



SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, VISHNUPURI, NANDED, (M.S.)

TENDER DOCUMENT

Technical-Bid

Name of Work : **Providing Internal and External Electrical Installation, for Main Entrance Gate, Security booth for SRTMU, Nanded.**

Amount put to Tender : **Rs 8,93,905/-**

Document issued to :

Date of Issue :

Cost of Tender Form : **Rs. 590/-**

Contractor

Owner



**SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY,
VISHNUPURI, NANDED**
Re-Tender Notice (Elect./Estate) No.17-2025/2025-2026

RE-TENDER NOTICE

Online percentage rate tenders in B-1 form for the following work are invited by the Registrar, Swami Ramanand Teerth Marathwada University, Vishnupuri, Nanded, Phone No.(02462) – 229242, 229243 E-mail id: srtmunregistrar@gmail.com on Government of Maharashtra Electronic Tender Management System www.mahatenders.gov.in from the Electrical Contractors registered in appropriate class of Public Works Department in Maharashtra State or Central Public Works Department.

The details can be viewed and downloaded online directly from University Website.

| Sr. No. | Name of Work | Estimated Cost in Rs. | Earnest Money Rs. | Time limit completion (Days) | Cost of Blank Tender Form Rs. |
|---------|--|-----------------------|-------------------|------------------------------|-------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1. | Providing Internal and External Electrical Installation for Main Entrance Gate, Security booth for SRTMU, Nanded. | Rs 8,93,905/- | 8,939/- | 1 Month | 590/- |

For more details on the tender and bidding process you may please visit the above mentioned portal.

| Sr. No. | Stage | Start | | Expiry | |
|---------|--|------------|-------|------------|-------|
| | | Date | Time | Date | Time |
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1 | Tender Release | 13/03/2026 | 11:00 | 20/03/2026 | 17:00 |
| 2 | Tender Download | 13/03/2026 | 11:00 | 20/03/2026 | 17:00 |
| 3 | Bid Submission | 13/03/2026 | 11:00 | 20/03/2026 | 17:00 |
| 4 | Pre-Bid meeting to be held on date | ----- | ----- | ----- | ----- |
| 5 | Cover No. I (Technical Bid) Opening If Possible | 23/03/2026 | ----- | ----- | ----- |
| 6 | Cover No. II (Financial Bid) Opening If Possible | 24/03/2026 | ----- | ----- | ----- |

Note:

Contractor

Owner

1. The tender notice is available on website www.srtmun.ac.in of Swami Ramanand Teerth Marathwada University, Vishnupuri, Nanded
2. Undersigned reserves right to reject any or all tenders without assigning reason therefore.
3. It is mandatory for contactor to submit all the documents required in connection with this tender offline in two Envelopes system.
4. The offer shall remain open for acceptance for minimum period of 120 days from the date of opening of Envelope No.2.
5. Other terms and conditions can be seen in tender document.

Ref.: Estate/ Main Gate Electrical Work/Electrical Dept./Re-T-17-2025/527

Date: 24/02/2026

-Sd-
Registrar,
S.R.T.M. University, Nanded

Copy forwarded to :-

1. Notice Board
2. Sr. Programmer, Estate Department, This University – With a request to upload the said Tender Booklet on our University web site.



स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठ, नांदेड.

फेर-निविदा सुचना (विद्युत/संपदा) क्रं. १७-२०२५/सन

२०२५-२६

फेर-निविदा सुचना

कुलसचिव, स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठ, विष्णुपुरी, नांदेड, फोन नं. (०२४६२-२२९२४२, २२९२४३) हे विद्यापीठ परिसरातील खालील कामासाठी नोंदणीकृत विद्युत कंत्राटदारकडून ऑनलाईन निविदा मागवित आहेत.

| अ. क्रं. | कामाचे नाव | कामाची अदांजीत किंमत रूपये | कोच्या ई-निविदा संचाची किंमत रूपये | ईसारा रक्कम रूपये | कामाचा कालावधी |
|----------|--|----------------------------|------------------------------------|-------------------|----------------|
| १ | स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठाच्या मुख्य प्रवेशद्वार, सेक्युरिटी बुथचे विद्युतीकरण करणे. | ८,९३,९०५/- | ५९०/- | ८,९३९/- | एक महिना |

अटी व शर्ती

- कोरी निविदा, अटी व शर्तीसह विद्यापीठ संकेतस्थळावर पाहण्यासाठी व डाउनलोड करण्यासाठी उपलब्ध आहे. निविदा भरण्यापुर्वी निविदा संचाची किंमत व ईसारा (EMD) रक्कम कुलसचिव, स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठ, विष्णुपुरी, नांदेड यांचे नावे ऑन लाईन बँकींग (Online Banking) द्वारे भरणा करून त्याची प्रत निविदा भरतेवेळी अपलोड करणे अनिवार्य आहे.

| अ. क्रं. | तपशील | प्रारंभ | | अंतिम | |
|----------|-------------------------------------|------------|-------|------------|-------|
| | | दिनांक | वेळ | दिनांक | वेळ |
| १ | निविदा प्रकाशीत करणे | 13/03/2026 | 11:00 | 20/03/2026 | 17:00 |
| २ | निविदा विक्री (डाऊन लोड करणे.) | 13/03/2026 | 11:00 | 20/03/2026 | 17:00 |
| ३ | निविदा सादर करणे | 13/03/2026 | 11:00 | 20/03/2026 | 17:00 |
| ४ | निविदा पुर्व बैठक दिनांक | ----- | ----- | ----- | ----- |
| ५ | लिफाफा क्रं. १ उघडणे (शक्य झाल्यास) | 23/03/2026 | ----- | ----- | ----- |
| ६ | लिफाफा क्रं. २ उघडणे (शक्य झाल्यास) | 24/03/2026 | ----- | ----- | ----- |

- वरील कामाची निविदा सुचना स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठाच्या संकेतस्थळ www.srtmun.ac.in वर उपलब्ध आहे.

Contractor

Owner

३. सदर कामाची निविदा कोणतेही कारण न देता रद्द करण्याचे अधिकार खालील स्वाक्षरीतांकडे राखून ठेवलेले आहेत.
४. या निविदेतील कामाकरीता इसारा रक्कम, निविदा संचाची किंमत ऑन लाईन बॅकींगद्वारे भरावयाची आहे अन्यथा निविदा प्रक्रीयेत सहभागी होता येणार नाही.
५. निविदाकारांची निविदा संदर्भात मागविलेले सर्व दस्ताऐवज दोन लिफाफा पध्दतीने ऑफलाईन सादर करणे अनिवार्य राहिल.
६. ऑनलाईन निविदेतील दराची ग्राह्यता, त्या उघडल्यापासून १२० दिवसापर्यंत ग्राह्य राहिल.
७. इतर अटी व शर्ती निविदा नमुन्यामध्ये पहावयास मिळतील.

—स्वा—

कुलसचिव

स्वामी रामानंद तीर्थ मराठवाडा विद्यापीठ,
विष्णुपूरी, नांदेड

संदर्भ क्र.: संपदा/मेन गेट विद्युतीकरण/विद्युत विभाग/फेर—टी—१७—२०२५/५२७

दिनांक : २४/०२/२०२६

प्रत माहितीस्तव :-

१. नोटीस बोर्ड

२. सिनियर प्रोग्रामर, संपदा विभाग, प्रस्तुत विद्यापीठ इंटरनेट प्रसिध्दीसाठी

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, VISHNUPURI, NANDED (M.S.)

DETAILED TENDER NOTICE

1. The Registrar, Swami Ramanand Teerth Marathwada University, Nanded invites online percentage rate bids from Appropriate **Class Electrical Contractors** registered with the Maharashtra State P.W.D/ Other State P.W.D/ C.P.W.D/ M.E.S and Contractors of Reputed (CoR) in two bid system for the work of **“Providing Internal and External Electrical Installation for Main Entrance Gate, Security booth for SRTMU, Nanded”**

The enlistment of the contractors should be valid on the last date of submission of bids. In case the last date of submission of bid is extended, the enlistment of contractor should be valid on the original date of submission of bids.

1.1 The work is estimated to cost of **Rs. 8, 93,905/-** for Electrical Components.

1.1.1 The competent authority of S.R.T.M. University, Nanded approve for the combined cost and belonging to the major discipline will consolidate for calling the bids.

For composite bid, besides indicating the combined estimated cost put to bid, should clearly indicate the estimated cost of each component separately. The eligibility of bidders will correspond to the combined estimated cost of different components put to bid.

1.2 Intending bidder is eligible to submit the bid provided he has definite proof from the appropriate authority, which shall be to the satisfaction of the competent authority, of having satisfactorily completed similar works of magnitude specified below:-

1.2.1 (i) One similar works of each costing not less than **Rs 3 lacs**.

Similar single work’ shall mean work of “Internal Electrical Installation of Commercial / Educational building DB, main circuits, sub circuit point wiring lighting accessories etc, testing and commissioning, fixing of light, fabrication etc., External Electrical Installations, erection of panel (PCC /sub PCC) internal electrical installation including wiring of commercial complex with all require DB panel installation testing and commissioning etc. all composite under one agreement.

For the purpose, **“Cost of work”** shall mean gross value of the completed work including the cost of materials supplied by the Department but excluding those supplied free of cost. This should be certified by an officer not below the rank of Executive Engineer / Project Manager or equivalent.

Contractor

Owner

(ii) copy of Audited Balance Sheet of last three years from Chartered Accountant.

1.3 To become eligible for issue of bid, the bidders shall also have to furnish an affidavit as under on a non-judicial stamp paper worth Rs 500/- as under:

I/We undertake and confirm that eligible similar work(s) has/have not been got executed through another contractor on back to back basis. Further that, if such a violation comes to the notice of Department, then I/we shall be debarred from bidding in PWD/GSUDA/CPWD in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit and/or Performance Guarantee/Security deposit.

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

3. (i) The site for the work is available.

(ii) The SLD drawings are available. The Feeder panel drawings shall be made available in phased manner, as per the requirement of the same as per the approved program of completion submitted by the contractor after award of work.

4. The bid document consisting of plans, specifications, schedule of quantities of items to be executed and the set of terms & conditions of the contract to be complied with and other necessary documents except Standard General Conditions of Contract Form can be seen free of cost from University website www.srtmun.ac.in

5. After submission of the bid, the contractor can re-submit revised bid any number of times but before last time and date of submission of bid as notified.

6. While submitting the revised bid, contractor can revise the rate of one or more item(s) any number of times (he need not re-enter rate of all the items) but before last time and date of submission of bid as notified.

7. The Mode of Payment towards Cost of the **Tender Document Fee, EMD**: To be paid through DD from a nationalized bank /University Cash receipt, In the name of Finance and Accounts Officer, S.R.T.M. University, Nanded.

8. The intending bidder must read the terms and conditions of the tender carefully. He should only submit his bid if he considers himself eligible and he is in possession of all the documents required.

9. Interested contractors who wish to participate in the tender has also to make following payment within the period of bid submission in the form of:

Contractor

Owner

- (i) Cost of Tender Fee – Rs. 590/- offline.
 - (ii) EMD of Rs. 8,939 /- offline.
-
- 10. Contractor must ensure to quote rate of each item. The column meant for quoting rate in figures appears in pink color and the moment rate is entered it turns sky blue. In addition to this, while selecting any of the cells a warning appears that if any cell is left blank the same shall be treated as 'O'(zero). Therefore, if any cell is left blank and no rate is quoted by the bidder, rate of such item shall be treated as 'O' (zero).
 - 11. The eligibility bid shall be opened first on due date and time as mentioned in Tender notice.
 - 12. If any discrepancy is noticed in the documents as uploaded at the time of submission of bid and those verified by Executive Engineer, Swami Ramanand Teerth Marathwada University, Nanded from the individuals, employers, firms and corporation etc the department may not only reject the bid but also take action to recommend and withdraw the enlistment and debar the bidder from tendering in PWD or any other Department”.
 - 13. A Security Deposit of Rs. 4% will be taken (2% as initial SD + 2% from I RA Bill). And additional performance security will be deposited by the tenderer as per government circular no-sankirna-2017/C.R.121(Part-II)/Building-2 Dated 19 September 2017.
 - 14. Intending Tenderers are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their tenders as to the nature of the ground and sub-soil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their tender. A tenderer shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The tenderer shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a tender by a tenderer implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the Government and local conditions and other factors having a bearing on the execution of the work.

15. The competent authority on behalf of Swami Ramanand Teerth Marathwada University, Nanded does not bind itself to accept the lowest or any other tender and reserves to itself the authority to reject any or all the tenders received without the assignment of any reason. All tenders in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the tenderer shall be summarily rejected.
16. Canvassing whether directly or indirectly, in connection with tenderers is strictly prohibited and the tenders submitted by the contractors who resort to canvassing will be liable to rejection.
17. The competent authority on behalf of Swami Ramanand Tirth University Nanded reserves to himself the right of accepting the whole or any part of the tender and the tenderer shall be bound to perform the same at the rate quoted.
18. The contractor shall not be permitted to tender for works in the Swami Ramanand Teerth Marathwada University, Nanded responsible for award and execution of contracts, in which his near relative is posted a Divisional Accountant or as an officer in any capacity between the grades of Superintending, Executive Engineer and Junior Engineer (all inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any gazette officer in the SRTMUN department. Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of this Department.
19. No Engineer of gazetted rank or other Gazetted Officer employed in Engineering or Administrative duties in an Engineering Department of the Government of Maharashtra Ramanand Teerth Marathwada University, Nanded is allowed to work as a contractor for a period of two years after his retirement from Government service, without the previous permission of the Government of Maharashtra in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found any time to be such a person who had not obtained the permission of the Government of Maharashtra as aforesaid before submission of the tender or engagement in the contractor's service.
20. **THE LIST OF DOCUMENT TO BE SCANNED AND UPLOADED WITHIN THE PERIOD OF BID SUBMISSION.**
 - a) Tender cost fee Paid receipt/DD.
 - b) EMD Paid receipt/DD.
 - c) Electrical Contractor valid License, PWD/CPWD/MES class B registration certificate.
 - d) Certificate of Registration of GST and acknowledgement of up to date filed return
 - e) Certificate of financial turn over from chartered accountant (Form – A)

Contractor

Owner

- f) Power of attorney if any.
 - g) Details of technical & administrative personnel.(Form G)
 - h) Details of Electrical equipment.
 - i) Calculation of bidding capacity.
 - j) An affidavit duly notarized to the effect that the bidder has not been black listed by any State/Central Department or PSU or Autonomous bodies.
 - k) In the event that the applicant has no litigation either in process or in past seven years then the applicant must submit an affidavit duly notarized to the effect that the bidder does not have any litigation in process. Otherwise the applicant must submit information of ongoing litigations and litigations had in past seven years.
 - l) Any other document specified in the press notice.
 - m) An Affidavit stating that Rates Quoted are inclusive of GST.
 - n) Work experience certificate showing experience in similar work
21. The bid for the works shall remain open for acceptance for a period of **120** days from the date of opening of tenders from the date of opening of financial bid in case tenders are invited on 2 bid system if any tenderer withdraws his tender before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms and conditions of the tender which are not acceptable to the department, then the Government shall, without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money as aforesaid. Further the tenderer shall not be allowed to participate in the retendering process of the work.
22. This notice inviting Tender shall form a part of the contract document. The successful tenderer / contractor, on acceptance of his tender by the Accepting Authority shall within 15 days from the stipulated date of start of the work, sign the contract consisting of:-
- a) The Notice Inviting Tender, all the documents including additional conditions, specifications and drawings, if any, forming part of the tender as uploaded at the time of invitation of tender and the rates quoted online at the time of submission of bid and acceptance thereof together with any correspondence leading thereto.
 - b) Standard C.P.W.D. Form **8** or other Standard C.P.W.D/PWD. Form as mentioned with upto date correction slips.
23. For Composite Bids (As applicable in the present bid)
- 23.1 The Registrar SRTMUN will call bids for the composite work. The Earnest Money will be fixed with respect to the combined estimated cost put to bid for the composite bid.
- 23.2 The bidders must associate himself, with CPWD/PWD registered agencies of the appropriate class eligible to bid for each of the minor component individually as well as non CPWD/PWD Electrical contractor. The association of electrical contractors from MES and state PWD by Electrical contractor shall be allowed The eligibility criteria for these non CPWD/PWD contractors shall be same as mentioned above.

- 23.3 The eligible bidders shall quote rates for all items of major component as well as for all items of minor components of work.
- 23.4 After acceptance of the bid by competent authority, the Swami Ramanand Teerth Marathwada University, Nanded shall issue letter of award. After the work is awarded, the main contractor will have to enter an agreement with Ramanand Tirth University Nanded and has also to sign two or more copies of agreement depending upon requirement.
- 23.5 Entire work under the scope of composite bid including major and all minor components shall be executed under one agreement.
- 23.6 Security Deposit will be worked out separately for each component corresponding to the tendered amount of the respective component of works.
- 23.7 The main contractor should either himself meet the eligibility criteria as defined in the bid document at Para 1. 2 on page 6 or the main contractor has to associate agency(s) for E&M packages (minor component (s) after award of work, and has to submit detail of such agency (s) conforming to eligibility criteria as defined in the bid document in form "J" to Engineer-in-charge of minor component(s) within prescribed time. Name of the agency(s) to be associated shall be approved by Engineer-in-charge of minor component(s).
- 23.8 In case the main contractor intends to change any of the above agency/agencies during the operation of the contract, he shall obtain prior approval of Engineer-in-charge of minor component. The new agency/agencies shall also have to satisfy the laid down eligibility criteria. In case Engineer-in-charge is not satisfied with the performance of any agency, he can direct the contractor to change the agency executing such items of work and this shall be binding on the contractor.
- 23.9 The main contractor has to enter into agreement with the contractor(s) associated by him for execution of minor components(s). This agreement must contain terms and conditions of payment between the main contractor and associate contractor. Copy of such agreement shall be submitted to EE in charge of each minor component as well as to EE in charge of major component. In case of change of associate contractor, the main contractor has to enter into agreement with the new contractor associated by him with prior approval of Engineer-in-charge concerned.
- 23.10 running payment for the major component shall be made by EE in charge of major discipline to the main contractor. Running payment for minor components shall be made by the Engineer-in- charge of the discipline of minor component directly to the main contractor. In case main contractor fails to make the payment to contractor associated by him for minor component within 15 days of receipt of each running account payment

Contractor

Owner

then on the written complain of the contractor associated for such minor component , the Executive Engineer in charge of minor component shall serve show cause notice to main contractor and after considering the reply of the same he may make payment directly to the contractor associated for minor component as per terms and conditions of the agreement drawn between main contractor and the associated contractor for the minor component.

23.11.1 The composite work shall be treated as complete when all the components of the works Are complete. The completion certificate of the composite work shall be recorded by Engineer in charge of major component after record of completion certificate of all other components of minor components of the work.

23.11.2 Final bill of wole work shall be finalized and paid by the Member of major component Engineer in charge of minor components will prepare and pass the final bill for their component of work and pass on the same to the Member of major component for including in the final bill for composite contract.

23.12 In case any discrepancy is noticed between the documents as uploaded at the time of submission of the bid online and hard copies as submitted physically in the office of Member of SRTMU, by the lowest bidder, then the bid submitted shall become invalid and the Swami Ramanand Teerth Marathwada University, Nanded shall, without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money as aforesaid. Further the tenderer shall not be allowed to participate in the retendering process of the work.

For & on behalf of the Swami Ramanand Teerth Marathwada University, Nanded

Signature

Registrar

Contractor

Owner

MEMORANDUM

A .if several sub works are included by should be detailed in separate list

Name of Work: Providing Internal and External Electrical Installation for Main Entrance Gate, Security booth for SRTMU, Nanded.

B) Estimated cost. **Rs. 8,93,905/-**

A) C) The amount of earnest money to be deposited shall be in accordance with Provision of paras 206 and 207 of the M.P.W. manual

a) Earnest Money 1%. **Rs. 8,939/-**

D) This deposit shall be in accordance with Paras 231 and 214 of the M. P.W. manual

a) Security Deposit (4 % of the contract value)

i) Cash (2 % of the contract value) **Rs. 17,878/-**

ii) Balance amount 2 % of the contract value)

Form IST R. A. Bill **Rs. 17,878/-**

Total Rs. 35,756/-

E) Give schedule where necessary showing dates by which the various items are to be completed

a) Time allowed for the work from the date of written order to commence (90 day)

2) I/We agree the offer shall remain open for acceptance for a minimum period of 120 days from the date fixed for opening the same and thereafter until it is withdrawn by me as by notice duly addressed to authority opening the tenders and sent by reregistered Post AD or otherwise delivered at the office of such authority.

DD Deposit receipt

Receipt No. -----date -----

in respect of the sum of Rs. _____/- (Rs. _____only)

Contractor

Owner

representing the earnest money is here with forward. The amount of earnest money shall not bear interest and shall be liable to forfeited to the University should

I/We fail to:

- i) Abide by the stipulation to keep the offer open for the period mentioned above or
- ii) Sign and complete the contract documents as required by the Engineer & furnish the security deposit as specified in item (d) of the memorandum contained in paragraph I above within the time limit laid downing cause (1) of the annexed general condition of contract. The amount of earnest money may be adjusted towards the security deposit or refunded to me/us if so desired by me/us in writing unless the same or any part thereof has been forfeited as aforesaid.

3 I/ We have secured exemption from payment of earnest money after executing the necessary in favor of the Govt. a true copy of which is enclosed herewith should any occasion for forfeiture of earnest money of this work arise due to failure on my our part to (i) abide by the stipulations to keep the offer open the period mentioned above or (ii) sign and complete the contact documents & furnish the security deposit as specified in item (D) of the annexed General Conditions of Contract, the amount payable by me us may at the option of the Engineer, be received out of the amount deposited in lampoon for securing exemption I in so far as the same may extend in term of the said bond and in the event of the deficiency out of any other contract or transaction of any nature whatsoever or otherwise.

4 Should this tender be accepted I. We hereby agree to abide by and fulfill all the terms, and provisions of the conditions of contract annexed here to so far as applicable and in default there as to forfeit any pay to University the sum of money mentioned in the said conditions.

Deposit Receipt No. -----Dated -----form the Bank at -----
 in respect of the sum of sum of Rs.----- (.....) -----
 ---- specified in the above memorandum in accordance with clause is herewith forwarded representing the earnest money (a) the value of which is to be absolutely forfeited to the University should I/ We not deposit the full amount of security deposit in (*strike out (a) if no cash security deposit is to be taken)

Declaration by the Contractor

Name of Work : _____

I/We hereby declare that I/We have made myself/ourselves thoroughly conversant with the local conditions regarding all material and labour on which I/We have based my/our rates for this work have been carefully studied & understood by me/us before submitting this tender. I/We undertake to use only the best materials approved by the consultant/Executive Engineer SRTMUN or his duly authorized assistants before starting the work and abide by the decision.

