

**TENDER DOCUMENT
(TECHNICAL BID)**

**HT & LT ELECTRIFICATION AND OTHER MEP WORKS
FOR SETTING UP OF DIAGNOSTIC LAB FACILITY**

**AT
OLD MUNICIPAL CORPORATION
OFFICE (MCG) BUILDING
AT SECTOR - 39, GURGAON**

**PROJECTS DIVISION,
HLL LIFECARE LTD,
CORPORATE HEAD OFFICE, POOJAPPURA,
THIRUVANANTHAPURAM – 695 012,
KERALA, INDIA
PHN: ++91 471 2354949, 2775588**

NOVEMBER 2017

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PREQUALIFICATION REQUIREMENTS

1. The work shall be executed by a licensed Electrical Contractor who possesses valid 'A' class license of appropriate class and category issued by Central or State Electric authority.
2. The prospective bidder should have minimum five years experience in executing similar* works.
3. Tenderer should have satisfactorily completed similar works of following values during the last 5 years:-
 - a) One work of similar nature of Rs 72 Lakhs or above
Or
 - b) Two works of similar nature of Rs 54 Lakhs or above
Or
 - c) Three works of similar nature of Rs 36 Lakhs or above
- d) Average annual financial turnover of the bidder during the last 3 years, ending 31st March of the previous financial year, should be at least Indian Rupees (INR) 50 Lakhs
- e) Power of Attorney, in case an authorized representative has signed the tender.
- f) The duly signed acceptance form confirming that all terms & conditions, technical specifications, drawings & volume of job are understood by the bidder. Certificate that bid is in total conformity with the specifications and terms and conditions mentioned in the bid document and certificate on period of validity (sheet enclosed)
- g) Deviation if any, giving reasons for the deviation.
- h) Even if the bidder meets the above qualifying criteria, they are subject to being disqualified if they have:

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

Note: - HLL does not bind itself to accept the lowest or any tender, and reserves to itself the right to accept or reject any or all the tenders, either in whole or in part without assigning any reason for doing so.

* Similar work shall mean works such as HT/LT Electrical works, Internal Electrification, Etc

F. Tenderer should have satisfactorily completed at least similar works of following values during the last 5 years:-

- a. One work of similar nature of Rs 72 Lakhs or above Or
- b. Two works of similar nature of Rs 54 Lakhs or above Or
- c. Three works of similar nature of Rs 36 Lakhs or above

For Govt. /Departmental works, completion certificate issued by the Competent Authority (Exe.Engr, Supt. Engr., etc) shall be submitted. Completion certificates for works issued by private parties shall be supported by TDS certificates

Note: Details to be furnished in **Annexure I**

G. Total number of ongoing installations or orders in hand for similar electrical works

Note: Details to be furnished in **Annexure II**

H. Has the Contractor/ Firm/Company ever been black listed by the Govt. /or the registering authority. (Yes/ No)

a. If so, give the period and details.

I. Average annual financial turn over of the bidder during the last 3 years, ending 31st March of the previous financial year, should be at least INR 50 Lakhs.

a. Annualized turn over of the Contractor/Firm/Company in the last 3 years ending 31.03.2017

1.	2014-2015:	INR.
2.	2015-2016:	INR.
3.	2016-2017:	INR.

Note: Details to be furnished in **Annexure III**

J. Details of organization: (Details to be enclosed in **Annexure IV**)

- 1. Technical personnel: i) No. of Graduate Engineers: ii) No. of Diploma Holders:
- 2. Non Technical Management

K. Detailed Technical Specifications in **Annexure V** (filled and enclosed)

L. Completion Period: in **Annexure VI** (filled and enclosed)

M. Acceptance Form in **Annexure VII**

N. CERTIFICATE as per **Annexure VIII**

I/We hereby confirm that the details given in the application form and Annexure I to Annexure VII are correct to the best of my/our knowledge. I /We have no objection, in Owner (HLL Lifecare Limited) contacting any of our clients for reference.

Place:
Date:

Signature
Name and address of the Party

ANNEXURE - I

DETAILS OF ORDERS FOR SIMILAR WORKS SUCCESSFULLY COMPLETED DURING THE LAST 5 YEARS (ENCLOSE COMPLETION CERTIFICATES FROM CLIENTS)				
S. No.	Name of Client with full address, telephone numbers and nature of work	Order details such as quantity etc.	Value of work completed	Period of Completion with dates (in months)

NOTE:

TENDERER SHOULD HAVE SATISFACTORILY COMPLETED ATLEAST

- a) One work of similar nature of Rs 72 Lakhs or above
Or
- b) Two works of similar nature of Rs 54 Lakhs or above
Or
- c) Three works of similar nature of Rs 36 Lakhs or above

SIGNATURE OF BIDDER

ANNEXURE - II

TOTAL NUMBER OF ONGOING INSTALLATIONS OR ORDERS IN HAND FOR SIMILAR ELECTRICAL WORKS			
S. No.	Name of Client with full address, telephone numbers and nature of work	Order details such as quantity, completion time etc.	Value of works

SIGNATURE OF BIDDER

ANNEXURE III

(ENCLOSE DETAILS OF ANNUALISED TURN OVER OF THE CONTRACTOR/FIRM/COMPANY IN THE LAST 3 YEARS ENDING 31-03-2017)

2014-2015: INR.

2015-2016: INR.

2016-2017: INR.

(Enclose audited Balance sheets in proof for the above period)

SIGNATURE OF BIDDER

Note: Average annual financial turn over of the bidder during the last 3 years, ending 31st March of the previous financial year, should be at least INR 50 Lakhs.

ANNEXURE-IV

DETAILS OF ORGANIZATION

Sl. No	Name & Postal Address	Date of Birth	Qualification	Total experience in years	Name of organization served showing position held and period of service in each
1.	A.ENGINEERING PERSONNELS				
2					
3.					
4					
5.					
6					
1.	B. DIPLOMA HOLDERS/ ITI PERSONNEL				
2					

Attach an organization chart. Also mention the no. of engineering/technical personnel you will engage for the satisfactory completion of the tendered work.

SIGNATURE OF BIDDER

ANNEXURE V

(ENCLOSE DETAILED TECHNICAL SPECIFICATION OF ITEMS QUOTED AGAINST THIS TENDER, INCLUDING MAKES, DETAILED CATALOGUES, WARRANTY PERIOD ETC.)

NOTE: THE BIDDER SHOULD ALSO INDICATE DEVIATIONS, IF ANY FROM THE TENDER SPECIFICATIONS

SIGNATURE OF THE BIDDER WITH SEAL

ANNEXURE-VI

COMPLETION PERIOD

SIGNATURE OF THE BIDDER WITH SEAL

Note :

- 1) Time of completion allowed is 10 WEEKS from the date of acceptance of Notification of Award.
- 2) The bidder shall prepare a detailed program for completion with proper WBS (Work break down schedule) such that the work can be completed within the stipulated time period. (Preferably be given in MS Projects/ Primavera)

ANNEXURE VII

ACCEPTANCE FORM

(To be submitted in the letter pad of the firm indicating full name and address, telephone & fax numbers etc.)

From

To

SENIOR MANAGER (PROJECTS),

Projects Division,

HLL Lifecare Limited (A Government of India Enterprise)

Corporate Head Office, Poojappura.P.O,

Thiruvananthapuram – 695012,

Kerala, India

Phn: 0471- 2354949, 2775588

E-mail: harikrishnankp@lifecarehll.com, choprojects@lifecarehll.com

Dear Sir,

I / We, hereby offer to supply/install/testing/validate/commission as detailed in schedule hereto or such portion thereof as you may specify in the acceptance of Bid at the price given in the price bid and agree to hold this offer open for **90 Days** from the date of bid opening prescribed by the Purchaser. I/We have understood the terms and conditions mentioned in the invitation for bid and Conditions of Contract furnished by you and have thoroughly examined the specifications quoted in the bid document hereto and are fully aware of the nature of the scope of work required and my/our offer is to comply strictly in accordance with the requirement and the terms and conditions mentioned above.

The following pages have been added to and form part of this bid.

Yours faithfully,

SIGNATURE OF THE BIDDER WITH SEAL

ANNEXURE VIII

CERTIFICATE

I / we hereby confirm that the information given with this bidding document is correct. If, at any stage, it is found to be incorrect, I / we understand that the contract will be liable to be terminated and action could be taken against me/us by the Company for damages.

SIGNATURE (S) OF BIDDER WITH SEAL

(To be submitted in the letter pad of the firm indicating full name and address, telephone & fax numbers etc.)

CHECK LIST FOR TECHNICAL BID

S. No.	Item	Yes/No	Remarks
1	Enclosed EMD as prescribed in the tender		
2	Application of Pre-qualification duly filled, signed and sealed by the tenderer		
3	Enclosed copy of valid Electrical Contractor's Class "A" license for appropriate class and category issued by Central or State Electric authority.		
4	Enclosed completion certificates from the clients for the satisfactory completion of similar electrical works in the past five years – Annexure I		
5	Enclosed details of ongoing installations or orders in hand for similar works - Annexure II		
6	Enclosed Turnover Details – Annexure III		
7	Enclosed Details of Organization – Annexure IV		
8	Enclosed Technical Specification including Makes, Catalogue etc. – Annexure V		
9	Attached Completion Period – Annexure VI		
10	Enclosed signed and sealed Acceptance Form – Annexure VII		
11	Enclosed Certificate signed and sealed – Annexure VIII		

SIGNATURE OF THE BIDDER WITH SEAL

**TENDER DOCUMENT
(PRICE BID)**

**HT & LT ELECTRIFICATION AND OTHER MEP WORKS
FOR SETTING UP OF DIAGNOSTIC LAB FACILITY**

**AT
OLD MUNICIPAL CORPORATION OF
GURGAON (MCG) BUILDING
AT SECTOR - 39, GURGAON**

**PROJECTS DIVISION,
HLL LIFECARE LTD,
CORPORATE HEAD OFFICE, POOJAPPURA,
THIRUVANANTHAPURAM – 695 012,
KERALA, INDIA
PHN: ++91 471 2354949, 2775588**

NOVEMBER 2017

HLL LIFECARE LIMITED
(A Government of India Enterprise)
Projects Division
Corporate Head Office, Poojappura.P.O,
Thiruvananthapuram – 695012,
Kerala, India
Phn: 0471- 2354949, 2775588

INVITATION FOR BIDS (IFB)

IFB No : HLL/CHO/PROJ/HCS/MCG/HT&MEP/2017-18

Date : 08-11-2017

HLL Lifecare Limited (HLL), a Government of India Enterprise is in the process of setting up of a Diagnostic Lab Facility at Old Municipal Corporation of Gurgaon (MCG) Building at Sector - 39, Gurgaon. For the said project, sealed and super scribed bids are invited from competent and experienced Suppliers/Contractors who are capable to do the following work meeting the requirements as per our tender.

Sl. No	Brief Description of Item/Work	Qty	EMD in Rs
1	Supply, Installation, Testing and Commissioning of HT & LT Electrification and other MEP works for setting up of Diagnostic Lab Facility at Old Municipal Corporation of Gurgaon (MCG) Building at Sector-39, Gurgaon, Haryana.	As per Schedule VII	Rs 1,80,000/-

2. Qualification Criteria:

1. The Electrical Contractor should possess valid 'A' class license issued by the State Electricity Authorities.
2. Tenderer should have minimum 5 years experience in the relevant field.
3. Tenderer should have satisfactorily completed similar works of following values during the last 5 years:-
 - a) One work of similar nature of Rs 72 Lakhs or above
Or
 - b) Two works of similar nature of Rs 54 Lakhs or above
Or
 - c) Three works of similar nature of Rs 36 Lakhs or above
4. Average annual financial turnover of the bidder during the last 3 years, ending 31st March of the previous financial year, should be at least Indian Rupees (INR) 50 Lakhs

3. The bid documents will be available up to 15.00 Hrs. on the previous working day of the opening of the bids. The scheduled date for issue, receipt and opening of bids is as follows.

