



**GOVERNMENT OF INDIA
CENTRAL PUBLIC WORKS DEPARTMENT
O/o the Executive Engineer(Electrical), CPWD, Trivandrum**

NIT No. 32/EE/E-TVM/2026-27

Name of Work: Providing additional industrial socket outlets for kitchen i/c electrical distribution from existing substation at 300 bed hostel, LNCPE, Karyavattom, Trivandrum.

INDEX

| S.No | Description | Page No |
|-------------|--|----------------|
| 1. | Part – A | 2 |
| 2. | Information and instructions to Contractors for e-tendering | 3 |
| 3. | Receipt of deposition of original EMD | 6 |
| 4. | Notice Inviting Tender (CPWD – 6) - for e- Tendering | 7 |
| 5. | Percentage Rate Tender & Contract for Works-CPWD-7 | 10 |
| 6. | Proforma of Schedules | 12 |
| 7. | Part – B | 17 |
| 8. | General Terms and Conditions applicable for all E&M Components | 18 |
| 9. | Additional Conditions for Internal Electrical Installations | 23 |
| 10. | List of Acceptable makes | 27 |
| 11. | Part – C | 29 |
| 12. | Schedule of Quantities – E&M | 30 |

Certified that this NIT contains 33 Pages only

NIT Approved for Rs. 24,37,644/-

PART -A

**INFORMATION'S AND INSTRUCTIONS FOR CONTRACTORS FOR e-
TENDERING,
CPWD-6 AND 7, PERFORMANCE SECURITY
AND BANK GUARANTEE BOND**

Information and instructions for Bidders for e-Tendering forming NIT and to be posted on web site

The Executive Engineer -Electrical, Trivandrum, CPWD, CGO Complex, Trivandrum (**Email id: eetvmtced.cpwd@nic.in**) on behalf of the President of India invites online percentage rate bids from approved and eligible Buildings & roads category contractors of CPWD of appropriate class (erstwhile composite/building/infrastructure) for the following work(s):

| | | |
|---|----------|---|
| NIT No. | : | 32/EE/E-TVM/2026-27 |
| Name of Work & Location | : | Providing additional industrial socket outlets for kitchen i/c electrical distribution from existing substation at 300 bed hostel, LNCPE, Karyavattom, Trivandrum. |
| Estimated Cost put to bid | : | Rs. 24,37,644/- |
| Earnest Money | : | Rs. 48,753/- |
| Period of Completion | : | 04 (Four) Months |
| Last date & time of submission of bid, copy of receipt for deposition of original EMD and other document as specified in the NIT | : | Up to 15.00 Hrs on 06.07.2026 |
| Time & date of opening of bid. | : | 15.30 Hrs on 06.07.2026 |

- The intending bidder must read the terms and conditions of **CPWD-6** carefully. He should only submit his bid if he considers himself eligible and he is in possession of all the documents required.
- Information and instructions for bidders posted on website shall form part of bid document.
- The bid document consisting of plans, Specifications, Schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen and downloaded from website **www.etender.cpwd.gov.in** or **www.cpwd.gov.in** free of cost.
- But the bid can only be submitted after deposition of original EMD either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, CPWD within the period of bid submission (the EMD document shall only be issued from the place in which the office of receiving division office is situated) and uploading the mandatory scanned documents such as Insurance Surety Bonds, Account Payee Demand draft or Bankers Cheque or Fixed Deposit Receipts or/and Bank Guarantee (for balance amount as prescribed) from any of the Commercial Bank towards EMD in favour of Executive Engineer as mentioned in NIT, receipt for deposition of original EMD to division office of any Executive Engineer (including NIT issuing EE/ AE), CPWD and other documents as specified.
A part of earnest money (EMD) is acceptable in the form of bank guarantee also. In such cases, 50% of earnest money or Rs. 20 Lakh whichever is less, will have to be deposited in shape prescribed above and balance can be accepted in form of Bank Guarantee issued by a Commercial bank. The bank guarantee submitted as a part of Earnest Money shall be valid for a period of 90 days or more from the last date of submission of the tender.
- Those Contractors who are not registered or have not updated their profile on the website mentioned above, are required to get registered/update their profile beforehand. The necessary training materials including the videos with step to step process are available on download section of **<https://etender.cpwd.gov.in>**.
- The intending bidder must have valid class-III digital signature certificate with encryption key (combo type) to perform any operations /transactions on the e-tendering portal/website and the bidder should download and install the eMSigner on their system as per instructions available on download section of **<https://etender.cpwd.gov.in>**.
- On the opening date, the contractor can login and see the bid opening process. After opening of bids he will receive the competitor bid sheets.
- Contractor can upload documents in JPG format and PDF format. Bidder should ensure that the document uploaded is legible and full documents page is properly scanned.
- Contractor must ensure to quote the percentage rate in the prescribed column(s) meant for quoting rate in figures appears in yellow colour 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 "0". Therefore, if any cell is left blank and no rate is quoted by the bidder, rate of such item shall be treated as "0" (ZERO).

However, if a tenderer quotes nil rates against each item in item rate tender or does not quote any percentage above/below on the total amount of the tender or any section / sub head in percentage rate tender, the tender shall be treated as invalid and will not be considered as lowest tenderer.

10. If the contractor is found ineligible after opening of bids, his bid shall become invalid.
11. If any discrepancy is noticed between the documents as uploaded at the time of submission of bid and the hard copies as submitted by the lowest bidder, the bid shall become invalid.
12. **List of Documents to be scanned and uploaded within the period of Bid submission.**

- 12.1. Insurance Surety Bonds, Account Payee Demand draft, Fixed Deposit Receipts, Bankers Cheque or Bank Guarantee (as prescribed) from any of the Commercial Bank drawn in favour of Executive Engineer-Electrical, CPWD, Trivandrum against EMD.
- 12.2. Copy of receipt for deposition of original EMD issued from division office of any Executive Engineer, CPWD. (The EMD document shall be issued from the place in which the office of receiving division office is situated).
- 12.3. Enlistment Order of the Contractor
- 12.4. GST Registration Certificate of the State in which the work is to be taken up, if already obtained by the bidder.

If the bidder has not obtained GST registration in the State in which the work is to be taken up, or as required by GST authorities then in such a case the bidder shall scan and upload following under taking along with other bid documents.

"If work is awarded to me, I/we shall obtain GST registration Certificate of the State, in which work is to be taken up, within one month from the date of receipt of award letter or before release of any payment by CPWD, whichever is earlier, failing which I/We shall be responsible for any delay in payments which will be due towards me/us on a/c of the work executed and/or for any action taken by CPWD or GST department in this regard."

- 12.5. Copy of certificate of ERP training through any of the CPWD Regional Training Institutes (RTIs) at Delhi, Mumbai, Chennai and Kolkata, National CPWD Academy (NCA) Ghaziabad, Training arranged by Graduates of ERP "Train the Trainers Programme" conducted by NCA, Ghaziabad or through any other special training arranged by ERP unit of CPWD "Train the Trainers Programme" conducted by NCA, Ghaziabad or through any other special training arranged by ERP unit of CPWD.

If the bidder, who has not obtained the ERP certificate, then in such a case the bidder shall scan and upload following under taking along with other bid documents.

"If work is awarded to me, I/we or our authorized representative shall take compulsory ERP training through any of the CPWD Regional Training Institutes (RTIs) at Delhi, Mumbai, Chennai and Kolkata, National CPWD Academy (NCA) Ghaziabad, Training arranged by Graduates of ERP "Train the Trainers Programme" conducted by NCA, Ghaziabad or through any other special training arranged by ERP unit of CPWD "Train the Trainers Programme" conducted by NCA, Ghaziabad or through any other special training arranged by ERP unit of CPWD, within two months from the date of issue of intent letter, failing which a recovery of Rs.10,000/- per week shall be made from the R/A bill without giving any show cause notice in this regard."

- 12.6. Valid electrical contractor license issued by the electrical licensing authority under the Kerala state if already obtained by the bidder.

If the bidder has not obtained Valid electrical contractor license issued by the electrical licensing authority under the Kerala state, then the bidder shall scan and upload following under taking along with other bid documents.

"If work is awarded to me, I/We shall obtain Valid electrical license issued by the Kerala State Electrical Inspectorate at the time of execution of electrical works or I/we will associate CPWD

Enlisted contractor of appropriate class having valid electrical license of eligible class issued by Kerala State Electrical Inspectorate”

Note: The bidders should submit all the require documents for above listed eligibility criteria, failing **which** their bid will be treated as invalid or cancelled.

13. List of Documents to be submitted after acceptance of Bid.

- 13.1. Licenses/ Registrations or proof of applying for labour licenses, registration with EPFO, ESIC & BOCW Welfare Board. GST registration from Kerala within 30 days or before passing the first running bill (if already not registered in Kerala).
- 13.2. Any other mandatory documents specified elsewhere in the bid document
14. Tendered Amount quoted by the contractor is final and inclusive of GST etc., and nothing extra shall be paid. Necessary deduction for GST shall be made as per prevailing rules.
15. The bid become not eligible if bidder does not upload scanned copies of all the documents stipulated in the bid document (including GST Registration and as stipulated in the bid documents).
16. The Executive Engineer receiving EMD in original form shall examine the EMD deposited by the bidder and shall issue a receipt of deposition of earnest money to the agency in a given format uploaded by tender inviting EE. The receipt may be issued by the AE(P)/AE/AAO.
17. The tender inviting Executive Engineer will call for original EMD of the L-1 tenderer from EMD receiving Executive Engineer immediately.

