessary labor, tools, scaffolding and requisite work like drilling, cutting, welding at his cost.
- d. Good workmanship is the essence of this contract and shall be complied with at all times. The Contractor shall have the works supervised by qualified & experienced Engineer. All the defects pointed out by the Engineer shall be rectified immediately by the contractor free of cost.
- e. Applicable Indian Electricity Rules, Act (latest), CPCB Norms and all other statutory regulations that might be relevant to the installation shall be followed.
- f. No alteration which may affect the structures and architecture of building shall be done without the prior approval of the engineer. All work shall be carried out in such a manner that it should not cause any inconvenience to other works which are under progress. The Contractor shall cooperate with other agencies in the area for the smooth execution of all works.
- g. Accidental damage to any property shall be reported immediately to site engineers and letter confirmed in writing.
- h. Operation and Maintenance spares: Bidder shall provide the list of spares required as stand by to maintain the DG Set in Good working condition.

10.6 Tests and Inspection:

The authorized representatives from SBTIC may visit the works during manufacture of equipment to assess the progress of work as well as to ascertain that only quality raw materials are used for the same. They shall be given all assistance to carry out the inspection without any extra cost.

To conduct factory and site load test as per requirement as stated in the Tender specification including sufficient sized load bank in order to conduct full load testing as required. **For factory test, the cost of travelling to the factory, lodging & boarding expenditure of 2 persons to be included in the rate quoted.**

For Diesel Engine:

Manufacturer's internal test certificates in line with IS-10002/BS-5514 shall be furnished for review and vetting by the engineer/engineers during inspection of combined assembly DG set.

For Alternator:

Manufacturer's internal test certificates in line with IS-4722/BS-2613 shall be furnished for review and vetting by the engineer/engineers during inspection of combined assembly DG set.

10.7 All major items/equipment's i.e. engine & alternator in assembled condition, associated AMF/Synchronizing panel etc. shall be offered for inspection & testing at factory/ manufacturers work.

10.7.A Complete set along with AMF/Synchronizing panel shall be tested for control wiring, manual, automatic start, stop function including fault tripping/ protection of the set. AMF panel shall be tested separately for all routine & functional test prior to load test.

10.7.B Dimensions and Alignment.

10.7.C DG Set control panel, safety / protective devices, interlocks, IR, HV, Phase sequence, voltage regulation, frequency.

10.7.D Partial load test at 50% and 75 % for one hour each and fuel consumption will be recorded.

10.7.E Full Load testing of complete set at 100% rated load with acoustic enclosure till the differential temperature remain steady but not less than 3 hrs. The engine and alternator parameter shall not exceed the guaranteed value during the testing. Fuel consumption shall be recorded.

10.7.F Overload testing at 10% overload for one hour immediately after the full load test.

- 10.7.G Over speed test (1.2times the rated speed for 2min)
- 10.7.H Transient response and Governor response tests for sudden application and rejection of loads of 25%, 50%, 75% & 100% of the rated capacity.
- 10.7.I Smoke test certificate as per rules.
- 10.7.J The noise level at 1 m from the enclosure and the temperature rise inside the enclosure shall be measured during the load test. DG Vendor to Study Site& Confirm Transportation of DG set to location without Dismantling any component after Factory Test is Conducted. **Vendor to make all constructional damages good to any part of the building during transportation, unloading.**

10.8 Site Testing:

Following tests shall be conducted at site in the presence of the Engineer during commissioning. The contractor shall provide all testing equipment, labour and consumables required for the testing (Diesel oil shall be arranged by the contractor only) with DG set load testing as stipulated in specifications/BOQ. Entire cost is to be borne by Vendors.

- 10.8.A Checkingthealignmentbyenginemanufacturer'srepresentativeandobtaining approval.
- 10.8.B HV,IR, continuity, phase sequence, frequency, voltage regulation test on alternator, control panel and cabling.
- 10.8.C Checking the AMF, synchronizing operation both on auto and manual mode, start, stop, tripping / protection, IR, HV, functional and routine tests.
- 10.8.D Checking the DG Set safeties and inter locks for satisfactory operation.
- 10.8.E Checking vibration levels.
- 10.8.F Testing of individual protective devices on engine and alternator & ensuring that the wiring is carried out properly.
- 10.8.G The DG set shall be tested for load available at site for minimum one hour. All the readings shall be logged to evaluate the fuel consumption, tube oil pressure, water and oil temperature vis-à-vis the electrical load.
- 10.8.H Any deviation from the guaranteed parameters shall be made good and these performance parameters should be measured once again till the required results are achieved.
- 10.8.I The DG set shall be deemed to be commissioned after satisfactory performance of all associated equipments.

10.9 Compliance:

- 10.9.A The DG set being provided by the bidder shall comply with latest environmentprotectionrulesandlatestBISstandards.Conformancelabelas per the said rule is to be affixed on the DG set. A copy of each type approval certificate and conformity of production certificate is to be provided in along with the offer. Supplier shall clearly specify the codes and standards for designing manufacturing, inspection and testing of the DG Set along with the bid. The DG Set shall have one-hour overload capacity of 10% in every twelve hours of duration of operation.
- 10.9.B All the cables route to be marked at both sides of cable termination with brass plate and letter to be imposed.
- 10.9.C Other staff training shall include training sessions provided on site after hand over of the system. The training sessions shall be given by an experienced and competent engineer familiar with system installed. The scope of training provided shall include full operating instructions in the use of DG Set.
- 10.9.D The contractor shall provide operating instruction as required for operating the system. "Hands-on" demonstrations of the operation of all system components and the entire system including program changes and functions shall be provided.