Signature of Contractor.

Contractor

Owner

PERFORMANCE GUARANTEE

In consideration of the SWAMI RAMANAND TEERTH UNIVERSITY,NANDED District Nanded having agreed to purchase from

.....a company/Society/Partnership/Firm carrying on business of

Act/Shri. sole

Proprietor of and having its/their registered office at

(Hereinafter referred to as “the contractor/s”)

The completed work of Providing Internal Electrical Installation to Central Instrumentation Centre and Power Supply arrangement through Transformer at S.R.T.M. University, Vishnupuri, Nanded (M.S)

(hereafter referred to as “the said CIC Project Work”) on the terms and conditions in the tender submitted by the Contractor/s under his/its/their letter No. dated the day of 2025 and accepted by the SRTMU Nanded by its letter No. dated the 2025 addressed to the Contractor/s (hereinafter referred to as “the said Agreement”) Providing, inter alia, that the Contractor’s shall furnish to the SRTMU Nanded a Bank Guarantee from any Scheduled Bank in India in the sum of Rs. (Rupees) only as security for due observance and performance by the Contractor’s of the terms and conditions of the said Agreement, the contractor/s hereby furnishes to the SRTMU Nanded a Bank Guarantee from a Scheduled Bank in India in the like amount in the manner hereinafter contained.

1) We the undersigned Incorporated Under the act and having one of our local offices at Contractor Owner

..... do hereby Guarantee to the Swami Ramanand Teerth Marathwada University, Nanded

a) Due performance and observance by the Contractor's of all terms and conditions of the said Agreement to be observed and performed by the contractor/s including the covenant by the contractor/s to duly carry out and make good the defect in the said instruments which may be found during the warranty period on account of faulty materials or parts used in the said instrument/s or defective workmanship and/ or any deviation from the approved design or any other cause whatsoever.

b) Due and satisfactory performance of the said instruments including maintenance and repairs thereof during the warranty period of 12 months from the date of purchase.

c) Due and punctual payment by the Contractor/s to the Swami Ramanand Teerth Marathwada University, Nanded of all sums of money losses, damages, costs, charges, penalties and expenses that may become due or payable to the Swami Ramanand Teerth Marathwada University, Nanded by or from the Contractor/s by reason of or in consequence of any breach, non-performance conditions of the said Agreement.

2. AND WE do hereby agree and undertake that we shall pay to the Swami Ramanand Teerth Marathwada University, Nanded forthwith on demand an amount not exceeding Rs. (Rupees) only or such lesser sum as may be demanded by the Swami Ramanand Teerth Marathwada University, Nanded from us as and by way of indemnity on account or any loss.

d) We shall not be released or discharged from the liability under this Guarantee by reason of

i) Any change in the constitution of the Bank or of the Contractor/s.

Contractor

Owner

- ii) Any arrangement made between the Swami Ramanand Teerth Marathwada University, Nanded and the Contractor/s with or without our consent.
 - iii) Any forbearance or indulgence shown to the Contractor/s.
 - iv) Any variation in the terms, covenants or conditions contained in the said Agreement.
 - v) Any time given to the Contractor/s or
 - vi) Any other conditions or circumstance under which in law a surety would be discharged.
- e) Our liability hereunder shall be joint and several with that of the Contractor/s as if we were the Principal debtors in respect of the amount so ascertained as aforesaid and
- f) We shall not revoke this guarantee during its currency except with the previous consent in writing of the Swami Ramanand Teerth Marathwada University, Nanded, PROVIDED ALWAYS the notwithstanding anything herein before contained, our liability under this Guarantee shall be limited to the said sum of Rs. (Rupees) only and shall remain in force until the day of 2025 or damage caused to or suffered by the Swami Ramanand Teerth University Nanded by reason of any breach, non-performance or default by the Contractor/s of the terms, covenants and conditioned in the said Agreement including the aforesaid covenant for satisfactory performance of the said instruments, repairing and making good any part of the said instrument/s which is found to be defective during the warranty period and/or of the due and punctual payment by the contractor/s to the Swami Ramanand Teerth Marathwada University, Nanded of all sums of money losses, damages costs, charges and expenses that may become due and payable by the

Contractor/s to the Swami Ramanand Teerth Marathwada University, Nanded under the said Agreement

3. AND WE HEREBY further agree that

- a) The..... demand.....made by the chairman for and on behalf of the Swami Ramanand Teerth Marathwada University, Nanded shall not dispute our liability as to the amount or raise any objections on the ground that the contractor/s has/have not committed any breach or default of the said terms and covenants and conditions of the said Agreement or any other ground whatsoever.
- b) This guarantee shall be valid for the entire period which the said Agreement is in operation including the warranty period specified for the said instruments
- c) The Guarantee shall continue to be enforceable till all the dues of Swami Ramanand Teerth Marathwada University, Nanded under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till the chairman for and on behalf of the Swami Ramanand Teerth Marathwada University, Nanded certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the Contractor/s and accordingly discharges the guarantee.

AND

Unless a demand or claim under this Guarantee is made on us in writing on/or before theday of2025 we shall be discharged from all liability under this Guarantee thereafter.

Contractor

Owner

IN WITNESS WHEREOF THE COMMON SEAL OF _____

bank

has been hereinto affixed this _____ day of _____. The Common seal of

_____ Bank was pursuant to the resolution of its Boards of Directors

passed at its meeting duly convened presence of

being _____ respectively

_____ of the Bank

who in token thereof have hereto set respective hands in the Agreement.

Contractor

Owner

CONDITIONS OF CONTRACT

THE CONDITION HERE IN BEFORE REFERRED TO

1. INTERPRETATION: -

In constructing these condition, and the specifications schedule of portable quantities and contract agreement, the following words shall have the meaning herein assigned to them except where the subject or context otherwise requires.

- i) 'Owner'/'Employer' shall Swami Ramanand Teerth Marathwada University, Vishnupuri, Nanded **District Nanded**, and shall include its assign/s or successor/s.
- ii) **Consultant** : The term consultant shall mean **M/S Suitanable Design Solution (SDS), Nanded. ON THE BEHALF OF ARCHITECTS** Electrical consultant in the event of his ceasing to be the consultant for the purpose of this contract such other person/s as the owner/employer shall nominate for the purpose.
- iii) 'Contractor' shall mean and shall include M/s. -----
----- its assign/s or successor/s and all present partners, the partners for the time being of the contractors.

'Site' shall mean the site of the contract works, shown on site plan including any building and erections thereon and any other land (inclusively) **Providing Internal and External Electrical Installation for Main Entrance Gate, Security booth for SRTMU, Nanded.**
as aforesaid allotted by the owner.

- v) 'This Contract' shall mean the conditions, Special Conditions, Annexure, the Appendix, the Schedule of Probable Quantities, Specification and mode of Measurements, drawings and time schedule, attached here to and duly signed.
- vi) 'Notice in Writing' or written notice shall mean a notice in written, typed or printed characters sent (unless delivered personally or otherwise proved to have been received) by registered post to the addressee and shall be deemed to have been received when in the ordinary course of post it would have been delivered.
- vii) Drawings: - The work is to be carried out in accordance with drawing, specifications, the schedule of quantities and any further drawings which may be supplied or any other instruction, which may be given by the Employer during the execution of the work.

All drawings relating to work given to the contractor together with a copy of schedule of quantities whenever necessary.

In case any detailed drawings are necessary contractor shall prepare such detailed drawings and/or dimensional sketches thereof and have it confirmed by the Employer/Consultant prior to taking up such work.

After completion of the work, the Contractor has to submit the detailed Drawing regarding point wiring, Power wiring & fixtures including circuit diagram.

The contractor shall ask in writing for all clarifications on matters occurring anywhere in drawings, specifications and schedule of quantities or to additional instructions at least 10 days ahead from the time when it is required for implementation so that the Employer may be able to give decision thereon.

viii) The Schedule of quantities/Bill of Quantities - shall mean the schedule of quantities as specified and forming part of this tender.

Security
Deposit

Clause-1: The person/persons whose tender may be accepted (hereinafter called the contractor, which expression shall unless excluded by or repugnant to the context include his heirs, executors, administrators, and assignee) shall (A) within ten days, (which may be extended by the owner/Swami Ramanand Teerth Marathwada University, Nanded up to fifteen days if the owner/SRTMU thinks fit to do so) of the receipt by him of the notification of the acceptance of his tender, deposit with the owner in cash the sum sufficient to make up the initial security deposit specified in the tender. Total security deposit as indicated in memorandum is 4% of the accepted tender amount or the cost of work whichever is higher. This includes initial security deposit mentioned above. The balance security deposit will be recovered from first running bill of the contractor.

If the amount of the security deposit to be paid in a lump sum within the period specified at (A) above is not paid the tenderer /contract or already accepted shall be considered as cancelled and legal steps taken against the contractor for recovery of the amount. 50% of the amount of the security deposit lodged by a contractor shall be refunded along with the payment of the final bill. Balance 50% of the amount of security deposit retained by the owner/ Swami Ramanand Teerth Marathwada University, Vishnupuri, Nanded shall be released after 12 months from the date of completion of the work (i.e. the maintenance period). In the event of the contractor failing or neglecting to complete rectification work within the period up to which the contractor has agreed to maintain the work in good order, then subject to provisions of clause 17 and 20 hereof the amount of security deposit retained by the owner shall be adjusted towards the excess cost incurred by the owner on rectification work. Additional S. D. if any shall be released along with final bill.

Compensation
for delay.

Clause-2: The time allowed for carrying out the work as entered in the tender shall be strictly observed by the contractor and shall be reckoned from the date on which the order to commence work is given to the contractor. The work shall throughout the stipulated period of the contract be proceeded with all due

Contractor

Owner

diligence (time being deemed to be the essence of the contract on part of the contractor) and the contractor shall pay as compensation amount equal to one percent of such smaller amount as the Consultant (whose decision in writing shall be final) may decide, of amount of the estimated cost of the whole work as shown by the tenderer for everyday that the work remain un-commenced or unfinished after the proper dates and further to ensure good progress during executing of the work the Contractor shall be bound, in all cases in which the time allowed for any work exceeds one months to complete.

| | |
|------------------|---------------|
| ¼ of the work in | ¼ of the time |
| ½ of the work in | ½ of the time |
| ¾ of the work in | ¾ of the time |

Full work will be completed in full time including monsoon period.

In the event of the contractor failing to comply with these conditions he shall be liable to pay as compensation an amount equal or such smaller amount as the consultant (whose decision in writing shall be final) may decide of the said estimated cost of the whole work for every day that the due quantity of work remains incomplete provided always that the total amount of compensation to be paid under the provisions of this clause shall not exceed 10 percent of the estimated cost of the work as shown in the tender.

Action when whole security deposit is forfeited.

Clause-3: In any case in which under any clause of this contract the contractor shall have rendered himself liable to pay compensation amounting to the whole of this security deposit (whether paid in one sum or deducted by installments) or in the case of abandonment of the work owing to serious illness or death of the contractor or any other cause the Building and Works Committee, SRTMUN on behalf of the owner shall have power to adopt any of the following courses, as he may deem best suited to the interest of the owner.

a) To rescind the contract (for which rescission notice in writing to the contractor under the hand of Chairman shall be conclusive evidence) and in that case the security deposit of the contractor shall stand forfeited and be absolutely at the disposal of the owner.

b) To carry out the work or any part of the work departmentally debiting the contractor with the cost of the work, expenditure incurred on tools and plant and charges on additional supervisory staff including the cost of work-charges establishment employed for getting unexecuted part of the work completed and crediting him with the value of the work done departmentally in all respects in the same manner and at the same rates as if it had been carried out by the contractor under the terms of his contract. The certificate of the Consultant/Executive Engineer as to the cost and other allied expenses so incurred and as to the value of the work so done departmentally shall be final and conclusive against the contractor.

Contractor

Owner

c) To order that the work of the contractor be measured up and to take such part thereof as shall be unexecuted out of his hands, and to give it to another contractor to complete, in which case all expenses incurred on advertisement for fixing in a new contracting agency, additional supervisory staff including the cost of work charged establishment and the cost of the work executed by the contract agency will be debited to the contractor and the value of the work done or executed through the new contractor shall be credited to the contractor in all respects and in the same manner and at the same rates as if it had been carried out by the contractor under the terms of his contract. The certificate of the consultant/Executive Engineer as to all the cost of the work and other expenses incurred as aforesaid for or in getting the unexecuted work done by the new contractor and as to the value of the work so done shall be final and conclusive against the contractor.

In case the contract shall be rescinded under clause (a) above the contractor shall not be entitled to recover or be paid any sum for any work there for actually performed by him under this contract unless and until the Consultant shall have certified in writing the performance of such work and the amount payable to him in respect thereof and he shall only be entitled to be paid the amount so certified. In the event of either of the courses referred to in clause (b) or (c) being adopted and the cost of the work executed departmentally or through a new contractor and other allied expenses exceeding the value of such work credited to the contractor, the amount of excess shall be deducted from any money due to the contractor by Government under the contract or otherwise how so ever or from his security deposit or the sale proceeds thereof provided however that the contractor shall have no claim against the owner/ Swami Ramanand Teerth Marathwada University, Nanded even if the certified value of the work done departmentally or through a new

contractor exceeds the certified cost of such work and allied expenses, provided always that the whichever of the three course mentioned in clause (a) (b) or (c) is adopted by the owner/ Swami Ramanand Teerth Marathwada University, Nanded, the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased, or procured any materials, or entered into any engagements or made any advances on account of, or with a view to the execution of the work or the performance of the contract.

Action when the progress of any particular portion of the work is unsatisfactory.

Clause-4: If the progress of any particular portion of the work is unsatisfactory, the owner shall notwithstanding that the general progress of the work if in accordance with the conditions mentioned in clause 2 be entitled to take action under clause 3(b) after giving the contractor 10 days notice the writing. The contractor will have no claim for compensation, for any loss sustained by him owing to such action.

Contractor remains liable Contractor

Clause-5: In any case in which any of the powers conferred upon the owner/ Swami Ramanand Teerth Marathwada University, Nanded by clause 3 and 4
Owner

to pay
compensation
if action not
taken under
clause 3 and 4.

hereof shall have become exercisable and the same shall not have been exercised, the non-exercise thereof shall not constitute a waiving of any of the conditions hereof and such powers shall notwithstanding be exercisable in the event of any future case of default by contractor for which under any clauses hereof he is declared liable to pay compensation amounting to the whole of his security deposit and liability of the contractor for past and future compensation shall remain unaffected. In the event of the owner SRTMUN taking action under sub-clause (a) or (c) of clause 3, he may if he so desires, take possession of all or any tools and plant, materials and stores in or upon the work or the site thereof or belonging to the contractor or procured by him & 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 Consultant/Executive Engineer whose certificate thereof shall be final. In the alternative the owner, may after giving notice in writing to the contractor or his clerk of the work, 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 owner SRTMUN 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 Consultant 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.

Extension of
time.

Clause-6: If the contractor shall desire an extension of the time for completion of work on the ground of his having been unavoidably hindered in its execution or on any other ground he shall apply in writing to the owner before the expiration of the period stipulated in the tender or before the expiration 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 owner/Swami Ramanand Teerth Marathwada University, Nanded if in his opinion, there were reasonable grounds for granting an extension, grant such extension as he thinks necessary or proper. The decision of the owner in this matter shall be final.

Final
Certificate

Clause-7: On the completion of the work the contractor shall be furnished with a certificate by the Consultant/Executive Engineer 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 off, the dirt from all woodwork, doors, windows, walls, 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 or until the work shall have been measured by the Consultant/Executive Engineer or where the measurements have been taken by his subordinates until they have received approval of the Consultant/Executive Engineer the said measurements being binding and

Contractor

Owner

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 of dirt on or before the date fixed for the completion of the work the owner/ Swami Ramanand Teerth Marathwada University, Nanded may at the expense of the contractor, remove such scaffolding, surplus material and rubbish, and dispose of the same as he thinks fit and clean off such dirt aforesaid and the contractor shall forthwith pay the amount of all expenses so 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.

Payment on Intermediate certificate to be regarded as advance.

Clause-8: No payment shall be made for any work, estimated to cost less than rupees one thousand till after the whole of work shall have been completed and certificate of completion given but in the case of work estimated to cost more than rupees one thousand the contractor shall, on submitting a monthly bill there for be entitled to receive payment proportionate to the part of the work then approved and passed by the Consultant/Executive Engineer , whose certificate of such approval and passing of the sum so payable shall be final and conclusive against the contractor. All such intermediate payments shall be regarded as payments by way of advance against the final payment only and not as payments for work actually done and completed and shall not preclude the Owner/ Swami Ramanand Teerth Marathwada University, Nanded or Consultant 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 of the due performance of the contract or 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 Owner as to the final settlement of the accounts, or otherwise, or in any other way vary or affect the contract. The final bill shall be submitted by the contractor within one month or the date fixed for the completion of the work, otherwise the Consultant's certificate of the measurements and of the total amount payable for the work shall be final and binding on all parties.

Payment at reduced rates on account of items of work not accepted as completed to be at the discretion of the Consultant.
Bills to be submitted monthly.

Clause-9: The rates for several items of works estimated rates to cost more than Rs. 1,000/- agreed to within shall be valid only when the items concerned is accepted as having been completed fully in accordance with the sanctioned specification. In cases where the items of work are not accepted as so completed the Consultant/Executive Engineer may recommend payment on account of such item at such reduced rates as he may consider reasonable in the preparation of final or on account bill.

Clause-10: A bill shall be submitted by the contractor each month on or before the date fixed by the owner for all work executed in the previous month, and the consultant shall take or cause to be taken the requisite measurement for the purpose of having the same verified, and the claim, so far as if is admissible, shall be adjusted, if possible within ten days from the presentation of the bill.

Contractor

Owner

If the contractor does not submit the bill within the time fixed as aforesaid, the owner may depute a subordinate to measure up the said work in the presence of the contractor or his duly authorized agent whose counter signature to the measurement list shall be sufficient warrant, and the owner may prepare a bill from such list which shall be binding on the contractor in all respects subject to a certificate by the Consultant.

Bill to be on printed form.

Clause-11: The contractor shall submit all bills duly typed in a form used in P.W. Department of Government of Maharashtra for such type of tender work.

The charges to be made in the bills shall always be entered at the rates specified in tender or in the case of any extra work ordered in pursuance of these conditions, and not mentioned or provided for in the tender at the rates hereinafter provided for such work.

Stores supplied by the University.

Clause-12: If the specification or estimate of the work supplied provides for the use of any special description of materials to be supplied from the store of the owner/ Swami Ramanand Teerth Marathwada University, Nanded or if it is required that the contractor shall use certain stores to be provided by the owner (such material and stores and the price to be charged there for as hereinafter mentioned being so far as practicable for the convenience of the contractor but not so as in any way to control the meaning or effect of his contract specified in the schedule or memorandum hereto annexed) the contractor shall be supplied with such materials and store as may be required from time to time to be used by him for purpose of contract only and the value of full quantity of the material and stores, so supplied shall be set off or deducted from any sums then due, or thereafter to become due to the contract under the contract, or otherwise or from the security deposit. All materials supplied to the contractor shall remain the absolute property of the owner and shall on no account be removed from the site of the work and shall at all times be open for inspection by the owner's representative. Any such material unused and in perfectly good condition at the time of completion or determination of the contract shall be returned to the owner's store, if the owner so requires by a notice in writing given under his hand, and he shall have no claim for compensation on account of any such material supplied to him as aforesaid but remaining unused by him or for any wastage in or damage to any such materials.

Clause-12(A): All stores of material supplied to the contractor by owner/ Swami Ramanand Teerth Marathwada University, Nanded should be kept by the contractor under lock and key and will be accessible for inspection by the owner or his authorized agent at all the time.

Works to be executed in accordance with Contractor

Clause-13 : The contractor shall execute the whole and every part of the work in the most substantial and workman manner and both as regards material and every other respect in strict accordance with specifications. The contractor shall also conform exactly, fully and faithfully to the designs drawings and

Owner

specifications drawings, orders, etc. instructions in writing relating to work signed by the Consultant and lodged in his office and to which the contractor shall be entitled to have access for the purpose of inspection at such office or on the site of the work during office hours. The contractor will be entitled to receive three sets of contractor drawing and working drawing as well as one certified copy of the accepted tender along with the work order free of cost. Further copies of the contract drawings and working drawing if required by him, shall be supplied at the rate of Rs. 1000 per set of contract drawing and Rs. 500 per working drawing except where otherwise specified.

Alteration in specifications and designs not to invalidate contracts. **Clause-14 :** The Consultant/Executive Engineer shall have power to make any alteration in or additions to the original specification drawings designs and instructions that may appear to him to be necessary during the progress of the work and the contractor shall be bound to carry out the work in accordance with any instruction in this connection which may be given to him in writing signed by the Consultant/Executive Engineer and such alteration shall not invalidate the contract any additional work which the contractor may be directed to do in the manner above specified as part of the work shall be carried out by the contractor on the same conditions in all respects on which he agreed to do main work and at the same rate as specified in the tender for the main work & if the additional and altered work includes any class of work for which no rate is specified in this contract , then such class of work shall be carried out at the rates entered in the Schedule of Rates of the Electrical Division of P.W. Department Nanded or at rates

Rates for works not entered in estimate or schedule of rate of Electrical Division of P.W. Deptt. Govt. of Maharashtra. Mutually agreed upon between the owner/ Swami Ramanand Teerth Marathwada University, Nanded and the contractor, whichever are lower. If the additional or altered work for which no rates are entered in the schedule of rates is ordered to be carried out before the rates are agreed upon then the contractor shall within seven days of the date of receipt by him of the order to carry out the work, inform the owner SRTMUN of the rate which it is his intention to charge for such class of work, and if the owner SRTMUN does not agree to this rate he shall by notice in writing be at liberty to cancel his order to carry out such class of work and arrange to carry out in such manner as he may consider advisable provided always that if the contractor shall commence work or incur any expenditure in regard there to before the rates shall have been determined as lastly herein before mentioned then in such case he shall only be entitled to be paid in respect of the work carried out or expenditure incurred by him prior to the date of determination of the rates as aforesaid according to such rate or rates as shall be fixed by the Consultant. In the event of a dispute, the decision of the Consultant will be final.

Extensions of time in consequence of additions or Contractor Where, however, the work is to executed according to the design, drawings and specifications recommended by the contractor and accepted by the Competent Authority the alternations above referred to shall be within the scope of such design, drawings and specification appended to the tender.

Owner

alterations.

The time limit for the completion of the work shall be extended in the proportion that the increase in its cost occasioned by alterations or additions bears to the cost of the original contract work, and the certificate of the Consultant as to such proportion shall be conclusive.

No claim to any payment or compensation for alteration in or restriction of work.