**Executive Engineer (E)
Trivandrum, CPWD,
Thiruvananthapuram – 695522**

Information and instructions for Executive Engineer for e-Tendering

1. The Executive Engineer of any division/projects or any other officer designated by CPWD Directorate from time to time are authorized to receive the original EMD for tender or tenders of any other division/projects.
2. The NIT approving authority/ EE at the time of issue of NIT shall also fill and upload the following prescribed format of receipt of deposition of original EMD along with NIT:

| Receipt of deposition of original EMD | |
|--|---|
| (Receipt No. / date) | |
| 1. Name of work: | Providing additional industrial socket outlets for kitchen i/c electrical distribution from existing substation at 300 bed hostel, LNCPE, Karyavattom, Trivandrum. |
| 2. NIT No: | 32/EE/E-TVM/2026-27 |
| 3. Estimated cost: | Rs. 24,37,644/- |
| 4. Amount of Earnest Money Deposit: | Rs. 48,753/- |
| 5. Last date of submission of bid: | Up to 15.00 Hrs on 06.07.2026 |
| (*To be filled by Tender inviting authority/NIT approving authority at the time of issue of NIT and uploaded along with NIT) | |
| 1. Name of Contractor | # |
| 2. Form of EMD | # |
| 3. Amount of Earnest Money Deposit | # |
| 4. Date of submission of EMD | # |
| Signature, Name and Designation of EMD receiving officer along with Office stamp | |
| # To be filled by EMD receiving EE/DDH | |

3. The Executive Engineer receiving EMD in original form examines the EMD deposited by the bidder and issues a receipt of deposition of earnest money to the agency in a given format uploaded by tender inviting authority. The receipt may be issued by any subordinate gazetted authority authorized by EE /Engineer-in-charge/DDH.
4. The Executive Engineer receiving original EMD also intimates tender inviting Executive Engineer about deposition of EMD by the agency by email/fax/telephonically.
5. The original EMD receiving Executive Engineer releases the EMD to unsuccessful bidders after the expiry of stipulated bid validity period or immediately after acceptance of the successful bidder, whichever is earlier, after verification from the e-tendering portal website (<https://etender.cpwd.gov.in> >closed Tender>all that the particular contractor is not L-1 tenderer and work is awarded.
6. The tender inviting Executive Engineer will call for original EMD of the L-1 tenderer from EMD receiving Executive Engineer immediately.

**Government of India
Central Public Works Department
Notice Inviting e-Tender**

Online item rate/Percentage rate composite bids are invited on behalf of the President of India from approved and eligible CPWD enlisted contractors of appropriate class in Buildings & Roads (erstwhile composite/ Buildings / infrastructure) category in single bid system for the following work:

Name of Work: Providing additional industrial socket outlets for kitchen i/c electrical distribution from existing substation at 300 bed hostel, LNCPE, Karyavattom, Trivandrum.

1. The enlistment of the contractor should be valid on the last date of submission of bids.
- 1.1. In case the last date of submission of bid is extended, the enlistment should be valid on the original date of submission of bids.
- 1.2. The work is estimated to cost **Rs. 24,37,644/-**. This cost, however, is given merely as a rough guide.
2. Agreement shall be drawn with the successful bidders on prescribed Form No. CPWD 7 which is available as a Govt. of India Publication and also available on website **www.cpwd.gov.in**. Bidders shall quote his rates as per various terms and conditions of the said form which will form part of the agreement.
3. **The time allowed for carrying out the work will be 04 (Four) Months from the date of start as defined in schedule 'F' or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the bid documents.**
4. The site for the work is available.
5. The bid document consisting of plans, specifications, the schedules of quantities of various types of items to be executed and set of terms and conditions of the contract to be complied with and other necessary documents except standard general conditions of contract form can be seen on website **<https://etender.cpwd.gov.in>** or **www.cpwd.gov.in** free of cost.
6. 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.
7. 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.
8. **Deleted**
9. Online bid documents submitted by intending bidders shall be opened on those bids whose EMD and all other documents are in order.
10. Earnest Money in the form of Insurance Surety Bonds, Account Payee Demand draft, Fixed Deposit Receipts, Bankers Cheque or Bank Guarantee (for balance amount as prescribed) from any of the Commercial Bank drawn in favour of **Executive Engineer(E), CPWD, Trivandrum** shall be scanned and uploaded to the e-Tendering website within the period of bid submission. The original EMD should be deposited either in the office of Executive Engineer inviting bids or division office of any Executive Engineer, CPWD within the period of bid submission. The EMD receiving Executive Engineer (including NIT issuing EE/AE) shall issue a receipt of deposition of earnest money deposit to the bidder in a prescribed format (enclosed) uploaded by tender inviting EE in the NIT.

A part of earnest money is acceptable in the form of bank guarantee also. In such case, minimum 50% of earnest money or Rs. 20 lacs, whichever is less, shall have to be deposited in shape prescribed above, and balance may be deposited in shape of Bank Guarantee of any Commercial bank having validity for 90 days or more from the last date of receipt of bids which is to be scanned and uploaded by the intending bidders.

The earnest money given by all the tenderers except the lowest tenderer shall be refunded immediately after the expiry of stipulated bid validity period or immediately after acceptance of the successful bidder, whichever is earlier.

Copy of Enlistment Order and other documents as specified in the **NIT** shall be scanned and uploaded to the e-Tendering website within the period of bid submission. However, certified copy of all the scanned and uploaded documents as specified in **NIT** shall have to be submitted by the lowest bidder within a week physically in the office of tender opening authority. Online bid documents submitted by intending bidders shall be opened only of those bidders, whose original

EMD deposited with any division of CPWD and other documents scanned and uploaded are found in order.

The bid submitted shall be opened at **15.30 Hrson 06.07.2026**

11. The bid submitted shall become invalid if:
 - 11.1. The bidder is found ineligible.
 - 11.2. The bidder does not upload all the documents (including GST Registration) as stipulated in the bid document.
 - 11.3. If any discrepancy is noticed between the documents as uploaded at the time of submission of bid and hard copies as submitted physically by the lowest bidder in the office of tender opening authority.
 - 11.4. If a tenderer does not quote any percentage above or below on the total amount of the tender the tender shall be treated as invalid and will not be considered as lowest tenderer.

12. The contractor whose bid is accepted, will be required to furnish performance guarantee at specified percentage of the tendered amount as mentioned in schedule F and within the period specified in Schedule F. This guarantee shall be in the form of Insurance Surety Bonds, Account Payee Demand draft, Fixed Deposit Receipts or Bank Guarantee of any Commercial Bank in accordance with the prescribed form.

In case the contractor fails to deposit the said performance guarantee within the period as indicated in Schedule 'F', including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor. The earnest money deposited along with bid shall be returned after receiving the aforesaid performance guarantee. The contractor whose bid is accepted will also be required to furnish either copy of applicable licenses/ registrations or proof of applying for obtaining labour licenses, registration with EPFO, ESIC and BOCW Welfare Board including Provident Fund Code No. If applicable and also ensure the compliance of aforesaid provisions by the sub-contractors, if any engaged by the contractor for the said work within the period specified in Schedule F

13. **The description of the work is as follows:**

Providing additional industrial socket outlets for kitchen i/c electrical distribution from existing substation at 300 bed hostel, LNCPE, Karyavattom, Trivandrum.

Intending Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their bids 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 bid. A bidder 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 bidders shall be responsible for arranging and maintaining at their 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 bid by a bidder 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.

14. The contractors whose bid is accepted will also be required to furnish either copy applicable licenses/registrations or proof of applying for obtaining labour licenses, registration with EPFO, ESIC and BOCW welfare board including provident fund code no if applicable and also ensure the compliance of aforesaid provisions by the subcontractors, if any engaged by the contractor for the said work with in the period specified in schedule F.
15. The competent authority on behalf of the President of India does not bind itself to accept the lowest or any other bid and reserves to itself the authority to reject any or all the bids received without the assignment of any reason. All bids in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the bidders shall be summarily rejected.
16. Canvassing whether directly or indirectly, in connection with bidders is strictly prohibited and the bids submitted by the contractors who resort to canvassing will be liable for rejection.
17. The competent authority on behalf of President of India reserves to himself the right of accepting the whole or any part of the bid and the bidders shall be bound to perform the same at the rates quoted.