- a) Date of issue of tender document - 08-11-2017 onwards
- b) Last date and time for receipt of bids - 30-11-2017 up to 15.00 Hrs.
- c) Date and time of opening of Technical bids - 30-11-2017, 15.30 Hrs.
- d) Address for communication, receipt and place of opening of bids:

SENIOR MANAGER (PROJECTS),

Projects Division,

HLL Lifecare Limited (A Government of India Enterprise)

Corporate Head Office, Poojappura.P.O,

Thiruvananthapuram – 695012,

Kerala, India

Phn: 0471- 2354949, 2775588

E-mail: harikrishnankp@lifecarehll.com, choprojects@lifecarehll.com

4. The completed and sealed bid documents should be submitted to Senior Manager (Projects), in the above address along with the EMD. The outer cover should bear the Enquiry No, closing date and General description of item tendered, and the words "DO NOT OPEN BEFORE" 15.30 Hrs (IST) on ----- (Indicate the Closing Date). EMD shall be submitted in the form of demand draft drawn from a nationalized bank in favor of HLL Lifecare Limited payable at Thiruvananthapuram. Bids received after due date and time will be rejected. Any bid not accompanied by EMD will be rejected.
5. Bids will be opened in the presence of Bidders representative(s) who choose to attend on the specified date and time, at the office of HLL at the address given in Clause 3 (d) above.
6. In the event of the date specified for bid receipt and opening being declared as a closed holiday for the above purchaser's office, the due date for submission of bids and opening of bids will be the following working day at the appointed times.
7. HLL may, at its discretion, extend this deadline for submission of bids by amending the Bid Documents or any other reasons, in which case all rights and obligations of HLL and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.
8. HLL will not be held responsible for the postal delay, if any, in the delivery of the bidding document or the non-receipt of the same. Bids sent by Telex/Fax/Telegraph will not be accepted.
9. The EMD should be enclosed in a separate envelope and super scribed as "EMD" and to be attached in the main cover.
10. SSI/MSME units interested in availing exemption from payment of EMD should submit a valid copy of their registration certificate issued by the concerned DIC or NSIC.

11. Even though the bidder meet the above qualifying criteria, they are subject to be disqualified if they have:

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

12. The company reserves the right to club or split the items of works, change the qualifying criteria at their discretion and to reject or cancel the Invitation for bids without assigning any reason thereof.

SENIOR MANAGER (PROJECTS)

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SCHEDULE I

CONDITIONS OF BID

1. Definitions

In this Contract, the following words and expressions shall have the meanings as stated below:

- a. **"INVITATION FOR BID"** shall mean and include the present document, and such other complements and agenda, which may subsequently be issued in this connection.
- b. **"BIDDER/TENDERER"** shall mean the person, firm or Corporation submitting a bid against this invitation for bid and shall also include his agents and representatives.
- c. **"OWNER"** shall mean **HLL LIFECARE LIMITED (HLL)** (Thiruvananthapuram) or its units thereof.
- d. **"ENGINEER-IN-CHARGE"**, shall mean the Engineer appointed by the Owner to supervise all activities of the project.
- e. **"CONTRACTOR"**, shall mean the successful bidder whose tender has been accepted by the Owner and to whom the order is placed by the Owner and shall include his heirs, legal representatives, successors etc.
- f. **"PERMANENT WORKS"**, means and include all the work specified or set forth and required if any by the specification, drawings and other documents which form part of this contract or to be implied thereof or incidental thereof to be hereafter or required in such further explanatory instructions, drawings etc., as shall from time to time during the progress of the work be given by the HLL.
- g. **"SITE"**, shall mean the actual place i.e. **HLL Site, Old Municipal Corporation of Gurgaon (MCG) Building at Sector-39, Gurgaon, Haryana**, where the project is to be executed.
- h. **"PROJECT"**, shall mean entire work specified in the contract documents inclusive of extra items/ extra quantities (if any) executed during the contract period.
- i. **"ACCEPTANCE LETTER"**, shall mean written consent by a letter of Owner to the bidder intimating him that his tender has been accepted.
- j. **"CONTRACT"**, shall mean the articles of Contract Agreement, the conditions of contract, schedule of quantities, specifications, drawings attached and duly signed by the Owner and the Contractor.
- k. **"DATE OF CONTRACT"**, shall mean the date on which the successful bidder has accepted the notification of award.
- l. **"CONTRACT PERIOD"**, shall mean the period (including rainy season) specified in the tender documents during which the contract shall be executed.

- m. '**COMPLETION CERTIFICATE**', shall mean the certificate issued by the Owner to the Contractor after successful completion of the project.
- n. '**EXTRA ITEMS**', are those items, which are not appearing in the Schedule of Items but required to be executed during the project period.

2. Bid Information and Period of Validity

2.1 Bidders shall submit their bids in two parts (**TECHNICAL BID** and **PRICE BID**)

2.2 The Technical Bid must include the following information;

- a. Enquiry No.
- b. Earnest Money Deposit as prescribed in the tender
- c. All the details and documents mentioned in the Technical Bid.
- d. Promised Completion Schedule
- e. Certificate that bid is in total conformity with the specifications and terms and conditions mentioned in the bid document and if not, list of exclusions, and/or exceptions.
- f. All other documents/certificate/information as specified in the bid document.

2.3 The Price Bid must be as per the following

- a) The bid is invited for "**Supply, Installation, Testing and Commissioning of HT & LT Electrification and other MEP works for setting up of Diagnostic Lab Facility at Old Municipal Corporation of Gurgaon (MCG) Building at Sector-39, Gurgaon, Haryana**" as per the Specification, Terms and Conditions specified in the Bid Documents. The Bidder shall give the rates inclusive of relevant taxes, duties, other levies, on the appropriate price schedule (**Schedule of Work**) attached to these documents for completing the above work as per the Specification, Terms and Conditions as specified in the Bid Documents.
- b) Bidder must quote for unit price and total price based on the requirement shown in the bid document.
- c) Price should be firm without any escalation on any account till the completion of work.

2.4 Bids shall remain valid for **90 days** after the date of bid opening prescribed by the Purchaser.

3. Format and Signing of Bid

3.1 Bidders shall submit their bids in two parts (TECHNICAL BID and PRICE BID) as under.

- a) Technical bids, in duplicate clearly marking each "Original Bid" and "Copy Bid", as appropriate, consisting of technical details bringing out clearly in a separate sheet, the deviations in specifications if any, from that of 'Technical Specifications' and also clause-by-clause compliance of specifications and commercial terms and conditions and EMD, excluding price, in separate sealed covers super scribing "Technical Bid" inside a main cover.

- b) Price bids, in duplicate clearly marking each “Original Bid” and “Copy Bid”, as appropriate, showing only item wise and total prices in separate sealed covers super scribing “Price Bid” inside a main cover.
- 3.2 When the main cover is opened on the date and time scheduled for bid opening, only the technical bids will be opened.
- 3.3 Bidders whose technical bids are found substantially responsive will be informed of the date and time of opening of their price bids. Price bids of others will be returned to them unopened.
- 3.4 All pages of the bid, except for un-amended printed literature shall be signed by the person or persons signing the bid. The seal of the company shall be stamped in all pages.
- 3.5 Bids shall be made in English.
- 3.6 The bid shall contain no interlineations, erasures or overwriting except as necessary to correct errors made by the Bidder, in which case such corrections shall be signed by the person or persons signing the bid.

4. Submission of Bids

Sealing and Marking of Bids

- 4.1 The envelopes shall be:
- (a) Addressed to the Owner in the following address and
- SENIOR MANAGER (PROJECTS),**
Projects Division,
HLL Lifecare Limited (A Government of India Enterprise)
Corporate Head Office, Poojappura.P.O,
Thiruvananthapuram – 695012,
Kerala, India
Phn: 0471- 2354949, 2775588
E-mail: harikrishnankp@lifecarehll.com, choprojects@lifecarehll.com
- (b) Bear the Enquiry No, closing date and General description of item tendered, and the words “DO NOT OPEN BEFORE” 15.30 Hrs (IST) on ____ (Opening Date)

- 4.2 The inner envelopes shall indicate the name and address of the Bidder. If the outer envelope is not sealed and marked as indicated above, the Owner will assume no responsibility for the bid’s misplacement or premature opening.
- 4.3 Bids should be hand delivered or sent by courier/mail to ensure timely arrival. Telex, cable, e-mail or facsimile bids will be rejected.

Deadline for submission of Bids

- 4.4 The bids will be received by the Owner in the following address not later than the date and time specified in the Invitation for Bids.

SENIOR MANAGER (PROJECTS),

Projects Division,
HLL Lifecare Limited (A Government of India Enterprise)
Corporate Head Office, Poojappura.P.O,
Thiruvananthapuram – 695012,
Kerala, India
Phn: 0471- 2354949, 2775588
E-mail: harikrishnankp@lifecarehll.com, choprojects@lifecarehll.com

- 4.5 In the event of the specified date for submission of Bids being declared a holiday for the Owner, the bids will be received up to the appointed time on the next working day.
- 4.6 The Owner may, at its discretion, extend this deadline for submission of bids by amending the Bid Documents or any other reasons in which case all rights and obligations of the Owner and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.
- 4.7 It is the responsibility of the bidders to see that the completed bidding documents whether sent by post or by courier or by person are received in the office of Senior Manager (Projects), in the above address by the date and time stipulated for receipt as above failing which the bid would be considered late and rejected. The Owner will not be held responsible for the postal delay, if any, in the delivery of the bidding document or the non-receipt of the same. Bids received after due date and time will be rejected. Mere handing over of the bid documents at reception counter or at any other counter or room or person cannot be considered as submission of bid.

5. Clarification of Bidding Documents

A prospective Bidder requiring any clarification of the Bidding Documents may notify the Owner in writing, or by fax at the Owners mailing address indicated in the Invitation for Bids. The Owner will respond in writing to any request for clarification of Bidding Documents, which it receives not later than 7 days prior to the deadline for submission of Bids prescribed by the Owner.

6. Amendment of Bidding Documents

- 6.1 At any time prior to the deadline for submission of bids, the Owner may, for any reason, modify the Bidding Documents by amendment.
- 6.2 The amendment will be notified in writing or fax or telegram or e-mail to all prospective Bidders, which have received the Bidding Documents and will be binding on them. Amendments will also be uploaded on the website.

- 6.3 In order to afford prospective Bidders reasonable time in which to take the amendment into account in preparing their bid, the Owner may, at its discretion, extend the deadline for the submission of bids.

7. Bid Opening by Owner

- 7.1 The Owner will open bids, in the presence of the bidders' representatives who choose to attend, at the date and time specified and in the location given in this document. The Bidders' representatives who are present shall sign a register evidencing their attendance. In the event of the specified date of bid opening being declared a holiday for the Owner, the bids shall be opened at the appointed time and location on the next working day.
- 7.2 The Bidders' names, the presence or absence of the requisite EMD and such other details as the Owner, at its discretion, may consider appropriate will be announced at the opening.
- 7.3 The Owner will prepare appropriate bid opening register and bidders present during the opening of the bids and Owner shall sign the same.

8. Clarification of bids

To assist in the examination, evaluation and comparison of bids, the Owner may, at its discretion, ask the bidder for a clarification of its bid. The request for clarification and the response shall be in writing and no change in the rate or substance of the bid shall be sought, offered or permitted.

9. Inspection of site

Every tenderer is expected to inspect the site of the proposed work and acquaint himself with the site conditions, approaches etc. before quoting his rates. No claim whatsoever should be entertained later on the plea of any difficulties involved in the execution of work, which was or was not foreseen by the Tenderer.

10. Preliminary examination

- 10.1 The Owner will examine the bids to determine whether they are complete, whether any computational errors, have been made, whether required EMD has been furnished, whether the documents have been properly signed, whether the bid validity is as required and whether the bids are generally in order.
- 10.2 Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be calculated. If there is a discrepancy between the words and figures of unit price, the amount in words of unit price shall prevail.
- 10.3 Prior to the detailed evaluation, the Owner will determine the substantial responsiveness of each bid to the bidding documents. For purposes of these clauses, a substantially responsive bid is one, which conforms to specifications

and all the terms and conditions of the bidding documents without material deviation. The Owner's determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence.