Clause-15(1): If at any time after the execution of the contract documents the Consultant shall for any reason whatsoever (other than default on the part of the contractor for which the owner/ Swami Ramanand Teerth Marathwada University, Nanded is entitled to rescind the contract) desires that the whole or any part of the work specified in the tender should be suspended for any period or that the whole or part of work should not be carried out at all he give to the contractor a notice in writing of such desire & upon the receipt of such notice the contractor shall forth with suspend or stop the work wholly or in part as required, after having due regard to the appropriate stage at which the work should be stopped or suspended so as not to cause any damage or injury to the work already done or endanger the safety thereof provided the decision of the Consultant to the stage at the which the work or any part of it could be or could have been safely stopped or suspended shall be final and conclusive against the contractor. The contractor shall have no claim to any payment or compensation whatsoever by reason of or in pursuance of any notice as aforesaid, on account of any suspension, stoppage or curtailment except to the extent specified hereinafter.

(2) Where the total suspension of work ordered as aforesaid continued for a continuous period exceeding 90 days the contractor shall be at liberty to withdraw from the contractual obligations under the contract so far as it pertains to the unexecuted part of the work by giving a 10 days prior notice in writing to the owner/ Swami Ramanand Teerth Marathwada University, Nanded, within 30 days of the expiry of the said period of 90 days, of such intention and requiring the owner to record the final measurement of the work already done and to pay final bill. Upon giving such notice the contractor shall be deemed to have been discharged from his obligation to complete the remaining unexecuted work under this contract. On receipt of such notice the owner/ Swami Ramanand Teerth Marathwada University, Nanded shall proceed to complete the measurement and make such payment as may be finally due to the contractor within a period of 90 days from the receipt of such notice in respect of the work already done by the contractor. Such payments shall not in any manner prejudice the right of the contractor to any further compensation under the remaining provision of this clause.

(3) Where the Consultant required the contractor to suspend the work for a period in excess of 30 days at any time or 60 days in the aggregate the contractor shall be entitled to apply to the owner/ Swami Ramanand Teerth Marathwada University, Nanded within 30 days of the resumption of work after such suspension for payment of compensation to the extent of pecuniary

Contractor

Owner

loss suffered by him in respect of working machinery that remained idle on the site or on the account of his having to pay the salary or wages of labour engaged by him during the said period of suspension, provided always that the contractor shall not be entitled to any claim in respect of any such working machinery, salary or wages for the first 30 days whether consecutive or in the aggregate or such suspension or in respect of any suspension whatsoever occasioned by unsatisfactory work or any other default on his part. The decision of the Consultant in this regard shall be final and conclusive against the contractor.

(4) In the event of-

i) Any total stoppage of work on notice from the Consultant under Sub clause (1) in that behalf.

ii) Withdrawal by the contractor from the contractual obligation to complete the

remaining unexecuted work under sub-clause (2) on account of continued suspension of work for a period exceeding 90 days.

OR

iii) Curtailment in the quantity of item or items originally tendered on account of any alteration, omission or substitutions in the specification drawings, design, or instructions under clause 14(1) where such curtailment exceeds 25% in quantity and the value of the quantity curtailed beyond 25% at the rates for the item specified in the tender is more than Rs. 5000/-

The contractor shall, within 10 days from the service of (i) the notice of stoppage or (ii) the notice of withdrawal from the contractual obligations under the contract on account of the continued suspension of work or (iii) notice under clause 14(1) resulting in such curtailment to produce to the owner satisfactory documentary evidence that he had purchased or agreed to purchase material for use in contracted work before receipt by him of the notice of stoppage, suspension or curtailment and require the owner to take over on payment such material at the rates determined by the Consultant, provided, however such rates shall in no case exceed the rates at which the same was acquired by the contractor. The owner shall thereafter take over the material so offered, provided the quantities offered, are not in excess of the requirement of the unexecuted work as specified in the accepted tender and are of quality and specifications approved by the Consultant.

No claim to compensation on account of loss due to delay in supply of materials by owner.

Clause-15(A): The contractor shall not be entitled to claim any compensation from owner for the loss suffered by him on account of delay by owner in the supply of material entered in Schedule 'A' where such delay is caused by:-

i) Difficulties relating to the supply of railway wagons.

ii) Force majeure

iii) Act of God

iv) Act of enemies of the owner or any other reasonable cause beyond the control of owner.

Contractor

Owner

In the case of such delay in the supply of material, owner shall grant such extension of time for the completion of the works as shall appear to the Consultant to be reasonable in accordance with circumstance of the case. The decision of Consultant as to extension of time shall be accepted as final by the contractor.

Time limit for unforeseen claims.

Clause-16 : Under no circumstance whatever shall the contractor be entitled to any compensation from owner on any account unless the contractor shall have submitted a claims in writing to the owner within one month of the cause of such claim occurring.

Action and Compensation payable in case of bad work.

Clause-17 : If at any time before the security deposit or any part thereof is refunded to the contractor it shall appear to the Consultant, owner or his subordinate in charge of the work, that any work has been executed with unsound imperfect or unskillful workmanships or with materials of inferior quality, or that any materials or articles provided by him for execution of the work are unsound, or of a quality in inferior to that contracted for, or are otherwise not in accordance with the contract it shall be lawful for the Consultant or owner/ Swami Ramanand Teerth Marathwada University, Nanded /Executive Engineer 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 inadvertently passed, certified and paid for the contractor shall be bound forthwith to rectify, or remove and reconstruct the work so specified in whole or in part as the case may require or if so required shall remove the material or articles so specified and provide other proper and suitable materials or articles at his own charge and cost, and in event of his failing to do so within a period to be specified by the Consultant or owner in the written intimation aforesaid, the contractor shall be liable to pay compensation at the rate of one percent on the amount of the estimate for everyday not exceeding ten days during

Which the failure so continues and in the case of any such failure the owner may rectify or remove and re-execute the work or remove and replace the materials or articles complained of as the case may be at the risk and expense in all respects of the contractor. Should the Consultant consider that any such inferior work of material as described above may be accepted or made use of it shall be within his discretion to accept the same at such reduced rates as he may fix there for.

Works to be open to inspection.

Clause-18 : All works under or in course of execution or executed in pursuance of the contract shall at all times be open to the inspection and supervision of the consultant or owner/ Swami Ramanand Teerth Marathwada University, Nanded and their subordinates and the contractor shall at all times during the usual working hours, and at all other times at which reasonable

Contractor

Owner

Contractor or responsible agent to be present.

notice of the intention of the consultant or owner and their subordinates, 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 that purpose. Orders given to the contractors duly authorized agent shall be considered to have same force and effects as if they had been given to the contractor himself.

Notice to be given before work is covered up.

Clause-19 : The contractor shall give not less than five days notice in writing to the owner or his subordinate in charge of the work before covering up or otherwise placing beyond the reach of measurement any work in order that the same may be measured and correct dimensions thereof taken before the same is so covered up or placed beyond the reach of measurements and shall not cover up or place beyond the reach of measurements any work without the consent in writing of the owner or his subordinate in charge of the 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 of allowance shall be made for such work or for the materials with which the same was executed.

Contractor liable for damage done, and for imperfections.

Clause-20 : If during the period of Eighteen months from the date of completion as certified by the consultant pursuant to clause 7 of the contract or twelve months after commissioning the work, whichever is earlier in the opinion of the consultant, the said work is defective in any manner whatsoever the contractor shall forthwith on receipt of notice in that behalf from the consultant or owner, duly commence execution and completely carry out at his in every respect all the work that may necessary for rectifying and setting right the defect specified therein including dismantling and reconstruction of unsafe portions strictly in accordance with and in the manner prescribed and under the supervision of the owner's representative. In the event of the contractor failing or neglecting to commence execution of the said rectification work within the period prescribed therefore in the said notice and/or to complete the same as aforesaid as required by the said notice the owner may get the same executed and carried out departmentally or by any other agency at the risk on account and at the cost of the contractor. The contractor shall forthwith on demand pay to the owner/ Swami Ramanand Teerth Marathwada University, Nanded the amount of such costs, charges and expenses sustained or incurred by the owner/ SRTMUN of which the certificate of the consultant shall be final and binding on the contractor. The owner/ Swami Ramanand Teerth Marathwada University, Nanded shall be entitled to deduct the same from any amount which may then be payable or which may thereafter become payable by the owner to the contractor either in respect of the said work or any other work whatsoever or from the amount of security deposit retained by the owner/ Swami Ramanand Teerth Marathwada University, Nanded.

Contractor

Owner

Contractor to supply plant, ladders, scaffolding and is liable for damages arising from non provisions of lights, fencing etc.

Clause-21 : The contractor shall supply at his own cost all material (except such materials, if any as may, in accordance with the contract, be supplied from the owner/ Swami Ramanand Teerth Marathwada University, Nanded's store) plant, tools, appliances, implements, ladders, cordage, tackle scaffolding, and temporary works requisite or proper for the proper execution of the work, whether in the original, altered or substitute form & 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 consultant 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 the 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, filling which the same may be provided by the owner/ Swami Ramanand Teerth Marathwada University, Nanded at the expense of the contractor and expenses 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 all necessary fencing and lights required to protect the public from accident, and shall also be bound to bear the expenses of defense of event suit, action or other legal proceedings that may be brought by any person for injury sustained owing to neglect of the above precautions, and pay any damages and cost which may be awarded in any such suit action or proceedings to any such person, or which may be with consent of contractor be paid for compromising any claim by any person.

List of machinery in contractor's possession and which they proposed to use on the work should be submitted along with the tender.

Clause-21(A) : The contractor shall provide suitable scaffolds and working platforms gangways and stairways and shall comply with the following regulations in connection therewith.

a) Suitable scaffolds be provided for workmen for all works that cannot be safely done from a ladder or by other means.
b) A scaffold shall not be constructed, taken down or substantially altered except:-

i) Under the supervision of a competent and responsible person; and
ii) As far as possible by competent workers possessing adequate experience in this kind of work.

c) All scaffolds and appliances connected therewith and ladders shall

i) Be of sound material.

ii) Be of adequate strength having regard to the loads and strains to which

Contractor

Owner

they will be subjected and

iii) Be maintained in proper condition.

d) Scaffolds shall be so constructed that no part thereof can be displaced in
Consequence of normal use.

e) Scaffolds shall be not be over-loaded and so far as practicable the load
shall be evenly distributed.

f) Before installing lifting gear on scaffolds special precautions shall be
taken to ensure the strength and stability of the scaffolds.

g) Scaffolds shall be periodically inspected by a competent person.

h) Before allowing a scaffold to be used by his workmen the contractor shall
whether the scaffold has been erected by his workmen or not, take steps to
ensure that it complies fully with the regulations herein specified.

Working

platform, gangway, stairways shall

i) Be so constructed that no part thereof can sag unduly or unequally.

ii) Be so constructed & maintained having regard to the prevailing
conditions as to reduce as far as practicable risks of persons tripping or
slipping &

iii) be kept free from any unnecessary obstruction.

j) In the case of working platform, gangway, working places and stairways
at a height exceeding 3 Meter.

i) every working platform and every gangway shall be closely boarded
unless

other adequate measures are taken to ensure safety.

ii) Every working platform and gangway shall have adequate width and

iii) Every working platform, gangway, working place and stairway shall be
suitably fenced.

k) Every opening in the floor of a building or in a working platform shall
except for the time and to the extent required to allow the access of persons or
the

transport or shifting of material be provided with suitable means to prevent
the

fall of persons or material.

l) When persons are employed on a roof where there is a danger of falling
from a height exceeding 3 meter suitable precautions shall be taken to prevent
the fall of persons or materials.

m) Suitable precautions shall be taken to prevent persons being struck by

articles which might fall scaffolds or other working places.

- n) Safe means of access shall be provided to all working platform and other working places.
- o) The contractor(s) will have to make payments to the laborers as per minimum wages Act.

Clause-21(B) : The contractor shall comply with the following regulations as regards the Hoisting Appliances to be used by him.

- a) Hoisting machines and tackles including their attachments, anchorages and supports shall –
 - i) Be of good mechanical construction, sound material and adequate strength and free from patent defect &
 - ii) Be kept in good repair and in good working order.
- b) Every rope used in hoisting or lowering materials or as a means of suspension shall be of suitable quality and adequate strength and free from patent defect.
- c) Hoisting machines and tackle shall be examined and adequately tested after erection on the site and before use and re-examined in position at intervals to be prescribed by the Government.
- d) Every crane, ring, hook, shackle, swivel and pulley block used in hoisting or lowering materials or as a means of suspension shall be periodically examined.
- e) Every crane driver or hoisting appliance operator shall be properly qualified.
- f) No person who is below the age of 18 years shall be in control of any hoisting machine, including any scaffold winch, or give signals to the operator.
- g) In the case of every hoisting machine and of every chain ring, hook, shackle, swivel and pulley block used in hoisting or lowering or as means of suspension, the safe working load shall be ascertained by adequate means.
- h) Every hoisting machine and all gear referred to in preceding regulation shall be plainly marked with the safe working load.
- i) In the case of a hoisting machine having a variable safe working load each

Contractor

Owner

safe working load and the conditions under which it is applicable shall be clearly Indicated.

- j) No part of any hoisting machine or any gear referred to in regulation (g) above Shall be loaded beyond the safe working load except for the purpose of testing.
- k) Motors, gearing transmissions, electric wiring and other dangerous parts of hoisting appliances shall be provided with efficient safeguards.
- l) Hoisting appliances shall be provided with such means as will reduce to minimum the risk of the accidental descent of the load.
- m) Adequate precaution shall be taken to reduce to a minimum the risk of any part of a suspended load becoming accidentally displaced.

Measures for prevention of fire.

Clause-22 : The contractor shall not set fire to any standing jungle, trees, brushwood or glass without a written permission from the owner SRTMUN When such permit is given, and also in all cases when destroying out of dug up trees, brushwood, grass etc, by fire, the contractor shall take necessary measures to prevent such fire spreading to or otherwise damaging surrounding property.

The contractor shall make his own arrangement for drinking water for the labour employed by him.

Liability of contractor for any damage done in or outside work area.

Clause-23 : Compensation for all damages done intentionally or unintentionally by contractor's labour in or beyond the limits of owner's property including any damage caused by the spreading fire mentioned in clause 22 shall be estimated by the consultant or such other officer as owner/ Swami Ramanand Teerth Marathwada University, Nanded /Executive Engineer may appoint and the estimate of the consultant or such officer, 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 damage in the manner prescribed in Clause 1 or deducted by the owner from any sums that may be due or become due from the owner to contractor under this contract or otherwise.

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

Employment of Contractor

Clause-24 : The employment of female laborers on works in neighborhood of Owner

| | |
|---|---|
| female labour. | soldiers barracks should be avoided as far as possible. |
| Work on Sunday | Clause-25 : No work shall be done on a Sunday without the sanction in writing of the owner SRTMUN |
| Work not to be subject. | Clause-26 : The contract shall not be assigned or subject without the written approval of the owner/ Swami Ramanand Teerth Marathwada University, Nanded. And if the contractor shall assign or subject his contract, or attempt so to do or become insolvent or commence any proceedings to get himself adjudicated and insolvent or make any composition with his creditors, or attempt so to do the owner may by notice in writing regarding the contract also or if bride, gratuity, gift, loan, perquisite, reward or a advantage, pecuniary or otherwise shall either directly or indirectly be given, promised or offered by the contractor or any of his servants or agents to any officer or person in the employment of the owner in any way relating to his office or employment, or if any such officer or person shall become in any way directly or indirectly interested in the contract, the owner may there upon by notice in writing rescind the contact, and the security deposit of the contractor shall thereupon stand forfeited and be absolutely at the disposal of the owner and the same consequences shall ensure as if the contract had been rescind under Clause 3 thereof and in addition the contractor shall not be entitled to recover or be paid for any work there for actually performed under the contract. |
| Contract may be rescind & security deposit forfeited for subletting it without approval or for bribing a owner's employee or if contractor becomes insolvent. | Clause-27 : All sums payable by a contractor by way of under any of these conditions shall be considered as a reasonable compensation to be applied to the use of owner without reference to the actual loss or damage sustained & whether any damage has or has not been sustained. |
| Sums payable by way of Compensation to be considered as reasonable compensation without reference to actual loss. | |
| Changes in the constitution of firm to be notified. | Clause-28 : In the case of tender by partners, any change the constitution of a firm shall be forthwith notified by the contractor to the owner for his information. |
| Direction & control of the Consultant. | Clause-29 : All works to be executed under the contract shall be executed under the direction and subject to the approval in all respects of the consultant for the time being, who shall be entitled to direct at what point or points and in what manner they are to be commenced, and from time to time carried on. |
| Settlement of dispute by arbitration. | Clause-30: All disputes and differences of any kind whatever arising out of or in connection with the contract or the carrying out of the works (whether during the progress of the works or after their completion and whether before or after the determination, abandonment or breach of the Contract) shall be referred to and settled by the Consultant who shall state his decision in writing. |
| Contractor | Owner |

Such decision of the Consultant with respect to any of the excepted matters shall be final and without Appeal as stated in the preceding Clause. But if either the Owner/ Swami Ramanand Teerth Marathwada University, Nanded /Executive Engineer or the contractor be dissatisfied with the decision of the Consultant on any matter, question or dispute of any kind (except any of the excepted matters) or as to the withholding by the Consultant of any Certificate to which the Contractor may claim to be entitled, then and in any such case either party (the Owner or the Contractor) may within 28 days after receiving notice of such decision give a written notice to the other party through the CONSULTANT requiring that matter in dispute be arbitrated upon. Such written notice shall specify the matters which are in dispute or difference of which such written notice has been given and no other shall only be referred to the arbitration and final decision of a single Arbitrator being a Fellow of the Institution of Engineers (India) to be agreed upon and appointed by both the parties or in case of disagreement as to the appointment of single arbitrator, to the Arbitration of two arbitrators both being fellows of the Institution of Engineers (India) one to be appointed by each party. Such Arbitrators shall before taking upon themselves the burden of reference appoint an Umpire.

The Arbitrator, the Arbitrators or the Umpire shall have power to open up, review and revise any certificate opinion, decision requisition or notice, save in regard to the excepted matters referred to in the preceding Clause and to determine all matters in dispute which shall be submitted to him or them and of which notice shall have been given as aforesaid.

Upon every or any such reference the cost incident to the Reference and Award respectively shall be in the discretion of the Arbitrator, or Arbitrators or the Umpire who may determine the amount thereof, or direct the same to be fixed as between attorneys and client or as between party and party, and shall direct by whom and to whom and in what manner the same shall be borne and paid. This submission shall be deemed to be a submission to Arbitration within the meaning of the Indian Arbitration Act, 1940 or any statutory modification thereof. The Award of the Consultant or Arbitrators or the Umpire shall be final and binding on the parties. Such reference except as to the withholding by the CONSULTANT of any Certificates under Clause 31 to which the contractor claims to be entitled, shall not be opened or

entered upon until after the completion or alleged completion of the works or until after the practical cessation of the works arising from any cause unless with the written consent of the Owner and the Contractor, provided always that the Owner shall not withhold the payment of an Interim Certificate, nor the Contractor, except with the consent in writing, of the Consultant, in any way delay the carrying out of the works by reason of any such matter, question or dispute being referred to Arbitration, but shall proceed with the work with all due diligence and shall until the decision of the Arbitrator or Arbitrators or the Umpire be given, abide by the decision of the Consultant and no Award of the Arbitrator, Arbitrators or the umpire shall relieve the Contractor of his obligation to adhere strictly to the Consultant's instructions with regard to the actual carrying out of the works. The Owner/ Swami Ramanand Teerth

Marathwada University, Nanded and the Contractor hereby also agree that Arbitration under this Clause shall be a condition precedent to any right of action under the Contract.

Stores of European or American manufacture to be obtained from owner.

Clause-31: Deleted

Lump sums in estimates

Clause-32: When the estimate on which a tender is made included lump sums in respect of parts of the work, the contractor shall be entitled to payment in respect of the items of work involved or the part of the work in question at the same rates as are payable under this contract for each items, or if the part of the work in question is not in the opinion of the consultant capable of measurement, the consultant may at his discretion recommend to pay the lump sum amount entered in the estimate and the certificate in writing of the consultant shall be final and conclusive against the contractor with regard to any sum or sums payable to him under the provisions of this clause.

Action where no specifications.

Clause-33: In the case of any class of work for which there is such specification as is mentioned in Rule1 such work shall be carried out in accordance With the P.W. Department specifications and in the event of there being no P.W. Department specification, then in such case the work shall be carried out in all respect in accordance with all instructions and requirements of the consultant.

Definition of work

Clause-34: The expression “work or works” where used in these conditions, shall unless there be something in the subject or context repugnant to such construction, be construed to mean the work or works to be executed under or in virtue of the contract, whether temporary or permanent and whether original, altered, substituted or additional.

Contractor percentage whether applied to net or gross amount of bill.

Clause-35: The percentage referred to the tender shall be deducted from/added to the gross amount of the bill before deducting the value of any stock issued.

Refund of quarry fees & royalties.

Clause-36: Deleted

Compensation under Contractor

Clause-37: The contractor shall be responsible for and shall pay any compensation to his workmen payable under the workmen’s compensation Act
Owner

workmen's
Compensation
Act.

1923 (VIII of 1923), (hereinafter called the said Act) for injuries caused to the workmen. If such Compensation is payable/paid by the owner as principle under sub-section (i) of section 12 of said Act on behalf of the contractor; it shall be recoverable by the owner from the contractor under sub-section (2) of the said section. Such compensation shall be recovered in the manner laid down in Clause 1 above.

Clause-37(A): The contractor shall be responsible for and shall pay the expenses of providing medical aid to any workmen who may suffer a bodily injury as a result of an accident. If such expenses are incurred by the owner the same shall be recoverable from the contractor forthwith & be deducted without prejudice to any other remedy of Government/Owner from any amount due or that may become due to the contractor.

Clause-37(B): The contractor shall provide all necessary personal safety equipment and first aid apparatus available for the use of the persons employed on the site and shall maintain the same in condition suitable for immediate use at any time and shall comply with the following regulations in connection therewith.

(a) The workers shall 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.

(b) When work is carried on in proximity to any place where there is a risk of drowning all necessary equipment shall be provided and kept ready for use and all necessary steps shall be taken for the prompt rescue of any person in danger.

(c) Adequate provision shall be made for prompt first-aid treatment of all injuries likely to be sustained during the course of the work.

Clause-37(C): The contractor shall duly comply with the provision of the Apprentices Act, 1961 (III of 1961), the rules made there under and the orders that may be issued from time to time under the said Act and the said Rules and on his failure or neglect to do so he shall be subject to all the liabilities & penalties provided by the said Act & said Rules.

Claim for
quantities
entered in the
tender or
estimates.