18. GST or any other tax applicable in respect of inputs procured by the contractor for the contract shall be payable by the contractor and Government will not entertain any claim whatsoever in respect of the same. However, component of GST at time of supply of service (as provided in CGST ACT 2017) provided by the contract shall be varied if different from that applicable on the last date of receipt of tender including extension if any.
19. The contractor shall not be permitted to bid for works in the CPWD Circle (Division in case of contractors of Horticulture/Nursery category) 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 Engineer and Junior Engineer (both 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 gazetted officer in the Central Public Works Department or in the Ministry of Urban Development. Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of this Department.
20. No Engineer of Gazetted Rank or other Gazetted Officer employed in Engineering or Administrative duties in an Engineering Department of the Government of India is allowed to work as a contractor for a period of one year after his retirement from Government service, without the prior permission of the Government of India 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 India as aforesaid before submission of the bid or engagement in the contractor's service.
21. The bid for the works shall remain open for acceptance for a period of Thirty (30) days from the date of opening of bids.
 - 21.1. If any tenderer withdraws his tender or makes any modification in the terms & conditions of the tender which is not acceptable to the department within 7 days after last date of submission of bids, then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 50% of the earnest money absolutely irrespective of letter of acceptance for the work is issued or not.
 - 21.2. If any tenderer withdraws his tender or makes any modification in the terms & conditions of the tender which is not acceptable to the department after expiry of 7 days after last date of submission of bids, then the Government shall without prejudice to any other right or remedy, be at liberty to forfeit 100% of the earnest money absolutely irrespective of letter of acceptance for the work is issued or not.
 - 21.3. In case of forfeiture of earnest money as prescribed in para (i) and (ii) above, the bidders shall not be allowed to participate in the rebidding process of the same work.
22. This notice inviting Bids shall form a part of the contract document. The successful bidders/contractor, on acceptance of his bid by the Accepting Authority shall within 15 days from the stipulated date of start of the work, sign the contract consisting of:
 - 22.1. The Notice Inviting Bid, all the documents including additional conditions, specifications and drawings, if any, forming part of the bid as uploaded at the time of invitation of bid and the rates quoted online at the time of submission of bid and acceptance thereof together with any correspondence leading thereto.
 - 22.2. Standard C.P.W.D. Form 7 or other Standard CPWD forms as applicable.
23. The intending bidders are required to update their profile in CPWD e-tender portal and to upload their bids well in advance of last date of submission of tender. Any issue related to updating profile/uploading tender can be resolved through the concerned Executive Engineer/Assistant Engineer (Phone No:0471-2482700, e-mail Id: **cpwd143968@yahoo.co.in** or ERP help line No. 18001803286 or e-mail Id cpwd.support@techmahindra.com. The e-tendering bidders are also advised not to wait to raise any issues till the last date of submission of bid in their own interest.

Executive Engineer (E)
Trivandrum, CPWD,
Thiruvananthapuram – 695522

**Government of India
Central Public Works Department
Percentage Rate Tender & Contract for Works**

Tender for the work of: **Providing additional industrial socket outlets for kitchen i/c electrical distribution from existing substation at 300 bed hostel, LNCPE, Karyavattom, Trivandrum.**

- | | |
|----|--|
| 1. | To be uploaded by 15.00 Hrs on 06.07.2026 to /upload at https://etender.cpwd.gov.in . |
| 2. | To be opened in presence of tenderers who may be present at 15.00 Hrs on 06.07.2026 in the office of the Executive Engineer-Electrical, CPWD, Trivandrum. |

Tender

I/We have read and examined the notice inviting tender, schedule, A, B, C, D, E & F Specifications applicable, Drawings & Designs, General Rules and Directions, Conditions of Contract, clauses of contract, Special conditions, Schedule of Rate & other documents and Rules referred to in the conditions of contract and all other contents in the tender document for the work.

I/We hereby tender for the execution of the work specified for the President of India within the time specified in Schedule 'F' viz., schedule of quantities and in accordance in all respect with the specifications, designs, drawing and instructions in writing referred to in Rule-1 of General Rules and Directions and in Clause 11 of the Conditions of contract and with such materials as are provided for, by, and in respect of accordance with, such conditions so far as applicable.

I/We agree to keep the tender open for thirty (30) days from the due date of its opening in case of single bid system / ~~seventy five (75) from the date of opening of technical bid in case tenders are invited on 2 /3 bid system for specialised work~~ and not to make any modification in its terms and conditions.

I/We have deposited EMD for the prescribed amount in the Office of concerned Executive Engineer as per the bid document.

A copy of earnest money in receipt treasury challan / deposit at call receipt of a scheduled bank/ fixed deposit receipt of scheduled bank / demand draft of a scheduled bank / bank guarantee issued by a schedule bank is scanned and uploaded (strike out as the case may be). If I/We, fail to furnish the prescribed performance guarantee and APG (if applicable) within prescribed period. I/We agree that the said President of India or his successors, in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely.

Further, if I/We fail to commence work as specified, I/We agree that President of India or the successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said earnest money and the performance guarantee including APG absolutely, otherwise the said earnest money shall be retained by him towards security deposit to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to those in excess of that limit at the rates to be determined in accordance with the provision contained in Clause 12 of the tender form.

Further, I/We agree that in case of forfeiture of Earnest Money or Performance Guarantee, & APG as aforesaid, I/We shall be debarred for participation in the re-tendering process of the work.

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 for tendering in 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 suspend me/us for one year and shall not be eligible to bid for CPWD tenders from date of issue of suspension order or~~ to forfeit the entire amount of earnest money deposit/Performance Guarantee if deposited.

I/We hereby declare that I/We shall treat the tender documents drawings and other records connected with the work as secret/confidential documents and shall not communicate information/derived therefrom to any person other than a person to whom I/We am/are authorized to communicate the same or use the information in any manner prejudicial to the safety& integrity of the State.

Dated:
Witness:
Occupation:

Signature of Contractor
Postal Address

ACCEPTANCE

The above tender (as modified by you as provided in the letters mentioned hereunder) is accepted by me for an on behalf of the President of India for a sum of Rs.....
(Rupees.....).
.....).

The letters referred to below shall form part of this contract agreement: -

(a)

(b)

(c)

For & on behalf of President of India

Dated:

Signature
Designation.....

Performa of Schedules

SCHEDULE 'A'

Schedule of Quantities (as per PWD-3) : As per schedule attached

SCHEDULE 'D'

Extra schedule for specific requirements/ document : NA
for the work, if any:

SCHEDULE 'E'

Reference to General Conditions of contract. : General Conditions of Contract- Maintenance works 2023 & CPWD Form 7 modified& Corrected up to last date of receipt of tenders.

Name of Work : **Providing additional industrial socket outlets for kitchen i/c electrical distribution from existing substation at 300 bed hostel, LNCPE, Karyavattom, Trivandrum.**

Estimated Cost of Work : **Rs. 24,37,644/-**

i. Earnest money deposit : **Rs. 48,753/-** (to be returned after receiving performance guarantee)

ii. Performance Guarantee : As per OM No. DG/Manual-2024/20 dt. 27.02.2026 5% of ECPT or contract amount whichever is higher. A bid will be treated as abnormally low if the quoted bid amount is lesser than 80% of the estimated cost put to tender. Requirement of Additional Performance Guarantee (APG): In case of abnormally low bids as defined above, the bidder shall be required to submit Additional Performance Guarantee (APG) in addition to the Standard Performance Guarantee (PG). The amount of Additional Performance Guarantee (APG) shall be equivalent to the difference between the 80% amount of ECPT and quoted amount. (e.g. if ECPT is A and quoted amount is 0.7A then the amount of APG shall be 0.8A-0.7A) Additional Performance Guarantee (APG) shall be in the prescribed format of PG and has to be submitted within the time frame prescribed for submission of PG. The other terms and conditions of release etc. Of APG shall be same as that of PG.

iii. Security Deposit : 2.5% of tendered value

SCHEDULE 'F'

GENERAL RULES & DIRECTIONS:

Officer inviting tender : Executive Engineer (E), Trivandrum, CPWD, or successor as designated by CPWD.

Definitions:

2(vi) Engineer-in-Charge : Executive Engineer (E), Trivandrum, CPWD, or successor as designated by CPWD.

2(viii) Accepting Authority : Executive Engineer (E), Trivandrum, CPWD, or successor as designated by CPWD.

2(x) Percentage on cost of materials and Labour : 15%
to cover all overheads and profits

- 2(x)(b) Standard Schedule of Rates Market Rate : DSR E&M 2025 and corrected up to the last date of receipt of bid and Market Rate
- 2(xi) Department : Central Public Works Department
- 9(ii) Standard CPWD Contract Form : GCC 2023 for Maintenance works, CPWD Form 7 Modified & Corrected up to last date of receipt of bid/tender.