- 10.4 A bid determined as not substantially responsive will be rejected by the Owner and may not subsequently be made responsive by the bidder by correction of the non-conformity.
- 10.5 The Owner may waive any minor informality or non-conformity or irregularity in a bid, which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any bidder.
- 10.6 The Owner's determination as to the substantial responsiveness or otherwise of each bid or consideration of a minor informality or non-conformity or irregularity is final and conclusive.

11. Evaluation and comparison of bids.

- 11.1 The purchaser reserves the right to examine the details given in the technical bid by visiting the office and work place of the bidder and take decision based on the visit.
- 11.2 The purchaser will technically evaluate all bids previously determined to be responsive and open the price bids previously determined to be substantially responsive and technically acceptable with intimation.

12. Post – qualification

- 12.1 Notwithstanding the qualification requirements given in this document, the Owner will determine to its satisfaction whether the Bidder selected as having submitted the lowest evaluated responsive bid is qualified to satisfactorily perform the Contract.
- 12.2 The determination will take into account the Bidder's financial, technical and execution capabilities. It will be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, as well as such other information as the Owner deems necessary and appropriate.
- 12.3 The Owner reserves the right to negotiate with the lowest evaluated responsive bidder.
- 12.4 An affirmative determination will be a prerequisite for award of the Contract to the Bidder. A negative determination will result in rejection of the Bidder's bid, in which event the Owner will proceed to the next lowest evaluated bid to make a similar determination of that bidder's capabilities to perform satisfactorily.

13. Award Criteria

The Owner will award the Contract to the successful Bidder whose bid has been determined to be substantially responsive and has been determined as the lowest

evaluated bid provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily for the items offered.

14. Notification of Award

- 14.1 Prior to the expiration of the period of bid validity, the Owner will notify the successful Bidder in writing by or cable or telex or fax, to be confirmed in writing by post, that its bid has been accepted. The notification of award may be sent in the form of Letter of Intent and/or Work order.
- 14.2 The signed acceptance of the notification of award by the Contractor will constitute a concluded contract.

15. Security Deposit & Execution of Agreement

- 15.1 On receipt of notification of award from the Owner, within thirty days the successful Bidder shall furnish the security deposit in the form of a Demand Draft from a nationalized bank drawn in favour of HLL Lifecare Limited, Thiruvananthapuram payable at Thiruvananthapuram for an amount equal to **5% of the contract price** on the value of the contract for his faithful execution of contract and shall execute an agreement with the Owner in the form attached on proper stamp paper.
- 15.2 The Security deposit should be valid until successful completion of the contract and acceptance and handing over of the works and will be released after acceptance of the work by the Owner.
- 15.3 Failure of the successful Bidder to accept the notification of award or submission of security deposit within the timeframe shall constitute sufficient grounds for the annulment of the award and forfeiture of the EMD, in which event the Owner may make the award to the next lowest evaluated bidder or call for new bids.

16. Earnest Money

- 16.1 Each bid must be accompanied by E.M.D.
- 16.2 The EMD is required to protect the Owner against risk of Bidder's conduct, which would warrant the security's forfeiture
 - a. The EMD shall be in the form of Demand Draft from a nationalized bank drawn in favour of HLL Lifecare Limited, Thiruvananthapuram payable at Thiruvananthapuram.
 - b. E.M.D. of the unsuccessful bidders will be released after tabulating tenders, keeping only the earnest money of the first three lowest bidders. The earnest money deposit of the remaining two unsuccessful bidders will be released after the acceptance of the notification of award by the successful bidder.

- c. In the case of successful bidder, the Earnest Money will be returned after signing the agreement and submission of Demand Draft towards Security Deposit, which they will have to offer for the faithful execution of the contract.

16.3 The EMD may be forfeited:

- (a) If a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Bid Document; or
- (b) In case of the successful Bidder, if the Bidder fails:
 - (i) To sign the agreement.
 - (ii) To furnish security deposit.

SCHEDULE:- II

GENERAL CONDITIONS OF CONTRACT

1.0 PROJECT INFORMATION

1.1 General:

The detailed information of the project given below is as per our present requirement. However, it is not binding on the Owner in any way and shall not govern the scope of works.

1.2 Location of Site:

The project site is located at **HLL SITE, OLD MUNICIPAL CORPORATION OF GURGAON (MCG) BUILDING AT SECTOR - 39, GURGAON, HARYANA.**

1.3 Price

Price quoted should be firm without any escalation till the Contract is completely executed and should be for the item/work shown under **SCHEDULE OF WORK.**

The rates quoted must be firm and include the cost of transportation of material to the site, all taxes such as GST etc. and the fixing or placing in position for which the item of work is intended to be operated. The rates quoted by the Contractor shall be firm throughout the contract period and there shall be no upward revision of the rates quoted by the contractor for any reason whatsoever.

It should be clearly understood that any claims for extra Tax, Excise duty, Construction tax or any additional tax etc. shall not be entertained in any case whatsoever once tenders are opened

1.4 Site Facilities:

The contractor has to remove all left over, excess, scrap material from the site and restore the site to fully clean condition as and when required. In case he fails to do so, the Owner reserve the right to remove such materials from the site and expenses incurred in this case shall be deducted from the payments due to the contractor. However, no claim for any loss of material in this case shall be acceptable.

2 COMMITMENT OF CONTRACTOR

2.1 Interpretation of Contract documents:

2.1.1. All the documents forming part of the contract are to be taken as mutually explanatory, supplementary and complementary to each other. If there is any error, omission or discrepancy in any of them, it shall be brought to the notice of the Owner. The decision of the Owner shall be final and binding. The contractor shall execute the work accordingly.

- 2.1.2** The contractor shall examine all the contract documents thoroughly including the scope, nature and magnitude of works he has to execute in accordance with the contract documents.
- 2.1.3.** The contractor shall visit the project site so as to study the site conditions, means of access to the site and other factors governing the works.
- 2.1.4.** There may be change in layout of site as per technical requirements and the tenderer shall not be entitled for any claim due to such changes & should carry out such changes.

2.2 Delay in work execution due to reasons beyond contractor control

2.2. A Force majeure:

If the execution of work is delayed due to force majeure, then owner as per the affected period may extend the time period.

- 2.2.B** Owners supplied material in case work is delayed due to non-availability of stores supplied by Owner or any decision by Owner holding the progress of work, the contractor then upon any such happening causing delay shall immediately but not later than 10 days, give notice thereof in writing to the Owner, but nevertheless use constantly his best effort to prevent or make good delay. The Owner may in his discretion grant such extension of time as may appear reasonable to him and the same shall be communicated to the contractor in writing and shall be final and binding on him and the contractor shall be bound to complete the work within such extended time.

2.3 Period of Completion

Time is the essence of the contract. Time of completion allowed is **10 WEEKS** from the date of acceptance of **Letter Of Intent/Work Order**.

Time Schedule:

The successful tenderer shall submit the time schedule in the form of charts before commencing the work and shall execute the work strictly as per the schedule submitted by him and approved by the Owner on turnkey basis.

2.4 Compensation for delay:

Time is the essence of the contract. If the contractor fails to complete the work and clear the site on or before the dates fixed for completion, he shall without prejudice be liable to pay liquidation damage (LD) i.e. **0.5 % of the contract value for every week that the whole or the part of work remains incomplete**. For the purpose of this condition, the contract value shall be total value of quantities of items in the contract at contract rates plus algebraic sum of the subsequent work ordered. However, **the total amount of LD to be paid under this condition shall not exceed 7.5% percent of the contract value**.

2.5 Default of Contractor:

If the contractor fails to maintain progress and quality of work proportionate to time period allotted for the work in spite of notices or complete the work within the stipulated time period or extended time period, then the Owner shall have the right:

- i) To determine the contract: In this event, the contract shall be terminated by giving written notice to the contractor and the unfinished works shall be got completed by labours engaged by the Owner or through other agency at the cost of the Contractor.
- ii) Without determining the contract: In this event, the remaining works shall be got executed through a fresh contractor in which case the Contractor shall not have any objection or claim on this account.
- iii) Before determining the contract: In this event, if the Owner finds that the defaults of the Contractor can be rectified, then an opportunity shall be given to the same contractor to rectify the defects /defaults in the specified time.
- iv) Termination of contract for death: If the contractor is an individual of a proprietary firm and proprietor of the firm dies and if the Contractor is a Attorney of partnership firm and dies, then the Owner has the right to terminate the contract unless and until the Owner is satisfied that the surviving partners are capable of executing and completing the remaining contract. In case of termination of contract, the legal representatives of the deceased Contractor are not entitled for any compensation or claim. Also, the Owner shall not levy any penalty against the damage caused by incomplete work.
- v) Termination of Contractor in part or in full for Contractors default: If the Contractor fails to execute the work in the manner described in the contract documents or if he at any time, in the opinion of the Owner:
 - a) Fails to carry out the works in accordance with the contract conditions or as per the specifications mentioned in the documents.
 - b) Stops the execution of works without giving prior information to the Owner.
 - c) Fails to carry out the works to the satisfaction of the Owner both with respect to qualities and time schedule.
 - d) Fails to supply sufficient or suitable construction plant, materials and labours etc.
 - e) Commits breach of any of the provisions of the contract.
 - f) Abandons the work.
 - g) becomes bankrupt during the continuance of the work.

Whenever the Owner shall exercise his authority to cancel the contract under the above condition, the Owner shall be at liberty to hold and retain in their hands materials, tackles, machinery and stores of all kinds on site as they may think proper and may at any time sell any of the materials, tackles, machinery and stores and apply the proceeds of sale in or towards the satisfaction of any loss which may arise from the cancellation of contract as aforesaid. The Owner shall also be at liberty to use materials, tackles, machinery and other stores on the site of contractor as they think proper in completing the work and the Contractor will be allowed the necessary credit. The value of materials

and stores and amount of credit to be allowed for tackles and machinery belonging to Contractor and used by Owner in completing the work shall be assessed by the Owner and amount assessed shall be final and binding on the Contractor. In case Owner completes or decides to complete the work under the provisions of this condition, the cost of completion to be taken into account in determining the excess cost to be charged to the Contractor under the condition shall consist of the cost of materials purchased or required to be purchased, labour provided or required to be provided.

2.6 Variation in scope of works:

a) Variation in quantity:

The Owner has the right to increase or decrease the quantity of work or delete/add certain items of work. However such changes shall not entitle the contractor for any compensation, claim regarding the change in scope of work.

b) Variation in drawings and specifications:

i) The variation in scope may be by way of changes in drawings regarding dimensions but specification remaining the same. In such a case the contractor shall not be entitled for any claim due to change.

ii) In case of change of specification it shall be worked out as given in Clause 3.8

2.7 Staff and Workers:

The contractor shall depute qualified engineers for execution of the project. The technical staff employed by the contractor shall be responsible for the quality and workmanship of the work as per the satisfaction of the Owner. The Contractor's supervisory staff should follow the instructions given by the Owner or his authorised representative. If any of the Contractor's staff members is incapable or in-experienced, in the opinion of the Owner, then he should be removed immediately and the contractor should do suitable substitution. Technical staff employed should be degree holder from a government-recognized institution or equivalent with at least 3 years practical experience of work in addition to Diploma holder and other experienced supervisory staff.

If the workers or the supervising staff of the contractor are involved in riotous or illegal activities to such an extent that it becomes necessary to hand over the matter to the police then the contractor would be solely responsible for the case and all the expenses incurred in the legal proceedings shall be borne by the contractor.

2.8 Subletting of contract:

No subletting of contract is permitted. Specialized work agency contracts may be permitted with prior permission.