Clause-38(1): Quantities in respect of the several items shown in the tender are approximate and no revision in the tendered rate shall be permitted in respect of any of the items so long as subject to any special provision contained in the specifications prescribing a different percentage of permissible variation in the quantities of the item does not exceed the tender quantity by more than 10% and so long as the value of the excess quantity beyond this limit at the rate of the item specified in the tender, is not more than Rs. 5000/-

Contractor

(2) The contractor shall, if ordered in writing by the owner so to do, also carry
Owner

out any quantities in excess of the limit mentioned in sub clause (i) hereof on the same conditions as and in accordance with the specifications in the tender and at the rate (i) derived from the rates entered in current schedule of rates and in the absence of such rates (ii) at the rates prevailing in the market, the said rates being increased or decreased as the case may be by the percentage which the total tendered amount bears to the estimated cost of the works as put to tender based upon the schedule of rates applicable to the year in which the tenders were invited for the purpose of operation of this C.S.R.2018-19 (applicable to Vishnupuri, Nanded) of P.W. Dept. Electrical Wing of Govt. of Maharashtra will be applicable.

Employment of farming labour etc. **Clause-39:** The contractor shall employ any famine, convict or other labour of a particular kind or class if ordered in writing to do so by the owner/ Swami Ramanand Teerth Marathwada University, Nanded.

Claims for compensation for delay in starting work. **Clause-40:** No compensation shall be allowed for any delay caused in the starting of the work on account of acquisition of land or, in the case of clearance works, on account of any delay in according sanction to estimates.

Claims for compensation for delay in execution work. **Clause-41:** No compensation shall be allowed for any delays caused in the execution of the work on account of water, standing in borrow pits or compartments. The rates are inclusive for hard or cracked soil, excavation in mud, sub-soil, water standing in borrows pits and no claim for an extra rate shall be entertained unless otherwise expressly specified.

Entering upon or commencing any portion of work. **Clause-42:** The contractor shall be not enter upon or commence any portion of work except with the written authority and instructions of the consultant or owner or of his subordinate in charge of the work. Failing such authority the contractor shall have no claim to ask for measurements of or payment for work.

Minimum age of persons employed. **Clause-43:**
i) No contractor shall employ any person who is under the age of 18 years.
ii) No contractor shall employ donkeys or other animal with breeching of string or thin rope. The breeching must be at least three inches wide and should be of

Employment of donkeys and others animals & the payment of fair wages. tape (Nawar).
iii) The owner/ Swami Ramanand Teerth Marathwada University, Nanded or his Agent is authorized to remove from the work, any person or animal found working which does not satisfy these conditions and no responsibility shall be accepted by the owner for any delay caused in the completion of the work by such removal.

Contractor iv) The contractor shall pay fair and reasonable wages 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 grounds that the wages paid are not fair and reasonable, the dispute shall be referred without

Owner

delay to the owner who shall decide the same. The decision of the owner shall be conclusive and binding on the contractor but such decision shall not in any way affect the conditions in the contract regarding the payment to be made by owner/ Swami Ramanand Teerth Marathwada University, Nanded at the sanctioned tender rates.

v) Contractor shall provide drinking water facilities to the workers. Similar amenities shall be provided to the workers engaged on large work in urban areas.

vi) The contractor should take precautions against accidents which take place on Account of labour using loose garments while working near machinery.

Method of
Payment

Clause-44: Payment to contractors shall be made by RTGS/ NEFT/ Cheque drawn on any bank at Nanded convenient to the owner/ SRTMUN provided the amount exceeds Rs. 10/- Amounts not exceeding Rs. 10/- will be paid in cash.

Employment of
scarcity labour.

Clause-46: Deleted

Clause-47: The price quoted by the contractors shall not in any case exceed the control price, if any fixed by Government or reasonable price which it is permissible for him to charge a private purchaser for the same class and description the control price or the price admissible under the provisions of Hoarding and profiteering ordinance, 1948 as amended from time to time. If the price quoted exceeds the controlled price or the permissible under Hoarding and Profiteering Prevention ordinance, the contractor will specifically mention this fact in his tender along with the reasons for quoting such higher prices. The purchaser at his discretion will in such case exercise the right or revising the price at any stage so as to conform with the controlled price as permissible under the Hoarding and Profiteering Prevention Ordinance. This discretion will be exercised without prejudice to any other action that may be taken against the contractor.

Maharashtra
Act XIX of
1985 clause
regarding
turnover tax
vide PWD
Circular No.
CAT/1086/
CR-330/ Bldg-
2 dated
10.06.87.
Contractor

Clause-47(A): The tendered rates shall be inclusive of all taxes, rates and cusses and shall also be inclusive of all tax livable in respect of works contract in provision of the Maharashtra Sales Tax on transfer of property in goods involved in the execution of works contract Act, 1985 (Maharashtra Act No. XIX of 1985).

Owner

Clause-48: The rates to be quoted by the contractor must be inclusive of GST or actual taxes. No extra payment on this account will be made to the contractor.

Clause-49: In the case of materials that may remain surplus with the contractor from those issued for the work contracted for, the date of ascertainment of the material being surplus will be taken as the date of sale for the purpose of gst tax and the gst tax will be recovered on such sale.

Clause-50: The contractor shall employ at least 80 percent of the total number of unskilled labour to be employed by him on the said work from out of the persons ordinarily residing in the district in which site of the said work is located.

Provided, however, that if the required number of unskilled labour from that district is not available, the contractor shall in the first instance employ such number of persons as is available and thereafter may with the previous permission in writing of the owner/ Swami Ramanand Teerth Marathwada University, Nanded obtain the rest of the requirement of unskilled labour from outside district.

Clause-51: Wages to be paid to the skilled and unskilled laborers engaged by the contractor.

The contractor shall pay the laborers skilled and unskilled according to the wages prescribed by the Minimum Wages Act of 1948 applicable to the area in which the work of the contractor is located.

Clause-52: All amounts whatsoever which the contractor is liable to pay to the owner/ Swami Ramanand Teerth Marathwada University, Nanded in connection with the execution of the work including the amount payable in respect of (i) material and or stores supplied/issued hereunder by the owner/ Swami Ramanand Teerth Marathwada University, Nanded to the contractor (ii) hire charges in respect of heavy plant, machinery and equipment given on hire by the owner to the contractor for execution by him of the work and/or on which advances have been given by the owner to the contractor shall be recovered from any payment due to contractor.

PWD. No.
CAT/1284/(12
0)/ Bldg-2
dt.14.8.85

Clause-53: The contractor shall duly comply with all the provisions of the contract Labour (Regulation and Abolition) Act, 1970 (37of 1970) and the Maharashtra Contract Labour (Regulation and Abolition) Rules, 1971 as amended from time to time and all other relevant statutes and statutory provision concerning payment of wages particularly to workmen employed by the contractor and working on the site of the work. In particular the contractor shall pay wages to each worker employed by him on the site of the work at the rates prescribed under the Maharashtra Contract Labour (Regulation and Abolition) Rules, 1971. If the contractor fails or neglects to pay wages at the side rates or makes short payment and the owner/ Swami Ramanand Teerth Marathwada University, Nanded makes such payment of wages in full or part thereof less paid by the contractor, as the case may be, the amount, so paid by

Contractor

Owner

the owner/ Swami Ramanand Teerth Marathwada University, Nanded to such workers shall be recovered from payments due to contractor.

Clause-54: CONDITION FOR MALARIA ERADICATION

(A) Anti Malaria & other health measures shall be as directed by the Joint Director of Health Services, Nanded.

(B) Contractor shall see that mosquito genic conditions are not created so as to keep vector population to minimum level.

(C) Contractor shall carry out anti malaria measures in the area as per guidelines prescribed under National Malaria Eradication Programmed and as directed by the Joint Director (M & F) of Health Services, Nanded.

(D) In the case of default in carrying out prescribed anti malaria measures resulting in increase in malaria incidence, contractor shall be liable to pay to Government the amount spent by Government on an anti malaria measures to control the situation in addition to fine. In case such amounts are paid by the owner to the government these shall be recovered from payments due to contractors.

(E) The contractor shall make sufficient arrangement for draining away the salvage water as well as water coming from the bathing and washing places and shall dispose of this water in such a way as not cause any nuisance. He shall also keep the premises clean by employing sufficient number of sweepers.

The contractor shall comply with all rules, regulations, bye-laws and directions given from time to time local or public authority in connection with this work and shall pay fees or charges which are legible on him without any extra cost to owner.

Clause-55: A contractor shall comply with all the provision of the Apprentices Act, 1961 and the rules and orders issued there under from time to time. If he fails to do so, his failure will be breach of the contract and the owner may, in his discretion, cancel the contract. The contractor shall also be liable for any pecuniary liability arising on account of any violation by him of the provision of the Act.

Clause-56: The tendered rates shall be inclusive of all taxes, rates and cusses and shall also be inclusive of taxes livable in respect of work contract under the provision of the Maharashtra Sales Tax on transfer of property in goods involved in the execution of works contract Act, 1985 (Maharashtra Act. No. XIX of 1985) vide P.W.D Circular No. CAT-1086/R-330/Bldg.2 dated 10-6-87.

Clause-57: In case of materials which become surplus with the contractors from those issued for the work contracted for the date of ascertainment of the materials as being surplus will be taken as the date of sale for the purpose of sales tax and sale tax will be recovered on such sale.

Fire Insurance **Clause-58:** (a) The contractor shall at the time of signing the contract insure the works and keep them insured until the virtual completion of the contract and for any further sum if called upon to do by the contract and for any further sum being allowed to the contractor as an unauthorized extra. Such policy shall cover the property of the owner/ Swami Ramanand Teerth Marathwada University, Nanded only, fees assessing the claims and in connection with his services generally therein, and shall not cover any property of the contractor insuring as provided above, the owner/ Swami Ramanand Teerth Marathwada University, Nanded /Executive Engineer or the CONSULTANT on his behalf may so insure and may deduct the premiums paid from any moneys due, or which may become due, or which may become due, to the contractor. The contractor shall as soon as the claim under the policy is settled, or the work reinstated by the insurance office should they elect to do so, proceed with all due diligence with the completion of the works in the same manner as though the fire had not occurred and in all respects under the same conditions of contract. The contractor, in case of rebuilding or reinstatement after fire, shall be entitled to such extension of time for completion as the CONSULTANT deems fit. (b) The amount so due as aforesaid shall be the total value of the work duly executed and of the contract materials and goods delivered upon the site for use in the works up to and including a date not more than seven days prior to the date of the said certificate less the amount to be retained by the owner (as hereinafter provided) and less any installments previously paid under this clause. Provided that the said material and goods as and from time as they are reasonably, properly and not prematurely brought upon the site and then only if properly stored and/or protected against weather.

- ix) 'The priced schedule of Quantities' - shall mean the schedule of quantities duly priced with the accepted quoted rates of the contractor.
- x) 'Net Prices' if in arriving at the Contract Amount the Contractor shall have added to or deducted from the total of the items in the Tender any sum, either as a percentage or otherwise, arrived at by adding to or deducting from the actual figure appearing in the Tender as the price of that item at similar percentage or proportionate of the sum so added or deducted by the Contractor the total amount of net prime cost items and provisional sums of money shall be deducted from the total amount of the Tender. The expression "net rate" or "net prices" when used with reference to the contract or accounts shall be held at mean rates or prices so arrived at.

"Act of Insolvency" shall mean any Act of Insolvency as defined by the provincial Insolvency Act or any Act amending such original.

Words importing persons include firms and corporations. Words importing the singular only also include the plural and vice versa where the context requires.

GENERAL TECHNICAL TERMS & CONDITIONS OF THE CONTRACT

R.1. SCOPE OF WORK:

Contractor's scope shall include work as per Tender documents Bill of quantities along with implied minor works mentioned specifically or not. This scope shall be generally as per Contract Agreement and shall include such additional jobs as may be required to be carried out for the completion of the "Electrical" facilities in the opinion of the Owners / Consultant. Any additional major jobs / items required to be carried out shall be evaluated on the basis of similar item-rates under the contract or PWD/ CPWD DSR rate of current year OR where such similar items do not exist the contractor shall submit cost analysis to arrive at the item-rates for the approval of Owners / Consultant. 15 % over-heads and profit shall be allowed to the Contractor on cost accepted by Owners / Consultant.

R.2. ADDITIONAL WORK:

Any additional work if required / ordered by the Owners / Consultant shall be taken up and completed within the agreed time schedule. The item-rates for such work shall be submitted for the approval of Owners / Consultants, but the work shall start immediately upon receiving instructions by the Contractor from the Owners / Consultant.

R.3. PRE-REQUISITE SUBMITTALS ALONG WITH TENDER

Tenderer shall submit Electrical sub contractor company profile, Class A & above registration in PWD / CPWD, written agreement with main contractor along with list of similar works carried out by him, giving value, during last 3 (three) years.

R.4. EQUIPMENT / WORKMANSHIP:

The equipment to be supplied under this contract shall be strictly as per specifications of the contract and relevant IS specifications. In the event of any ambiguity / dispute, the Owner's / Consultant's verdict shall be final and binding on the "Contractor".

R.5. ERECTION, TESTING, COMMISSIONING AND MAINTAINING THE EQUIPMENT DURING THE MAINTENANCE PERIOD (DEFECTS LIABILITY PERIOD)

Item rate for “supply & erection” shall include unloading at site stores by Contractor using crane as and if instructed by Owners / Consultant, shifting to place of work, erection, testing, commissioning, handing over to Owners and attending the equipment during Defects Liability period. The erection shall be as per contract specifications and relevant IS Specifications. The contractor shall obtain, before, during and after completion of erection, approval from MSEDCL and Electrical Inspector, other Statutory Authorities as and where required.

R.6. DEFECTS / MODIFICATIONS:

If in the opinion of Owners / Consultant / Statutory authorities the work carried out by the Contractor is defective, the Contractor shall without any additional cost to Owners, rectify such defects or carry out such modifications to make the work “complete” in all respects and acceptable to the Owners / Consultant / statutory authorities. If any test readings are not satisfactory, the Contractor shall carry out required modifications (which may include even replacement of certain item / s) without any additional cost of whatsoever nature to Owners. The work shall be guaranteed to yield the specified rating(s) design conditions within tolerance as per relevant IS Specs. Any equipment, which in the opinion of the Owners / Consultant does not meet specified requirements for which it is installed, may be rejected and Contractor shall replace it free of cost and within such time as may be reasonably allowed to him.

R.7. COMPLETION CERTIFICATE:

On completion of supply & erection the Contractor shall inform the Consultant for witnessing the site tests. Required tools / instruments for such tests shall be arranged by the Contractor. The equipment shall be commissioned only after obtaining written acceptance of pre-commissioning tests (which shall be carried out as per requirement of Owners / Consultant). At this stage the Consultant shall issue “Completion Certificate” to

the Contractor. The Owners / Consultant reserve the right to issue the completion certificate in parts. If due to Contractor's inefficiency the completion is delayed, the Owners reserve their right to put the equipment to use. The "Maintenance Period" OR defects liability period shall start from the date of completion to the satisfaction of the Owners / Consultant's as mentioned in the completion certificate. Before issue of completion certificate, contractor shall supply "AS BUILT DRAWINGS" and "OPERATION" & "MAINTENANCE MANUALS" as per relevant clause.

R.8. COMPLETION CERTIFICATE WITH SNAG LIST:

If in the opinion of Owners / Consultant the defects in the work are minor, the Consultant may consider issuing "Completion Certificate" for the Contract along with the Snag list for which the Contractor shall give an undertaking that the Snags shall be attended and rectified within three (3) months from the date of completion certificate. The right of issuing such a certificate lies exclusively with the "Owner".

R.9. DEFECTS LIABILITY PERIOD AND THE FINAL ACCEPTANCE CERTIFICATE:

Defects Liability Period shall commence on the date of completion mentioned in the completion certificate (with or without Snag list) and shall last for one year. On completion of the "Defects Liability Period" the Owners / Consultant shall carry out final inspection of work and issue / list of defects / snags. The Contractor shall attend to and rectify these snags / defects immediately. During the Defects Liability Period, if there is any defect in the work carried out by the Contractor the Owners / Consultant shall inform the Contractor who would attend to and rectify such defects immediately. At the end of the Defects Liability Period and after rectification of all snags, the Consultant shall issue "Final Acceptance Certificate". The retention amount shall be released by the Owners within 15 days (or earlier) of presentation of "Final Acceptance Certificate" by the Contractor. If after defect rectification, the item is not acceptable to Owners / Consultant, the Contractor shall replace the item by right quality item, free of cost. The nature and quantum of defect, its reporting to the Contractor, contractor's response thereof shall be recorded in writing by the "Owner" and acknowledged by the Contractor / Consultant as the case may be.

R.10. DELIVERY / COMPLETION SCHEDULE:

The Contractor shall strictly adhere to agreed Delivery / Completion Schedule

R.11. SUPPLY VOLTAGE:

H V 11000 Volts 3 Phase 3 Wire 50 Hz +/- Variation as received from Supply Company.

L.V.: 433 Volts / 250 Volts 3 Phase 4 Wire 50 Hz earthed natural system.

R.12. AMBIENT TEMPERATURE / WEATHER CONDITIONS:

The Contractor shall take into account prevailing Ambient Temperature / Weather conditions at site while designing the equipment. (Ambient Temperature shall be as per relevant IS Specs.

R.13. MAKES OF THE EQUIPMENTS:

The Contractor shall agree to Makes specified in tender these shall be reputed makes and shall be subject to the approval of Owners / Consultants.

R.14. WORKING DRAWINGS: (Applicable as per priority of completion)

Within 3 weeks of award of order (or letter of Intent) the Contractor shall submit 4 sets of the following drawings for approval of consultant / Owner. (As applicable)

11 KV H.T room layouts drawing to be submitted for Electrical Inspector's approval.

- Details GA drawings for M.V. Switchboards for consultant / Owner approval.

- Layout drawings showing earthing layout.

- Layout drawings showing Cable Tray / cable routes.

- Foundation drawings for the equipments to be supplied and erected by the Contractor.

- Layout of Trenches, if any, (Owners reserve right not to provide trenches if site conditions do not permit.)

- Drawings showing sleeves / Hume-pipes / R.C.C. Pipes for laying cables at road crossings.

- Any other drawings as may be required by Owners / Consultant for smooth running of Project and overall completion.

R.15. MANUFACTURER'S DRAWINGS / CATALOGUES:

-These shall be submitted in 3 sets, within 1 week of date of award of the order OR letter

of Intent.

R.16. POWER AND WATER:

The Contractor shall have to make arrangement of power & water for the Proposed work and the rates quoted shall be inclusive of same.

R.17. AS BUILT DRAWINGS & “OPERATION & MAINTENANCE MANUALS”

3 (Three) Sets Hard copies along with 1 set of CD shall be supplied. These shall include (this is not exclusive list).

Detailed layouts of equipment / cables / earthing / lighting system etc., as installed.

Manufacturer’s Operation & Maintenance instructions. (As Applicable)

Test Results (after Consultant’s acceptance).

A file containing all original MSEDCL / EI Drawings / Approvals / Sanction Letter / Test Reports etc. (As and if applicable)

Contractor’s instructions for routine maintenance of the contract items.

Any other drawings / details deemed necessary by the Owners / Consultant for satisfactory maintenance of the work.

List of recommended spares for 2 years operation. (As Applicable)

R.18. SITE SUPERVISIONS & SITE INSTRUCTION BOOK:

The Contractor shall deploy qualified and responsible Engineer at site for site supervision and these Engineers shall be available at site during working hours to take instructions and answer queries.

R.19. SITE MEETINGS:

SENIOR REPRESENTATIVE of the Contractor along with the site Engineer shall attend site meetings and make himself available for any other meetings with the Consultants / Owners as and when required at site.

R.20. SAFETY MEASURES:

The Contractor shall take all necessary precautions for safe working at Site and shall be responsible for the safety of the work and shall maintain all lights, guard, signs, temporary passages & provide all Personal protective equipment (PPE’s) to labour and employees such as safety belt, helmets, safety nets necessary for the purpose as may be applicable.

All work shall be done at the contractor’s risk, and if any loss or damage shall result from fire or from other cause, the Contractor shall promptly repair or replace such loss or

damage free from all expenses to the Owner.

The contractor shall be responsible for any loss or damage to material, tools or other articles used or held for use in connection with the work. The work shall be carried till the completion without damage to any work or property of the Owner or of others and without interference with the operation of existing machinery or equipment. The contractor shall follow all precautionary measures suggested by client engineer / Consultants, / Architects & Project Consultants without any objection.

R.21. HOUSE KEEPING:

The Contractor shall provide proper House Keeping, Keep Working place neat and clean store materials neatly and properly. After completion of work the contractor should leave site clean and remove all unwanted material / scrap from the site. All light fittings shall be handed over in dust free manner.

R.22. LIAISON WITH MSEDCL LOAD SANCTIONS & POWER SUPPLY RELETED WORKS WITH ELECTRICAL INSPECTORS APPROVAL ETC.

The contractor responsibility & shall include in rate quoted the cost of liaison / co-oration with MSEDCL, EI, and any other Authorities. The contractor shall submit the required load sanction application to MSEDCL, Survey by MSEDCL at site, prepare drawing, in MSEDCL format etc .to MSEDCL officiates. To obtain the load sanction, power supply related estimate / approvals with follow-up. Also the contractor shall submit the required application, drawing to the Electrical inspector any other Authorities and obtain their approved Licenses and / or sanctions to the drawings. The final charging / completion certification shall be obtained by the contractor from the MSEDCL, Electrical Inspector and / or any other authority to enable the owner to commission the electrical equipment for its utilization. Also the electrical contractor shall submit the required work completion test report to electric supply authority and obtain the power supply to enable the owner/Department to commission the electrical equipment for complete utilization. The contractor shall be responsible for all fees etc. The SRTM UNIVERSITY will bear the deposits to be paid to supply company other than required to be paid to the various authorities and the SRTM UNIVERSITY will not be liable to refund any such payments to the contractor. The work shall not be deemed to have been completed until the above approvals / certificate etc. have been obtained by the contractor.

STATEMENTS

STATEMENTS NO. I

Details of work tendered for and in hand as on the date of submission of this tender.