Clause 1

1. Time allowed for submission of: 7 (Seven) days
Performance Guarantee, programme chart (Time and progress) and applicable labour licenses, registration with EPFO, ESIC and BOCW welfare board or proof of applying there of from the date of issue of letter of acceptance
2. Maximum allowable extension with late fee: 5 (Five) days
@ 0.1% per day of Performance Guarantee amount beyond the period provided in (i) above

Clause 2

Authority for fixing compensation under clause 2 : Chief Engineer, Trivandrum, CPWD, or successor as designated by CPWD

Clause 2A

Applicable Clause 2/Clause 2A : No

Clause 5

Number of days from the date of issue of letter of: 12 (Twelve) days
acceptance for reckoning date of start Mile stone(s)
as per table given below

| Sl. No | Description of Milestone (Physical) | Time allowed in days/ months (from date of start) | Amount to be with- held in case of non-achievement of milestone |
|--------|--|---|---|
| 1 | Supply of Materials | 45 days | 1.5% of tendered value |
| 2 | Completion of electrical works | 105 days | 2.0% of tendered value |
| 3 | Final testing and commissioning & handing over | 120 days | 1.5% of tendered value |

Time allowed for execution of work : **04 (Four) Months**

Authority to decide:

- i. Authority to convey the decision of shifting of milestone and Extension of time : Engineer-in-charge or successor as designated by CPWD.
- ii. Authority to decide Rescheduling of milestone and extension of time : Chief Engineer, Trivandrum, CPWD, or successor as designated by CPWD
- iii. Shifting of date of start in case of delay in handing over of site : Chief Engineer, Trivandrum, CPWD, or successor as designated by CPWD

Clause 5 Schedule of handing over of site

| Part | Portion of site | Description | Time Period for handing over/reckoned from date of issue of letter of intent. |
|--------|--|-------------------------------|---|
| Part A | Portion without any hindrance | All Portion without hindrance | Immediate |
| Part B | Portions with encumbrances | Not Applicable | Not Applicable |
| Part C | Portions dependent on work of other agencies | Not Applicable | Not Applicable |

Clause 5

Applicable Clause 5/Clause 5A

: Clause 5

Clause 6

Computerised Measure Book (CMB) / Electronic Measurement Book (EMB)

i. Mode of measurement

: CMB / ERP Electronic Measurement Book (e-MB)
(As per DG/SOP 2022/16 dated 13.09.2023)**Clause 7**

Gross work to be done together with net payment : Rs. 06 (Six) Lakhs
/adjustment of advances for material collected, if any,
since the last such payment for being eligible to
interim payment

Clause 7

Whether Clause 7A shall be applicable

: **Yes**

(No Running Account bill shall be paid for the work till the applicable labour licenses, registration with EPFO, ESIC and BOCW Welfare Board, whatever applicable are submitted by the contractor to the Engineer-in-Charge.)

Clause 7B

Payment to third party
(Refer No. DG/CON/310 dated 17/07/2020)
Whether Clause 7B shall be applicable

Not Applicable

: Yes

(As per DG/SOP-2022/02 dated.30.08.2022)
(Affidavit per annexure-III to be furnished for effecting 3rd party payments)

Clause 8A

~~Authority to decide compensation on account if the contractor fails to submit the completion plans~~

~~Executive Engineer (E), Trivandrum, CPWD or successor as designated by CPWD~~

Clause 10A

List of testing equipment to be provided by the contractor at site lab : As required at site

1.....

2.....

3.....

4.....

5.....

6.....

Clause 10B(ii)

Whether Clause 10 B (ii) shall be applicable

: Not Applicable

Clause 10C : 25%
Component of labour expressed as percentage of value of work

Clause 10CC : Not Applicable
Schedule of component of other Materials, Labour etc. for price escalation. **Xm**..... %
Component of civil (except materials covered under clause 10CA) /Electrical construction value of work. -
Component of Labour - Y.....%
expressed as percent of total value of work.

Clause 11 :
Specifications to be followed for the execution of work
1. CPWD general specification for Electrical works- Part – I Internal-2023 with up-to-date correction slips.
2. CPWD general specification for Electrical works- Part – II External-2023 with up-to-date correction slips.

Clause 16
Competent Authority for deciding reduced rates. : Chief Engineer, Trivandrum, CPWD, or successor as designated by CPWD

Clause 18
List of mandatory machinery, tools & plants to be : As required at site deployed by the contractor at site
1..... 2..... 3.....
4..... 5..... 6.....

Clause 19C/19D/19G/19K
Authority to decide penalty for each default: : Engineer-in – charge or successor as designated by CPWD.

Clause 25
Constitution of Dispute Redressal Committee (DRC):
i. Conciliator Additional Director General-Kochi, CPWD, Chennai
ii. Arbitrator Appointing Authority: Chief Engineer, CPWD, Trivandrum
iii. Place of Arbitration Trivandrum / as decided by Arbitrator in consultation with both parties

Clause 32

Requirement of Technical Representative(s) and recovery rate

| Sl. No | Requirement of technical Staff | | Minimum Experience (Years) | Designation of Technical Staff | Rate at which recovery shall be made from the contractor in the event of not fulfilling |
|--------|--------------------------------|--------|----------------------------|--------------------------------|---|
| | Qualification | Number | | | |
| | | | | | |

| | | | | | |
|---|---------------------------------------|----|---------------------------|--|--|
| 1 | Graduate Engineer or Diploma Engineer | 01 | 2 or 5 years respectively | Project Manager cum planning/Quality/Site billing Engineer | Rs.15,000/- (Rupees Fifteen Thousand) per month per person |
|---|---------------------------------------|----|---------------------------|--|--|

Discipline for E&M Component: Electrical/ Mechanical Engineering

Assistant Engineers retired from Government services that are holding Diploma will be treated at par with Graduate Engineers.

Diploma holder with minimum 10 year relevant experience with a reputed construction company can be treated at par with Graduate Engineers for the purpose of such deployment subject to the condition that such diploma holders should not exceed 50% of requirement of degree engineers.

Clause 38**: Not Applicable**

| | | | |
|-----|---|--|--|
| i. | (a) | Schedule/statement for determining theoretical quantity of cement & bitumen on the basis of Delhi Schedule of Rates | On the basis of Delhi Schedule of Rates 2023 printed by C.P.W.D |
| ii. | Variations permissible on theoretical quantities | | |
| | (a) | Cement | |
| | i. | For works with estimated cost put to tender not more than Rs. 25 lakh | 3% plus/minus |
| | ii. | For works with estimated cost put to tender more than Rs. 25 lakh | 2% plus/minus |
| | (b) | Bitumen for all works | 2.5% plus & only nil on minus side |
| | (c) | Steel Reinforcement and structural steel sections for each diameter, section and category | 2% plus/minus |
| | (d) | All other materials. | Nil |

Executive Engineer (E)
Trivandrum, CPWD,
Thiruvananthapuram – 695522

PART -B
GENERAL / SPECIFIC CONDITIONS, SPECIFICATIONS AND SCHEDULE
OF QUANTITIES
APPLICABLE TO THE WORK

General Terms and Conditions Applicable for All E&M Components

1. General

The work shall be generally carried out in accordance with tender/bid specifications and the following specifications / rules.

- 1.1. CPWD General Specifications for Electrical work Part I Internal– 2023, amended up to date.
- 1.2. CPWD General Specifications for Electrical work Part II External – 2023, amended up to date.
- 1.3. Commercial and Additional conditions for this work.
- 1.4. The Indian Electricity Act, 2003, as amended up-to date.
- 1.5. Indian Electricity Rules 1956 amended up-to date.

2. Order of Precedence

Should there be any difference or discrepancy between the description of items as given in the Schedule of Quantities, particular specifications for individual items of work including general terms and conditions and IS Codes etc., the following order of precedence shall be followed.

- a) Schedule of quantities.
- b) Commercial and Additional conditions
- c) Drawings, if any.
- d) CPWD General Specifications.
- e) Relevant IS or any other International code in case IS code is not available.

However, nothing extra shall be paid on account of these, as the same are to be read along with schedule of quantities for the work.

- 2.2. This specification covers manufacture, testing as may be necessary before dispatch, delivery at site, all preparatory works, assembly and installation, commissioning putting into operation of equipments of all E&M components of the work.
- 2.3. The tenderer should in his own interest visit the site and get familiarized with the site conditions before tendering.
- 2.4. No T&P will be issued by the Department and nothing extra shall be paid on this account.

3. Commercial Conditions

- 3.1. Type of Contract: The work to be awarded by this tender shall be treated as indivisible works contract.
- 3.2. Income tax, GST, labour cess & other statutory deductions etc. shall be made at source as per the prevalent laws. The deductions of Security Deposit, Income tax, cess etc. shall be done after calculation of the eligible payment and net payment shall be done accordingly.
- 3.3. RATES: The rates quoted by the tenderer, shall be firm and shall be inclusive of all taxes (including GST, labour cess, IT etc.) including all charges for packing forwarding, insurance, freight, delivery, installation, testing, commissioning etc. at site including temporary construction of storage arrangement, risks, overhead charges, general liabilities/obligations.
- 3.4. The fee paid to statutory body(s) such as the CEA /Kerala State Electrical Inspectorate, fire & life safety authority, Kerala PCB or any other local body(s), as applicable, shall be reimbursed by department on production of proof of payment.
- 3.5. The contractor has to carry out maintenance as per CPWD General Specifications and manufacturer's standards for a period of 12 months from the date of handing over. Nothing extra shall be paid on this account.

4. Completeness of tender

All sundry equipment, fittings, unit assemblies, accessories, hardware items, foundation bolts, termination lugs for electrical connections, and all other items which are necessary for efficient assembly and installation of equipment and components of the work shall be deemed to be included in the scope of work irrespective of whether such items are specifically mentioned in the tender document or not.

5. Storage and Custody of Materials

The agency has to make his own arrangement for storage and custody of materials. No storage accommodation shall be provided by the department. Watch and ward of the stores and their safe custody shall be the responsibility of the contractor till the final taking over of the installation by the department.