10.9.E The contractor and/or the systems manufacturer's representatives shall provide printed Sequence of Operation sheets for ready reference.

SECTION-II **ALTERNATOR SPECIFICATION**

1.0 Rating & General

The DG Set shall be Prime Power rating Duty as per ISO:8528-1. It comprises of alternator which shall be self -excited, self-regulated and shall be rated for an output of 750KVA Continuous Duty Power at 415Volts, 3Phase, 50Hz suitable for the 4 wire system exclusive of power requirement of auxiliaries. Winding is to be STAR connected and neutral shall be brought out through a separate terminal and will be solidly grounded.

Rating	:	750 KVA (Continuous Duty)
Voltage	:	415V 3Phase with neutral brought out through separate terminal
Frequency	:	50
Hz Degree of Protection	:	IP23
RPM	:	1500RPM
DutyRating	:	Continuous
S1Shortcircuitwithstand		
Capacity	:	3 times FLC for 10 seconds
Overload	:	10% over load for one hour in 12hrs
Suitability for parallel	:	
Operation Harmonic		
Distribution factor	:	NL L-L
2.5% Unbalanced Load	:	25%
Ball Bearing	:	SINGLE

1.1 Excitation

Self-excited, self-regulated and with brushless type **solid state excitation** facility. The rectifier shall be suitable for operation at high ambient temperature at site as indicated in Specification. Over excitation protection shall be provided as per Alternator Manufacturer standard.

2.0 Standards

The alternator shall be in accordance with latest editions of the following standards:

- i) IS : 4722 & BS: 2613. The electrical performance of rotating electrical machine.
- ii) Other IS/BS/IEC/EN applicable for design, manufacturing, testing and supply of subject Alternator/DG set like IEC43, BS6250, EN62581, IS13364 (I&II) with CE marking.

3.0 Voltage Regulation:

An automatic voltage regulator system compatible with excitation system described above shall be provided, so as to furnish a performance as defined here in under all conditions of loads. The AVR shall be static type with provision for control from remote through push buttons.

4.0 Performances:

Voltage regulation from no load to rated load shall be within arrange of 2.5% for

rated voltage. The frequency regulation from no load to full load shall be as defined by the Engine Governor. Voltage dip for any addition of load upto and including 60% load shall not exceed 15% of rated voltage and shall recover to and remain within the steady band within not more than 1.5 sec. Similarly, the frequency shall recover to the steady state frequency band within 5 seconds. The windings shall not develop hot spots exceeding safe limits due to an imbalance of 25% between any two phases from no load to full load.

5.0 Enclosure

Alternator enclosure should be screen protected drip proof (IP23) conforming to IS : 4691 – 1968.

6.0 Terminal Box

It shall be suitable for necessary PVC insulated 1.1KV grade 4Nos. of 3.5 Core 300 sqmm Al. armoured cable conforming to IS : 1554 – Part – I with sufficient space for trifurcation inside the box. Necessary individually removable gland plates, cable lugs, connections shall all be included. Suitable segregation shall be available for other cables such as excitation, control, etc. The terminal box shall be suitable for withstanding the mechanical and thermal stresses developed due to any short circuit at the terminals.

Two Nos. earth terminals on opposite side with vibration proof connections, nonferrous hardware etc. With galvanized or plated and passivated washers of minimum size 12 mm dia. shall be provided.7.0 Windings: Class H insulation shall be used.

7.0 Space Heaters

Space heater to be incorporated in the alternator to maintain the winding temperature such that it does not absorb moisture during long idle periods. The heater terminals shall be brought to a separate terminal box suitable for 240 V 50 Hz AC supply.

8.0 Under Speed Protection:

Alternator shall be provided with under speed protection.

9.0 Parallel Operation:

Parallel operation provision shall be provided as in- built part of AVR.

10. Wave Form:

Sinusoidal Wave form with THD content line to line on no load shall be less than 5%.

11.0 Transient Voltage Dip:

Transient voltage Dip due to sudden application of full load shall be taken care.

12.0 Radio interference shall meet VDE0875(N).

13.0 Painting, Packing and Transport

All metal surfaces shall be thoroughly cleaned of scale, rust, and grease, etc. prior to painting. Cleaned surface shall be given two coats of primer and prepared for final painting. Final finish shall be free from all sorts of blemishes.

The equipment shall be shipped to site suitable packed to prevent and damage. Each package shall have labels to show purchaser's name, purchase order and equipment no. Suitable lifting lugs etc. shall be provided and lifting points shall be clearly marked on the package. Packing shall be suitable for storage at site for a minimum period of 8 months.

SECTION-III
ENGINE SPECIFICATION
SPECIFICATIONS FOR DIESEL ENGINE

1. Engine

- The major sub-assemblies of the prime mover shall be as follows:
- a. Four stroke diesel oil engine, Battery starting type, Turbocharged, coolant cooled/Water cooled, Forced feed lubricated with its auxiliaries.
 - b. Steel channel fabricated common base plate (skid) for engine and alternator along with anti-vibration mounting pads.
 - c. Flex Plate cum Fly Wheel Bolted type coupling method between Engine and Single Bearing type Alternator.
 - d. Control system for the Diesel engine.
2. The engine shall be rated suitably to meet the requirement of alternator at its maximum rating and overload of 10% of the rated output for 1 hour in 12 hours of running as per Prime Power Duty definition mentioned in ISO:8528-I.
 3. The diesel engine offered shall be suitable for operation with high-speed diesel oil as per IS:1460 Grade A. Performance requirement of the engine shall meet the requirement of IS-10002/BS-5514 standards (latest editions).
 4. The diesel engine shall be furnished with all accessories like governor, daily service fuel tank, exhaust piping with exhaust silencer (Residential type silencer) and sparker restore etc. The fuel tank shall be 990 Ltr Capacity and shall be fitted within Acoustic Enclosure with visual fuel level indicator/ Gauge, fuel level switches, fuel filling in remote mode with steel channel structure to mount the tank and inter-connecting fuel piping
 5. The engine set shall have proper instrumentation & control for semi- automatic operation as per the following:
 - a. **Unit Start-Up**