2.9 Co-operation with other agencies at site:

The Contractor or his authorised representatives must work in close co-operation with the agencies executing other works forming the part of the project and also with the

representatives of the Owner for the execution of works which are not included in the contract. Contractor shall permit free access and generally afford reasonable facilities to other agencies or departmental workmen etc.

The Contractor's quoted amount/rate shall be deemed to cater for all the above contingencies and nothing extra shall be admissible on this account.

2.10 Contractor should keep his working site clean and the materials brought for work shall be kept in a properly stacked / stored way.

The work site should be swept at the end of each working day after removal of debris/ left over materials. The Contractor has to take full care so as not to spoil or damage other Contractor's/ Owner's job / material.

2.11 Safety of adjoining properties:

The Contractor or his authorized representatives should conduct all the operations necessary for the execution of works in such a manner that no inconvenience / damages are caused to the properties of other persons & Owner.

2.12 Settlement of dispute:

Any disputes or difference arising between the parties with respect to the performance of any part of this agreement or any thing connected therewith, etc shall as far as possible be mutually settled by the process of dialog and negotiation.

The Courts at Trivandrum alone shall have jurisdiction in respect of settlement of any matter arising out or in connection with the contract.

2.13 Escalation:

The rates quoted by the Contractor in the contract documents shall be final and shall not be subjected to any change due to the increase in labour wages or inflation in the cost of materials or any other price variations due to any reason during the stipulated time period of the contract or during the extended time period of completion.

2.14 Insurance:

The Contractor shall at his own expense carry and maintain insurance with reputed insurance companies to the satisfaction of the Owner as under:

i) Insurance of works:

The Contractor shall take full responsibility for loss, damage and care of plant and works until it is delivered to site, constructed, erected, commissioned and taken over by Owner. Without limiting such responsibility, the contractor shall in the interest of the work insure the plant and work for their full value plus ten percent until they have been taken over. Such insurance shall cover the equipments and works against loss, damage or destruction by fire, earthquake, theft or any other cause, throughout the duration of the contract period or extended contract period.

ii) Insurance of employees:

The Contractor shall accept full and exclusive liability for the compliance of all obligations and responsibilities imposed by the Employees State Insurance Act, 1948 and any liability or penalty which may be imposed by the Central, State or Local Authorities due to the reason of violation by the contractor or sub-contractor of the Employees State Insurance Act, 1948. The Contractor shall agree to fulfill the requirement of the Employees State Insurance Corporation and maintain the declaration forms and all such forms, which may be, required in respect of the contractor's, sub-contractor's employees who are employed in the work provided for or those covered by E.S.I.C. from time to time under the agreement. The Owner shall retain such sum as may be necessary from the total contract value until the contractor shall furnish satisfactory proof that all contributions as required by the Employees State Insurance Act, 1948 have been paid by him.

iii) Workmen's Compensation:

Insurance shall be affected for all the Contractor's employees engaged for this contract. The Contractor shall also carry and maintain all other insurance, which may be required under any law or regulations from time to time. He should also carry and maintain any other insurance, which may be required by the Owner.

iv) Transit Insurance:

The cost of transit insurance relating to the items to be transported by the contractor to the site of work shall be borne by the contractor and the quoted price shall be inclusive of this cost.

v) Loss or damage and Indemnity Agreement:

The contractor shall be responsible during the progress of work as well as maintenance period for any liability imposed by law for any damage to work or any part thereof or to any of the material or other things including those of Owner used in performing the work or for injury to any person or persons or for any property damaged in or outside the site. The contractor shall indemnify and hold the Owner and the Engineer harmless against all liabilities, claims, loss or injury, including costs, expenses and attorney's fees incurred in the defense of same, arising from any allegation whether groundless or not, of damage or injury to any person or property resulting from the performance of the work or from any material used in the work or from any condition of the work or work site or from any cause whatsoever during the progress and maintenance of the work.

vi) Third party insurance:

Before commencing the execution of the works the Contractor, but without limiting his obligations and responsibilities, shall insure against his liability for any material or physical damage, loss or injury which may occur to any property, including that of the Owner, or to any person, including any representative of the Owner, by or arising out of the execution of works or in the work being carried out by the owner, by or arising out of the provision of clause 2.14.v here of. Such insurance shall be affected with an insurer and in terms approved by the Owner and for at least the amount stated in the Appendix of the Tender.

vii) The Contractor shall take **Contractor's All Risks Insurance (CAR)** policy, jointly in the name of HLL LIFECARE LIMITED and the Contractor and the insurance should be valid till the satisfactory completion of the work. The copy of the policy shall be deposited with HLL before commencing the work.

Note: The Contractor's payment shall be clear only after his compliance of all insurance formalities as given above. He shall have to deposit the photocopies of the various policies and payment receipts with the Owner's site engineer for this purpose.

2.15 Indemnification Clause

The Bidder shall indemnify and hold harmless the Owner/Purchaser from and against the below mentioned:

- i. All claims, demands, action, proceedings, losses, damages, liabilities, cost, charges, expenses or obligations that are occasioned or may occasion to HLL as a result of our non-payment of any statutory dues levied/leviable on the Contractor or the Contractor committing breach of any the rules, regulations, orders, directives, instructions that may be issued by any authority under various Labor Laws, PF, ESI Acts and all other applicable Laws/Acts/Rules or any other Statute or Laws for the time being in force
- ii. Any damages, loss or expenses due to or resulting from any negligence or breach of duty on our part or on the part of Sub-Contractor/s, if any, servants or agents of the Bidder.
- iii. Claims, if any, of the employee or the Contractor and its Sub Contractor/s, under the Workmen's Compensation Act, 1923 and Employer's Liability Act 1938 or Various Labor Laws or any other Laws rules and regulations in force for the time being in India and any acts replacing and/or amending the same or any of the same as may be in force at the time and under any law in respect of injuries to persons or property arising out of and in the course of the execution of the contract work and / or arising out of and in the course of employment of any workmen / employee.
- iv. Any non - compliance or improper compliance of statutes, rules and regulations which are applicable to HLL and also to the Contractor and to the employees , in respect of (a) Employees' Provident Fund and Miscellaneous Provision Act, 1952, (b) Employees State Insurance Act, 1948, © Contract Labor (R&A) Act, 1970 (d) Minimum Wages Act, 1948 (e) Payment of Wages Act,1936 (f) Bonus Act, 1965 (g) Workmen's Compensation Act, 1923 and / or any other laws which may become applicable in respect of the Contract/ Agreement between HLL and the Bidder.
- v. Any Act or omission by us or our Sub-contractor/s, if any, our /their servants or agents which may involve any loss, damages, liability, civil or criminal action.
- vi. To protect against all claims for damage caused due to non-obtaining of insurance policy during the project period.

3.0 EXECUTION OF WORK

3.1 General:

All the works shall be executed in accordance with the detailed drawings, specifications and instructions given by the Owner or mentioned in the contract document.

3.2 Drawings:

The drawings given in the tender document are as per our present requirement and are meant for the purpose of giving idea of the type and quantum of work to be executed.

All working drawings shall be marked "Released for Execution" and duly signed and approved by the Owner. All the old drawings shall be discarded and marked with "Superseded by Drg. No....."

If during the execution of the work, any discrepancy occurs in the drawings or between the drawings and specification then the same should be clarified from the Owner prior to the execution of work. The decision given by the Owner would be final.

3.3 Inspection of works:

- i) The Owner shall have the full authority to inspect the works at any time, at any stage. The contractor shall provide adequate facilities to carry the inspection work. The Contractor should present himself or his authorised representative during the inspection so that the Owner can convey the instruction regarding the works.
- ii) The Contractor shall give information to the Engineer in charge before covering up the works so that the same can be inspected and measured jointly & correctly to true dimensions.
- iii) If the contractor fails to get the work inspected before covering it up, then the Owner has full authority to get the work uncovered at the expense of the Contractor and if any fault is found then the same should be rectified by the Contractor without claiming any extra payment.

3.4 Inadequate/substandard works and materials:

- i) If any material brought by the Contractor is found unsuitable or of sub-standard quality after testing, then the Contractor shall remove those faulty materials immediately from the site as per the instructions of the Owner.
- ii) If any work executed by the Contractor is found to be of bad workmanship or not as per the drawings, then the same is to be dismantled and re-executed by the Contractor without claiming any extra payment or extension in time period.

3.5 Default of Contractor in compliance:

If the contractor or his authorised representative fails to follow the instructions given by the Owner regarding any of the works, then the same shall be got executed by other persons employed by the Owner and the expenses incurred shall be borne by the Contractor.

3.6 Discrepancies between instructions:

If any discrepancy occurs between the various instructions conveyed to Contractor or his authorised representative or if any misunderstanding arises between the Contractor's staff and Owner's staff, the contractor shall report the matter immediately to the Owner. The decisions of Owner shall be final and binding. Moreover, no claims for losses due to discrepancies between instructions, doubts or misunderstandings shall be admissible.

3.7 Power to make alterations

The Owner shall have the power to make in writing any alterations, omissions, additions or substitutions for original specifications, drawings, designs, patterns and instructions that may appear to him necessary or advisable during the progress of the work and the contractor shall be bound to carry out the work in accordance with the instructions which may be given to him by the Owner or his representative. On submission of electrical scheme to the Electrical Inspectorate it is bound to have some changes in the panels, cables rating etc.

Such alterations, omissions, additions, substitutions shall not invalidate the contract. Any altered additional or substituted work which the contractor may be required to do in the manner specified above as part of the work shall be carried out by the contractor on the same conditions in all respect on which the main works was agreed to be done and at the rates derived according to clause 3.8.

3.8 Change in specifications and valuation of extra items:

Extra items may be classified as additional, substituted, or altered items, depending on their relation or otherwise to the original item or items of work.

Rates for authorities extra items, additional, altered or substituted work as may be ordered shall be determined by the "Owner" as follows:

- a. In the case of all extra items whether additional, altered or substituted, if accepted rates for identical items provided for in the contract, such rates shall be applicable.
- b. In the case of all extra items whether altered or substituted, for which similar items exist in the contract, the rates shall be derived from the original item by appropriate adjustment of cost of affected components. The percentage excess or deduction of the contract rate for the original item with reference to the estimated rate shall be applied in deriving the rates for such items.
- c. In the case of extra items, whether altered or substituted, for which similar items do not exist in the contract, the rates shall be arrived at on the basis of provision of standard data Book and schedule of rates 2013 of CPWD by adding profit of 15% and applying the contractor's quoted percentage above or below.
- d. In the case of extra items, whether additional altered or substituted, for which the rates cannot be derived from similar items in the contract, and only partly from similar items in the contract, and only partly from the CPWD rates, the rates for such part of parts of items as are not covered in the schedule of rates shall be determined by the Owner on the basis of the prevailing market rates giving due consideration to the

analysis of the rate furnished by the Contractor with supporting documents, including contractor's profit. This shall be added on to the C.P.W.D rate revised (latest) (including contractor's profit). For the other part of the items the rates can be derived from the recent schedule of rates of C.P.W.D.

- e. In the case of extra item whether additional, altered, substituted, for which the rates cannot be derived either from similar item of work in the contract or from the departmental schedule of rates, the contractor shall within 14 days of the receipt of order to carry out the said extra item of work, communicate to the Owner the rate which he proposes to claim for the item, supported by analysis of the rate claimed and the Owner shall within one month thereafter, determine the rate on the basis or the market rate giving due consideration to the rate claimed by the contractor.
- f. The quantities indicated are approximate. On award of work and approval of the scheme, the contractor has to work out the actual quantities of each item of work and intimate to the Owner. No increase in cost shall be given for any additional quantities of any item given in the tender.

3.9 Work not specified in the specification:

If, for any work, no specification has been given in the tender document, then the work will be executed as per the IS specifications, and if the work is not covered by IS specifications also, then it should be executed as per standard engineering practice, subject to the recommendation and approval of the Owner.

3.10 Testing:

The Contractor shall agree for testing works as mentioned in the specifications of various items of works involved in the project.