Name of the tendered

Contractor

Owner

| Sr No | Name of work | Place & Delivery | Work in hand | | Anticipated date of completion | Work tendered for | | | Remarks |
|-------|--------------|------------------|---------------|------------------------|--------------------------------|-------------------|---------------------------------|---|---------|
| | | | Tendered Cost | Cost of remaining Work | | Estimated Cost | Dated when decision is expected | Stipulated date or period of completion | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| | | | | | | | | | |

STATEMENT NO. II

Details of works of similar type and magnitude carried out by the contractor during proceeding 3 years

Name of the tendered

| Sr. No. | Name of work | Cost of work | Date of stating | Stipulated date of copulation | Actual date of Completion | Remarks |
|---------|--------------|--------------|-----------------|-------------------------------|---------------------------|---------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | | | | |

STATEMENT NO. III

Details of Plant and machinery immediately available with the tendered for this work

Name of the tendered

Contractor

Owner

| Sr. No. | Name of Equipment | No. of Units | Kind and Make | Capacity | Age and Condition | Present Location | Remarks |
|----------------|--------------------------|---------------------|----------------------|-----------------|--------------------------|-------------------------|----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| | | | | | | | |

STATEMENT NO. IV

Details of Technical personnel available with the Contractor

Name of the tendered

Contractor

Owner

| Sr. No. | Name of Person | Qualification | Whether working in Field or in Office | Experience of Execution of Similar works | Period for which the person is working with the tendered | Remarks |
|----------------|-----------------------|----------------------|--|---|---|----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | | | | |

STATEMENT NO. V

Details of work executed in the interior backward and hilly areas during the preceding years

Name of the tendered

| Sr. No. | Name of work | Cost or work | Date of starting | Stipulated date of Compilation | Actual date of compilation | Remarks |
|----------------|---------------------|---------------------|-------------------------|---------------------------------------|-----------------------------------|----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Contractor

Owner

| | | | | | | |
|--|--|--|--|--|--|--|
| | | | | | | |
|--|--|--|--|--|--|--|

STATEMENT NO. VI

Details of work executed in last three years

Name of the tendered

| Sr. No. | Name of work | Cost or work | Date of starting | Stipulated date of Compilation | Actual date of compilation | Remarks |
|----------------|---------------------|---------------------|-------------------------|---------------------------------------|-----------------------------------|----------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | | | | |

Contractor

Owner

SCHEDULE 'A'

**SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY,
VISHNUPURI, NANDED.**

SCHEDULE 'A'

Schedule showing {approx} the materials to be supplied from the departmental stores for work contracted to be executed and preliminary and ancillary works and the rates at which they are to be charged for the construction work.

Name of work: Providing Internal and External Electrical Installation for Main Entrance Gate, Security booth for SRTMU, Nanded.

| Sr. No. | Particulars | Qty. | Rate | Place of Delivery |
|---------|-------------|------|------|-------------------|
| 1 | Nil | Nil | Nil | Nil |
| 2 | Nil | Nil | Nil | Nil |
| 3 | Nil | Nil | Nil | Nil |
| 4 | Nil | Nil | Nil | Nil |
| 5 | Nil | Nil | Nil | Nil |

Contractor

Owner

SCHEDULE 'B'

SCHEDULE 'B'

Name of Work : Providing Internal and External Electrical Installation for Main Entrance Gate, Security booth for SRTMU, Nanded.

(Ref: PWD Electrical CSR 2023-24)

| Sr. No. | Qty | CSR Item No | Item of work | Estimated Rate | Unit | Amount |
|---------|-----|-------------|--|----------------|------|--------|
| 1 | 68 | 1-1-9 | Supplying and erecting HMS PVC conduit FRLS grade 25 mm dia. with necessary accessories in wall/floor with chiselling appropriately as per specification No: WG-MA/CC(1-1-9) | 127 | m | 8636 |
| 2 | 136 | 1-1-10 | Supplying and laying HMS PVC conduit FRLS grade 25 mm dia with necessary accessories in RCC work/false ceiling/false flooring as per specification No. WG-MA/CC(1-1-10) | 117 | m | 15912 |
| 3 | 34 | 1-1-11 | Supplying and erecting HMS PVC conduit FRLS grade 32 mm dia. with necessary accessories in wall/floor with chiselling appropriately as per specification No: WG-MA/CC(1-1-11) | 180 | m | 6120 |
| 4 | 68 | 1-1-12 | Supplying and laying HMS PVC conduit FRLS grade 32mm dia. with necessary accessories in RCC work/false ceiling/false flooring as per specification No. WG-MA/CC(1-1-12) | 157 | m | 10676 |
| 5 | 4 | 1-2-2 | Supplying and erecting 25 mm dia. corrugated flexible polypropylene conduit(1-2-2) | 21 | m | 84 |
| 6 | 180 | 1-3-1 | Supplying and erecting mains with 2x1.5 sq.mm FRLSH copper PVC insulated wire laid in provided conduit/trunking/inside pole/Bus bars or any other places as per specification No: WG-MA/BW(1-3-1) | 40 | m | 7200 |
| 7 | 180 | 1-3-1 | Supplying and erecting green colour earthing with 1x 1.5 sq.mm FRLSH copper PVC insulated wire laid in provided conduit/trunking/inside pole/Bus bars or any other places as per specification No: WG-MA/BW(1-3-1) | 20 | m | 3600 |

Contractor

Owner

| | | | | | | |
|----|-----|--------|---|------|------|-------|
| 8 | 180 | 1-3-2 | Supplying and erecting mains with 2x2.5 sq.mm FRLSH copper PVC insulated wire laid in provided conduit/trunking/inside pole/Bus bars or any other places. as per specification No: WG-MA/BW(1-3-2) | 62 | m | 11160 |
| 9 | 180 | 1-3-2 | Supplying and erecting green colour earthing with 1x 2.5 sq.mm FRLSH copper PVC insulated wire laid in provided conduit/trunking/inside pole/Bus bars or any other places. as per specification No: WG-MA/BW(1-3-2) | 31 | m | 5580 |
| 10 | 110 | 1-3-3 | Supplying and erecting mains with 4x 4 sq.mm FRLSH copper PVC insulated wire laid in provided conduit/trunking/inside pole/Bus bars or any other places. as per specification No: WG-MA/BW(1-3-3) | 178 | m | 19580 |
| 11 | 110 | 1-3-3 | Supplying and erecting green colour earthing with 1x 4 sq.mm FRLSH copper PVC insulated wire laid in provided conduit/trunking/inside pole/Bus bars or any other places. as per specification No: WG-MA/BW(1-3-3) | 44.5 | m | 4895 |
| 12 | 12 | 1-6-1 | Supplying and erecting modular type switch 6A / 10A duly erected on provided plate and box with wiring connections complete.(1-6-1) | 72 | each | 864 |
| 13 | 2 | 1-6-2 | Supplying and erecting modular type switch 16A duly erected on provided plate and box with wiring connections complete.(1-6-2) | 106 | each | 212 |
| 14 | 12 | 1-6-10 | Supplying and erecting modular type 3 pin 6A multi socket with safety shutter, duly erected on provided plate and box with wiring connections complete.(1-6-10) | 112 | each | 1344 |
| 15 | 2 | 1-6-11 | Supplying and erecting modular type 3 pin 6 / 16A multi socket with safety shutter, duly erected on provided plate and box with wiring connections complete.(1-6-11) | 160 | each | 320 |
| 16 | 2 | 1-6-23 | Supplying and erecting modular type (two module) electronic step regulator for fan, duly erected on provided plate and box with wiring connections complete.(1-6-23) | 382 | each | 764 |

Contractor

Owner

| | | | | | | |
|----|----|--------|--|-----|-------|-------|
| 17 | 2 | 1-6-36 | Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 3 module duly erected flush to wall with required chiselling and finishing with cement mortar / POP as per required to match the background.(1-6-36) | 250 | each | 500 |
| 18 | 2 | 1-6-38 | Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 6 module duly erected flush to wall with required chiselling and finishing with cement mortar / POP as per required to match the background.(1-6-38) | 335 | each | 670 |
| 19 | 2 | 1-6-40 | Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 12 module duly erected flush to wall with required chiselling and finishing with cement mortar / POP as per required to match the background.(1-6-40) | 523 | each | 1046 |
| 20 | 93 | 1-7-15 | Point wiring for light/bell hybrid type (Surface type under false ceiling and concealed type for drops & switch boards on walls) in min 20 mm PVC conduit / casing n capping with 1.5 sq.mm. (2+1E) FRLSH grade copper wires, modular type switch, earthing and required accessories as per specification No: WG-PW/HW | 550 | Point | 51150 |
| 21 | 2 | 1-7-16 | Point wiring for ceiling fan (Surface type under false ceiling and concealed type for drops & switch boards on walls) in min 20 mm PVC conduit / casing n capping with 1.5 sq.mm. (2+1E) FRLSH grade copper wires, modular type switch, earthing and required accessories as per specification No: WG-PW/HW | 638 | Point | 1276 |
| 22 | 4 | 1-7-26 | Wiring for plug on board with Switch socket surface/concealed type, copper wiring and earthing and with modular accessories as per specification No: WG-PW/CW(1-7-26) | 386 | point | 1544 |

Contractor

Owner

| | | | | | | |
|----|----|------------|--|------|------|-------|
| 23 | 16 | 2-1-6(New) | <p>Supplying and erecting LED square / circular Max. 25 W down lighter/ Panel Light having pressure die-cast aluminium housing, polystyrene diffuser having system lumens output of Min. 2750 Lumens, min. efficacy of 110 lumen/W, CRI>80, CCT upto 6500K, Beam Angle of 120 deg., max. ripple of 5%, THD<10%, p.f. >0.95, operating range of 120-270V, surge protection of 2.5 kV, Life class of 50,000 Hrs. at L70B50, including driver, having mounting arrangement with board for surface type or spring loaded mounting clips complete with 3 years warranty.</p> | 1951 | each | 31216 |
| 24 | 2 | 2-1-22 | <p>Supplying and erecting inverter LED batten 20W tube light fitting with polycarbonate housing, heat sink, integrated HF electronic driver, Min. 2600 mAh Lithium ion Battery with charging time of 8-10 Hours and backup time of Min. 3 hrs. with minimum 25% of initial Watts having luminous efficacy of 100 lumen/watt, CRI>80, CCT of 6500K and THD<=20% having useful life of minimum 25000 hrs. with overheating protection with 2 years warranty.(2-1-22)</p> | 1114 | each | 2228 |
| 25 | 6 | 2-4-13 | <p>Supplying and erecting integrated LED flood light fitting Max. 50W IP65 & IK07 class having pressure die-cast aluminium housing, having system lumens output of Min. 5000 Lumens, min. efficacy of 100 lumen/W, CRI>70, CCT upto 6500K, THD<10%, p.f. >0.90, operating range of 140-270V, inbuilt surge protection of 4 kV, Life class of 50,000 Hrs. at L70B50, including driver with U shaped bracket with 3 Years warranty as per specification No FG-ODF/FLS2.</p> | 4246 | each | 25476 |

Contractor

Owner

| | | | | | | |
|----|---|-------------|--|------|------|-------|
| 26 | 6 | 2-4-14 | Supplying and erecting integrated LED flood light fitting Max. 70W IP65 & IK07 class having pressure die-cast aluminium housing, having system lumens output of Min. 8400 Lumens, min. efficacy of 120 lumen/W, CRI>70, CCT upto 6500K, THD<10%, p.f. >0.90, operating range of 140-270V, inbuilt surge protection of 4 kV, Life class of 50,000 Hrs. at L70B50, including driver with U shaped bracket with 3 Years warranty as per specification No FG-ODF/FLS2. | 5846 | each | 35076 |
| 27 | 6 | 2-4-15 | Supplying and erecting integrated LED flood light fitting Max. 100W IP65 & IK07 class having pressure die-cast aluminium housing, having system lumens output of Min. 12000 Lumens, min. efficacy of 120 lumen/W, CRI>70, CCT upto 6500K, THD<10%, p.f. >0.90, operating range of 140-270V, inbuilt surge protection of 4 kV, Life class of 50,000 Hrs. at L70B50, including driver with U shaped bracket with 3 Years warranty as per specification No FG-ODF/FLS2. | 8246 | each | 49476 |
| 28 | 2 | 2-4-20(New) | Supplying and erecting integrated LED Bollard Cylindrical/Cubical shaped 800mm 8W IP65 & IK10 class having extrusion aluminium housing with polycarbonate diffuser, having system lumens output of Min. 800 Lumens, min. efficacy of 100 lumen/W, CRI>80, CCT upto 6500K, THD<10%, p.f. >0.90, operating range of 140-240V, inbuilt surge protection of 2 kV, Life class of 25,000 Hrs. at L50B50, including driver complete with 2 Year warranty as per specification No FG-ODF/FLS2. | 6762 | each | 13524 |

| | | | | | | |
|----|----|-----------------|---|------|------|-------|
| 29 | 7 | 2-4-21 | Supplying and erecting integrated LED Post Top 45W IP65 & IK10 class having die cast aluminium housing with UV protected polycarbonate diffuser, having system lumens output of Min.4500 Lumens, min. efficacy of 100 lumen/W, CRI>80, CCT upto 6500K, THD<10%, p.f. >0.90, operating range of 140-240V, inbuilt surge protection of 2 kV, Life class of 30,000 Hrs. at L50B50 , including driver complete with 2 Year warranty as per specification No FG-ODF/FLS2. | 3713 | each | 25991 |
| 30 | 14 | 2-4-22 (New) | Supplying and erecting integrated LED round burial light 6W IP65 & IK10 class having pressure die-cast housing, having system lumens output of Min. 500 Lumens, min. efficacy of 85 lumen/W, CRI>80, CCT upto 6500K, THD<10%, p.f. >0.90, operating range of 100-240V, inbuilt surge protection of 4 kV, Life class of 50,000 Hrs. at L50B50, including driver, salt spray tested for 500 Hrs. including making of recess of appropriate size for flushing into surface with 2 Year warranty as per specification No FG-ODF/FLS2. | 4069 | each | 56966 |
| 31 | 7 | 2-5-1 | Supplying and erecting Gate/garden light fitting with 200mm dia. glass bowl suitable for upto 12W LED Lamp on provided pipe as per specification No. FG-ODF/GLT | 529 | each | 3703 |
| 32 | 7 | 2-5-2 | Supplying and erecting Gate/garden light fitting with 300mm dia. glass bowl suitable for upto 12W LED Lamp on provided pipe as per specification No. FG-ODF/GLT | 1145 | each | 8015 |
| 33 | 7 | 2-5-4 | Supplying & erecting integral post top lantern fixtures (globe type) suitable for LED lamp upto 12 W consisting of aesthetic round clear acrylic top cover, cast aluminium pole cap on provided pole /bracket as per specification no. FG-ODF/PTL | 1670 | each | 11690 |

Contractor

Owner

| | | | | | | |
|----|---|---------|--|--------|------|-------|
| 34 | 8 | 2-6-1 | Supplying and erecting integrated LED Highbay Fitting 70W IP65 & IK08 class having die cast aluminium housing with polycarbonate diffuser with integrated optics, having system lumens output of Min.10000 Lumens, min. efficacy of 145 lumen/W, CRI>70, CCT upto 6500K, THD<10%, p.f. >0.90, operating range of 140-240V, inbuilt surge protection of 4 kV, Life class of 50,000 Hrs. at L50B50 , including driver complete with 3 Year warranty as per specification No FG-ODF/FLS2.(2-6-1) | 10900 | each | 87200 |
| 35 | 2 | 2.10.13 | Supplying and erecting fresh air cum exhaust fan of light duty 250 V A.C. 50 cycles 300mm. 1400 RPM rust proof body & blades, wire mesh, duly erected, complete.(-10-13) | 1582 | each | 3164 |
| 36 | 2 | 2-10-22 | Supplying and erecting Energy Saving BLDC Ceiling fan 230 V A.C. 50 cycles 1200 mm, max. energy consumption of 28W having service ratio (CMM/W) of Min. 8 , PF>0.9, THD<10% without IR remote control/compatible speed regulator, Temperature Rise of Max. 40 deg. C, having external mounted control PCB completely erected in position as per specification no. FG-FN/CF(2-10-22) | 3429.9 | each | 6860 |
| 37 | 2 | 2-11-5 | Supplying and erecting fan hook box of 10 mm M.S. round bar bounded to the R.C.C. bars upto 50 mm length each side and pierced through a 16 S.W.G. thick aluminium/M.S. Bowl 100 mm dia. or equivalent square size and having depth upto 75 mm complete erected with duly painted by one coat of red oxide paint and two coats of paint erected in position and without any leakage of slurry of cement concrete on either side of the box and positioned to the bottom level of the slab.(2-11-5) | 176 | each | 352 |

| | | | | | | |
|----|----|--------|--|-------|------|--------|
| 38 | 1 | 2-11-6 | Supplying and erecting 'B' class G.I .pipe / M.S. pipe down rod duly painted for fan complete erected with PVC three core flexible cable 1 sq. mm copper PVC wire.(2-11-6) | 229 | m | 229 |
| 39 | 2 | 3.3.9 | Supplying, erecting, testing and commissioning self contained water cooler 230/250V 50Hz nominal cooling capacity of 80 litres per hour and storage capacity 120 litres with partially stainless steel body as per specification no. AP-WCR/WC(3-3-9) | 50484 | each | 100968 |
| 40 | 2 | 3-5-1 | Supplying and erecting ultra violet storage type water purifier (RO+UV+UF) with softener for safe drinking water consisting of UV germicidal tube of 8W capacity choke made of copper wire and two indicator lamps with output of purified water minimum 0.33 litre/min with activated carbon filter and softener operating on 230V, single phase A.C. supply with UV fail & filter change indication system .(for TDS more than 200)(3-5-1) | 15891 | each | 31782 |
| 41 | 4 | 9.1.1 | Providng earthing with galvanized iron earth plate size 60 x 60 x 0.6 cm complete with all materials, testing & recording the results as per specification no. EA-EP(9-1-1) | 4714 | each | 18856 |
| 42 | 25 | 9-2-3 | Supplying and erecting GI strip of high purity required size used for earthing on wall and/or any other purpose with necessary GI clamps fixed on wall painted with bituminous paint with joints required. As per specification no EA-EP.(9-2-3) | 222 | kg | 5550 |

Contractor

Owner

| | | | | | | |
|----|----|--------|---|-------|------|-------|
| 43 | 1 | 5-2-5 | Supplying and erecting three phase, 415V, street light control panel up to the max load of 6kW, TPN MCB 40A, powder coated CRCA 14 SWG sheet, outdoor type, having IP54,IK10 protection, suitable rating contactor, 24 hrs. astronomical time switch with minimum 5 years battery back up, auto/manual selector switch, ON/OFF push buttons, indicator lamps, control wiring, metering device, etc. for automatic operation, with overcurrent, short circuit, earth fault protection on provided iron frame / CC foundation.(5-2-5) | 22739 | each | 22739 |
| 44 | 12 | 5-3-2 | Supplying, erecting and marking SPMCB 6A to 32A, C-series with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board as per specification no. SW-SWR/MCB(5-3-2) | 174 | each | 2088 |
| 45 | 18 | 5-3-3 | Supplying, erecting and marking SPMCB 6A to 32A, B-series with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board as per specification no. SW-SWR/MCB(5-3-3) | 173 | each | 3114 |
| 46 | 1 | 5-3-10 | Supplying, erecting and marking TPMCB 6A to 32A, with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board as per specification no. SW-SWR/MCB(5-3-10) | 751 | each | 751 |
| 47 | 2 | 5-3-11 | Supplying, erecting and marking TPMCB 40A to 63A, with rated short - circuit breaking capacity (Icn) 10kA in provided distribution board as per specification no. SW-SWR/MCB(5-3-11) | 992 | each | 1984 |
| 48 | 3 | 5-4-1 | Supplying and erecting triple pole and neutral distribution board (TPNDB), SPMCB of 4 ways/phase (12 poles), with door, 1.2mm thickness, surface/flush mounted, IP 43 protection on iron/GI frame (horizontal busbar type) as per specification no. SW-SWR/MCBDB(5-4-1) | 2356 | each | 7068 |

Contractor

Owner

| | | | | | | |
|----|----|--------|---|------|------|------|
| 49 | 2 | 5-4-13 | Supplying and erecting CRCA sheet metal one way enclosures of 1.2mm thickness suitable for DP MCB /TP MCB/FP MCB/RCCB/RCBO complete erected on angle iron/GI frame.(5-4-13) | 400 | each | 800 |
| 50 | 2 | 5-6-4 | Supplying, erecting & commissioning 4 pole RCCB 16/25A, electromagnetic type with 30/100/300 mA sensitivity with earth leakage trip indication complete as per specification no. SW-RCCB/RCCB | 2642 | each | 5284 |
| 51 | 2 | 5-6-9 | Supplying, fixing, and commissioning 2 pole, RCBO 6/10/16/20/25A, with overcurrent, rated short-circuit breaking capacity (10 kA) and earth leakage protection, with 30/100/300 mA sensitivity and short circuit and earth leakage trip indication as per specification no SW-RCCB/RCBO(5-6-9) | 2986 | each | 5972 |
| 52 | 12 | 6-1-1 | Supplying and erecting metal work in CRCA sheet including Iron work for supports with fabrication of boxes, panel boards, etc. including cutting, bending, drilling, welding, riveting, treated with anti-rust treatment and duly powder coated or painted with one coat of red lead paint and 2 coats of enamel paint complete.(6-1-1) | 249 | kg | 2988 |
| 53 | 12 | 6-1-19 | Supplying and erecting iron work, sheet metal work consisting of CRCA sheets, various sections of iron, plates, chequered plates, rods, bars, MS pipes, etc. for panel board or any other purpose with bending, cutting, drilling and welding complete erected at the position with necessary materials duly painted with one coat of red oxide and two coats of enamel paint to match the switchgears or as per directions by the authority.(6-1-19) | 186 | kg | 2232 |
| 54 | 72 | 7-1-4 | Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V 2 core 4 sq. mm. aluminium conductor complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL | 113 | m | 8136 |

Contractor

Owner

| | | | | | | |
|----|-----|--------|---|-----|--------------------|-------------------|
| 55 | 24 | 7-1-26 | Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 4 core 4 sq. mm. aluminium conductor complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL | 135 | m | 3240 |
| 56 | 110 | 7-1-27 | Supplying, erecting & terminating FR XLPE insulated, galvanised steel formed wire armoured (strip) cable 1100 V, 4 core 6 sq. mm. aluminium conductor complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL | 152 | m | 16720 |
| 57 | 6 | 7-8-8 | Supplying & erecting FRP box of size 150mm x 125mm x 100 mm, 2.7 mm thick complete on pole/wall as per specification No. CB-SB | 496 | each | 2976 |
| | | | | | Total | 757547/- |
| | | | | | Add 18% GST | 1,36,358/- |
| | | | | | Grand Total | 893905/- |

Contractor

Owner

ANNEXTURE-II

List of Recommended makes of Major materials.

Name of work: Providing Internal and External Electrical Installation for Main Entrance Gate, Security booth for SRTMU, Nanded.