The DG set shall be started by means of battery. The unit shall be controlled locally for inspection, periodic start-up, check and normal operation. It shall have the facility to remotely switch on/off through auxiliary potential free contacts of relay to be provided in the AMF/Synchronizing Panel. The engine control circuit shall provide terminal contacts for permissive signal to run/ stop from an external relay contact that will close by shorting the terminals and allow the engine to start/stop on remote mode from Owner's control panel.
 - b. **Unit Shut Down**

The shutdown of DG shall be made effective through a STOP solenoid switch mounted in the engine. The DG set shall permit:
 - i. Immediate automatic shut-down of the unit due to irregular operation and shall have provision for creating audio-visual signals of shut- down cause at the AMF panel which shall include the following:
 1. Low lube oil pressure (through a pressure switch)
 2. High Jacket water temperature (through a temperature switch)
 3. Diesel tank fuel level low (through a level switch)
 4. Engine fails to start
 5. Engine over speed
 - ii. To facilitate generation of these fault signals suitable instruments/relays having required potential free contacts shall be provided for effecting the above. All these potential free contacts shall be wired to terminate in a separate terminal strip with proper identification in the engine local control panel. Status of potential free contact shall be changed as soon as above-mentioned parameters reaches/ crosses their acceptable limits. Initially during the starting lube oil pressures which shall be by passed and will regain its normal status after start. **Necessary provision shall be made for remote starting/stopping of the engine through pushbuttons mounted in the AMF panel.** All the above-referred contacts shall be wired up to a terminal strip for wiring up to remote AMF panel.

6. Operation

Suitable facilities shall be provided for operation and monitoring of the Engine which shall include the following:

For status monitoring(local), following gauges shall be available in engine local control panel.

- i) Engine Lube oil pressure gauge
- ii) Engine Jacket water.
- iii) A meter for battery charging
- iv) DG set in Local/Remote/Manual indication
- v) Digital hour-cum-RPM indicator

7. Lubricating oil system

- i. The engine shall be complete with its own self-contained lubricating oil system in which all the moving parts shall be lubricated by force feed system with the pump driven by the power drawn from the engine.
- ii. The lubricating oil sump shall have such capacity so as to ensure continuous operation of 48 hours without makeup.
- iii. Heat exchangers type in-built lube oil cooler shall be provided for cooling the lube oil.
- iv. Full flow paper / felt element lube oil filters (simplex / duplex) shall be provided at the beginning of lubricating oil circuit. Filter shall be equipped with a by-pass arrangement to make it possible to change the filter (while the engine is running) by using by-pass filter.
- v. As per the manufacturer's standard design, lube oil pump shall be provided for providing lubrication when the engine is not running.

8. Starting system

The engine shall be started from cold by automotive type lead acid battery both locally or from remote

9. Electrical system

Engine electrical system shall consist of the following:

Battery: Automotive low maintenance type lead acid battery of reputed brand and having sufficient capacity & terminal voltage for continuous duty application and for 3 consecutive no. of starts of the engine shall be supplied. Battery capacity & the connecting cables sizes shall be adequate so as to avoid problem of poor starting of the engine. The battery capacity shall not be less than 12Volt 180AH. Supplier shall furnish details of Battery capacity calculations along with the bid.

Dynamo: A dynamo shall be provided with the engine. This dynamo shall be generating a charging current whenever the engine is operating. This shall be sufficient to continuously charge the battery.

For facilitating battery trickle/boost charging during idling of engine, the battery shall have a static battery charger to be installed in the AMF panel.

Starter Motor: The cranking of the engine shall be through a starter motor. The starter motor shall be provided with sealed type bearing.

All the interconnecting cables (Except main Power cable) with require no. of core for interconnecting fuel tank levels witches, DG starting battery to Engine and to AMF panel, all

the engine control/protection parameter from engine to AMF panel including interconnection of AMF panel to Owners MCC panel where DG income & Main in comer are located shall be in the Vendor scope of supply. Supplier shall furnish details of electrical parts & its make for which the make/details are not mentioned in the tender.

10. Exhaust System

- a. Exhaust piping shall be provided by the Vendor as per the Pollution Control Board's guidelines of the relevant state.
- b. Exhaust piping system should be adequately insulated and protected by a robust Aluminum cladding cover over glass wool and a shield to prevent fuel spray on to the cladding cover, in case of failure of fuel injector piping. The exhaust piping system shall be complete in all terms to provide the exhaust piping from engine to outside atmosphere within battery limit.
- c. Exhaust silencers (residential type) with spark arrestor shall be supplied with the engine. The silencer shall be provided with 50mm thick-glass wool insulation and with 26SWG Aluminum cladding.
- d. The silencer shall be straight through type with drain plug at lowest point and one accessible clean out part. The silencer shall be finished with rust preventive primer. Flexible sections shall be connected between the exhaust pipe and the engine exhaust manifold. The flexible exhaust pipe shall be made of carbon or stainless steel. It shall be smoke-tight and have an inner diameter that is the same as the exhaust pipe. The exhaust piping shall be extended beyond the roof of the shed.
- e. The Vendor shall supply all additional piping, including bellows, vertical lengths, right-angle bends, and horizontal lengths. This includes cladding of the pipe with all required glass wool, cladded with aluminum foil or sheet (as deemed necessary). The DG Set shall be kept in open. Details of lengths for each part of the exhaust system shall be indicated.