- i) If the various tests prescribed in the specifications at specified intervals for ascertaining the quality of the work done prove unsatisfactory, the Owner shall have the authority to instruct the Contractor to re-execute the work done or make alterations as per the orders of the Owner.
- ii) The Contractor shall furnish to the Owner, for approval adequate samples of all materials to be used in the works free of cost. Such samples shall be submitted before the work is commenced, giving ample time to ascertain ISI approval/markings.
All materials furnished in actual works shall be of the same quality of that of approved samples.
- iii) The testing of various equipments to be used in works shall be tested in standard laboratories as directed by the Owner and the expenses incurred shall be borne by the Contractor.

3.11 Progress Report:

During execution of the contract, the contractor shall furnish weekly progress reports to the Owner and in the format as specified by the Owner indicating the progress achieved during the week and the total progress up to the week as against

scheduled and anticipated completion dates in respect of key phases of the work. The Contractor shall also furnish any other information in order to ascertain progress, if called for by the Owner.

3.12 Liabilities for defects and rectifications:

If it shall appear to the Owner that any work has been executed with imperfect or unskilled workman or with materials of any inferior description, or of quality inferior to that contracted for, or otherwise not in accordance with the contract, the Contractor shall on demand in writing from the Owner or his representative specifying the work, materials or articles complained of, notwithstanding that the same may have been inadvertently passed, certified and paid for, forthwith rectify or remove and reconstruct that work so specified and provide other proper and suitable materials or articles at his own charges and cost, and in the event of failure to do so within a period to be specified by the Owner or his demand aforesaid, the Owner may on expiry of notice period rectify or remove, re-execute the work at the risk of Contractor and the cost shall be recovered from the Contractor. The decision of the Owner as to any question arising under this clause shall be final and conclusive.

3.13 Defect liability Period:

The liability period of the work shall be 12 months from the date of completion of the work as certified by the Owner and this date will be as indicated in the provisional completion certificate. If any damage or defect occurs in the work during this period then the contractor shall rectify the damage or defect at his own expense to the satisfaction of the Owner. If the contractor fails to do so, then the Owner shall have the authority to get the work done by other means and the expenditure incurred shall be recovered from the contractor.

3.14 Suspension of work:

The Contractor shall suspend the progress of work, on receipt of the written order from the Owner for any of the following reasons:

- i) On account of any default on the part of the Contractor. In this case the contractor shall be entitled for the extension of time, but the contractor shall have no claim for payment of compensation for re-execution of faulty works.
- ii) For execution of the works for reasons other than the default of the contractor.
- iii) For safety of the works.

In case of suspension of work:

- a) The contractor shall during such suspension, properly protect and secure the works and carry out the instructions of the owner.
- b) If the suspension is ordered for the reasons 3.13 as stated above, the Contractor shall be entitled for extension of time equal to the period of every such suspension but no compensation for damages etc. shall be admissible on account of suspension of work.

3.15 Possession prior to completion:

The Owner shall have authority to take possession of any completed or partially completed works. Such possession shall not be deemed to be acceptance of any work completed in accordance with the contract. If such prior possession delays the progress of works then the adjustment in the time of completion shall be done accordingly. The decision of the Owner regarding the extent of delay shall be final and binding.

3.16 Care of Works:

From the commencement to the completion of works, the Contractor shall take full responsibility for the care of all works including all temporary works and in case any damage or loss occurs then the contractor shall at his own cost repair and make good the same so that on completion of the work, the same shall be in good order in every respect in accordance with the contract and to the satisfaction of the Owner.

4.0 CERTIFICATE AND PAYMENT

4.1 Schedule of Rates:

- i) The payments to be made to the contractor for various items of works shall be as per the finalised rates in tender document and the rates of extra items finalised from time to time.
- ii) The rates finalised in the tender document shall remain firm till the completion of the work including extension of time, if any.
- iii) After the completion of work, the Contractor will have to submit the clearance certificate for all statutory payments like royalties, Octroi etc.

4.2 Measurement:

Joint measurements of the various items of the work shall be taken by the Contractor's authorised representative in presence of the Owner's and authorized representative from time to time for maintaining the records and preparing the bills. If the contractor fails to send his representative then the measurements taken by the Owner's and shall be final and no claim shall be entertained in this regard.

4.3 Mode of Measurement:

All measurements shall be in the metric system and in accordance with Indian Standard Specifications and in accordance with standard engineering practice. If the contractor has any objection regarding the measurements then he shall inform the Owner immediately. The decision given by the owner shall be final and binding on the contractor. In case of mode of measurement of any item is not specified; then I.S.I. mode of measurement (as applicable during contract period) shall be followed.

4.4 Mobilization Advance:

No mobilization advance shall be paid.

4.5 Lump sums in Tender:

Lump sum items considered only where specified.

4.6 Running Account Payments to be regarded as advances:

All running account payments shall be regarded as payments by way of advances against the final payment only and not as payment for work actually done and completed, and shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be removed and taken away and reconstructed or re-erected or be considered as an admission of the performance of the contract or nor shall it conclude, determine or affect in any way the powers of the Owner under these conditions or any of them as to the final settlement of the accounts or otherwise, or in any other way vitiate or affect the contract. The final bill shall be submitted by the contractor within one month from the date of actual completion of the work, to the Owner's certificate of the measurement and of the total amount payable for the work accordingly shall be final and binding on the Contractor. The payment of final bill shall be done within three months after the submission of the final bill by the contractor, to the including period of one month of clause no.4.8 (c) billing and terms of payment.

4.7 Payment of Contractor's Bills:

- a. The payment due to the contractor shall be made only in Indian Currency by Crossed Account Payee Cheques. In no case, will the Owner be responsible if the cheque is misled or mis-appropriated by the contractor or his representatives. The cheque shall be released only against submission of duly signed and revenue stamped receipt.
- b. The Owner reserves the right to carry out post payment audit and technical examination of the bills and work executed including all supporting vouchers etc. The Owner further reserves the right to enforce recovery of over-payment when detected. Similarly, if any under payment is discovered, the amount shall be paid to the contractor.
- c. Wherever any claim for the payment against the contractor arises as per the contract, the same may be deducted from the bill of the contractor or from his security deposit.

4.8 Billing and terms of payment:

- a) The payment shall be made as under:-

The contractor can submit two running account bills during the work period but not less than 30% of the total Contract value and payment made as below:

- i) 70% of the bill value will be paid on each running account bill submitted by the contractor.
- ii) 20% of the value of goods supplied/ work executed at site shall be made after completing and commissioning the equipments/work executed.
- iii) Balance 10% after rectification of defects, energizing the complete system to the full satisfaction of Owner.

- b) The running account bills are to be submitted detailing the work description, quantity and rate as per the Work Order. Payment will be made against actual measurements recorded and certified jointly by HLL Engineer in charge and the Contractor's representative.
- c) Retention Amount: Retention Money at the rate of 5% of the value of work done for each running bill will be deducted. The retention money shall be returned at the expiration of defect liability period of 12 months.
- d) The amount deposited as Security Deposit shall be released only after issuance of provisional completion certificate by the Owner.
- e) Tax Deduction: All statutory deductions like Income Tax, Works Contract Tax, E.S.I., P.F. or any other government-imposed liabilities shall be borne by the Contractor (as applicable at the time of execution of job) and shall be deducted from each bill submitted by the Contractor.

5. Provisional Completion Certificate:

When the Contractor successfully completes the works as per the contract, he shall be eligible to apply for provisional completion certificate in respect of the works. The Owner shall issue to the Contractor the provisional completion certificate after verifying from the completion documents submitted by the Contractor and satisfying himself that the work has been completed in accordance with the construction drawings and the contract document. The Contractor, after obtaining the provisional completion certificate, is eligible to present the final bill for the work executed by him under the terms of the contract. The work will not be considered as complete and taken over by the Owner until all the temporary works, labour hutments etc. are removed and the work site cleared to the satisfaction of the Owner.

If the contractor fails to comply with the requirements of the above on or before the date for the completion of the works, the Owner may, at the expense of the contractor, remove the tools and plants and surplus materials and dispose off the same and the contractor shall pay the amount of all expenses incurred.

6.0 LABOUR LAWS AND SAFETY REGULATIONS

6.1 Labour Laws:

- i) Laborers below the age of 18 years shall not be employed on the work.
- ii) The contractor shall not pay less than what is specified by the law to laborers engaged by him on the work.
- iii) The contractor shall, at his own expenses, comply with all labour laws and the Owner shall not be responsible for any recovery/penalty imposed by the respective authorities for violating the labour laws.
- iv) If the contractor is covered under the Contract Labour (Regulation & Abolition) Act, he shall obtain a license from the licensing authority (i.e. the Office of Labour

Commissioner), by payment of the necessary prescribed fee and deposit, if any, before starting the work.

- v) The contractor shall furnish to the Owner, the details of the workers employed on the works.
- vi) The contractor shall comply with the provisions of the existing rules and regulations relating to labour laws.
- vii) The Owner /authorized engineer shall on a report having been made by an inspecting officer as defined in Contract Labour (Regulation and Abolition) Act, 1980, have the power to deduct from the amount due to the contractor any sum required or estimated to be required for making good the losses suffered by a worker or workers by reason of non-fulfillment of the conditions of the contract for the benefit of the workers, or if deductions made from his or their wages which are not justified by the terms of contract or non-observance of the said regulations.

6.2 Minor Accident on Duty:

For cases of minor accident on duty not covered under compensation by insurance, the contractor shall have to compensate the affected person by reimbursing these medical expenses against submission of actual expenditure document. The absence from duty, if takes place due to such accident, shall be considered as special leave and full payment shall have to be made for duration of such absence.

6.3 Provident Fund:

It shall be solely the Contractor's responsibility to complete all provident fund formalities as per statutory regulations.

7.0 SAFETY CODE

7.1 Safety and Protection:

The contractor shall adhere to safe construction practice and guard against hazardous and unsafe working conditions. While carrying out the work, the contractor should provide for;

- i) Safety of personnel engaged in the construction.
- ii) Protection and safety of works and materials during their progress.
- iii) Sanitary and hygienic conditions of working and living for his workers, as required by the Owner.

7.2 Use of Safety Gadgets:

The Contractor shall have to ensure availability and use of all desire safety gadgets like safety belts, helmets, goggles, hand gloves etc.

7.3 Unsafe working condition:

If any activity is found to be progressing without proper and complete safety measures (including use of safety gadgets) being implemented, the contractor may be asked to stop the work unless he fulfills the desired safety norms. Such delays shall not be allowed to be considered for extension in duration of the allotted time period.

7.4 First Aid:

The contractor shall provide first aid facilities for his employees and those of his sub-contractors. The requisite first aid box and medicines should always be available at work site.

7.5 Contractor's Barricades:

The contractor shall erect and maintain barricades required in connection with his operations to guard or protect:-

- i) Excavations
- ii) Hoisting Areas
- iii) Areas adjudged hazardous by the Contractor's or Owners representatives.
- iv) Charged electrical panels.
- v) Owner's existing property liable to get damaged by contractor's operation.

7.6 Preservation of peace:

The contractor shall take precautions to prevent any riotous or unlawful behavior by his workers, for the preservation of peace and protection of inhabitants and the security of property in the neighborhood of the work.

8.0 DETAILS OF WORK EXECUTION

- i) The work shall be done in such a manner so as to clear work front availability for other agencies working at site.
- ii) Finish of work shall be as per drawings & details given by Owner.
- iii) In general the complete work is to be done as per Indian Standard and esthetical norms as specified and detailed in Tender.

9.0 CONTRACTOR'S SCOPE OF SUPPLY

All materials required for executing the jobs specified in the Schedule of Items, inclusive of all tools, tackles, scaffolding, consumables & testing equipments shall be procured and supplied by the contractor at his own cost except for any items specified as owner supplied.

10.0 RECOVERY FROM THE CONTRACTOR

- i) If the contractor or his employees damage or destroy the property of the Owner, then the same shall be replaced/ refunded by the contractor; otherwise the expenses may be recovered from his bill or security deposit.