NOTE : THE EXECUTIVE ENGINEER RESERVES THE RIGHT TO ASK FOR ANY OF THE FOLLOWING APPROVED MAKES TO BE USED AT THE TIME OF EXECUTION OF WORK . CONTRACTOR SHALL BE CONSIDERED WHILE QUOTING THE RATES.

| Sr. No | EQUIPMENTS/MATERIALS | MAKES/ BRAND NAME |
|---------------|---|---|
| 1. | PVC Trunking / PVC Rigid Conduit | Diamond /Precision /Pressfit /Astral/Astro |
| 2. | PVC Insulated Wires(FR/ FRLSH/ FRLSHH) | Finolex /Polycab /Anchor /RR Cab/Havells (ISS No. 694) |
| 3. | MCB/ELCB/RCCB (All poles), MCB Distribution Boards. | Havells/L&T/Siemens/Legrand/Schneider |
| 4. | ACB/MCCB (All poles), | Havells/L&T/Siemens/Legrand/Schneider |
| 5. | LED Tube Light / Street Light/ Flood Light / Panel Light | Havells / Crompton /Philips / Wipro |
| 6. | BLDC Ceiling Fans 1200 mm | Havells / Crompton Greaves / Atomberg |
| 7. | PVC LT Alluminum Armoured Cables | FINOLEX / HAVELLS / POLYCAB |
| 8. | LT Switchgears | Havells/ L&T/ Siemens/ Legrand/ Schneider |
| 9. | Wiring Accessories :- Modular Type Switches, Sockets, Ceiling rose , Batten holder etc. | Anchor (Roma)/ Havells (Craberee) / Legrand/Schneider/L&T |
| 10. | Exhaust Fan | Havells /Crompton Greaves /Usha/ Almonard. |
| 11. | Lugs | Dowells/ Comet / Jainson |
| 12. | Flange type gland | Dowells / HMI / Hex / Comet / Jainson/SSG |
| 13. | UPS | Luminus / Microtek |

Contractor

Owner

Note:-

- 1) The Tenderers are requested to procure the Materials for the work at site after actual mark-out and survey of the site and Brands/Makes of the items got approved by the Executive Engineer.
- 2) ISI mark License issued by Bureau of Indian Standard/ approval accorded by Chief Engineer (Electrical) P. W. D Mumbai shall be valid during the period of completion of work.
- 3) If necessary, materials will be tested from ISI or any approved laboratory for verifying the Genuineness of the product.
- 4) Contractor Should Submit the Bills/Test Reports of Purchase from Manufacturer to Prove The Authenticity of Material in the above List
- 5) Where the Modular type accessories are used, the accessories, mounting plate/blanking plate And the modular boxes shall be of the same make and color.
- 6) The work should be carried out as per the PWD Electrical Division's specification numbers given under each Item.
- 7) MCCB, MCB, MCB DB, MCCB Panel Board Should be of the same make.

GENERAL SPECIFICATIONS FOR LOW VOLTAGE INDOOR SWITCH-BOARDS

GENERAL SPECIFICATIONS OF EQUIPMENTS:

- 1.1 This Section relates to supply installation, testing and commissioning of the Switch board.
- 1.2 The Switch-boards shall be metal clad, totally enclosed, rigid floor mounting, air insulated, cubical type, compartmentalized for use on 433 Volts, 3 phase, 4 wire, 50 cycles, A.C. supply with fault level of 50 / 35 KA at 433 Volts.
- 1.3 The equipment shall be designed for operation in high ambient temperature and High humidity tropical atmospheric conditions. The equipment shall be suitable for indoor applications.

STANDARDS:

- i) IS-4237-General requirements for Switch-gear and control gear for voltage not exceeding 1000 Volts.
 - ii) IS-2147-Degrees of protection providing by enclosures for low voltage Switch-gear and Control-gear.
 - iii) IS-375-Marking and arrangement of Bus-bars.
- 2.1. Individual equipment housed in the Switch-boards shall conform to the following applications.
 - i) IS: 4064 (Part-II)- 1976- Air Break Switches and fuse combination units for Voltages not exceeding 1000 Volts.
 - ii) IS: 1248- Direct acting electrical indication instruments.

iii) IS: 9224-1979-Low Voltage fuses.

iv) IS: 2516- Alternating current circuit breakers.

v) IS: 2705- Current Transformers.

vi) IS: 3156- Voltage Transformers.

CONSTRUCTION:

- 3.1. Design should be completely modular type. Each module size should be to Engineered to accommodate all the equipment considering ease of operation & maintenance.
- 3.2. The structure shall be of rigid / bolted construction with C.R. Sheet steel of not less than 14 SWG thickness. The doors covers, barriers etc., shall be made of minimum 16 SWG sheet steel.
- 3.3. All doors should be provided with neoprene gaskets.
- 3.4. Compartments should be totally flexible and should be in bolted construction.
- 3.5. Adequate separate Bus-bar chambers/cable chambers shall be provided as required. Bakelite protective covers shall be provided to prevent inadvertent access to live bus-bars on opening covers. Bus-bar chamber covers shall be necessarily bolted type.

For operator safety live bus-bars should not be accessible from feeder module.

Main bus-bars and vertical droppers should have easy access for ease of Maintenance and should be placed at the rear of the panel.

The Switch-boards shall be offered with minimum IP-52 degree of protection. The fabricator should provide test certificate for similar construction from reputed institute.

- 3.9. The Switch-boards shall be extensible on both sides by addition of vertical sections.
- 3.10. It should be possible to change cable entry at site and it should be possible to have part top and part bottom cable entry. Wide cable alley (minimum 400 mm) should be provided with each vertical section. Common cable alley for 2 sections is not acceptable.
- 3.11. Specially designed hardware and fastening techniques should be deployed and Zinc/Nickel plate hardware should be used for rust prevention and to achieve high degree of mechanical strength.

4.0. **EARTHING:**

Provision shall be made for permanently earthing the frame and other metal parts through G.I. Flat earth bar adequate size running throughout the length of the panel at top / bottom (as required) and connected to earthing studs of adequate size fixed on 2 sides of the panel to receive 2 earth connections. Each individual feeder panel should be separately earthed.

5.0. **METAL TREATMENT AND PAINT FINISH:**

All steel components used in the construction shall undergo treatment under 7 Tank process and then powder coated with agreed shade of colour.

6.0. **BUS-BARS:**

- 6.1. The bus-bars shall be air insulated and made of high quality Aluminium of E-91 grade.
- 6.2. Bus-bars shall be suitably braced with non-hygroscopic SMC Insulator supports to withstand short circuit level of 65 / 50 KA. Certificate to this effect from recognized institute such as CPRI shall be produced for similar construction. The neutral as well as earth bar shall also necessarily be supported on SMC supports to prevent tracking between adjacent bus-bars.

6.3. Bus-bars R-Y-B-N and earth should be heat shrink colour PVC sleeved.

Zinc / Nickel plated, nuts, bolts, spring washers, flat washers shall be used for Proper Bus-bars joints.

6.5. Current Density shall be maximum 1 Amp. Per Sqmm for single bus-bar, 0.8 Amp per Sqmm for double Bus-bars and less and agreed figure to withstand 65 / 50 / 35 KA fault level for more than 2 bus-bars.

7.0. ACBs, MCCBs, FSUs, METERS etc. :

These shall be as per “approved list of makes” enclosed separately.

8.0. INTERNAL WIRING:

8.1. Internal wiring for control circuits shall be made with 1100 V grade single or Multi strand copper PVC cable.

Power wiring shall be done either with copper flexible PVC insulated cable of 1100 V grade or with solid copper conductors.

8.3. The minimum size of control wiring shall be 2.5 Sqmm copper for CT Circuits and 1.5Sqmm copper for other circuits.

8.4. The wiring shall be terminated in the respective terminal with suitable crimp type of sockets.

8.5. There shall not be more than two wires connected to a terminal.

9.0. POWER CABLE TERMINATIONS:

9.1. UN drilled individual glands plates of adequate size shall be provided at the top of cable

chamber to facilitate cable entry from top.

- 9.2. Suitable shrouds be provided to prevent accidental contact with live outgoing Terminations or other feeders while carrying out maintenance on one feeder.
- 9.3. Cable risers shall be adequately supported to withstand the effect of rated short circuit current damage and without causing secondary faults.
- 9.4. For Top entry cables a cabling space of 300 mm shall be provided.

10.0 LABELS:

Labels shall be anodized aluminium with white engraving on black background. They shall be properly secured with fasteners or PVC with white engraving on black Backgrounds.

11.0. TESTS/TEST CERTIFICATES:

Routine tests shall be conducted on each Switch-board in accordance with IS: 8623 and shall comprise –

General inspection

1000 V meggar test

H.T. Test (2 KV)

Manufacturer's Test Certificate shall be furnished for all mountings (A.C.Bs, MCCB's F.S.U.s, C.Ts, Relays, SFUs, MFM, instruments etc.), calibration of relays/meters.

Calibration of relays / meters.

Secondary Injection Testing (at extra cost if required)

Checking of operations of A.C.Bs/MCCBs, such as drawing out, closing, tripping etc.

GENERAL SPECIFICATION (FOR ALL PANELS)

- a) All panels shall comply with enclosed "General Specifications"
- b) The makes shall be as per specified Makes i.e. "SECTION SM"
- c) The panel shall also comply with single line Diagrams enclosed.
- d) In the event of Ambiguity in specifications (Schedule S-3) and SLD's more stringent requirements shall apply.
 - 1) Unless approved all panels shall be of same height.
 - 2) Panels shall be extensible on either side.
- d) Refer enclosed Single Line Diagram, Drawing for further details. In the event of discrepancy in this drawing and these specifications more stringer specifications shall prevail.
- e) All panels shall be provided with proper termination arrangement at top / as specified. Suitable extended bus bars shall be provided for multiple cable connections. Proper vertical space / clearance shall be provided between termination point and gland plates for smooth bending / adjusting of cable leads. Minimum clearances for cable leads shall be as under.
 - Up to 63 A : 200 mm.
 - 63 A to 250 A : 400 mm.
 - 250 A to 400 A : 600 mm.
- f) Glands & cable sockets are excluded from Panel manufacturer's scope.
- g) APFC panels shall be Front Access type.
- h) All MCCB's shall be provided with Rotary operating handles.
- i) Panels shall be painted with approved shade / grade of paint.
- j) Makes of the ACB's / MCCB's / Mounting / Accessories shall be as per " section SM " enclosed.
- k) In the event of any ambiguity / discrepancy Consultant's / Client's decision shall be final and binding.

EARTHING INSTALLATION

1. GENERAL:

This Section relates to supply installation, testing and commissioning of the “Earthing System” strictly in accordance with IS-3043 (Latest Edition) and generally as specified below:

2. SYSTEM:

There shall be an “EARTHING GRID”. The main Earth conductor shall be laid in Cable Trays / trenches / on wall / on structures as the case may be and shall be earthed through Earth Electrodes around the Factory Building / Plant Building.

3. INSTALLATION PARTICULARS:

All Electrical Equipments shall be properly earthed. Non-current carrying Metal Parts of the equipments shall be earthed.

Medium Voltage and 3 phase L.T. systems & equipments shall have two distinct earths. Single-phase equipments shall have one earth.

Continuous earthing shall be provided by means of suitable size Bare G.I. / Copper / PVC insulated copper strips / cables or suitable bare GI / copper wires.

Earthing using Maintenance free Earth stations including supply of earth electrode, special compound, around 3 Mtrs deep or as per site requirement approximate 6" dia bore in any soil including rock, putting earth electrode, special compound, black cotton soil if required, providing suitable test link, suitable inspection chamber, suitable size round C.I. cover say 12" dia. or nearest standard size, necessary Brickwork with plastering and finishing.

Galvanized iron earth plate size 60 x 60 x 0.6 cms. Buried in specifically prepared

earth pit 1.5 mtr. depth below ground from the top of the Earth plate with layers of charcoal with 25 mm. dia. G.I. pipe with funnel with a wire mesh for watering and brick masonry block C.I. cover complete as per para 7.3 of I.S. 3043 with necessary length of G.I. earth Strip 50 x 6 mm bolted with the plate and covered in 25 mm. dia. G.I. pipe 2 mtr. long complete duly tested by earth tester and recording the results.

All the earthing shall be in accordance with Indian Electricity rules and I.S. 3043. The earthing conductor shall be of G.I. as specified in schedule of quantities. Each earth pit shall have test link joint by to nut bolts on either side separate pits shall be provided for lightning conductors. Whenever earthing strips run along a wall or side of a trench, these shall be fixed by suitable clamps at half meter distance. The portion of strip outside the building should be laid 600 mm below the ground level . The portion inside the building should be properly supported with MS clamps . The surface of the electrode strip shall be painted with two coats of bitumen /plastic paint from the electrode up to connecting point of the ring earth inside building. Colour of the paint shall be approved by E.I.C. The earthing clamps for supporting earth strips shall be of such design so as to avoid bimetallic action between strip and clamp.

All installations of earthing shall conform to IE Rules 1956 and its amendments from time to time, IS 3043 latest edition and amendments, IE Rules & the relevant regulations of the electricity supply authority concerned. The earth plate of size 60x60x0.06cm shall have separate pit at least 1.5 meters but not more than 3 meters away from the building at depth necessary to reach moist earth surface but with minimum depth 1.5 meter from the finished ground level up to the top vertical edge of earth electrodes. Each earth pit or as required should be provided with 25 mm dia GI pipe 1500 mm long or more depending upon the depth of pit to cover the vertical edge of earth plate (with top end of pipe provided with a closed top coupler). To facilitate watering concrete compartment should be made with funnel and cover plate as per rules provided to I.S. regulation. After installation the earthing resistance of each earth plate should be measured by earth resistance megger in the presence of Engineer in charge three days after the completion of earthing work and the value should conform to regulation. Earth leads taken out should be connected to nearest switchgear.

INSTALLATION OF EARTHING STRIP

The strip shall be connected to earthing electrode and ring main earthing by brass/GI bolts and nuts and washers depending upon the type of materials for strip and as directed by the Engineer-in-charge. The portion of the strip outside the building should be laid 600 mm below the finished ground level. The portion inside the building should be properly supported with MS clamp as per drawing. The surface of the strip should be painted with two coats of bitumnastic paint from the electrode upto connecting point of the ring earth inside building. Colour of the paint shall be approved by the E.I.C.

The strip should be fixed to the plate as well extension strip both by brazing and riveting at the ends of over lapping portion. The overlap in case of extension strips shall be minimum of 50 mm. In case of connection of cable sockets connection to the strip they should be either fixed by clamps or by bolts and nuts as per instruction of Engineer-in-charge.

Earthing leads shall be securely connected to equipments / structures etc. If earthing leads are wires these shall be necessarily connected, by means of socket fixed by crimping method. Earth Resistance at Earth Electrode shall be less than two Ohm all times. If Multiple Earthing Stations are to be provided, the Earthing Stations shall be separated by minimum distance of 3 Mtrs. center to center.

All joints shall overlap by minimum 50 mm GI Earth Strip joints shall be properly welded and coated with 2 coats of black bitumen paint.

Size of GI Earth-strip for earthing shall be generally under:

| | |
|---------------------------------------|--------------------|
| 11 KV Switch-yard / Earthing station: | 50 x 6 mm GI strip |
| Switch-boards 1600 Amp to 800 Amps | |
| Switch-boards up to 800 Amps: | 40 x 6 mm GI strip |

| | |
|--|--|
| Other switch-boards and motors including 50HP and above. | 32 x 6 mm GI strip |
| Motors less than 50HP up to and including 20HP | 32 x 3 mm GI strip |
| Motors less than 20HP | 25 x 3 mm GI strip or 6 SWG GI Wire |
| P.S.D.B.'s L.S.D.B's | 8 SWG GI Wire |
| Transformer & D.G Neutrals | Copper strip Size as per earthing Schedule. |
| Dedicated for M/C | 25 mm x 3 mm copper Strip Or 16 Sq mm Copper single core flexible cable. |
| Lighting Conductor System | Copper / GI strip Size as Per Earthing Schedule. |

EARTHING STATIONS:

(General Requirements subject to variation depending on other considerations from project to project.)

Earthing General Requirements is given in earthing schedule.

H.T. / L. T. CABLES AND CABLE SCHEDULE

A) 11 KV ALUMINIUM H.T. XLPE RMOURED CABLES:

1.1 Codes and Standards:

The design, manufacture, testing and supply of the cables under this specification shall comply with the latest revisions including amendments of the following standards.

- IS : 7098-I - XLPE insulated heavy duty cables for working voltages up to 11000 Volts.
- IS : 3961-II - Recommended current ratings for cables.
- IS : 8130 - Conductors for insulated cables.
- IS : 5831 - XLPE Insulation and outer sheath of electric cables.
- IS : 7098-I - Test Procedures for cables.
- IS : 10418 - Specification for drums for electric cables
- IS : 3975 - Mild steel wire, strips, and tapes for armoring of cables.

1.2 Technical Requirements:

1.2.1 All XLPE Aluminum Power cables shall be 11000 Volts grade, multi core constructed as per IS : **IS: 7098 with latest amendments** as follows :

- a) Stranded Aluminum conductor in case of 10 sq.mm. and above and solid conductor in case of 10 sq.mm. and below.
- b) All Aluminum XLPE cables insulation shall be of high grade Cross-linked Polyethylene from insulation for extrusion process.
- c) Cores lay up

The inner sheath should be bonded over with thermo-plastic material for protection against mechanical and electrical damage. Armoring should be provided over the inner sheath to guard against mechanical damage. Armoring should be Galvanized steel wires or galvanized steel strips. (In single core cables used in A.C. system armoring should be non-magnetic hard aluminum Wires/Strips. Round steel wires should be used for armoring in case of 11 KV XLPE cables

- d) The outer sheath should be specially formulated heat resistant black PVC compound conforming to the requirement of type ST2 of IS: 5831-1984 extruded to form the outer sheath.

- 1.2.2 Conductor shall be of electrolytic Aluminum/Copper conforming to IS : 8130 and are compact circular or compact shaped.
- 1.2.3 Insulation shall be of XLPE type as per latest IS general purpose insulation for maximum rated conductor temperature 70 degree centigrade.
- 1.2.4 In Inner sheath, laid up cores shall be bonded over with thermoplastic material for protection against mechanical and electrical damage.
- 1.2.5 Insulation, inner sheath and outer sheath shall be applied by extrusion and lapping up process only.
- 1.2.6 Armouring shall be of galvanized steel wire/flat.
- 1.2.7 Repaired cables shall not be used.
- 1.2.8 Current ratings of the cables shall be as per IS : 3961.

2.0 XLPE CABLES:

The XLPE insulated cables shall conform to latest revision as read along with this specifications.

The Conductor shall be stranded Aluminium/Copper circular/sector shaped and compacted. In multi core cables the core shall be identified by red, yellow, blue and black coloring of insulation.

The XLPE insulated 11000 Volts grade power cables shall conform to latest IS and shall be suitable for a steady conductor temperature of 70 degree centigrade.

The conductor shall be stranded Aluminum as called for in the Schedule of quantities.

The outer sheath shall be as per the requirement of type ST-2 of IS:5831 of 1984.

Supply and laying of cables:

The cables shall be suitable for laying in racks, ducts, trenches, conduits and underground buried installation with uncontrolled back fill and chances of flooding by water.

Progressive automatic in line sequential marking of the length of cables in meters at every one meter shall be provided on the outer sheath of all cables.

Cables shall be supplied in non returnable wooden drums as per IS : 10418.

Both ends of the cables shall be properly sealed with PVC/Rubber caps so as to eliminate ingress of water during transportation, storage and erection.

3.1 Tests and Test Reports:

Cables shall be subjected to type tests, acceptance tests and routine tests as per 7098 Part - I. The Consultant reserves the right to witness any or all the tests for which at least 20 days advance notice shall be given by the contractor. Six (6) copies of all test reports shall be submitted for approval by Engineer in Charge before dispatch of the materials from works.

3.2 Drawings and Data:

The Contractor shall furnish technical particulars of cables, type, make and catalogue for the approval by Engineer in Charge.

3.3 The product should be coded as per IS - 7098 Part-I and the codes should be as follows:-

| | |
|--------------------------------------|----|
| Aluminium Conductor | A |
| XLPE Insulation | 2X |
| Steel round wire armour | W |
| Steel strip amour | F |
| Steel Double round wire armour | WW |
| Steel Double strip armour | FF |
| Non-magnetic (Al.) round wire armour | Wa |
| Non-magnetic (Al.) strip armour | Fa |
| PVC outer sheath | Y |

3.4.1 HT Cables Standards

| Indian Standard | Description |
|------------------------|---|
| IS 7098 | XLPE insulated electric Cables. |
| IS 5831 | PVC insulation and sheath of electric cables. |
| IS 3975 | Mild steel wires, strips and tapes for armouring of cables. |

3.4.2 Other Considerations

The HT cable sizing shall be based on fault level at 11 KV. The short circuit 26.5 KA withstand duration shall be 1.0 sec for all feeder.

3.4.3 Technical parameters

| Voltage grade | 11 KV (E) grade (Earthed system) laid from Existing Substation To HT Panel To transformer |
|--|--|
| No. of cores | Three core |
| Nominal area of conductor | Size as per norms |
| Conductor | Aluminium conductor complying with the requirements specified in I.S. |
| Type of insulation | Cross linked polyethylene(XLPE) |
| Shielding | Conductor shielding and insulation shielding |
| Armoured or Unarmoured | Armoured |
| Cables to be used in earthed or unearthed system | Earthed system |

3.4.4 Conductor

The conductor shall be made from high electrical purity Aluminium of circular shape. Conductor construction and testing shall comply to latest I.S.

3.4.5 Insulation

High quality XLPE insulating compound of natural colour shall be used for insulation and shall be chemically cross linked by continuous vulcanization process. The cables shall be manufactured with dry cure system. This shall comply to latest IS.

3.4.6 Shielding:

The XLPE cables shall be provided with both conductors shielding and insulating shielding. Both conductor shielding and insulation shielding shall consist of extruded semiconductor compound. Additional insulation shall be provided with

semiconductor tape and non-magnetic tape screen over the extruded insulation conductor shielding. XLPE insulation and insulation shielding shall be extruded in one operation by a special process ensuring perfect bonding of inner and outer shielding with insulation.

3.5 SUPPLY & ERECTION OF INDOOR END TERMINATION PUSH ON KIT SUITABLE FOR 11 KV (UE) XLPE CABLE

- a. The contractor shall supply the HT indoor termination kits suitable for making termination with 11 kV (UE), aluminium, underground, XLPE cables with 3 core, push on type to terminate the HT cables.
- b. The successful tenderer shall supply the Indoor termination kits which shall contain the full set comprising the spacer, push on type insulator, earthing continuity braided copper wire with adequate length, aluminium crimping ferrules, non adhesive PVC tape, semiconductor tape putty, cleaning agent etc
- c. The end termination kits shall be laid / installed with necessary hardware and accessories.

L.T. CABLES & CABLE SCHEDULE

1. SCOPE:

This Section relates to supply, installation, testing and commissioning of medium voltage cables.

2. SYSTEM:

A) All cables are required to be laid either in excavated trench or on M.S. Structures or on the wall or in RCC trench or in cable tray.

B) Cables shall be laid in one piece length and no straight through joint shall be allowed.

3. MATERIALS:

All cables shall have following specifications:

- a) Voltage grade: 650 / 1100 Volts.
- b) Insulation : PVC
- c) Sheathing : PVC
- d) Armour : Galvanized steel tape / wire.
- e) Specifications : Cables shall confirm to the Indian Standard : IS : 1554-Part-I 1964
- f) Conductor : Aluminium / Copper (as specified).

4. INSTALLATION:

- i) Cable drums shall be checked for any damage in transit.