11. Fuel Oil System

12.2 The fuel oil circuit shall include: -

- 11.1.1 Independent daily service tank of 990 ltrs. capacity or continuous operation of 12 hours shall be provided. The fuel tank shall have provision for flanged inlet/outlet connections, vent, top cover with opening, overflow drain, drain plug, breather and also necessary level monitoring instrumentation and alarm. Fuel tank shall be installed/housed within Acoustic Enclosure.
- 11.1.2 Manual type fuel transfer pump for filling of fuel tank like in automobiles as per site condition.
- 11.1.3 Pipe, flanges, fittings, valves, gaskets and all other material required for the circuit i.e. from fuel tank to Engine.
- 11.1.4 Full flow fuel filters, fuel inlet & outlet, air vent, drain plug etc. Level indicator inside the fuel tank and level switch (High & low) indication on Control Panel with alarm to be provided
- 11.1.5 Fuel tanks shall be fabricated from 2 mm thick cold-rolled carbon steel sheet (CRCAS)
- 11.1.6 The fuel level shall be measured through a dipstick/ Gauge/Electronic fuel indicator with high and low level indications.
- 11.1.7 Fuel tank shall be provided with strainer
- 11.1.8 Fuel tank connected to engine with wire braided fuel pipes.
- 11.1.9 The fuel tank shall be painted after Antirust treatment as mentioned in Soundproof Enclosure specifications.
- 11.1.10 The minimum capacity of fuel tank shall be 990Ltr with lockable top cover.
- 11.1.11 The fuel tank preferably shall be located at Subbase/within Acoustic Enclosure as per approved design by DG Set OEM/ Manufacturer.

12. Cooling System

- 12.2 The engine waste heat shall be dissipated to a closed-circuit water system which in turn shall be cooled by radiator cooling system driven by the power from the engine. The proposal shall be complete including the necessary pipe work for radiator, accessories etc. for the cooling system.
- 12.2 The engine jacket water will be circulated by an engine-driven, self-priming pump. Jacket water temperature control will be achieved through a valve and thermostatic switches, as specified in the design. Radiator heat ducting will be provided based on the specific site conditions.

13. Engine Governor: An overspeed device is required to shut off the system in case of excessive engine speed.

14. Flywheel: The engine shall be equipped with a heavy flywheel with a guard to ensure smooth operation throughout the speed range and at rated power. The flywheel effect should be such that the cyclic irregularity of the system complies with (or better than) the limit laid down in BS-5514.

15. Nameplate:

A corrosion-resistant nameplate of appropriate size shall be securely fastened with stainless steel pins at an easily visible and accessible location on the engine and gear unit. The nameplate should be stamped with the following information:

- Type, Model, and Serial Number
- Brake Horsepower (bhp)
- RPM
- Manufacturer's Name
- Conforms to Standard (e.g., BS-5514)
- Weight
- Firing Order (if applicable)
- P.O. No. (if applicable)

Direction of Rotation:

In addition to the information above, an arrow shall be stamped at an easily observable point on the engine to indicate the direction of rotation.

Improvements:

- Added headings for each section for better organization.
- Clarified the function of the governor as an overspeed device.
- Improved wording for clarity and conciseness.
- Standardized formatting for the list on the nameplate.
- Clarified the inclusion of firing order and P.O. number (optional depending on application).

SECTION-IV
SOUND PROOF ENCLOSURE
CONSTRUCTION

- a) Easy Access Design:** The enclosure should be designed for easy access to serviceable parts for maintenance.
- b) Modular Assembly and Disassembly:** The enclosure should have a modular construction for easy assembly and dismantling.
- c) Material and Thickness:** Fabricate the enclosure from 1.6 mm thick CRCA sheet. The base frame shall be made from suitable section ISMC sections or 5 mm minimum thickness sheet steel.
- d) Hardware:** Use high tensile grade fasteners (bolts) like 10.9 or 8.8 grade. The hardware should be passivated for corrosion resistance.
- e) Battery Tray:** A separate tray within the enclosure should be provided to accommodate the battery.
- f) Drain Plugs:** Provision for drain plugs should be made for draining engine oil.
- g) Leakproof Gaskets:** Doors should be gasketed with high-quality EPDM gaskets to prevent sound leakage.
- h) Lockable Door Handles:** The enclosure doors should have lockable handles.

PAINTING (For Fuel Tank, Soundproof Enclosure, AMF Panel, Control Panel etc.)

- a) Pre-treatment:** Sheet metal components should be pre-treated with a hot-dip galvanized tank process.
- b) Anti-Rust Treatment:** Apply a proper anti-rust treatment suitable for the location environment.
- c) Long-lasting Powder Coating:** For extended life, apply a PP-based (Poly-Propylene) powder coating to both the inside and outside surfaces of the container.
- d) Base Frame Epoxy Coating:** The base frame should be epoxy coated during fabrication.