- ii) All compensation & recoveries to be made as per terms of the contract shall be deducted from the contractor's bill or security deposit.
- iii) Forfeiture of Security Deposit: Whenever any claim against the contractor is to be recovered then the same may be made from the security deposit. If the contractor abandons the work or leaves the work in complete, then the Owner/has the right to forfeit the security deposit.

12. STAMP PAPER AGREEMENT

AN AGREEMENT made this the _____ day of _____ 2017 between M/S _____ here in after called the CONTRACTOR/S which expression shall include its executors, administrators, legal representative and assigns of the first part and **M/S. HLL LIFECARE LIMITED..** (Hereinafter called the Owner) of the second part. WHEREAS **M/S. HLL LIFECARE LIMITED.** the Owner is desirous of doing **“Supply, Installation, Testing and Commissioning of HT & LT Electrification and other MEP works for setting up of Diagnostic Lab Facility at Old Municipal Corporation of Gurgaon (MCG) Building at Sector-39, Gurgaon, Haryana “** as per Drawings & specification and the contractor/s has/have by his/their tender dated _____ as amended by the contractor's -contractor's letter no. _____ dated _____ offered to execute and fully complete the above work in the Owner's Premises for the Owner as set forth in the tender or as amended and the schedule Bill quantities particular specifications, ISI specification, drawings, special conditions of the contract, scope & performance schedule and general conditions of the contract, according to the terms and conditions contained there in for an approximate total sum of

Rs. _____ (Rupees _____) and the Owner has accepted such item rate/percentage rate/Lump sum tender in terms of its letter no. /dtd. _____.

Owner/Employer _____

SIG.OF THE CONTRACTOR

NOW THIS AGREEMENT WITNESSETH AS FOLLOWS

1. The contractor/s covenant/s and agree/s with the Owner that the contractor/s with in the time of **TEN WEEKS** from the date stipulated in the acceptance letter shall execute and fully complete all the works specified described or referred to in and by the said tender or as amended according to the true intent and meaning of the said tender or as amended and as per the Schedule Bill of quantities Particular Specifications ISI Specification Drawings & Instructions issued from time to time Special Conditions of the Contract Scope & Performance Schedule General Conditions of the Contract.

The Contractor/s covenant/s and agree/s with the Owner to truly observe perform fulfill & submit to the said terms obligations and conditions referred above. Incase the contractor fails to execute the work in the manner described in the condition of Contract or stops the execution of work or fails to carry out the works to the satisfaction of the Owner with respect to quantity quality and time schedule or abandons the work or becomes bankrupt then the Owner will have right to terminate the contract and get the remaining work executed at the risk and cost of the contractor. It is agreed that time is of the essence of this contract. Incase the work is not completed in the manner mentioned above to the complete satisfaction of the Owner in every respect within the aforesaid time limit of four months from the date stipulated in the Work Order the Contractor/s agree/s to pay compensation of ½% of the value of the contract sum for each week of delay beyond the date stipulated for completion subject however to a maximum of 7.5% of the value of the Contract sum.

2. In consideration of the satisfactory work executed by the contractor/s with the provisions as stated above the Owner covenant/s with the contractor/s that it will pay to the contractor/s from time to time in accordance with the Schedule Bill of quantities and various terms and conditions as contained in General Conditions of the contract and Special Conditions of the contract, provided always that whether or not a work is satisfactory shall be decided by the Owner and its decision in this behalf shall be final and binding.
3. The rates for items whether termed as extra items or deviations or by whatever name called and which are not covered by the tendered rates will be worked out in accordance with Clause 3.8 of Schedule II the General Conditions of the contract only.
4. Sales Tax by whatever name and in whatever from it may be in all cases shall be the contractor's /Contractors' responsibility. Income Tax Work Contract Tax & Taxes in pursuance of U.T. Sales Tax amendment and validation ordinances and or the Act thereof and or other amendments as may be made from time to time or taxes as result of subsequent orders/ordinances/acts as issued by the State or Central Govt. from time to time shall be borne by the Contractor/s.
5. The contractor shall abide by and shall be responsible for all statutory provisions of the Law such as labour laws & safety regulations etc.

6. This agreement further witnesseth that the contractor/s hereby covenant/with the Owner that in the event of the nonfulfilment in any respect by the contractor/s of the said covenant/s terms, agreements, obligations and conditions on the part of the contractor/s, the contractor shall pay on demand to the Owner all losses, damages, costs, charges and expenses as the Owner may be directly or indirectly put to in consequence of such non fulfillment of contract by the contractor/s.
7. In the event of any dispute arising out of or in connection with the arbitration proceedings, or any proceedings being taken subsequent to the arbitration proceedings, it is further agreed that only the courts in Thiruvananthapuram, Kerala shall have the sole jurisdiction in the matter.
8. The following documents are deemed to form part of the agreement, namely the tender, the priced bill of quantities, the drawings issued for the work, Schedule 'II' Particular Specifications, Special Conditions of the Contract and General Scope performance Schedule Conditions of the contract, all of which for the purpose of identification have been signed on behalf of the Owner and by the contractor/s. The relevant ISI will also form part of this agreement. The letter of Acceptance and their amendment etc. shall also form part of the agreement.
9. The agreement further witnesseth that the contractors is are responsible for any accident or other compensations payable to the workmen employed by and working under the control of contractors, that the Owner has no liability in the matter and that if any payment would have to be made by the Owner, the same shall be reimbursed by the contractors on demand and/ or recovered from the dues of the contractors. In witnesses whereof the said parties here to have here unto set their hands.

FOR & ON BEHALF OF HLL LIFECARE LIMITED,

OWNER/EMPLOYER

SIGN.OF THE CONTRACTOR

Date:

Witnesses:

1. _____

2. _____

Witnesses:

1. _____

2. _____

SCHEDULE –III

PARTICULAR SPECIFICATION

4.1 SCOPE:-

The scope of work covers supply, installation, testing and commissioning of Electrical works including electrical panels, cabling and wiring as indicated in the schedule and earthing as per standard. All necessary clearance shall be obtained from the concerned authorities.

4.2 ITEM OF SUPPLY AND WORK OF OWNER:-

Unless/otherwise specified the following supply shall be made and the following works shall be done by the Owner.

1. Open areas for storage of materials for construction work etc.
2. Water and Electricity for construction purpose only

All other items shall be included in the offer made.

4.3 GENERAL

Work shall be carried out in accordance with specification local rules and relevant Indian Standard.

4.4 TESTING

Cables shall be tested upto installation with a Megger and the following readings established.

1. Continuity on all phases
2. Insulation resistance.
 - a. between conductors
 - b. all conductors and ground

All the Tests shall be recorded

4.5 MODE OF MEASUREMENT

Cables will be measured on the basis of unit length and shall include the following:-

- i) Cables and clamps
- ii) Installation, commissioning and testing.
- iii) Cable route marker.

The item shall include the following:-

- i) Cable glands, lugs, bolts, nuts.

- i) All jointing materials
- ii) Installations, testing and commissioning.
- iii) Earthing the gland.

Cables buried under ground will be measured on the basis of unit length and paid for at unit rates.

4.6 LT SWITCH BOARD

4.6.1 PARTICULARS OF THE SYSTEM

i.	Operating Voltage (Nominal)	:	415Volts
ii.	Frequency	:	50 Hz
iii.	Phases	:	3
iv.	No. of wires	:	4
v.	Neutral	:	Solidly earthed

4.6.2 SERVICE CONDITION

Standard service conditions as per Appendix `A' of IS: 2516 (part I section 1965)

4.6.3 CONSTRUCTION

The LT switchgear shall be sheet steel clad totally enclosed dust tight/vermin proof, weather proof, indoor, free standing floor mounting and cubicle construction. The busbar chamber shall be extensible on both sides. The type of enclosure shall atleast provide degree of protection covered by IP:53 (weather proof enclosure) of IS:2147-1962. The busbar shall be air insulated Aluminum conductor of suitable size for rated current. The current rating shall not be more than 0.8A/sq.mm.Suitable PVC shrouding with colour coding shall be provided over the busbar. The busbars shall be mounted on SMC supports only. The complete chamber shall be degreased, acid cleaned, washed, phosphated and painted with one coat of zinc chromate primer and 2 coats of enamel paint of gray colour or the complete panel shall be powder coated.—This shall be done in the presence of a representative of the owner. The construction details of the LT panel shall be submitted and got approved by the Owner before fabrication. The installation charges shall include the cost of supply, fabrication and installation of all the necessary steel supports for the erection of the panel.

4.6.3.1 TEMPERATURE RISE

Rise in temperature of following parts of LT switchgear under normal current shall be limited to values as under, taking 40 degree centigrade as reference ambient temperature.

- 1. Contact parts : 45 degree centigrade
- 2. Terminals for external insulated connection: 50degree centigrade
- 3. Manual operation means
 - a. Parts of metal : 15degree centigrade
 - b. Part insulated : 25degree centigrade

4.6.3.2 BUSBARS

RATING OF BUSBARS

- | | | | |
|------|-----------------------|---|-----------------------|
| i. | No. of busbars | : | 3 phase and 1 neutral |
| ii. | Insulation voltage | : | 1.1KV |
| iii. | Normal current | : | as specified |
| iv. | Short circuit current | : | as specified |

Busbars shall be air insulated aluminium conductor enclosed in a sheet steel chamber. Busbars arrangement shall comply with IS:375-1963. Marking and arrangement of Busbars of main connection shall be as per IS: specifications. Letter code and number code as per IS: specification shall be followed for auxiliary wiring. Section of busbars shall be suitable for rated current and corrected for an ambient temperature of 45degree centigrade. Neutral busbar shall be insulated and provision for its connections shall be given. The complete busbar shall be provided with PVC heat shrink insulation of the colour specification.

4.6.3.3 METERING

Current transformer operated ammeters shall be provided with each of the incoming feeders, to indicate current in each of the phases. Current transformers shall comply with IS:2705 (Part II) – 1964 and shall be of accuracy class as specified . Ammeter shall be Digital type and shall have a dial size of 96*96mm in square. It shall comply with IS: 1248 – 1968.

The voltmeter shall be Digital type and class 2.5 accuracy and shall comply with IS;1248-1968.

4.6.3.4 INDICATING LAMPS

LED type Phase indication lamps shall be provided. All the indication lamps shall be of LED type.

4.6.3.5 CABLE TERMINATION

Switchboard shall be provided with necessary cable end box and compression glands for connecting 1.1KV grade XLPE insulated PVC sheathed armoured aluminium conductor outgoing cables as indicated in the drawing.

The incoming switchgear shall be provided with necessary cable end box and compression glands for connecting 1.1KV grade, XLPE insulated, PVC sheathed armoured aluminium/Copper conductor cables.

4.6.3.6 LABELING

4.6.3.6.1 General

Every switchboard, incoming feeder, outgoing feeder, incoming and outgoing cables, switchboard control contactor, time switch, relay, indicator lamp, meter, link and any

control or protection equipment within or on a switchboard shall be clearly and accurately labeled.

Labels shall be engraved laminated plastic or photo anodized rigid aluminium and shall comply with the following requirements.

Except where otherwise required, labels shall be fixed adjacent to, but not on any item of equipment.

Engraved lettering shall be black on a white background, except that the label for a main switch shall have red lettering on a white background, and warning and caution labels shall have white lettering on a red background.

The minimum height of lettering shall be 3mm and of sufficient definition to allow easy reading.

4.6.3.6.2 Fixing of Labels

Labels shall be securely fixed by:

- a) Screws and adhesive, or
- b) Fixed in an extruded aluminium section which shall be countersunk screw fixed or countersunk riveted to the panel.

Screws shall be tightened with nuts or into tapped holes in the switchboard. Mechanically expanded plastic rivets of minimum 6mm head diameter are acceptable instead of screws. Aluminium rivets may be used to fix aluminium labels only. Self-tapping screws, thread-cutting screws or other fixings are not acceptable.