6. **Care of the Building**

Care shall be taken by the contractor while handling and installing the various equipment's and components of the work to avoid damage to the building. He shall be responsible for repairing all damages and restoring the same to their original finish. He shall also remove, at his cost, all unwanted and waste materials arising out of the installation from the site of work.

7. **Completion Period**

The completion period indicated in the tender documents is for the entire work of planning, designing, approval of drawings, arrangement of materials & equipment, lead time, delivery at site including transportation, installation, testing, commissioning and handing over of the entire system to the satisfaction of the Engineer-in-charge.

8. **Guarantee and Defect Liability Period**

All equipments shall be guaranteed for a period of 12 months (~~except LED fittings & BLDC fans which shall be guaranteed for a minimum of 5 years and 2 years respectively~~), from the date of taking over the installation by the department, against unsatisfactory performance and/or break down due to defective design, workmanship or material. The equipments or components, or any part thereof, so found defective during guarantee period shall be forthwith repaired or replaced free of cost, to the satisfaction of the Engineer-in Charge. In case it is felt by the department that undue delay is being caused by the contractor in doing this, the same will be got done by the department at the risk and cost of the contractor. The decision of the Engineer-in-charge in this regard shall be final & binding on the contractor.

~~The guarantee for LED light fittings & BLDC fans are to be got submitted from the manufacturer /authorized dealer in addition to the guarantee from the contractor. The manufacturer should give undertaking that in case of discontinuation of model and /or non- availability of spares, they will replace the unit with equivalent/ high end model in case of manufacturing defect during the warranty period of 5 years as in Annexure – X. Type Test certificate, BIS certificate, LM79 and LM80 certificate test report from an NABL accredited laboratory need to be submitted prior for approvals.~~

~~Before completion of defect liability period of one year for the entire work, the main contractor has to submit Security Deposit of 5% of the price quoted by him for SITC of LED fittings for the remaining 4 years warranty period in acceptable form i.e. FDR/Bank guarantee/DD to the concerned Executive Engineer (E). The Security Deposit deducted from the bills of contractor shall be refunded to the main contractor only after submission of Security Deposit for LED fittings to Executive Engineer (E), failing which this Security Deposit towards LED fittings at 5% of the price quoted by them for LED fittings shall be deducted from Security Deposit for total work and balance amount will be refunded only after completion of defect liability period of one year. The LED fittings Security Deposit will be released after completion of warranty period of 5 years.~~

The tenderer shall guarantee among other things, the following:

- 8.1. Quality, strength and performance of the materials used in the work.
- 8.2. Safe mechanical and electrical stress on all parts under all specified conditions of operation.
- 8.3. Satisfactory operation during the maintenance period.

9. **Acceptable makes of various equipments**

The acceptable makes of various equipment/components/accessories have been indicated in the "List of Acceptable Makes" appended with the tender document. The tenderer shall work out the cost or his offer on this basis. Alternate makes are not acceptable.

10. **Data Manual and Drawings to be furnished by the Tenderer:**

10.1. **After award of work**

The successful tenderer would be required to submit the following drawings after award of work for approval.

- a) General Layout of all E&M installations
- b) General arrangement drawing for HT/LT installations.
- c) GAD for E&M piping and other details.
- d) General arrangement of lighting & fans etc.
- e) Details of foundations for equipments and the weights of assembled equipments etc.

- f) ~~The voltage drop calculation for external cabling works along with the proposed cable route/layout.~~
- g) ~~Details of foundations for the equipments including DG set and the weights of all assembled equipments considering the soil bearing capacity and other relevant factors at site.~~
- h) Any other drawings/details necessary for the job as per general specifications.

The successful tenderer should furnish well in advance of commencement of work with three copies of detailed instructions and manuals of manufacturers for all items of equipments regarding installation, adjustments operation and maintenance including preventive maintenance & troubleshooting together with all the relevant data sheets, spare parts catalogue etc.

11. **Extent of Work**

- 11.1. The work shall comprise of entire labour including supervision and all materials necessary to make a complete installation and tests and adjustments and commissioning, as required. The term complete installation shall not only mean major items of the plant and equipments covered by specifications but all incidental sundry components necessary for complete execution and satisfactory performance of installation with all layout charts etc. whether or not these have been mentioned in detail in the tender document in connection with this contract or not as this is a turnkey job.
- 11.2. The cables and other linearly measured items shall be brought to site only after taking exact measurements as per actual requirement at site of work. Excess quantities will not be accepted. Quantity of items brought to site and used in work as per actual requirement shall only be measured and paid irrespective of quantities of BOQ / schedule of work.
- 11.3. In addition to supply, installation, testing and commissioning of all E&M equipment, following works shall be deemed to be included within the scope of work to be executed by the tenderer as this is a turnkey job.
 - a) Minor building works necessary for installation of equipments, foundation, supports, making of opening in walls or in floors and restoring them to their original condition /finish and necessary grouting etc. as required.
 - b) Getting inspection done & obtaining approval from Central Electrical Authority/ Kerala State Electrical Inspectorate Authority, local fire authority, power distribution licensee and other local body(s) for energizing the installation. However, necessary fees for statutory inspection shall be reimbursed by the department on production of proof of payment.
 - c) The contractor shall remove all the debris due to the E & M works from the site as soon as the work is completed

12. **Exclusion and work to be done by other agencies**

The following shall be excluded from the scope of the work:

- 12.1. Major dismantling of any existing building work.

13. **Inspection and Testing**

The General intent of this specification is to mention the relevant tests to be done and furnished to the Engineer- in-Charge by the Contractor. These are guidelines. However the Contractor shall carry out all such tests and complete all formalities as per relevant Indian Standard Specifications, Fire Insurance Requirements and/or Electricity Rules and Regulations as per Government Gazette and Publications.

All equipment before installing on the site work shall be tested and all such results produced to the Engineer-in- Charge. Nothing shall absolve the Contractor from reperforming any tests that the Contractor may be called upon specifically by the Engineer-in-Charge or supply company or electrical inspector. All equipment shall be tested jointly with the Engineer-in-Charge as required by various sections of the specifications and test data shall be furnished as required.

14. **Compliance with Regulations and Indian Standards:**

All works shall be carried out in accordance with relevant regulations, both statutory and those specified by the Indian Standards related to the works covered by this specification.4

- 14.1. Indian Electricity Rules.
- 14.2. B.I.S. & other standards as applicable.
- 14.3. Work men's compensation Act.

- 14.4. Statutory norms prescribed by local bodies, CEA/Kerala State Electrical Inspectorate, Power Supply Co., etc.

After completion of the installation, the same shall be offered for inspection by the Central Electricity Authority/ Kerala State Electrical Inspectorate and local fire authority etc, as applicable. The contractor will extend all help including submission of test facilities to the representatives of CEA/ Kerala State Electrical Inspectorate and Local fire authority. The observations of CEA/ Kerala State Electrical Inspectorate and Local fire authority shall be attended by the contractor. The installation will be commissioned only after getting clearance from CEA/ Kerala State Electrical Inspectorate and the local fire authority. Contractor should get inspection done & obtain approval from Central electrical Authority/Kerala State Electrical Inspectorate and local fire authority as the case may be. Liaisoning with the power distribution licensee for availing service connection shall be inclusive in the scope of the agency.

Nothing in this specification shall be construed to relieve the successful tenderer of his responsibility for the design, manufacture and installation of the equipment with all accessories in accordance with currently applicable statutory regulations and safety codes

15. **Indemnity**

The successful tenderer shall at all times indemnify the department, consequent on this works contract. The successful tenderer shall be liable, in accordance with the Indian Law and Regulations for any accident occurring due to any cause and the contractor shall be responsible for any accident or damage incurred or claims arising therefrom during the period of erection, construction and putting into operation the equipments and ancillary equipment under the supervision of the successful tenderer in so far as the latter is responsible. The successful tenderer shall also provide insurance including third party insurance as may be necessary to cover the risk. No extra payment would be made to the successful tenderer on account of the above.

16. **Erection Tools**

No tools and tackles either for unloading or for shifting the equipments for erection purposes will be made available by department. The successful tenderer shall make his own arrangement for all these facilities.

17. **Co- operation with other agencies:**

The successful tenderer shall co-ordinate with other contractors and agencies engaged in the work and exchange freely all technical information so as to make the execution of this work under the scope of contract smooth. No extra remuneration is claimable from the department for such technical co-operation. If any unreasonable hindrance is caused and any completed portion of the work has to be dismantled and re-done due to lack of cooperation and coordination by the successful tenderer during the course of progress of work, such expenditure incurred will be recovered from the successful tenderer if the restoration work to the original condition or specification of the dismantled portion of the work was not undertaken by the successful tenderer himself at his cost.

The work shall be carried out with the least disturbance to existing ongoing services if any inside the building and campus and if integration to existing services in the campus is required, the same shall be done in consultation with the client department in due intimation to the Engineer-in-charge or their authorised representatives. It shall be the responsibility of the agency to pursue for the required co-operation with the user department in getting the work done within the stipulated time frame.

18. **Verification of Correctness of equipment at Destination**

The contractor shall have to produce all the relevant records to certify that the genuine equipments are supplied for the work.

19. **Painting**

The scope of work shall include cost of painting of the installation. The agency shall be required to do only making good the damages caused to the painting during transportation, handling & installation at site, if there is no major damage to the painting.