ACOUSTIC ENCLOSURE

- a) Soundproofing Material:** Soundproofing of the enclosure should be done using high-quality rockwool or mineral wool conforming to IS 8183 with a density of 64 Kg/m³.
- b) Rockwool/Glasswool Covering:** The rockwool or glasswool should be further covered with fire-resistant and perforated powder-coated sheet metal (0.6 mm thickness) with a fiberglass cloth or fiber tissue paper lining.
- c) Residential Silencer:** A residential silencer should be provided within the DG set to control exhaust noise.
- d) Silencer Connection:** The interconnection between the silencer and engine should be made with a stainless steel flexible hose/pipe.
- e) Attenuators:** Noise attenuators should be provided to control sound entering and exiting the container.

VENTILATION AND AIR CIRCULATION

The system shall be designed to provide efficient air circulation with air inlet/outlet acoustic louvers. Here are the key features:

- **a) Adequate Ventilation:** Provide adequate ventilation to meet the air requirements for combustion and heat removal.
- **b) Temperature Control:** The temperature inside the enclosure should not exceed 40°C above ambient temperature under full load conditions when the ambient temperature under the shed is below 35°C. There should be no derating due to temperature under full (100%) load condition.

ELECTRICAL

- a) Earthing:** The earthing points shall be isolated through a DMC insulator mounted on the enclosure.
- b) Control Panel:** Mount the control panel inside the container itself. All parameters should be visible from outside and all push buttons easily accessible.

GENERAL

- a) Engine Warranty:** The engine should carry the engine manufacturer's warranty/guarantee for the DG set within the silent diesel generating set enclosure.
- b) Emergency Stop Button:** An emergency stop push button shall be provided outside the container.
- c) Noise Level Compliance:** The maximum sound pressure level shall be an average of 75 dB(A) at one meter from the enclosure under free field conditions at 75% load, as per CPCB-II Norms.

SECTION-V
AMF/Synchronizing panel

Supply, Erection, Testing & Commissioning of AMF Panel:

This document specifies the requirements for the supply, erection, testing, and commissioning of an Automatic Mains Failure (AMF) panel with auto-synchronization, auto load sharing, and load-dependent start/stop functionality for 750 kVA DG sets.

Panel Description:

- **Type:** Cubicle type, floor-mounted control panel with hinged doors.
- **Undrilled Bottom Gland Plate:** Allows for future cable entry customization.
- **Busbar:** Aluminum busbar with accommodation for:
 - Two incomers
 - Two outgoing feeders
- **Circuit Breakers:** 4-pole, 1250 A EDO type Automatic Circuit Breakers (ACBs) for each alternator with thermal overload and short-circuit protection.

Control and Monitoring System (Microprocessor-Based):

- **AMF/Synchronizing DG Set Controller Module:**
 - Includes supply failure timer, restoration timer, and 3-impulse automatic engine start/stop logic.
 - Monitors mains/generator voltage (436 V).
 - Provides bypass switch functionality and frequency sensing.
 - DG controller should meet DG set manufacturer's standard practices.
- **Engine Monitoring:** Monitors water temperature, lube oil pressure, engine speed, running hours, number of starts, faults, and alarms for:
 - Over/under speed
 - Fail to start
 - Low oil pressure
 - High engine temperature
 - Under/over voltage
 - Over current
 - Earth fault
- **Mains/Load Status Indication:** Displays mains on, load on mains, and battery charger status.

Push buttons:

- AMF module bypass mode selection
- Battery charger control (Auto/Manual & Flat/Boost)

DG Set Controller Features (Internal):

- Auto-synchronizing function ensures smooth paralleling of multiple generators.
- Auto load sharing automatically distributes load between DG sets.
- Load-dependent start/stop functionality starts and stops DGs based on real-time load demand (no external PLC required).

EDO Breakers:

- Capacity: Not less than 1250 A, 50 kA, suitable for 2 x 750 kVA DG sets with standard accessories.

Additional Information Required for Quotation:

1.0 Existing DG Set/Control Panel Details (Site Survey):

The following details are required from the existing DG sets and control panels before quoting:

- Engine Make/Model
- Alternator Make/Frame Size/kVA Rating
- Commissioning Date (Month/Year)
- Governor Type (Existing)
- AVR Type (Existing)
- DG Set Controller Make/Model (Existing)
- Panel Single Line Diagram (SLD) and Wiring Drawings
- Quantity and Type of ACBs used in Existing Panel

Cabling (Reference Only):

- Two incomers and two outgoing with armored copper control cables.
- Four (4) x 3.5 core x 300 sq. mm armored cables from each DG set to the AMF panel.
- Four (4) x 3.5 core x 300 sq. mm armored cables for each output from the AMF panel to Building Distribution Panels.

2.0 Construction:

- All dimensions are in millimeters (mm).
- Degree of Protection: IP54
- Danger Notice Board: Shall be provided.

Panel Sections:

The AMF panel shall have the following clearly identified sections:

- **Control & Monitoring Section**
- **Changeover & Power Section**

Panel Construction:

- **Main Switchboard Frame:** Fabricated from 2 mm thick CRCA sheet.
- **Base Frame:** Fabricated from 100 mm x 40 mm x 4 mm channel section, independent of the main panel.
- **Frame for ACBs, MCBs, Protection Relays, Contactors, Instruments, etc.:** Made from 2 mm thick CRCA sheet.
- **Partitions (Internal/External):** Made from 2 mm thick CRCA sheet.
- **Fixing Brackets for ACBs, Protection Relays, Contactors, Rectifiers, and Other Control & Monitoring Components:** Made from 3 mm thick CRCA sheet.
- **Doors:** Hinged type, made from 2 mm thick CRCA sheet.
- **Earthing Terminals:** Interconnected with 25 mm x 3 mm copper strip (4 Nos., 2 top + 2 bottom).
- **Gland Plate:** Made from 3 mm thick CRCA sheet.