4.6.3.6.3 Labels on Exterior of Switchboards and Schedules

All switchboards shall be labeled with the manufacturer's name.

A switchboard designation label shall be provided. For other than main switchboards, the designation label shall also state the source of electrical supply. Separate sections of enclosures shall be identified. The label for any section or enclosure containing supply authority equipment shall be to the satisfaction of the Owner and the supply authority.

Every switchboard control shall be labeled and shall include:

- a. Circuit designation for all main switches, main controls and sub main controls.
- b. Details of the consumer's mains and all sub mains.
- c. Incoming busbar or cable rating to the first tee –off.

The minimum height of lettering shall be 6mm. For identification of final sub circuits, a typed schedule, cross-referenced to the lighting and power layout plans shall be provided. The schedule shall be protected by a plastic sheet and fixed in a suitable frame mounted on the inside of the relevant switchboard door or, if the switchboard has no door, on the wall immediately adjacent to the switchboard.

4.6.3.6.4 ACB/MOULDED CASE CIRCUIT BREAKER

The ACB/MCCBs shall have quick make, quick break and trip mechanism with breaking capacities and thermal settings as specified in the schedule. The terminal shall be suitable for both aluminium and copper termination. The rotary operating handle shall have door interlock facility. The MCCBs shall have a breaking capacity of not less than 18KA r.m.s at 415V.- Wherever required higher rupturing capacity breakers to meet the system short circuit fault shall be used. All such rating shall be as per equipment schedule. Relation between Ics & Icu shall be as per table I of IS-13947-2.

4.7 LT CABLE 1.1 kV GRADE/PVC/XLPE CABLE

4.7.1 SCOPE

This specification covers the requirements of 3.5/4 core XLPE insulated PVC sheathed L.T 1.1 KV grade aluminium conductor armoured cable generally conforming to IS 1554 (part 1)1976/ IS 7098.

4.7.2 PARTICULARS OF SYSTEM

- i Operating voltage 415 v rms line to line
- ii Frequency 50c/s
- iii Phase Three
- iv No.of wires Four
- v Neutral Earthed

4.7.3 PARTICULARS OF CABLE REQUIRED

- 1. IS: 7098 XLPE insulated Electric Cables
- 2. IS: 1753 Aluminium conductors for insulated cables.
- 3. IS: 3961 Recommended current rating for cables.

4.7.4 CONSTRUCTION

The cable shall be manufactured as per standard practice and conforming to IS 1554 (Part I) 1976/ IS 7098.

4.7.5 TESTING

a. Type and routine tests

Records of all type/routine tests carried out as per Clause 15.1 &15.3 of IS 1554 (part I 1976 shall be maintained by the supplier and shall be furnished to the authority at the time of inspection by Owner's authorised representative on or before the delivery of materials at site.

b Acceptance tests

All tests specified in IS 1554 Part 1 1964 (as amended up to date shall be applicable). Test certificate from the manufacturer to be produced for cables.

4.7.6 MANUFACTURER'S IDENTIFICATION

The manufacturer shall be identified throughout the length of the cable by means of a tape bearing the manufacturer's name or trade mark being printed or intended or embossed on the cable. The identification or embossing shall be done only on the sheath.

4.7.7 PACKING AND MARKING

The cable shall be wound on a drum of suitable size and packed and marked. The cable may also be marked with ISI certificate mark. The marking done on the drum shall have the following information:-

- a Trade name, if any
- b Name of Manufacturer
- c Year of Manufacturing
- d Nominal sectional area of the conductor of the cable
- e Number of cores
- f Type of cable and voltage for which it is suitable
- g Length of cable on the drum
- h Approximate gross weight

4.7.8 INSTALLATION

Cable shall be laid in the routes marked in the drawings. Where the cable route is not marked the contractor shall mark it out on the drawings and also on the site and obtain the approval of the Owner before laying of the cable. Procurement of cable shall be on the basis of actual site measurement and the quantities shown on the schedule of work shall be regarded as a guide. Cable rising indoors shall be laid on walls, ceiling, inside shafts or trenches. Single cables laid shall be fixed directly to walls or ceiling. All supports shall be at not more than 500mm. Where number of cables are run necessary perforated cable trays shall be provided wherever shown. Cables laid in built up trenches shall be on steel supports. Plastic identification tags shall be provided at every 20mtr.

Cables shall be bent to a radius not less than 12 times the overall diameter of the cables or in accordance with the manufacturer's recommendation whichever is higher. In case of direct buried cable the cable route shall be parallel or perpendicular to roadways, wall etc. Cables shall be laid in an excavated graded trench over sand cushion to provide protection against abrasion. Width of excavated trenches shall be as required. The cable route shall be provided with cable route marker at every 20mtr.

4.7.9 TESTING

M V cables shall be tested upon installation with a 500V megger and the following readings established.

1. Continuity on all phases
 - a. between conductors
 - b. all conductors and ground
2. Insulation resistance

4.7.10 MODE OF MEASUREMENT

Cable will be measured on the basis of unit length and shall include the following:-

- i Cables and clamps
- ii Installation commissioning and testing
- iii Cable marking
- iv Cable route marker if required

4.8 EARTHING

4.8.1 SCOPE

The scope of work shall cover earthing stations, laying copper earthing strips etc.

4.8.2 STANDARDS

The following standards and rules shall be applicable.

1. IS: 3043 – 1966 Code of practice for earthing.
2. Indian Electricity Act and Rules.

All codes and standards mean the latest, where not specified other wise. The installation shall generally follow the Indian Standard code of practice or the British Standard codes of practice in the absence of Indian standards.

4.8.3 PLATE EARTHING STATION

The earth electrodes shall be 600x600x6mm C.I plate. The earth resistance shall be maintained with a suitable soil treatment.

The resistance of each earth station should not exceed 5 ohms.

The earth lead shall be connected to the earth plate through copper/brass bolts. The earth plates, G.I. pipes, cross Cu bars and down copper connections shall form an earthing station.

4.8.4 EARTH LEADS AND CONNECTIONS

Earth lead shall be as specified with sizes shown on drawings. At road crossing necessary hume pipes shall be laid. Earth lead run on surface of wall or ceiling shall be fixed on saddles or wall so that the strips is at least 8mm away from the wall surface.

The complete earthing system shall be mechanically and electrically connected to provide an independent return path to the earthing source.

4.8.5 EQUIPMENT EARTHING

All apparatus and equipment transmitting or utilizing power shall be earthed in the following manner. Copper earth wires shall be used where copper wires are specified.

- a. Armoured cables shall be earthed by 2 distinct earth connections to the armouring at both the ends and the size of connection being same as for the metallic conduit.
- b. 3 phase power panels shall have 2 distinct earth connections of the size co-related to the incoming cable size.
- c. An equipment earthing grid is to be established. All earth connections to all panels and equipment shall be connected to the nearest point of the earthing grid.

4.8.6 TESTING

The following earth resistance value shall be measured with an approved earth megger and recorded.

- 1. Each earthing station
- 2. Earthing system as a whole

4.8.7 MODE OF MEASUREMENT

Providing Earthing station complete with excavation, electrode, watering pipe, funnel, top connector, interconnection between earth plate and top connector, soil treatment, masonry chamber, concrete/CI cover etc., shall be treated as one unit of measurement.

The following items of work shall be measured and paid at unit rates covering the cost of earth wire/strips, clamps, labour etc.

- a. Main equipment Earthing grid and connections to the Earthing stations.
- b. Connections to the switch board.

TECHNICAL SPECIFICATIONS

ELECTRICAL

- 1. All electrical work shall be carried out in compliance with specifications given hereunder in this section and in compliance with Indian Standard specifications and Indian Electricity Act and Rules in force. The works shall also conform to any special requirement of Local State Electricity Board. If any case, the above-mentioned rules, regulations etc. are not in accord, the division of the consultant Engineer-in-charge regarding rules to be followed or manner of execution of work shall be final and binding. The work shall be executed under the direct supervision of person holding a certificate of competency issued by the State Government (Chief Electrical Inspector) for the type of works involved in conformity with the best methods of modern engineering practice and to the entire satisfaction of the Consultant / Engineer-in-Charge. The contractor has to submit the test report at various stages of completion as per requirement of the client
- 1.1 Work shall be executed by licensed electrical contractor approved by the Owner / Architect / Electrical Inspectorate.

- 1.2 These special conditions of contract shall be read in conjunction with the General Conditions of Contract, Schedule of Quantities, Technical Specifications, Drawings and other documents relating to the work and shall have preference over laid down general conditions and specifications.
- 1.3 The contractor shall permit free access and afford normal facilities and usual conveniences to other agencies or departmental workman to carry out connected work or other work services under separate arrangements. The contractor will not be allowed any extra payment on this account.
- 1.4 All soil, filth or other matter of any nature taken out of any trench, sewer drain, cesspool or other place shall not be deposited on the surface, it shall at once be carted away by the contractor free of charge to a suitable pit or place to be provided to him.
- 1.5 The contractor shall provide all equipment, instrument labor and such other assistance required, by the Engineer-in-Charge for measurement of the work, materials etc.

MATERIALS

All materials, equipment's, fittings and fixtures used in electrical works shall conform to the attached list of approved make of materials.

All material shall be new, soundly and robust in construction and well finished. Surplus material after completion of work shall be taken back by the contractor and the cost shall be recovered if the advance payment has been made earlier by the client.

Unless otherwise stated in the conditions of contract, of contract, samples of all materials, fittings and fixtures to be supplied by the contractor shall be submitted to the engineer-in-charge for his approval. The contractor shall not commence the work until the samples are approved, in writing from the engineer-in-charge.

The contractor shall ensure that all the materials incorporated in the work are identical in all respects with the approved sample. All samples not destroyed in testing shall be returned to the contractor after completion of contract. No payment shall be made for samples destroyed in testing.

CLARIFICATIONS OF DISCREPANCIES

In case of any discrepancy between specifications and drawings etc. or disputes in respect, the interpretation and decision of the Engineer/ project-in-Charge shall be final and binding.

MISCELLANEOUS

After completion of the work the whole installation shall be tested by the contractor in the presence of the Engineer/ Project-in-charge. The tests shall comply the I.E.E.

Regulations. The contractor shall be responsible to provide all the necessary testing instruments, such as megger, insulation tester, earth tester, multi meter, AVO meter etc. for carrying out the above tests.

The work will not be considered as complete and taken over by the Employer till all the components of the work after being completed at site in all respects have been inspected / tested by the Engineer-in-Charge to his entire satisfaction and a completion certificate issued by the Project Engineer/Project-in-Charge to this effect.

At the completion of the work and before issuance of certificate of virtual completion, the contractor shall submit 3 set of as built drawings with one reproducible of each drawing. Layout drawings drawn at approved scale indicating the complete wiring / cabling / earthing system as installed.

The contractor shall submit a detailed schedule of program of work, on demand of Owner's Representative/Project Engineer/Project-in-Charge.

WORK AND WORKMANSHIP

The work shall be of the highest standard, both as regard its design and workmanship. Modern tools and first class, latest techniques shall be employed for its execution.

Any damage done to the building during the execution of work shall be responsibility of the contractor and it shall be made good by him, at his cost, to the entire satisfaction of the Owner's Representative/Project Engineer/Project-in-Charge.

All electrical work shall be executed by skilled electricians under the direct supervision of whole time, fully qualified licensed electrical engineers and supervisors. The contractor shall produce requisite evidence regarding the qualification of the engineer, supervisors and other workers.

The contractor shall possess all the relevant and valid licensed as per the regulations of the Indian Electricity Rules and the Local Electrical Inspector's requirements.

CERTIFICATE OF INSPECTION

Complete scheme drawing for equipment's/earthing/cable layout/schematic drawing and other details as per requirements shall be prepared by the contractor and got approved by Owner's Representative/Project Engineer/Project-in-Charge, before commencement of work. Nothing shall be payable to contractor on this account.

The contractor shall be responsible for getting the installation inspected and approved by the Electrical Inspector and other, local electric supply company.