20. **Maintenance**

Sufficient trained and experienced staff shall be made available to meet any exigency of work during the guarantee period of 12 months from the date of taking over of the installation. Also, the existing maintenance staff in the campus shall be given training by the agency in safe and successful operation of the system.

The maintenance, routine as well as preventive, for 12 months from the date of taking over the installation as per manufacturer's recommendation and as mentioned in additional conditions under relevant sub heads of the work.

21. **Approval of drawings, makes and models of equipment/materials for all E&M components**

The agency shall submit drawings and details such as makes and models of the equipments /materials offered by him along with specifications for all E&M components to the Engineer-in-charge of the work, before ordering the equipment/materials for approval. The Engineer-in-charge shall scrutinize the proposal and approve the makes and models which are acceptable as per the schedule, specifications, conditions of the agreement and inform the agency to proceed for procurement. After approval of the equipment/materials by the department the agency shall procure the equipment/materials.

22. **Quality & genuineness of material**

Adequate care may be taken such that only tested and genuine materials of proper quality are used in work shall be ensured by firm.

The firm shall also ensure that

- a) makes & brands of electrical components are as per the list of acceptable makes in tender documents and approval by the Engineer-In-Charge is obtained, whose decision will be final in the matter.
- b) The firm will be required to procure material directly from the manufacturer/ their authorized dealers to ensure genuineness & quality and as per the list of acceptable makes. Proof in this regard shall be submitted by the contractor to the department, if so required.
- c) Inspection at factory or at godown, as required, shall be arranged by the contractor on a mutually agreed date. Intimation of conducting factory inspection shall be made by the agency at least 2 weeks before the proposed factory visit to the Engineer-in-charge. However, Engineer-in-charge shall reserve the right to waive inspection in lieu of suitable test certificate, at his discretion.
- d) All the materials supplied by the contractor shall be procured & brought to site as per requirement at site of work in phases as per progress of work and in consultation with department so that these materials are not damaged & their manufacturer's warranty is not made void.

23. **Safety Codes & Statutory Regulations**

Nothing in this specification shall be construed to relieve the successful tenderer of his responsibility for the design, manufacture and installation of the equipment with all accessories in accordance with currently applicable statutory regulations, local bye laws and safety codes.

Successful tenderer shall arrange for compliance with statutory provisions of safety regulations and departmental requirements of safety codes in respect of labour employed on the work by the tenderer. Failure to provide such safety requirement would make the contractor liable for penalty as per tender conditions. In addition, the department will be at liberty to make arrangement for the deficient safety requirements at the cost of successful tenderer and recover the cost thereof from him.

24. **Power supply**

The contractor shall make his own arrangement for power supply required for execution of the work.

25. **Water supply**

The contractor shall make his own arrangement for water supply required for execution of the work.

Additional Conditions for Internal Electrical Installations

1. Extent of Work

- 1.1. The work shall comprise of entire labour including supervision and all materials necessary to make a complete installation and such tests and adjustments and commissioning as may be required by the department.
- 1.2. The main agency shall be responsible for all acts of omissions and submissions of the associate Contractor engaged by him, even with approval of department.
- 1.3. Approval of the Engineer-in-charge shall be taken well in advance for all the materials to be supplied and used in all the works by the contractor.
- 1.4. The contractor has to make his own arrangements for stores and watch and ward and no extra claim for this will be entertained.
- 1.5. The main contractor shall be responsible for coordinating the activities of all works and will ensure progress of works as per laid down programme.
- 1.6. The main contractor and / or his associate contractor or his representative is bound to sign the site order book as and when required by the Engineer-in-charge and will comply with the remarks therein.
- 1.7. The contractor shall make his own arrangement at his own cost for electrical / General Tools and plants required for the work.
- 1.8. The contractor shall remove all the debris due to the E & M works from the site as soon as the work is completed.
- 1.9. Guarantee for the electrical installation in the prescribed proforma shall be provided by the agency after handing over of the installation.

2. Payments Terms

On account payments for part work (after stipulated and statutory deductions) as assessed by the Engineer – in-charge for the applicable items in the Contract shall be payable at part rates not exceeding the percentage indicated against the stages of work as below.

2.1. Items connected with point wiring, circuit wiring, sub-main wiring, power point wiring and light plug wiring.

| S.No | Stage of work | Percentage of payment on pro-rata basis |
|------|--|---|
| 1 | On laying of conduits with accessories, switch boxes, etc. | 35% |
| 2 | On drawing of wires i/c terminations, switches, sockets, cover plates etc. | 50% |
| 3 | On completion of item and after testing and commissioning. | 10% |
| 4 | At the time of payment of final bill | 5% |

2.2. LT panel boards, MCB Distribution Boards, MCBs, RCBOs, LED fittings and other equipments

| S.No | Stage of work | Percentage of payment |
|------|---|-----------------------|
| 1 | On initial inspection of material and delivery at site in good condition on pro-rata basis. | 70% |
| 2 | On completion of installation on pro-rata basis. | 15% |
| 3 | On completion of testing and commissioning. | 10% |
| 4 | At the time of payment of final bill. | 5% |

3. Additional Conditions

- 3.1. The wiring and conduit layout shall be marked by the contractor in the drawing prior to execution and shall be got approved from the Engineer-in-charge.
- 3.2. The rupturing capacity of the MCBs shall be 10 KA minimum. The MCBs shall have ISI mark. Quantities of MCBs of different rating shall be brought in consultation with the Engineer-in-Charge or his authorized representative.
- 3.3. All the MCCBs shall be rated for $I_{cs}=100\% I_{cu}$.
- 3.4. The copper wire to be used on this work shall be FRLS type and ISI marked.
- 3.5. The make of switch boxes, cover plates etc. shall be the same as that of switches. Only the required knockouts of the switch boxes are to be removed for terminating the conduit pipes with PVC glands / check nuts.
- 3.6. Make of MCB/MCCB shall be the same as the make of MCB DB.
- 3.7. All the switch boxes, MCB DBs are to be covered with plastic masking sheet / petroleum gelly when installed in brick work till the plastering / painting is done to avoid sticking of cement plaster/ splashes of paint. Cement plaster / paint are to be cleaned immediately after plaster to avoid rusting of switch boxes and MCB DBs. All plastic sheets are to be removed at the time of handing over.
- 3.8. The E & M works shall be carried out by the contractor, side by side with the progress of civil work.
- 3.9. All PVC conduits accessories shall be of the same make as conduits. The conduit shall be terminated at switch boxes/metallic junction boxes with suitable PVC glands/check nuts.
- 3.10. Cutting of brick walls shall be with chase cutting machine only. All repairs and patch works shall be neatly carried out to match the original finish and to the entire satisfaction of the Engineer -in-Charge.
- 3.11. All metallic conduit shall be ISI marked. The wall thickness of steel conduit shall not be less than 1.6mm(16SWG) for conduits upto 32mm dia and not less than 2mm (14SWG) for conduits above 32mm. These shall be solid drawn or reamed by welding, and finishing with galvanized or stove enamelled surface.
- 3.12. All the sub main and circuit wiring item includes loose wire for connections inside switch boxes and MCB DBs. No payment for these loose wires shall be made. However wires within the cubicle panel board will be measured and paid under relevant item of work.
- 3.13. All the circuits / sub-main wiring are to be suitably numbered with stickers / marker pen at LT panel board, MCB DBs, switch boards (on backside of cover plate) for ease of maintenance. Nothing shall be paid extra on this account.
- 3.14. To facilitate drawing of wires, 18 SWG GI fish wire shall be provided along with laying of recessed conduit for which no extra payment shall be made. For conduits laid for other services where wiring is not done along with Internal EI works, fish wire shall be invariably drawn.
- 3.15. The connection between incoming switch / isolator and bus bar shall be made with suitable size of thimble and cable at no extra cost.
- 3.16. Copper conductor of insulated cables of size 1.5 Sq.mm and above shall be stranded and terminals provided with crimped lugs.
- 3.17. All sub-main wiring shall be terminated in the main board with suitable copper lugs and thimbles for which nothing extra will be paid.
- 3.18. All hardware items such as screws, thimbles, GI wire etc. which are essentially required for completing an item as per specifications will be deemed to be included in the item even when the same have not been specifically mentioned.
- 3.19. All hardware items such as nuts/ bolts/ screws/ washers etc. to be used in work shall be zinc/ cadmium plated iron.
- 3.20. While laying conduit, suitable size junction boxes shall be provided for pulling wires. The junction box cover should be of phenolic laminated / good quality plastic sheet of thickness not less than 3mm. Nothing extra shall be paid on the account.
- 3.21. All materials to be used in work shall be ISI marked. The make of the materials shall be as indicated in the list of acceptable makes. Alternate makes are not acceptable. The materials to be