Electrical Components:

- **Busbar:** Rated for 1.5 times the Full Load Current (FLC) and made from 99.9% pure, 100% conductivity electrolytic copper, tinned.
- **Riser Connections for ACB & Changeover ACB/MCCBs:** Rated for 50 kA breaking capacity.

Control Circuit:

- **Control Circuit Voltage:** 110 V, 50 Hz AC
- **Control Circuit Wiring:** 2.5 sq. mm PVC FRLS insulated copper wire.
- **Control Cable from DG Set to AMF & PCC:** 2.5 sq. mm or 4 sq. mm copper conductor armored (number of cores depends on control circuit and mounting requirements).

Panel Manufacturing Requirements:

- The panel manufacturer should have an in-house fabrication plant with CNC turret punching and NC bending machines.
- The manufacturer should have a 7-tank pre-treatment cleaning process and powder coating plant.
- If panel fabrication is outsourced, details of the subcontractor's manufacturing capabilities (including CNC equipment and pre-treatment process) should be included in the offer.

SECTION-VI
TECHNICAL DATA SHEET & DOCUMENTATION
(DOCUMENTS TO BE SUBMITTED WITH TECHNICAL BID)

1.0) DATA SHEET(Alternator)

Sr. No.	Details of Particulars	To be filled by Vendor
1.	Make:	
2.	Governing Specifications	
3.	Full load output in KVA	
4.	Ingress protection class of enclosure	
5.	Speed/Frequency	
6.	No .of phases	
7.	Is neutral brought out?	
8.	Voltage between phase/neutral	
9.	Regulation band of voltages	
10.	Short time overload at :110%load	
11.	Efficiency at 0.8p.f. at various loads	
12.	Exciter type	
13.	Three phase sustained short circuit current	
14.	AVR make, type &response time AVR shall be suitable for control from remote through push buttons.	
15.	Overall dimensions set (mm)	
16.	Weight of set overall(kg)	
17.	Headroom needed for lifting/ Servicing	
18.	Other features of Alternator which Are not covered above	

DATA SHEET-ENGINE

Sr.No.	DESCRIPTION	To be filled by Vendor
	GENERAL	
1.	Model no.	
2.	Manufacturer: Cummins/Caterpillar India/ Perkins/Volvo Penta	
3.	Number of cylinders	
4.	Bore/stroke	
5.	Displacement volume(cc)	
6.	Compression ratio/bmfp	
7.	Piston travel-continuous Speed	
8.	Continuous HP at max. Continuous rated speed.	
9.	Continuous max. Rated rpm	
12.	Normal working rpm	
FUELSYSTEM		
14.	Fuel consumption at 0.8powerfactor with	
a)	600KW/750KVA	
b)	400KW/500KVA	
c)	320KW/400KVA	
d)	200KW/250KVA	
15.	Fuel tank capacity	
LUBRICATION SYSTEM		
18.	Lube oil grade	
19.	Lube oil consumption	
20.	Lube oil filter - type and replacement period	
COOLINGSYSTEM		
21.	Type of mechanism of cooling	
AIRINLETSYSTEM		
	Air filter: type and replacement period	
22.	HP/WATTS absorbed by radiator fan	
EXHAUSTSYSTEM		
23.	Exhaust gas temperature At stack at full load	
24.	Maximum permissible exhaust back pressure at full load	
STARTINGSYSTEM		

25.	BATTERY a) Make b) Voltage grade c) Ah capacity d) Solenoid Starter Switch Make e) Whether suitable for 6 consecutive starts (yes/no)	
Cabling (specify cable sq.mm, no.of cores) All control cables of 2.5sq.mm. Copper armoured		
26.	Instrumentation system Make of level switch Make of pressure switch. Make of mechanical Hour meter/ Digital hour Meter Make of pressure gauge, temperature gauge and other gauges.	
27.	Noise level at 1m, 75db	
28.	Governor Type, make and tolerance	

Note:

1. Information/data marked as **To be filled by Vendor** shall be furnished by the bidder along with the offer. Failure to furnish data/information shall make the offer liable for rejection.
2. The bidder may supplement the data sheet to suit the particular design and model of engines offered and ensure that all relevant technical data and information are included in the data sheet.
3. Complete technical data on all auxiliary items such as governor, pumps, motors (if any), starting system, instrumentation and control system, etc. shall be included in the data sheet.
4. The material details for the above items as applicable shall also be furnished.
5. List of deviations if any, shall be furnished as per Annexure -I indicating respective clause no. & details of deviation thereof.