- ii) Insulation test of the cable shall be carried out between phases and phase to earth before unwinding the drum.
 - iii) Laying of cables shall be carried out by skilled and experienced labourers using adequate rollers to minimize stretching of the cable/external damage to cables.
 - iv) The cable drums shall be placed on jacks before unwinding the cable.
 - v) The cables shall be laid 15 CMS. apart and at a depth of 0.75 meter below ground level.
 - vi) The cables shall be laid on 750 mm deep sand bedding and shall be covered with approved bricks. (Underground cables).
 - vii) The excavated trench shall be back filed to the normal ground level and shall be well rammed by spraying water and sufficient allowance made for settlement of the earth.
 - viii) R.C.C. Hume pipe with collar shall be used as sleeve for all road crossings.
(These shall be laid by Civil Contractor).
 - ix) Cable entry to the building shall be through GI pipe / RCC pipes / buried in wall or concrete during construction.
 - x) At all changes in direction, in horizontal and vertical planes, the cables shall be smooth and with a radius of bend not less than 12 times diameter of the cables.
 - xi) Approved GI cable markers shall be provided along the route of the cable at every 30 meters distance. (For underground cables).
 - xii) Cables in built-up trench shall be laid on MS clamps/supports to be fixed on side walls or top slab of the trench.
 - xiii) Distance between two adjacent cables shall be kept equal to cable diameter and cables shall be clamped properly to keep the cables in positions.
 - xvi) Distinguishing markers shall be provided on both cable ends for identification. Cable tags shall be provided at both ends cables indicating size of the cable and From / To information. For lengthy cables cable tags shall be provided at every 30 Meters and at road crossings.
- 5.1 Appropriate size as specified in schedule have the following specifications -. The design, manufacture and testing and supply of cable under this specification shall compare with latest revision of IS standards which should be furnished before supplying the cable. PVC armoured cable having 1.1 KV grade with ISI mark constructed as per IS 1544 and detailed specification mentioned in above IS 1544 shall be submitted for verification. The

8 SWG GI earth wire should be continuous with running cable. Insulation of the cable shall be of PVC type 'A' as per IS 5831. General purpose insulation for maximum rated conductor temperature should be 70 C. Inner sheath shall be of PVC type ST-1 and outer sheath shall be of PVC type ST-2 as per IS 5831. Insulation of inner sheath and outer sheath shall be applied by extrusion and lapping up process only. Armoring shall be of galvanized steel wire/ flat. The cable should be in one piece and no joint is allowed however if it is essential, a written consent from the engineer in charge should be taken. Current rating of the specified cables shall be as per IS 3961. The PVC insulated cables shall conform to latest revision of IS 1554 (Part I), read schedule 'B' along with this specification. The conductor shall be stranded aluminium,/ copper circular/sector shape and compacted type. The cables shall be suitable for laying in trenches, ducts and underground buried installations with uncontrolled back feeding and chances of floodity by water. Cables should withstand all mechanical, electrical and thermal stresses under steady state and transient state of operation. The cable should withstand the system fault current with insulation screen/ armour insulated at one end. The bidder shall furnish calculations in support of capability of cables for three-phase fault. Armour shall be designed to withstand the earth fault current. The current carrying capacity of armour shall not be less than the earth fault current values of the system. Progressive automatic in line, sequential marking of the length of cables in meters at every one meter shall be provided on the outer sheath of both the cables. Cables shall be supplied in non-returnable drums as per IS 10418. Both ends of the cables shall be properly sealed with PVC / rubber cap so as to eliminate ingress of water during transportation, storage and erection. At the time of issue of cable for laying, the cores shall be tested for continuity and insulation resistance and test results shall be furnished to the competent authority.

- .5.2 At the time of actual laying of cable approximately 2.5 m. of surplus cable shall be left on each end of the cable. The surplus cable shall be left in the form of a loop. Cables shall be subjected to type tests, acceptance tests and routine tests as per IS 1554 to IS 10810.
- .5.3 Cable Termination comprises of brass cable glands flange type, Siemens type single compression of specified rating at the termination of cables. While fixing glands to the terminal boxes sufficient care should be taken. These cable glands shall be fix face to face to the boxes and gland-joining washer. Heavy crimping type Al / Cu. Lugs should be used

for termination of the cable leads. Skilled and experienced electricians should be employed for this job so that the work should complete in systematic manner.

.5.4 Trenches for Cables:

This item consists of making of trenches, for cables, having dimension 0.70 meters deep and 0.30 meters in width. The trenches shall be excavated in reasonably straight lines, wherever there is change in direction, suitable curvature shall be provided complying with the requirement of the manufacturer. Adequate precautions should be taken not to damage any existing cables, pipes or other such installations in the proposed route during excavation. Wherever bricks, tiles or protective covers of cables encountered, further excavation shall not be carried out without the approval of the engineer in charge. If there is any danger of a trench collapsing as endangering adjacent structures the sides should be well shored up with timbering and/as sheeting as the excavation proceeds.

The bottom of trench shall be in level and free from stone, brick etc. The trench shall then be provided with a layer of clean dry sand cushion of not less than 20 CMS in depth.

Whole dry bricks are to be laid across the length of the cable and engulfing the entire area of the cable laid in the excavated trench. The whole bricks shall be laid over a layer of dry sand to ensure that no damage is done to the cable already laid in prepared trench. The trenches shall be then backfilled with excavated earth, free from stone or other sharp edges, debris and shall be ramped and watered, if necessary, in successive layers not exceeding 30 CMS unless or otherwise specified, a crown of earth not less than 15 CMS in the center and tapering towards the sides of the trench shall be left to allowed for subsidence.

5.5. Minimum laying Depth of cables (IS:1255)

| Sr. No. | Voltage level of cables | Minimum depth from top of the cable |
|----------------|--|--|
| 1 | Up to 1.1 KV | 750mm |
| 2 | 3.3 KV to 11 KV | 900mm |
| 3 | 22KV to 33 KV | 1050mm |
| 4 | At road crossing | 1000mm |
| 5 | At railway crossing (from Bottom of sleepers to Top of pipe) | 1000mm |

Contractor

Owner

SPECIFICATION FOR CONDUIT WIRING FOR LIGHTS, FANS AND SOCKET OUTLETS ETC.

This section covers the essential requirement for the internal electrical installation in buildings areas. This specification shall be read along with the specific requirements attached here for the work.

POINT WIRING FOR LIGHT IN CASING CAPPING ON CEILING AND IN WALL, PANELS, ETC

1.0 The point wiring for light point shall be Surface in ceiling / wall with min. 25mm casing capping, with accessories etc. Using 3 x 1.5 Sq.mm. [P, N, E] Multi stranded Copper Conductor, FRLSH PVC insulated, 1100 V grade, Color Coded, ISI marked wires, Modular Version Switch & Accessories. The Point from Switch Board to 3 Plate ceiling rose / holder & one Light Points controlled by one 6 A S.P. Switch complete. Primary light point length of up to 6 Mtrs.

2.0 The point wiring cover following :

The following schedules of items are contractor's scope of supply for point wiring with modular switch box:-

| | | |
|--|---|---|
| Modular switch box of appropriate size/modules | - | 1 no. |
| 1.5 sq.mm FRLSH wire | - | 3 runs (Red, Black & Green)of 6 Mtrs Each |
| PVC Conduit 25" Dia | - | as per site condition. |
| 5 amps Modular Switch | - | 1 No. |
| Round Block | - | 1 No. |
| Batten/Slant/Pendent Holder or Adaptor or Ceiling rose | - | 1 No. |
| PVC accessories and Fixing hardware's | - | As per site conditions |

POINT WIRING FOR CELLING FAN IN SURFACE ON CEILING AND IN WALL, PANELS, ETC

1.0 The point wiring for FAN point shall be Surface in ceiling / wall with min. 25mm casing capping, with accessories etc. Using 3 x 1.5 Sq.mm. [P, N, E] Multi stranded Copper Conductor, FRLSH PVC insulated, 1100 V grade, Color Coded, ISI marked wires, Modular Version Switch & Accessories. Using 3 x 1.5 Sq.mm. [P, N, E] Multi stranded Copper

Conductor, FRLSH PVC insulated, 1100 V grade, Color Coded, ISI marked wires, with modular version Step fan Regulator, Modular Version Switch & Accessories. The Point from Switch Board to 3 Plate ceiling rose & one Light fan controlled by one 6 A S.P. Switch thro. Regulator complete. Primary light point length of up to 6 Mtrs.

2.0 The point wiring cover following :

The following schedules of items are contractor's scope of supply for point wiring with modular switch box:-

| | | |
|--|---|---|
| Modular switch box of appropriate size/modules | - | 1 no. |
| 1.5 sq.mm FRLSH wire | - | 3 runs (Red, Black and Green) of 6 Mtrs Each |
| PVC Conduit 25" Dia | - | as per site condition. |
| 5 amps Modular Switch | - | 1 No. |
| Modular version Step fan Regulator | - | 1 No. |
| Round Block | - | 1 No. |
| Batten/Slant/Pendent Holder or Adaptor or Ceiling rose | - | 1 No. |
| PVC accessories and Fixing hardware's | - | As per site conditions |

**POINT WIRING FOR EXHAUST FAN IN SURFACE ON CEILING AND IN WALL,
PANELS, ETC**

1.0 The point wiring for Exhaust fan point shall be Surface in ceiling / wall with min. 25mm casing capping, with accessories etc. Using 3 x 1.5 Sq.mm. [P, N, E] Multi stranded Copper Conductor, FRLSH PVC insulated, 1100 V grade, Color Coded, ISI marked wires, with modular version 5 amp socket on metallic / Metallic un-breakable canceled box on wall with double (mounting and cover) plate type 6 AMP switch, complete. Point length of up to 6 Mtrs.

2.0 The point wiring cover following :

The following schedules of items are contractor's scope of supply for point wiring with modular switch box:-

| | | |
|--|---|---|
| Modular switch box of appropriate size/modules | - | 2 no. |
| 1.5 sq.mm FRLSH wire | - | 3 runs (Red, Black and Green) of 6 Mtrs Each |

| | | |
|---|---|------------------------|
| PVC Conduit 25" Dia | - | as per site condition. |
| 5 amps Modular Switch | - | 1 No. |
| Modular version 5 amps 5 Pin Modular Socket | - | 1 No. |
| PVC accessories and Fixing hardware's | - | As per site conditions |

**POINT WIRING FOR 5AMP PLUG ON BOARD IN CONCEALED ON WALL,
PANELS, ETC**

1.0 Point wiring for 5 A plug on board with ISI mark 1.1 KV grade PVC insulated copper wire with 2.5 Sq.mm ISI mark PVC insulated copper wire in green color used for earthing in existing casing capping on the light or fan board complete with 5 pin 6A modular type socket and 6 Amp modular type Switch erected on original sheet metal / non metallic un-breakable box of light or fan board concealed on wall with double (mounting & cover) plate.

Contractor's scope of work includes supply and fixing of the following

2.0 The point wiring cover following:

The following schedules of items are contractor's scope of supply for point wiring with modular switch box:-

| | | |
|--|---|-------------------|
| Modular switch box of appropriate size/modules | - | 1 no. |
| 2.5 sq.mm FRLSH wire | - | AS PER REQUIRMENT |
| 5 amps Modular Switch | - | 1 No. |
| Modular version 5 amps 5 Pin Modular Socket | - | 1 No. |

**POINT WIRING FOR 15 AMP PLUG ON BOARD IN CONCEALED ON WALL,
PANELS, ETC**

1.0 Point wiring for 15 A plug on board with ISI mark 1.1 KV grade PVC insulated copper wire with 4 Sq.mm ISI mark PVC insulated copper wire in green color used for earthing in existing casing capping on the board complete with 6 pin 16A modular type socket and 16 Amp modular type Switch erected on original sheet metal / non metallic un-breakable box of board concealed on wall with double (mounting & cover) plate.

Contractor's scope of work includes supply and fixing of the following

2.0 The point wiring cover following:

The following schedules of items are contractor's scope of supply for point wiring with modular switch box:-

| | | | | |
|--|---|-------|-----|--|
| Modular switch box of appropriate size/modules | - | 1 no. | | |
| 4 sq.mm FRLSH wire | - | AS | PER | |
| REQUIRMENT | | | | |
| 16 amps Modular Switch | - | 1 No. | | |
| Modular version 16 amps 6 Pin Modular Socket | - | 1 No. | | |

**SUPPLYING LAYING IN CONCEALED I.S.I. MARK RIGID P.V.C. CONDUIT 25 MM.
DIA. WITH NECESSARY ACCESSORIES**

1. SCOPE

Supplying I.S.I. mark Rigid P.V.C. conduit 25 mm. dia. with necessary accessories 25mm H.G. PVC conduit, with accessories as Junction Boxes, Couplers, etc shall be supplied.

2.0 Material: PVC Conduit:

PVC pipe of minimum 25 mm dia , ISI mark, HMS grade (2mm thick), accessories for PVC pipes of the same make that of pipe; Couplers, long bends, deep junction boxes of required ways and resin / adhesive to make all joints rigid.

**SUPPLYING LAYING IN CONCEALED 2 NOS. OF 2.5 /4 /6 SQ.MM + 1 NO OF 1.5 /2.5
/4 SQ.MM COPPER WIRE IN 25 MM ABOVE PVC CONDUIT/ CASING**

CAPPING:

- a. 2 NOS. OF 2.5 SQ.MM,(P & N) + 1 NO 1.5 SQ.MM (EARTH) PVC Multi stranded Copper Conductor FRLSH PVC insulated, Color Coded, 1100 V grade, ISI marked wires shall be run in 25 MM PVC conduits / casing capping on surface in walls / ceiling and terminate at board & plug points etc.
- b. 2 NOS. OF 4 SQ.MM,(P & N) + 1 NO 2.5 SQ.MM (EARTH) PVC Multi stranded Copper Conductor FRLSH PVC insulated, Color Coded, 1100 V grade, ISI marked wires shall be run in 25 MM PVC conduits / casing capping on surface in walls / ceiling terminate at board & plug points etc.
- c. 2 NOS. OF 6 SQ.MM,(P & N) + 1 NO 4 SQ.MM (EARTH) PVC Multi stranded Copper Conductor FRLSH PVC insulated, Color Coded, 1100 V grade, ISI marked wires shall be

run in 25 MM PVC conduits / casing capping on surface in walls / slab and terminate at board & plug points etc.

3.0 POINT WIRING.

2.1 System of Wiring.

The system of wiring shall consist of single core FRLSH PVC insulated Multi stranded copper conductor wire in PVC conduits / casing capping on surface in wall & ceiling / slab as called for.

2.2 General.

Prior to laying and fixing of conduits the contractor shall carefully examine the drawings indicating the layout of conduits, satisfy himself about the sufficiency of the number and size of conduit, location of junction boxes , sizes and location of switch boxes and other relevant details. The consultant / Architects shall approve the layout any modification suggested by the consultant / Architects should be carried by the contractor. Any discrepancy found in the drawing shall be brought to the notice of the consultant.

3.0 Material.

3.1 PVC Conduit: PVC Conduit shall be of minimum wall thickness of 2 mm for conduit up to 25 mm diameter and 2.7 mm for conduit above 25 mm diameter.

3.2 The tubing must be perfectly circular, without any burrs or kinks. All junction boxes shall be of high dome type and 2 mm thick.

3.3 The conduit shall be delivered to site of construction in original bundles and each length of conduit shall bear the label mark of manufacture.

3.4 The contractor shall submit to the consultant detail layout plan of conduit network containing particulars regarding size and routs of conduits, no. of wires carrying in each conduits, inspection and junction boxes provided.

The size of conduit shall be selected in accordance with the number of wires permitted under table given below. The minimum size of the conduit shall be of 25 mm dia unless otherwise indicated or approved. Size of wires shall be not less than 1.5 sq. mm copper.

| Nominal dia. Of wires (mm) | Nominal Cross sec area (mm) | 20 mm | | 25 mm | | 32 mm | |
|----------------------------|-----------------------------|-------|---|-------|---|-------|----|
| | | S | B | S | B | S | B |
| 1/ 2.40 | 1.50 | 5 | 3 | 8 | 6 | 14 | 10 |

Contractor

Owner

| | | | | | | | |
|---------|------|---|---|---|---|----|---|
| 1/ 2.80 | 2.50 | 4 | 2 | 6 | 4 | 12 | 8 |
| 1/ 2.24 | 4.00 | 3 | 2 | 5 | 3 | 8 | 6 |
| 1/ 2.80 | 6.00 | 2 | - | 3 | 2 | 8 | 6 |

- S - runs of conduits which have distance not exceeding 4.25 m between draw boxes and which do not deflect from the straight by an angle more than 15 degree.
- B - runs of conduits, which deflect, from the straight by more than 15 degree.

CONNECTIONS.

All conduit joints shall be fully weather tight. Junction boxes and running joints shall be provided at suitable places to allow for subsequent extension if any. As far as possible diagonal run of conduit and adaptable boxes, back outlet boxes, switch boxes and the like must be provided with entry spout and smooth PVC bushes.

Conduit system shall be erect and straight as far as possible. To avoid traps where water may accumulate from condensation, unless unavoidable, suitable provision for draining the water shall be made. Separate conduit shall be run for 15-amp power out let wiring.

4 Layout of Wiring

Power and heating sub-circuits shall be kept separate and distinct from lighting and fan sub circuits. All wiring whether concealed should be accessible for inspection.

All outlets for fittings switches etc. shall be metal boxes of suitable design as per specification for flush mounting system. All runs of wiring to the exact position of all points and switch boxes shall be first marked on the plan of building / on the building and got approved by the consultant.

5 MAINS AND SUB-MAINS

Mains and sub-mains cable where called for, shall be of the rated capacity and approved make. Every sub main shall be drawn into an independent adequately sized conduit.

Adequate size of draw boxes shall be provided at convenient location to facilitate easy drawing of the sub-main and mains cables. An independent earth wire of proper rating shall be provided for every single sub-main. Where mains and sub-mains cables are connected to the switchgear, sufficient extra length of mains and sub-mains cable shall be provided to facilitate easy connection and maintenance.

6 LOAD BALANCING.

Contractor

Owner

Balancing of circuit in three-phase installation shall be planned before the commencement of wiring and shall be strictly adhered to.

7 WIRING

- 7.1. Generally all conductors used in circuit shall be stranded and PVC insulated conforming to ISS make approved by the Engineer-in-charge. "Looping back "system of wiring should be executed without any joints in intermediate run. No bare or twisted joints shall be made at any location except through approved mechanical connectors in suitable junction boxes. End connection of wires connection switches sockets etc. Should be through crimping pins only.
- 7.2. Utmost care shall be taken to avoid scratches nicks to PVC which easily cause breakage, circular cuts of the insulation shall be avoided. The insulation should be 'Skinned ' back with tools from the cut and means of earthing clamps efficiently fastened to conduit pipe for perfect continuity served from the conductor outwards. It should be removed by shaving it off like sharpening a pencil and not by cutting it square or rapping since nicking of wire may result in the end breaking off.
- 7.3 Suitable inhibiting grease should be applied on exposed conductor to avoid oxide film.
- 7.4. Types of contacts used in connectors and fittings shall be such as to ensure that pressures abrasions applied to the conductor are sufficient to remove the oxide film without causing excessive flow or breakage of the wires. The presence of grease preferably with corrosive inhibitor will also prevent bimetallic reaction which may cause corrosion in damp situations.

8 PVC CABLES, WIRES FOR LIGHTING & RECEPTACLE SYSTEM:

The contractor shall supply, install, terminate, connect, test and commission 650/1100V grade single core stranded Copper conductor PVC insulated wires of various sizes. 650/1100V grade 3 core and three cores stranded copper conductor, PVC insulated wires for the lighting and receptacle system. The wires supplied shall conform to the latest version of I.S. specification 694/1977 (Part I & II). The manufacturer's identification mark shall be available throughout the length of the wire. The wires to be supplied by the contractor shall be of 650/1100 Volts grade, PVC insulated multi stranded FRLSH type capable of continuous operation at their rated current on 440 Volts, A.C. 3 phase, 50 cps

system. The wires shall be designed and manufactured so that damage will not result from transportation, installation and operation under all climatic and operating conditions to which they may be subjected. All materials used in the manufacture of the wires shall conform to the relevant Indian Standards. The PVC used for insulation shall conform to type 2 of IS : 5831. The conductors shall be composed of hard drawn copper wire, approximately circular in section, smooth and uniform in quality, free from scale, in equalities, spills, spits and other defects. The following performance characteristics of the cables shall be guaranteed at the maximum continuous rating when operating under specified operating conditions.

- (a) Voltage drop.
- (b) Max. Current rating.
- (c) operating conductor temperature.

1. TYPE TESTS:

The bidder shall furnish test certificates covering the following type tests conducted (as per IS : 694 Part-I & Part-II) on identical samples of cables offered.

- 1. Tensile test.
- 2. Resistance test.
- 3. Test for thickness of insulation.
- 4. Physical tests for insulation.
- 5. Fire resistance test.
- 6. Test for bleeding and blooming of fragments.
- 7. H.V. test (Water immersion test)

The relevant Indian or equivalent standard followed by manufacturer of the cable that is being offered shall be indicated in the tender. If type test certificates are not available, the contractor shall arrange to get samples of the cable offered at a recognized laboratory at his cost. The number of samples that required to be tested shall be decided by the Engineer in line with the provisions of the relevant standards.

2 ROUTINE TEST:

Each length of cable shall be subjected to the following routine tests :

1. Resistance Tests
2. Insulation resistance (dry) test
3. High Voltage Test

9 BUNCHING OF WIRE:

Wires carrying direct current may, if desired be bunched whatever their polarity but wires carrying alternating current if, installed in metallic conduit shall always to be so bunched that the outgoing and return wires are drawn into the same conduit Standard colour codes (i.e. red, yellow, blue) should be followed for wires connected to different phases for distribution and black for neutral only.

10. POINT:

A point shall consist of the branch wiring from the distribution on board, together with a switch as required as far as including the ceiling rose or socket outlet or suitable termination. A three pin socket outlet point shall include in addition, the connecting wire or cable from the earth pin to the earth stud of the branch distribution board.

11 POINT WIRING :

Point wiring shall consist of the branch from the final sub-distribution board together with the controlling switch as far as and including the ceiling rose or any other connected load or socket outlet. In case of more than one light being controlled by one switch the wiring up to the ceiling rose of the first light including the switch shall be considered as a 'Primary' point. Loop wiring from light to light shall be considered as a secondary point and rates shall be quoted separately including final connection to fixtures and plugs. In installation, Light & fans may be wired in a common circuit. Such sub-circuit shall not have more than a total of ten points of lights, fans & socket outlets. The load of such circuit shall be restricted to 800 W for 5 Amps circuit & 2500 watts for 15 Amp in circuit.