- used in the work shall be got approved by the Engineer in Charge / his representative before use at site. The Engineer-in-Charge shall reserve the right to instruct the contractor to remove the material which, in his opinion, is not acceptable.
- 3.22. All modular switches/ sockets/ regulator/ telephone/ TV / internet outlets shall be of the same make.
 - 3.23. Installation of distribution boards in niches in walls and making good the same shall be in the scope of the work.
 - 3.24. All switch boards having fan controls shall be provided with additional two module spare space. Space/provision with blanking plate shall be provided if fan regulator is not provided therein. However, if twin control fan points is provided, the same shall be provided in one of the switch boards and this shall be done as per the direction of the Engineer-in-charge.
 - 3.25. A blanking plate shall be provided between 25A switch and 25A socket outlet without extra cost , wherever provided.
 - 3.26. Wherever light fittings are proposed to be provided on the false ceiling, the respective light / fan point wiring will have to be brought upto the terminal of the light fittings / fans by the contractor. Flexible metal conduits shall be used for drawing wires from conduits on ceiling to fittings on false ceiling and nothing extra shall be paid to the contractor for the same.
 - 3.27. The external cabling works shall be carried out along the route as directed by the Engineer-in-charge.
 - 3.28. The voltage drop calculation for the entire external cabling network shall be provided by the agency as per relevant standards for verification by the department. Procurement and laying of cables shall only be done thereafter.
 - 3.29. All MCCBs and relays forming protection to the system shall be suitably calibrated and tested for trouble free operation.
 - 3.30. The earthing of the installation shall be properly ensured at all parts of the installation.
 - 3.31. All LT panel boards shall be compliant to relevant IS standards. The design of the LT panel board shall be sufficient capacity to withstand the fault level at the point of installation. The enclosures shall be designed to take care of normal stress as well as abnormal electro-mechanical stress due to short circuit conditions. All covers and doors provided shall offer adequate safety to operating persons. Ventilating openings, if provided, shall be arranged such that the required ingress protection is not defeated.
 - 3.32. Switchboards construction shall be compartmentalized and segregated for incomer, busbar, cable alley, each outgoing feeders and control and metering units unless otherwise specified.
 - 3.33. The switchboards shall be designed for use in the local ambient temperature and humid tropical conditions.
 - 3.34. Switchboard panels and cubicles shall be fabricated with CRCA Sheet Steel of thickness not less than 2.0 mm unless otherwise specified and shall be folded and braced as necessary to provide a rigid support for all components. The doors and covers shall be fabricated from CRCA sheet steel of thickness not less than 2 mm unless otherwise specified. Joints of any kind in sheet metal shall be seam welded and all welding slag ground off and welding pits wiped smooth with plumber metal. Switchboards shall be provided with "Danger Notice Plate" conforming to relevant Indian Standards.
 - 3.35. Busbars shall be made of high conductivity, 99.9% purity, high strength Aluminum / Copper of ETP grade Busbars shall be of rectangular cross sections shall be provided in all LT panel boards. Busbar shall be suitable to withstand the stresses of fault level at the point of installation. Continuous earth bus sized for prospective fault current to be provided with arrangement for connecting to station earth at two points shall be provided in LT panel boards. Hinged doors / frames to be connected to earth through adequately sized flexible braids.
 - 3.36. Copies of type tests carried out on MCCB at manufacturers works shall be furnished along with the delivery of the switchboards.

APPENDIX – II GUARANTEE PROFORMA

GUARANTEE FOR ELECTRICAL SYSTEM INSTALLATION

We hereby guarantee the year-round Electrical System which we have installed in the Complex described below:

Building/Area: LNCPE

Location: Karyavattom, Trivandrum.

Client: LNCPE

For a period of 12 months from the date of acceptance of the installation in scope of work, WE AGREE TO repair or replace to the satisfaction of the Engineer-in-charge, any or all such work that may prove defective in workmanship, equipment or materials within that period, ordinary wear and tear and unusual abuse or neglect excluded, together with any other work which may be damaged or displaced in so doing. In the event of our failure to comply with the above-mentioned conditions within a reasonable time, after being notified in writing, we collectively and separately, do hereby authorize the Engineer-in-charge to proceed to have the defects repaired and made good at our expense, and we shall pay the cost and charges thereof, immediately upon demand.

WE ALSO HEREBY UNDERTAKE to test the entire installation upon completion and ensure that all units are functioning satisfactorily.

SIGNATURE OF CONTRACTOR
for ELECTRICAL INSTALLATION

DATE:

SEAL

List of Approved Makes

| Internal Electrical Installations | | |
|-----------------------------------|--|---|
| Sl. No | Item Description | Makes |
| 1 | PVC insulated copper conductor cable / Telephone cable / Co-axial TV Cable/submersible cable. | KEI/Havells/Polycab/RR Kabel (All wires shall be FRLS with "ISI" marked). |
| 2 | PVC conduit and accessories | Avonplast / Bajaj Plast/ Precision / Atul/ Balco /Konseal "ISI" marked. |
| 3 | Steel (MS)Conduits | AKG/ BEC/ Steel krafts/ Precision with ISI marked. |
| 4 | Modular plate type switch, Socket, other modular items, modular Box, inner & outer plate and accessories | MK Blenze/ Legrand Arteor or Myrius/ Schneider Zencilo "ISI" marked |
| 5 | Cable management / Floor trunking | MK / Legrand/ Schneider/ Siemens/OBO |
| 6 | Rising main/ End feed unit/ tap off boxes | Legrand/Siemens/ L&T /Schneider/ABB |
| 7 | MCB DBs | Siemens: Beta guard/ ABB: Elegance / Legrand: Ekinox / Schneider: Acti9 /L&T |
| 8 | MCBs | Legrand: DX ³ / ABB: S200M/ Schneider: Acti9/ Siemens: Beta guard /L&T |
| 9 | RCCB/RCBO | Legrand: DX ³ / ABB: F200, DS200M, DDA200/ Schneider: Acti 9/ Siemens: Beta guard /L&T |
| 10 | MCCB's | Siemens/ L&T /Schneider/ABB |
| 11 | Panel board mounting Switches | L & T / Siemens / Schneider/ABB |
| 12 | Industrial sockets | Siemens/ Legrand / Schneider / Hager |
| 13 | Timer | L&T / Schneider / Siemens/ Legrand/BCH/GE |
| 14 | Contactors | L&T / Schneider / Siemens/ABB |
| 15 | LED light fittings | Philips/ Wipro / Crompton/ Havells/Bajaj Or As stipulated against respective items in BoQ |
| 16 | Lamps | GE/ Osram/ Philips/ Bajaj/Wipro |
| 17 | Angle/batten holder | Kinjal/ Emperor/ Anchor, all ISI marked. |
| 18 | Cat6A UTP cables/ OFC cable | Belden/ Panduit /AMP/ Commscope/Siemon |
| 19 | Meters (Digital type) | Conzerv / AE / Krykard/ Schneider/ Mecon/ L&T/ Cadel/ C&S/ ABB |
| 20 | Telephone/ TV cable/Tag Block | Delton/ Finolex/ L& T/Legrand/Polycab |
| 21 | CT's | AE / BCH/ KAPPA / siemens/ GE/ MECO/ Rishab |
| 22 | Ceiling rose | Anchor / Lisha / Leader "ISI" marked. |
| 23 | BLDC Ceiling Fan | Atomberg / Havells/ Usha / Orient/ equivalent model of Crompton |
| 24 | Exhaust fan – Heavy duty | Usha / Almonard / Crompton/Havells |
| 25 | Wall fan | CG/Havells/Orient |
| 26 | MS/GI pipe | Zenith/Jindal-Hissar/Jindal-star/Jindal-India TATA |
| 27 | Phenolic laminated sheet | Hylam/ Green lam / Formica (minimum 3 mm thick, ISI Marked) |
| 28 | Octagonal Street light poles | Bajaj/ Valmont/Jindal power corporation/ Utkarsh india ltd / Klite/ Crompton. |

| | | |
|----|---|---|
| 29 | XLPE/ PVC insulated PVC sheathed aluminum /copper conductor UG cable. | Universal / Finolex/ CCI/ Gloster/ Grandlay/ Havells / Polycab/KEI "ISI" marked |
| 30 | HDPE Pipe & accessories | Duraline/ Supreme/Times Technoplast/ Hasti/ National Plastic/Finolex |
| 31 | HDPE DWC Pipe & accessories | Duraline/Supreme/Times Technoplast/ Hasti/ National Plastic/Finolex /Rex/jain Irrigation/Gemini |
| 32 | Energy Meters for KSEB metering | As per approved list of KSEB Ltd. |
| 33 | Call bell/Buzzer | Anchor/ Leader/Rider/GM |
| 34 | HRC fuses | L&T/ GE/ Siemens/Havells |
| 35 | Indicating Lamps, Selector Switches | Kaycee / BCH / L & T Salzer / Siemens/C&S |
| 36 | Cable glands | Jainson/ Comet/ Dowells/ Cosmos |
| 37 | Cable Lugs | Comet/Cosmos/Dowells/Hax Brass(Copper Alloy India) |
| 38 | Fasteners | Hilti / Fischer / Bosch |
| 39 | Surge protectors | Legrand/ Siemens /Schneider/ ABB/ Obo Bettermann/L&T |
| 40 | Fire Extinguishers | Flameguard / Padmini / Newage / Fire Shield / Swastik / Cease fire / Minimax /Safex / Kanex |
| 41 | MCCB incomer and MCCB outgoing distribution boards | Legrand/Siemens/Schnieder/ABB/L&T |
| 42 | DB mounting MCCBs | Same make as of MCCB incomer DBs. |
| 43 | LT panel boards | CPRI Certified Panel fabricators |
| 45 | Modular UPS | SOCOME/Emerson /GE /APC |
| 46 | Sealed maintenance free Battery | Exide/ Amaron/ Panasonic/ |
| 47 | Structural earthing / Lightning Protection | Dehn/ OBO/ Axis /ABB |
| 48 | Cable trays | Profab Engineer/ slottco/ RICO/ Legrand/ OBO |
| 49 | All other items | As per approval of Engineer – in – charge |