Approved Makes

Sl.No.	ITEM DESCRIPTION	MAKE
1	Engine	Cummins/Perkins/Caterpillar/Mitsubishi/Kirloskar/Baudouin/Mahindra
2	Alternator	Stamford/Leroy-Somer
3	Air circuit breaker	Havells/Schneider/L&T/ABB/SIEMENS
4	MCCB	Havells/Schneider/L&T/ABB/SIEMENS
5	Relays	AVK-SEGC/ABB/Teletechnique/L&T/Schneider
6	Power factor relay	Epcos/Ducati/Beluk/Enercon/Meher
7	Change over switch	HPL/Schneider/L&T/ ABB
8	Power contactors	L&T/ABB/SCHNEIDER/TELEMECHANIQUE
9	Instrument transformers	Kappa/Kalpa /Instrans/Voltamp
10	Capacitor banks with series reactor swith harmonic filters	Epcos/Ducati/Meher
11	LT panel fabrication including Busduct	Power Control Equipments/Lotus Powergear/CPRI Approved
12	Meters	Conserv/L&T/AE/El measure
13	Panel accessories/terminal block	As per manufacturer specified make
14	MCB/MCBDB	Legrand/Schneider/Havells/L&T/ABB
15	ELCB/ELMCB/RCBO	Legrand/Schneider/Havells/L&T/ABB
16	LT Cable	Poly Cab/Havells/KEI
17	End Termination Materials	Dowels/SMI/Wago
18	MS Powder coated Cable Tray	As per panel fabricator
19	PVC Conduits-FRLS	VIP/Avon/Precision/Universal
20	PVCWires&Flexible Cables - FRLS	Polycab/Havells/Anchor
21	Modular switches and socket	Anchor Woods/MK/Legrand/L&TOris
22	Industrial sockets	Legrand/L&T/ABB
23	Light fixtures-working area	Philips/Wipro/Thorn/GE
24	Light fixtures-decorative	Philips/Wipro/Thorn/GE
25	Street light pole	Klite/Shubham/Jindal
26	Glands-Single/Double Compression	Dowells
27	Aluminium/Copper Lugs	Dowells, Jainson
28	Aviation Light	Bajaj/ eq.
29	Surge Arrestors	L&T/ABB/OBO Betterman

9 **Bill of Quantities (BOQ)**

S.N o	Description	Quantity	Unit	Amount in Rupees
1.	<p>Supply, Installation, Testing and Commissioning 750KVA (CPCB-II) Diesel Generator set at Society for Biotechnology Incubation Centre Genome Valley, Hyderabad)</p> <p>Engine: Diesel generating set are rated at 1500 RPM and conform to ISO 8528 specifications. The engines are radiator cooled, four stroke and multi cylinder, conforming to ISO 3046. The scope of supply includes: Electrical starter motor, 12VDC Battery, charging alternator, Bosch fuel system with electronic governor, A1 Class. Spin-on lube oil filter, Spin-on dual fuel filter with water separator, Turbocharger, Charge air cooler, Silencer (Hospital grade), Dry type air cleaner, Shutoff coil, Flywheel and flywheel housing, First fill of lube oil and coolant, Safety for low lube oil pressure, Safety for high water temperature, Permissible overload of 10% for one hour in 12 hours of operation. Engine Displacement capacity greater than 30L. Minimum Engine block loading capacity should be 75%.</p> <p>(Make: Cummins/Perkins/Caterpillar/Mitsubishi/Kirloskar/Baudouin/Mahindra)</p> <p>Capacity of Fuel Tank: Fuel tank capacity shall be for 990 Ltrs already existing inside the canopy. Fuel tank connection to be completed with 32mm C class GI pipe with necessary fittings and valves.</p> <p>Alternator: Alternator is suitable for operation at 1500 RPM, 415 Volts, 0.8pf (lag) suitable for 50Hz, 3 phase, 4 wire systems, conforming to IS/IEC 60034-1. The Alternator is brushless type, screen protected, revolving field, self excited, self regulated through an AVR. The alternator shall have + 1.0 % Voltage regulation (max) in static conditions-IP:23 protections with insulation class H.</p> <p>(Make: Stamford/ Leroy-Somer)</p> <p>Mounting arrangement: Engine and alternator are mounted on a common MS fabricated base frame with AVM pads.</p> <p>Control Panel: The control panel is manufactured with 14/16 gauge CRCA sheet and is powder coated for weather-proof and long lasting finish. The control panel consists of the following parts:- PS0500 Controller, Aluminium bus bars with suitable capacity within/outgoing terminals, Indicating lamps for 'Load On' and 'Set Running', Instrument fuses duly wired and ferruled, MCCB of suitable rating with overload and short circuit protections.</p> <p>Genset Controller: Microprocessor based generator set monitoring and control system. The control provides</p>	1		