12.0 CEILING FANS :

All ceiling fans shall be wired to a ceiling rose or special connector box and further connection to fan to be done by flexible wire. The fan should be suspended from a hook, shackle or clamp and insulated from the same with an insulator real of proper side. There shall be no joints in the suspension and secured by means of split pin at both ends.

Wherever specified the hooks for fans shall be fixed by the contractors to ceiling rigidly welded to reinforcement and finished properly. All ceiling fans shall be provided with suspension arrangement in the concrete slab/roof. The Exhaust fans shall be fixed at locations show on the drawing. All switch and outlet boxes fan and light fitting shall be bonded to earth.

Canopies on top and bottom of suspension rod shall effectively hide suspensions and connection to fan motors respectively.

13.0 SOCKET OUTLETS AND CONTROL SWITCHES :

Enclosures

wherever conduit wiring is executed all the switches and sockets should be housed in MS box fabricated out of 2 mm sheet of welded construction having 3 mm thick Bakelite with colored top front cover or any other approved insulating material or as indicated in a schedule of quantities or otherwise specified.

In case MS boxes for housing sockets and switches are to be concealed the front cover should have an overhang of 10 mm all round. All the components inside box should be secured by machine screws in tapped holes. The spacing between components should be at least 15 mm. The cover fixing screws should have nickel plated with brass cup washers. One No. 3 mm dia, brass screw in tapped hole should be provided for earthing. The head of this screw should be outside the box with a nut provided inside box. The earth continuity conductor of conduit system should be brought inside box through a drilled hole by the side of conduit entry & terminated to the earth and by means of soldering/crimped type socket for extension inside box. Flush mounting type switches and sockets with porcelain base only should be mounted on MS supports welded to back of box. In case the sockets or switches are to be provided with packing in order to align them with cover thin strips of either Hylam or Bakelite sheets should be used unless otherwise specified sockets and switches should be mounted side by side. The box after fabrication

should be given 2 coats of red lead primer paints. Concealed box cover should be given 2 coats of final paint of approved colour. If surface mounting type outlet boxes are specified in conduit wiring, it shall be of any approved insulating material & outlets mounted in an approved manner.

- b. All single phase socket outlets shall be 3 pin type, the third pin being connected to the earth stud of the enclosure. The socket shall conform to IS 1293/1967. Each socket outlet shall be provided with a control switch of appropriate rating. Inside switch box ample space shall be available and switch for connecting wires to switches. All socket outlets for power shall be mounted at the skirting level unless otherwise specified or as directed by the Engineer-in-charge but in any case not less than 230 mm from floor level. The switch controlling the socket outlet shall be on the live side of the line.
- c. The three phase plug receptacles shall be 3 pin and earth type or 4 pin, 3 phase and neutral with scrapping earth pin have their earth, terminal connected by the independent earth wires to ring main earth strips on the building. In building where explosion proof fixtures are installed single phase plus receptacles as well as light point shall be connected to ring main ground bus installed in the building by separate earth wires of approved size. All metal clad switch sockets shall be of fully interlocked design similar to GEC type, 6489. The interlocking shall be such that it shall not be possible to insert or withdraw the pin top without switching off the supply. All the sockets should be complete with their pin top and should be of non reversible type.
- d. All lamp holders shall conform to ISS. Lamp holders to be used with flexible wires shall be provided with suitable chord grip and shade ring. All lamp holders shall be provided with shade carriers.
- e. Maximum two fan regulators can be installed in one box.
- f. Where more than one circuit is coming on the same phase, separate switch boxes shall be provided for each circuit.

13 CIVIL WORKS REQUIREMENTS:-

- 13.1 The contractor shall thoroughly study the structural and architect arrangements of the buildings and wherever necessary shall in consultation with Engineer-in-charge at site, make sui-table adjustments in the conduit routings, earthing arrangements cable route and location of boxes, fittings etc. with a view to avoid interference with any part of the

buildings, structure, equipment or any other work in the building or to effect any improvement in the arrangement.

- 13.2. All civil works in connection with installation of conduits, switch and plug boxes, switch boards, cable and clamps etc. has to be carried out by electrical contractor. The contractor should ensure that wherever wall, roof, floor, cable trench are chipped for installation of electrical works the surface is finished neatly to the same surface as finished by civil contractors. Inside false ceiling he should ensure that frame for supporting recess fixtures are installed in co-ordination with the work of civil contractors. To avoid damage to false ceiling electric work has to be done carefully to prevent damage to false ceiling frame and finished asbestos/plaster-of-Paris sheet. Damage if any done to the above should be made good by Electrical contractor at his cost.

14. TESTING AND COMMISSIONING OF INSTALLATION:-

The electrical contractor shall be completely responsible for the testing and commissioning of the installation as per standards & specification before handing over the installation to the department. The routine tests to be conducted in presence of department Engineer is detailed below. In case if any special tests of reasonable nature are required to be conducted as per instructions of Engineer-in-charge in order to ascertain the quality of materials or workmanship these should be conducted by the contractor at his own cost and risk. Before completion of installation or an addition to the existing installation is put into service, the following tests shall be complied with by the contractor.

15 Insulation Resistance.

1. The insulation resistance shall be measured by applying between earth & the whole system of conductor or any section thereof with all fuses in place and all switches closed and except in earthed concentric wiring, all lamps in position both poles of installation otherwise electrically connected together a DC voltage not less than twice the working voltage, provided that it does not exceed 500 volts for medium voltage circuits. Where the supply is derived from three wires (AC or DC) or a poly phase system the neutral pole of which is connected to earth either direct or through added resistance the working voltage shall be deemed to be that which is maintained between the outer phase conductor and the neutral. All tests in 240 V systems shall be conducted by 500 V magger and 415 volt system by 1000 volt magger.

2. The insulation resistance in mega ohms of an installation measured as in 1.10.1 shall be not less than 50 divided by the number of points of the circuit, provided that the whole installation need not be required to have insulation resistance greater than one mega ohm.
3. Control rheostats, heating and power appliances and electric signs, May if desired be disconnected from the circuit during the test but in the event the insulation resistance between the case of frame work and all live parts of each rheostat, appliance and sign shall be not less than specified in the relevant Indian Standard specification or where there is no such specification shall be not less than half a mega ohm.

The insulation resistance shall be measured between all conductors connected to one pole or phase conductor of the supply and all the conductors connected to the middle wire or to the neutral or to the other pole or phase conductors of the supply. Such a test shall be made after removing all metallic connections between the two poles of the installation and in these circumstances the insulation resistance between all conductors connected to one pole or phase conductor of the supply and all the conductors connected to the middle wire or to the neutral or the other pole or phase conductors of the supply shall be not less than that specified in 1.10.2.

On completion of an electric installation (or an extension to an installation) a certificate shall be furnished by the contractor, countersigned by the verified supervisor under whose direct supervision the installation was carried out. This certificate shall be in a prescribed form as required by the local electric supply authority. One such recommended form is given in Appendix.

B TESTING OF EARTH CONTINUITY PATH:-

1. The earth continuity conductor including metal conduits and metallic envelopes of cable in all case shall be tested for electrical continuity and electrical resistance of the same along with the earthing lead but excluding any added resistance or earth leakage circuit breaker measured from the connection with earth electrode to any point in the earth continuity conductor in the completed installations shall not exceed one ohm.

C TESTING OF POLARITY OF NON LINKED SINGLE-POLE SWITCHES:-

- (I) In a two wire low voltage installation, a test shall be made to verify that all non-linked, single pole switches have been fitted in the same conductor throughout

and that such conductor has been connected to an outer or phase conductor or to the non-earthed conductor of the supply.

- (II) In three wires or four wire installations, a test shall be made to verify that all non linked, single pole switches is fitted in a conductor, connected to one of the outer phase conductor of the supply.

16 DISTRIBUTION BOARDS (FOR LIGHTING AND POWER)

DB shall be metal clad, 500V-type SP, TP or TPN pole without or with neutral link and of the size as required and indicated in the applicable drawings. The number of ways of circuits shall be as specified and required. Each way shall have a MCB for each phase. The neutral bus wherever required shall have as many tapped holes as necessary to receive the neutral leads. Suitable size 1/2" long round head brass screws shall be provided for 1 BA size. Each phase shall be separated from the other by a non-metallic insulated barrier. Means shall be provided for any identification of each branch circuit. Each DB shall have its main disconnect or switch of the type and size as required and indicated. The main disconnect shall be mounted directly or otherwise below or above the distribution board as required. The locations of panels as shown in the drawing are only tentative. All panels shall be located as self supporting units at a place as approved by the Engineer-in-charge. The Distribution Board shall be fabricated of 2 mm thick M.S. CRCA Sheet. Necessary hold fasts shall be provided. The front doors shall have concealed hinges and have detachable type doors with frame. This frame with door shall be fixed to the main body concealed in wall by means of counter, sunk chromium plated screws. Neoprene Gasket shall be provided between frames. Necessary danger board (as per IS) shall be fixed on the door & arrangement shall be made for two earthing terminal which are diagonally opposite. 6 mm x 30 mm long brass earthing stud with nuts& washers shall be provided. It is preferable to have top plate of Distribution Board detachable type with necessary gasket and knock outs to suit site condition. Necessary stiffeners shall be provided wherever cutouts are made. Required knockouts shall be provide on sides also. The frame work required for fixing MCB/ isolators/Neutral link (insulated type) shall be min. of 3mm thick Hylam sheet & of adequate size shall be welded to the main body. There shall be two separate compartments that is barriers M.S./Hylam Sheet (3 mm thick minimum) one housing SFU/Isolator & the other housing MCBS, wherever wires passes through

M.S. Sheet/cutout necessary bushes shall be provided. The bus bars shall be of tinned copper material, properly sleeved and minimum of 100A capacity. Minimum size of 6 Sq. mm copper wires (multi strand PVC insulated) shall be used for inter connections and for 30 A and above sizes shall be as follows:-

- (a) 30 A capacity by 10 Sq. mm.
- (b) 60 A capacity by 25 Sq. mm.
- c) 100 A and above strips shall be used based on current density and other design consideration.

The Neutral link shall be of adequate size and shall be of Copper/Brass materials, tinned & 10% extra ways shall be provided. The entire front interior shall be covered with minimum of 5 mm thick fire retardant sheet with necessary cutouts for knob. The inter phase barriers shall be of fire resistant & non hygroscopic. The entire fabricated Distribution Board shall be of metal treated by seven tank process, with 2 coats of zinc chromate base and 2 coats of final approved paint. The interior of Distribution Board shall have final white colour paint. The contractor shall submit G.A. and fabrication drawings and shall offer Distribution Board for stage and final inspection by Department.

Distribution Board manufacture by MCB manufacturer would be considered if the general specifications are in line with department specifications.

17 **MINIATURE CIRCUIT BREAKERS : (Tripping Type)**

The MCB's to be used in the distribution board shall be of completely molded design suitable for operation at 240/415 volts 50 Hz system. The capacity shall be 10 KA and. The MCB's shall have overload and short circuit protection.

18 **FLAT DISTRIBUTION BOARDS :**

Final distribution boards shall be flush mounting, totally enclosed dust and vermin proof and shall comprise of miniature circuit breakers as detailed in the schedule of quantities. The above shall be housed in metal box of ample dimensions made out of 14 gauge M.S. sheet and shall have a concealed hinged cover. All the internal connections shall be concealed by providing a Hylam panel of 5 mm thick in the distribution boards. All outgoing M.C.B.'s shall be connected to the bus bar on the live side. The bus-bar shall be of electrical grade copper having a minimum current density of 800 A/sq. inch and with PVC sleeves. The MCB arrangement shall be mounted on a frame work. The distribution

board shall be painted with approved paint. All the circuits shall have an independent neutral insulated wire one per circuit. A sample of the complete board is to be got approved by the Engineer-in-charge.

18 PAINTING :

All the panels/switch boards/distribution boards shall be metal treated with seven tanks process consisting of degreasing, de scaling, phosphating etc.

19 EARTH LEAKAGE CIRCUIT BREAKER

Supply of earth leakage circuit breaker of 300 mA sensitivity and Ip 54 degree of protection of English Electric or equivalent make of following salient details and of below mentioned capacity suitable for operation on 240V/440V either single phase (2 pole) or three phase & neutral (4 pole) A.C. supply. Each unit shall have the below mentioned salient facilities:-

1. Unit to be purely current operated.
2. Tripping through switch lock of electromagnetic type.
3. Trip free with test switch facility.
4. To operate even in case of neutral failure.
5. Neutral advance Mechanism.
6. Repeat accuracy of plus/minus 50.
7. Unit to operate for nominal voltage well below maximum safe value of 10V.

LIGHTING FIXTURE

The light fixture and fans shall be Approved makes and as per specification assembled and installed in position complete and ready for service in accordance with the detailed drawing, manufacturer's instructions and to the satisfaction of the Architect / consultant. Fixture shall be suspended true to alignment plumb level and capable of resisting all lateral and vertical forces and shall be fixed as required.

1 General requirements for the fixtures:

All the fixtures shall be suitable for 240 volts, single phase, 50 cycles/sec AC supply available from a phase and earthed neutral of the 415 V, 3 phase, 4 wires system (unless otherwise specified).

The fixture shall be provided with the earthing arrangements and shall meet with safety requirements of the various standard specification and safety codes and be approved by the Fire Insurance Association.

All fixtures supplied against this specification shall be guaranteed for a period of one year from the date of their installation and commissioning for free repairs and free replacement.

In case of tube fixture internal wiring shall be done with minimum 1.0 Sq. mm flexible copper conductor wires so as to avoid stroboscopic effect.

- 2 For each type of fixtures and lamp unit the following data shall be required.
 - (a) Illumination distribution curves with percentage ceiling.
 - (b) Total mean output of the lamp.
 - (c) Overall dimensions and mounting arrangement in false ceiling.
 - (d) Other technical details such as co-efficient of utilization, reflecting properties etc. and complete details of louvers.
 - (e) Descriptive technical literature and test certificate.
 - (f) Weight of lighting fixtures.
- 3 Light output of the fitting:-

The light output indicated in technical data sheet is guaranteed one & shall be measured and polar curves shall be submitted.
- 4 GUARANTEES:

The LED lighting fixtures & LED driver unit shall be guaranteed for satisfactory operation for 66 months from the date of supply or 60 months from the date of commissioning.
5. The fitting shall be of complete with all accessories like, side holders, Electronic LED Driver duly wired.

Note: Samples taken at random from the supply made shall be subjected to inspection / testing. If the same does not meet the requirements of the specification, the entire lot will have to be replaced.
6. Acceptable Brands of approved makes only.

7. SUPPLYING AND ERECTING EXHAUST FAN HEAVY/ MEDIUM DUTY 230 V A.C. 50 CYCLES 1400 RPM COMPLETE ERECTED .
- a. ISI marked Exhaust fan suitable for single phase AC 230 volt 50 HZ capacitor run with mounting ring, four number of fixing hole without regulator and louvers. The fan should be 1400 rpm speed, with fan motor with moisture proof treatment and E class insulation, ISI marked, conforming to IS; 2312 / 67 with amendments 1 to 8. The fan mounting ring shall be proper pre-treatment followed with at least two coats of primer & final finish shall be with two coats of gray colour paint duly baked. the connecting leads with 5Amp socket shall be brought out for making connection.
 - b. The Exhaust fan complete with all above accessories and duly wired shall be erected at specified position, connected to supply and tested.
 - c. After Erection fan shall be tested by connecting to supply, also steadiness and vibration if any, of fan shall be checked at full speed, so that there is no wobbling.
 - d. Acceptable Brands of approved makes only.**

SUPPLY, FIXING, CONNECTING, TESTING AND COMMISSIONING OF 1200 MM (48") SWEEP CEILING FAN WITH DOUBLE BALL BEARING COMPLETE WITH ALL ACCESSORIES AS PER SPECIFICATION. (5 STAR RATED)

- 1 The ceiling fans shall be supplied of 1200 mm sweep, suitable color as decided by **Executive Engineer** / consultant. The fans shall be complete with all accessories duly wired.
- 2 The fan shall be of following specification:
 1. Size : 1200 mm sweep.
 2. Motor : Single Phase ac permanent capacitor type and totally Enclosed.
 3. Rated Voltage & Range: 230 + (or) – 10%
 4. Frequency : 50 Hz +(or)- 10%
 5. Rated Air Delivery: 225 M³ / Minute for 1200 mm sweep
 6. Rated power input : not more than 50 watts
 7. Blades : 3 blades made of aluminum sheet of thickness not Less than 1 mm.

8. Class of Insulation : Class “C”
9. Bearings : Double ball bearings.
10. Suspension system : Split shackle bolted non-integral type at the bottom and at the top with split pins for the nuts, MS down rod of 450 mm length, outside dia of 20 mm of thickness 2.0 mm.
11. Specification : confirm to IS: 374 latest and IS: 302 latest.
- 12. Star Rating : 5 Star Rating**

SCHEDULE OF CIVIL WORKS & SCOPE OF ELECTRICAL CONTRACTOR

1. Civil Works under scope of Electrical Contractor.

Excavation and concreting.

Inspection chambers for earthing Stations, Man hole chamber for HT cable in RCC Hume pipe. Excavation for under-ground cable trenches including supply and laying of sand / bricks and reinstatement of trenches including ramming and making the soil as per original. Excavation Bore and refilling of earthing pits including supply and spreading of salt and coal / Earthing Compound. All MS supports / trays etc. for cables / M.S. Channels for mounting lighting fittings / structure or wall mounting .D.Bs. etc.

Grouting (including foundation bolts) of floor mounting lighting Switch-boards unless otherwise specifically mentioned these and similar fabrications shall be necessarily carried out by Electrical Contractor. Further, unless otherwise specifically mentioned, cost of supply and creation of these fabricated structures, is supposed to be included in respective items.

2 Civil Works under the scope of Civil Contractor.

Cement concrete foundation for equipments such as Breaker, Transformers etc.

Although above Civil works are to be carried out by Civil Contractor, it will be Electrical Contractor’s responsibility to furnish drawings for these well in time, co-ordinate and get the works completed under his direct supervision, well within schedule to

ensure commissioning of the installation on agreed date.

If due lapses on part of Electrical Contractor, above Civil Works are not completed within schedule and before Civil Contractor demobilizes from site, additional costs if any shall be borne by the Electrical Contractor.

TEST TO BE CARRIED OUT

T-1 TESTS AT MANUFACTURER'S WORKS

These shall be carried out at Manufacturer's works as per relevant IS specifications. Copies of these certificates shall be submitted in the O & M manual. Copies of TYPE TEST CERTIFICATES shall be submitted.

T-2 SITE TESTS

Following Tests shall be carried out in the presence of the Owner's representative / Consultant. Equipments / Transformer / Switch-boards

a) Transformers

- a.1 Visual inspection for apparent damage, broken parts, cracks, leaks, oil level, etc.
- a.2 For transformer, 3 samples of the transformer oil shall be taken from the bottom of tank and shall be tested to withstand 50 KV for 60 seconds against 2.5 mm gap as described in the appendix of IS : 335 (Latest Edition)
- a.3 Insulation Resistance Tests by Minimum 5000 V D.C. Meager. The values shall correspond to factory test results.
- a.4 Wherever the oil sample tests and IR values are not satisfactory (in the opinion of Consultants) transformer shall be dried out using stream line filter. The drying process shall be continued till the Insulation Resistance Curve shows a steady and definite increasing trend and the meager Value shall be not less than 20 Mega Ohms per KV. (Drying Out / Filtration shall be at extra cost.)
- a.5 All transformer accessories such as Buchholz Relay, breather, gauges, thermometer, etc. shall be thoroughly checked and adjusted.
- a.6 Ratio Test (By using AVOMETER)

Contractor

Owner

a.7 On energisation the new transformers shall be kept on NO LOAD for minimum 24 hours. T.3

b) **M.V. Switch-Boards / Equipments:**

b.1 Insulation Resistance tests with 5000 V meager with switches in closed position
Minimum acceptable results. Phase to Phase 50 Mega ohms. Phase to Earth 50 Mega ohms.

b.2 Switch-Boards including secondary wiring to be subjected to 2 KV tests for 1 minute.

b.3 Meters and Relays to be calibrated through secondary injunction tests (Optional and at extra cost.)

c) **Cables**

Insulation Resistance Tests by 5000 V Meager between phases and between all phases and earth.

d) **Conduit Point Wiring / Switches / Sockets**

- d.1 Insulation Resistance Test
- d.2 Earth Continuity Test
- d.3 Polarity test for single switches

e) **Earthing**

Earth meager tests shall be carried out on following :

- a. Each Earthing station.
- b. Earthing System as a whole.
- c. Each continuity conductors.

Contractor has to submit the following affidavits on Bond paper of worth Rs. 100/- duly Notarized and in the formats given below.

Formats for Affidavit

Contractor

Owner

- 1) Affidavit regarding the work should not get executed book through another contractor.

I/We under and confirm that eligible work(s) has/have not been got executed through another contractor on back to back basis. Further that, if such violation comes to the notice of Department, then I/we shall be debarred form bidding in PWD/GSUDA/CPWD/ MES/BSNL/Railways and any other Government department & semi Government organization in future forever, Also, if such a violation comes to the notice of Department before date of start of work, the Engineer-in-charge shall be free to forfeit the entire amount of Earnest Money Deposit and/or Performance Guarantee/Security deposit.

Place:

Date:

Signature of Contractor

- 2) Affidavit regarding litigation.

In the event that the applicant has litigation either in process or in past seven years then the applicant must submit an affidavit duly notarized to the effect that the bidder does not have any litigation in process. There are no litigations hence affidavit.

Place:

Date:

Signature of Contractor

- 3) Affidavit regarding Not Black listed in any dept.

This is to certify that, my firm M/s. _____ is not blacklisted/banned/suspended in any department/office and is not engaged in any type of malpractices or any other kind work related to criminal offences. We are fully and working efficiently under the above said firm having a goodwill and faith in Official fields related to firm.

Place:

Date:

Signature of Contractor

- 4) Affidavit regarding G.S.T.

I have gone through the Item rates in the subjected tender, I understand the implications of G.S.T. Act-2017 in the proposed item rates in the schedule B of tender. I have offered my financial bid in envelop no.2 only after due Consideration of G.S.T. load as per GST Act-2017. I will not demand/ propose any reimbursement/ payment of GST load whatsoever in future on any account. Hence this affidavit.

Place:

Date:

Signature of Contractor

CHECK LISTS

Check list for Documents to be provided in Technical bid (Envelope No.1)

1. Tender cost fee Paid receipt/DD.
2. EMD Paid receipt/DD.
3. Electrical contractor's license.
4. PWD Registration certificate.
5. Registration of GST.
6. Certificate of turnover for last 3 years from CA.
7. Copy of income tax return for last 3 years.
8. Power of attorney if any.
9. List of technical personnel.
10. List of tools & plants.
11. Affidavit for not blacklisted.
12. Affidavit for litigation.
13. Certificate for work done.
14. Certificate for work in hand.
15. Affidavits on Bond paper duly Notarized.