PART-C
SCHEDULE OF QUANTITIES

Schedule of Quantities

Name of Work: Providing additional industrial socket outlets for kitchen i/c electrical distribution from existing substation at 300 bed hostel, LNCPE, Karyavattom, Trivandrum.

| Sl. No | Item Description | Qty | Unit | Rate | Amount |
|--------|---|-----|-------|-----------|-------------|
| 1 | Wiring for circuit/ submain wiring along with earth wire with the following sizes of FRLS/HFFR PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required. | | | | |
| 1.1 | 2 X 4 sq. mm + 1 X 4 sq. mm earth wire | 120 | Metre | 492.51 | 59,101.20 |
| 1.2 | 2 X 16 sq. mm + 1 X 6 sq. mm earth wire | 300 | Metre | 1,098.57 | 3,29,571.00 |
| 1.3 | 4 X 16 sq. mm + 2 X 6 sq. mm earth wire | 500 | Metre | 1,919.86 | 9,59,930.00 |
| 2 | Supplying and drawing following sizes of FRLS/HFFR PVC insulated copper conductor, single core cable in the existing surface/ recessed steel/ PVC conduit as required. | | | | |
| 2.1 | 3×4 sq. mm | 80 | Metre | 293.13 | 23,450.40 |
| 2.2 | 6×4 sq. mm | 30 | Metre | 559.85 | 16,795.50 |
| 3 | Supplying and fixing of following sizes of medium class PVC conduit along with accessories in surface/recess including cutting the wall and making good the same in case of recessed conduit as required. | | | | |
| 3.1 | 20 mm | 70 | Metre | 199.38 | 13,956.60 |
| 3.2 | 25 mm | 25 | Metre | 221.83 | 5,545.75 |
| 4 | Providing and fixing following rating and breaking capacity and pole MCCB with thermomagnetic release and terminal spreaders in existing cubicle panel board including drilling holes in cubicle panel, making connections, Ics=100% Icu and Operational Voltage 690V etc. as required. | | | | |
| 4.1 | 125 A,36KA, FP MCCB | 2 | Each | 11,413.54 | 22,827.08 |
| 4.2 | 250 A,36KA, FP MCCB | 2 | Each | 24,258.39 | 48,516.78 |
| 5 | Supplying and fixing 5 A to 32 A rating, 240/415 V, 10 kA, "C" curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required. | | | | |
| 5.1 | Single pole | 3 | Each | 376.31 | 1,128.93 |
| 6 | Supplying and fixing single pole blanking plate in the existing MCB DB complete etc. as required. | 5 | Each | 18.49 | 92.45 |
| 7 | Supplying and fixing Cable End Box (Loose Wire Box) suitable for triple pole and neutral, sheet steel, Vertical MCB distribution board, 415 Volts, on surface/ recess, complete with testing and commissioning etc. as required. | 2 | Each | 1,678.23 | 3,356.46 |
| 8 | Providing and fixing 4.00 mm dia copper wire on surface or in recess for loop earthing as required. | 340 | Metre | 228.43 | 77,666.20 |

| Sl. No | Item Description | Qty | Unit | Rate | Amount |
|--------|---|-----|-------|-----------|-----------|
| 9 | Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size in the existing RCC/ HUME/ METAL pipe/ DWC as required. | | | | |
| 9.1 | Above 95 sq. mm and upto 185 sq. mm | 80 | Metre | 128.08 | 10,246.40 |
| 10 | Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size in the existing masonry open duct as required. | | | | |
| 10.1 | Above 95 sq. mm and upto 185 sq. mm | 10 | Metre | 105.63 | 1,056.30 |
| 11 | Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on wall surface as required. | | | | |
| 11.1 | Upto 35 sq. mm (clamped with 1mm thick saddle) | 70 | Metre | 84.51 | 5,915.70 |
| 11.2 | Above 95 sq. mm and upto 185 sq. mm (clamped with 25/40×3mm MS flat clamp) | 10 | Metre | 237.67 | 2,376.70 |
| 12 | Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required. | | | | |
| 12.1 | 3.5 X 35 sq. mm (28mm) | 4 | Each | 577.01 | 2,308.04 |
| 12.2 | 3½ X 185 sq. mm (57mm) | 2 | Each | 1,321.72 | 2,643.44 |
| 13 | Supplying and laying of following size DWC HDPE pipe ISI marked along with all accessories like socket, bend, couplers etc. conforming to IS 14930, Part II complete with fitting and cutting, jointing etc.direct in ground (75 cm below ground level) including excavation and refilling the trench but excluding sand cushioning and protective covering etc., complete as required. | | | | |
| 13.1 | 120 mm dia (OD-120 mm & ID-103 mm nominal) | 80 | Metre | 550.61 | 44,048.80 |
| 14 | Supplying and fixing following rating MCCB with thermomagnetic release in the existing SMDB/panel board/enclosure complete with connections, testing and commissioning etc. as required. | | | | |
| 14.1 | 125A, 25 KA, TP MCCB | 2 | Each | 12,995.72 | 25,991.44 |
| 15 | Supplying and fixing suitable size modular surface box with modular plate and cover in front on surface or in recess, including providing and fixing 6 pin 5/6 & 15/16 A modular socket outlet and 15/16 A modular switch, connections etc. as required. | 6 | Each | 1,415.19 | 8,491.14 |
| 16 | Supplying, installation, testing & Commissioning of dust protected, duly powder painted, wall mounted, Sub main distribution board suitable for MCCB incoming and MCCB outgoing made of sheet steel conforming to IEC 61439-2, IP 43 ingress | | | | |

| Sl. No | Item Description | Qty | Unit | Rate | Amount |
|--------|---|-----|-------|-----------|-------------|
| | protection or above and having short time withstand rating of 36KA for 1 sec., with neutral link, earth bar, bus bar suitable for incomer switch gear including metering extension box, left & right side cabling box, bottom cabling box and 4 nos corner box, 1No LED voltmeter with selector switch (Voltage between Phases & Individual Phases to Neutral with OFF), 3 Nos of LED ammeter with suitable rating CTs per each phase, RYB phase indicating lamps and SP MCB for back up protection of control circuit without incoming & outgoing MCCB etc. with complete as required. | | | | |
| | 4 way (Incomer rating of upto 250A MCCB FP incomer with TP outgoing) | 1 | Each | 93,808.97 | 93,808.97 |
| 17 | Supplying and fixing of following ways surface/ recess mounting, vertical type, 415 V, TPN MCCB incomer and MCB outgoing type distribution board (IP 43) of sheet steel, dust protected, duly powder painted, inclusive of 250 A copper bus bar, common neutral link, earth bar, din bar for mounting MCBs(but without MCBs and incomer) as required. | | | | |
| 17.1 | 8 way | 2 | Each | 25,858.06 | 51,716.12 |
| 18 | Supplying of following size 1.1kV grade XLPE insulated PVC sheathed armoured Aluminium conductor power cable conforming to IS 7098 (Part 1) amended up to date as required. | | | | |
| 18.1 | 3.5C x 35 sq. mm | 70 | Metre | 591.09 | 41,376.30 |
| 18.2 | 3.5C x 185 sq. mm | 100 | Metre | 2,514.54 | 2,51,454.00 |
| 19 | Supplying and fixing 63 A, 200/250 V, SPN Industrial type socket outlet, with 2 pole and earth, metal enclosed plug top along with 63 A "C" curve, DP, MCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required. | 8 | Each | 12,464.95 | 99,719.60 |
| 20 | Supplying and fixing 63 A, 415 V, TPN Industrial type socket outlet, with 4 pole and earth, metal enclosed plug top along with 63 A "C" curve, TPMCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket out let and complete with connections, testing and commissioning etc. as required. | 10 | Each | 21,257.33 | 2,12,573.30 |
| 21 | Providing, laying and fixing 150mm dia G.I. pipe (medium class) in ground complete with G.I. fittings including cutting the interlock pavement at a depth of 75 cm and width of 40 cm etc as required | 20 | Metre | 1,024.42 | 20,488.40 |
| 22 | Supplying and fixing cable route marker with 10 cm X 10 cm X 5 mm thick G.I. plate with inscription there on, bolted /welded to 35 mm | 2 | Each | 745.41 | 1,490.82 |

| Sl. No | Item Description | Qty | Unit | Rate | Amount |
|--------|---|-----|------|------|---------------------|
| | X 35 mm X 6 mm angle iron, 60 cm long and fixing the same in ground with cement concrete of size 15 cm x 15 cm x 15 cm etc. complete as required. | | | | |
| | Total | | | | 24,37,644.00 |

Executive Engineer (E)
Trivandrum, CPWD,
Thiruvananthapuram – 695522