<p>asimple operator interface to the generator set, manual and remote start/ stop control, shutdown fault indication, and an LCD hour counter. The integration of all functions into a single control system provides enhanced reliability and performance compared to conventional generator set control systems. This control has been designed and tested to meet harsh environment in which gensets are typically applied. Features, Functions, protections 16 character x 2 line alphanumeric LCD display with LED Backlight.</p> <p>Operator interface: Provide a record of most recent fault conditions. Fault history stored in the control nonvolatile memory, Provide Alternator Data. Voltage (1 ph or 3 ph line to line and line to neutral voltage, Current (1 ph or 3 ph), kVA (3 ph and total), Frequency, Provide Engine Data, Starting battery voltage, Engine running hours, Engine Temp, Engine oil pressure, Control includes provision for Service adjustment and calibration of DG control functions, Voltage, frequency selection, Configurable input and output set up, Meter calibration, Engine controls, Power Start operates on 12 VDC batteries,- Auto start mode accepts a ground signal from remote devices to automatically start the DGset. The remote start will also wakeup the control system from sleep mode.</p> <p>Engine Starting: The control system supports automatic engine starting, Primary and back up start disconnects are achieved by battery charging alternator feedback or main alternator output frequency. Controller provide configurable time delay of 0-300 secs to start after remote start signal and time delay of 0-600secs prior to shut down after stop signal. Sleep mode increase battery life. Configurable current settings from low to minimize current draw when genset is not working. Engine Protective functions include, Configurable alarm output, Emergency stop: Annunciate whenever an emergency stop signal is received by the control. Low lube oil pressure warning and Shutdown, High engine water temp warning / Shutdown, Low coolant temp warning, Sensor failure indication, Low and high battery voltage warning, Weak battery warning, Fail to start shut down, Cracking lockout: Control will not allow the starter to engage or to crank the running engine. Cyclic cranking: Configurable for the number of starting cycle, (1 to 7) and duration of crank and rest periods.</p> <p>Alternator Protective functions includes, -High and low AC voltage shut down, Under and Over frequency shut down/ warning, Loss of sensing voltage input shutdown.</p> <p>Acoustic enclosure: The acoustic enclosure shall be made of 14/16 SWG thick CRCA sheets in suitable approved shade and a structural/ sheet metal base frame painted in black. The walls of the enclosure are insulated with fire retardant foam so as to comply with the 75dBA at 1 mtr sound levels specified by Ministry of Environment & Forest. The enclosure has the following features: Specially designed to meet stringent MOEF/ CPCB norms of 75dBA @ 1mtr at 75% load under free field conditions, Two point lifting for easy handling at customer site, Designed to have optimum serviceability, Air inlet louvers specially designed to operate at rated load made on special purpose CNC machines for consistency in quality and workmanship, Powder coated for long lasting service life and superior finish, With UV resistant powder coating, can withstand extreme environment. Use of special hardware for longer life, Insulation material meets exacting IS 8183 specifications for better sound attenuation, Flush styling- no projections, Fluid drains for lube oil and fuel, fuel tank, Fuel filling point inside the enclosure.</p>			
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2.	<p>Exhaust Pipe: Manufacture, Supply, Transportation, Installation, Testing and Commissioning of MS exhaust piping with rain water cap, bends&paintingwith2 coats of Heat resistance antirust poxy paint suitable to exhaust temperature. The sizes of the Exhaust piping shall be as per the manufacturers guidelines/recommendations.</p> <p>The exhaust pipe shall be with 50mm thick Glass wool insulation, covered with 26SWG Aluminium cladding for Exhaust piping.</p> <p>a)MS Exhaustpipe-12"withcladding (Make: Jindal, Tata) b)Y-Piece of Exhaust piping c)12"-Flexible Belows</p>	15	Mtrs	
3.	<p>Supply, fabrication and erection & Installation of MS support suitable for exhaust pipe, residential silencer, etc. using angles/channels, steel sections, UC lamps etc. complete with one coat of zinc chromate primer and 2 coats of black enamel paint.</p>	2000	kgs	
4.	<p>AMF cum Synchronizing panel: Supply, Erection, testing and commissioning of AMF cum Auto Synchronizing outdoor Panel with Auto Load Sharing, Auto Load Depended Start /Stop panel suitable for 750KVA DG set.</p> <ul style="list-style-type: none"> • The panel to be designed with two incomers and two outgoing breakers of 1600A 50KA ACB capacity (4 pole) and breaker 630A (3 pole) for synchronizing of 250 KVA DG. • Supply 1600A (4 pole) Bus coupler for EB incomer • Outdoor Panel of Free standing, Floor Mounting Cubicle with IP54 Protection <p>Approval shall be obtained for the panel design before manufacturing.</p> <p>(Relay Make: Wood ward/ AVK-SEGC/ABB/Teletechnique/L&T/Schneider, Breakers Make: Havells/Schneider/L&T/ABB/SIEMENS)</p>	1		
5.	<p>Supplying and making end termination with brass double compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminum conductor cable of 1.1 KV grade. 3½ X 300 sq. mm (70mm) (Make: Dowels, Jainson)</p>	4	Nos	
6.	<p>Providing and fixing G.I. tape 25mm X 3mm thick on parapet or surface of wall for lightning conductor complete as required. (For vertical run)</p>	25	Mtrs	
7.	<p>Neutral: Supplying and laying 50 mm X 5 mm COPPER strip at 0.50 meter below ground as strip earth electrode, including connection/ terminating with nut, bolt, spring, washer etc. as required. (Jointing shall be done by overlapping and with 2 sets of brass nut bolt & spring washer spaced at 50mm)</p>	30	Mtrs	
8.	<p>Body Earthing: Supplying and laying 50 mm X 5 mm G.I strip at 0.50 meter below ground as strip earth electrode, including connection/ terminating with G.I. nut, bolt, spring, washer etc. as required. (Jointing shall be done by overlapping and with 2 sets of G.I. nut bolt & spring washer spaced at 50mm)</p>	30	Mtrs	

9.	Extension of DG foundation bed as required 1 * 750 KVA including excavation, pcc and Cement concrete		sqm	
10.	Replacing 625KVA DG set with New 750KVA DG (On the foundation bed)			
11.	Providing Thermo-Mechanically Treated bars of grade Fe-500D or more Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position, binding and anchoring to adjacent members wherever necessary complete as per Design including cost of material, labour, usage charges complete as per specifications. (The laps and wastages shall not be measured separately)	600	Kg	
12.	Preparation of necessary drawings for DG Set, getting approval from the chief electrical inspectorate/ Electrical Board/ Pollution Control Board before taking up work and to furnish completion report, arranging for inspection, giving trial run on load, obtaining approval for commissioning the sets by paying necessary fees for inspection etc., as required.	1		
13.	Supply, Installation, Testing and commissioning of 1HP, 3 Phase Self priming flame proof, Floor mounted centrifugal pump with mounting accessories for the purpose oil filling into the DG sets oil tanks.	1		
			Total amount	