The contractor shall obtain and deliver to Owner's Representative/Project Engineer/Project-in-Charge the certificate of final inspection and approval of the local electrical authorities concerned. The statutory fees etc. shall be paid by the contractor and it may be reimbursed on submission of original documents.

In case of any defects are pointed out by the Electrical Inspector(State/Central Authority) , the contractor shall remove these defects at his own cost and arrange for re-inspection or inspection by the electrical inspector, till such time the installation is finally approved and the required certificate is issued. The contractor shall bear all expenses and deposit the necessary fees for subsequent inspections by the Inspectorate/Board.

Owner's Representative/Project Engineer/Project-in-Charge shall have full powers to get the material or workmanship *etc* inspected and tested by an independent agency, at the contractor's expenses in order to ascertain their soundness and adequacy.

The contractor shall be responsible for obtaining all necessary approvals for entire scheme from State Electrical Board before commencement of the work. All coordination with SEB shall be responsibility of contractor till commissioning and getting electricity in the complex and finally handing over the installation.

The contractor shall possess State Electrical Contractor's license and all the relevant and valid other licenses as per the regulations of the Indian Electrical Inspector's requirements.

Any amount to be deposited with the State Electrical Board shall be deposited by the contractor after observing necessary formalities required and take all follow up action for the same. However, the amount so deposited by the contractor will be reimbursed to the contractor on production of necessary and adequate documentary proof/records.

Working drawing for all system shall be prepared by the contractor & got approved before starting of the work.

DISTRIBUTION BOARDS

Distribution boards shall be of standard make with MCB's as per approved makes and factory assembled with latching covers flush lock. Ample clearance between the conductors of opposite pole, between conductors and sheet steel body shall be maintained in order to obviate any chance of short circuit. Removable conduits entry plates shall provided at top and bottom to facilitate drilling holes at site to suit individual requirements. The MCB's shall be mounted on a high grade rigid insulating support and connected by electrolytic copper bus bars. Each incoming MCB isolator shall be provided with solder less cable sockets for crimping. Phase separation barriers made out of are resistant materials shall be provided between the phases. Bus bars shall be color coded for phase identification.

Distribution boards shall be recessed in wall niche or if required mounted on the surface of the wall with necessary clamp bolts etc. as required at a height not exceeding 1600 mm from finished floor level. Distribution board shall be provided with proper identification name plate, danger mark etc.

All the distribution boards shall be marked 'lighting', 'power' or 'Emergency' as the case may be. Each D B shall be provided with a circuit list giving details of each circuit. All the outgoing circuit wiring shall be provided with identification ferules giving the circuit number and phase.

Each distribution board shall have a separate neutral connection bar and a separate earth connection bar mounted within the board each having the same number of terminals as the total number of outgoing individual circuits from the distribution board. Suitable earth terminal shall be provided on the distribution board for bonding to earth.

Distribution boards shall be duly rust inhibited through a process of degreasing, acid picking Phosphating and spray primer. The entire board shall be rendered dust and vermin proof with necessary sealing gaskets.

MCB's shall have quick make and break non-welding silver alloy contacts, both on the manual and automatic operation. MCB's shall be of thermal magnetic type with inverse time-delay over-current tripping, having a short circuit rupturing capacity of 9KA. In case of multiple breakers the tripping must be on all the poles and shrouded, wherever MCB isolators are specified they are without the tripping elements. Necessary adopter box of suitable size shall be provided to facilitate the wiring and nothing shall be payable on this account.

CABLE WORK IN UNDER GROUND

While laying underground cables care should be taken so that any underground structure such as water pipes, sewerage lines, etc. are not damaged. Any telephone or other cable coming in the way shall be properly protected as per instructions of Engineer-in-charge. All cable routes shall be carefully measured and cable cut to the required lengths leaving sufficient length for the final connection of the cable. All cable trenches entering sub- stations plants etc. shall be effectively sealed after installation of cables to avoid entry of water.

The L.T. cables shall be laid not less than 75 cm below ground level in a trench 35cm wide minimum .The depth of the trenches shall be uniform throughout. A bed of 17 cm dry sand shall be load before he cable is laid.

When the cable is properly straightened and laid in the trench, it should be covered all around 8mm thick layer of sand. Approved cable indicators shall be fixed at suitable distances along the route of the cable.

Unless otherwise specified the cables shall be protected by second class bricks of not less than 22.5x 10.0x7 cm or stone tiles or any other approved material placed on sides and top of the cable to form a channel throughout the length.

Filling of trenches shall be done after the sand cushioning and laying of tiles are carried out to the satisfaction of the engineer-in-charge, where ever roads or lawns have been cut off or Kerb stones displaced the same shall be repaired/replace to the original finish without any extra cost.

CABLE WORK

LAYING OF CABLES OVER DUCTS/ WALL/TRAYS:-

Cable ducts should be of such dimension that the cables laid in it do not touch one

another. Cables shall be neatly arranged on the trays in such manner that cross-crossing is avoided and final take off to switch gear is easily facilitated.

All cables will be identified close to their termination point by cable number as per circuit schedule. Cable numbers will be punched on 2mm thick aluminum strips and securely fastened to the cable. In case of control cables all covers shall be identified by their wire numbers by means of PVC ferrules. For trip circuit identification additional red ferrules are to be used only in the switch gear/ control panels, cables shall be supported so as to prevent appreciable sagging. In general distance between supports shall not be greater than 600mm for horizontal run and 750mm for vertical run.

TESTING OF CABLES:-

After laying and jointing work is completed, a high voltage test should be applied to all cables to ensure that they have not been damaged during or after the laying operation and that there is no fault in the jointing. The cable shall be tested with an insulation tester of appropriate rating. In case, the test results are unsatisfactory the cost of all repairs and replacement and relaying will be made good by the contractor. Nothing shall be payable for conducting high pot test.

CABLE TRAYS:

The Cable trays if fabricated out of mild steel/ slotted angles and flats shall be of required width as per design. Bends shall be prefabricated the cable tray shall be primed and painted with two coats as approved by Engineer - In - Charge. Suitable provision shall be made where a tray crosses expansion joints. The width of the tray shall allow for a suitable separation between cables the design shall allow for adequate bending reduces for the sizes of cables.

The tray shall be suspended from the soffit of the concrete slab by means of approved steel hangers spaced at a distance of not more than 100cms. Suitable bushes shall be provided where cables pass through apertures in the tray. Cable must securely fixed to the tray with fasteners .In routing, necessary barriers and spacing shall be maintained for cables of different voltages in case they lie side by side. Telephone cables shall cross the power cables only at about right angle and these two shall not run in close proximity. Full details of the tray shall be approved by the site engineer before fabrication. Earth continuity shall be maintained between each section of cable tray and each total run of tray shall be effectively bonded to the nearest earth continuity conductor. All nuts and bolts used shall be of galvanized steel.

315KVA UNITIZED SUB STATION:

The Unitized Substation shall be compact in construction. The equipment offered shall be complete with all necessary parts for effective and trouble-free operation in the proposed system. Such parts will be deemed to be within the scope of the supply irrespective of whether they are specifically indicated in the commercial order or not. The design, manufacture and performance of the equipment shall comply with all currently applicable statutes, regulations and safety codes. Nothing in this specification shall be construed to relieve the tenderer off his responsibilities. It shall comprise mainly of the following :

1. 315 kVA Copper wound 11KV /433 V Dry type cast resin type Transformer .
2. 11kV, 630A, 40kA VCB
3. Cable entry chambers for HV and LV side
5. CTs,PTs, HRC Fuses, TOD Meter chamber with suitable sealing facility and all accessories complete.
6. All other standard fittings and accessories complete conforming to relevant standards.

Tolerances on all the dimensions shall be in accordance with provisions made in the relevant Indian standards and in these specifications. Otherwise the same will be governed by good engineering practice in conformity with required quality of the product.

SYSTEM PARTICULARS:

TRANSFORMER

Type	:	Cast Resin, Core Type, Double
Wound	:	
kVA	:	315 kVA
Nominal System Voltage	:	11kV
Corresponding Highest System Voltage	:	12kV
Vector group	:	Dyn-11.
Nominal voltage ratings	:	
	Primary voltage`	: 11 kV
	Secondary voltage	: 0.433 kV
Frequency	:	50 Hz with ± 3 % Tolerance
Neutral earthing	:	Solidly earthed
Percentage Impedance	:	5% at 75deg C (subject to IS tolerance)
Tapping on HV side	:	+5% TO -10% IN STEPS OF
2.5%	:	Changeable by off circuit tap
links	:	
Type of Installation	:	INDOOR
Type of Insulation	:	CLASS F
Impulse Voltage withstand at HV Side	:	75kV (p)
Power frequency withstand voltage	:	
	HV SIDE	: 28 kV (rms)
	LV SIDE	: 3 kV (rms)
Applicable Standards	:	IS:2026/77, IS11171/85

The windings of the transformers shall be connected to Delta (Δ) on the primary side and star (Y) on the secondary side. The neutral of the LT winding shall be brought out to a separate terminal.

HT Panel:

Type	:	VCB
Rating	:	11kV, 630A, 40kA
CT Ratio	:	30/5 5VA, CI 0.5,
PT ratio	:	11KV/110V, 100VA, CI:0.5
Bus bar rating	:	630A
Shunt Trip coil	:	230 V AC

The unit shall comprise of all standard accessories like bushings, space heater, thermostat, provision for fixing TOD meter, sealing provision, etc. complete.

D.G.SET

The DG set capacity shall be 1 No. 160 KVA, 415V with engine and alternator with suitable coupling. It shall be mounted on a common base frame as per the recommendations of engine manufacturer. The base frame shall be mounted with antivibration mounts / friction pads. The antivibration level of the Generator set shall be well within permissible limits.

The DG set shall comprise but not limited to the following systems to make it complete in all respects.

1. Fuel oil system
2. Cooling water system
3. Starting system (Auto/remote - start/stop)
4. Lube oil system
5. Exhaust system
6. Acoustic enclosure
7. Addl. Static Battery Charger

The equipment shall be capable of delivering continuously at the generator terminals a net output not less than 160kVA (prime) when operating under the site and ambient parameters and conditions. The design parameters of the generator and excitation system shall be so chosen, that the set is stable while running at any load between no load and full load and also during starting of motors / load.

Operating Conditions

The Engine alternator set shall be capable of working at any ambient temperature between 0°C to 50°C. The Engine Alternator set offered shall be continuous duty type conforming to BS 5514 for generator set applications. The set may be idle for a long period except for routine test periodically.

Fuel System

It shall be fed through engine driven fuel pump. A replaceable element of fuel filter shall be suitably located to permit easy servicing. The daily service tank shall be complete with necessary supports, gauges, connecting pipe work etc. In case of Top Mounted

tanks, non return valves are must in fuel supply and return line of specified value. Pipe sealant should be used for sealing for all connections. No Teflon tape to be used.

Daily fuel service tank of manufacturer specified capacity, fabricated from M.S. sheet with inlet, outlet connections air vent tap, drain plug and level indicator (gauge) M.S. fuel piping from tank to engine with valves, unions, reducers, flexible hose connection and floor mounting pedestals, twin fuel filters and fuel injectors. The location of the tank shall depend on standard manufacturers design.

Cooling Water System

The cooling water system shall be of radiator cooling type as per bill of quantities. The radiator shall be mounted along with DG set over the common base frame. This system shall be provided with temperature switch so that when the temperature of jacket water goes above the permissible limit, the engine shall stop and give an audio visual alarm.

Starting System

The starting system shall consist of DC motor energized by 12V battery. The capacity of batteries shall be of minimum 180 AH to cater for cranking duty.

Lube Oil System

Lube oil system shall consist of an in-built sump provided in the engine, the engine driven gear pump, duplex filters and lube oil cooler etc.

A pressure regulator shall be mounted in the lube oil pump to control lube oil pressure. Filters and screens shall be provided in the L.O. system to remove foreign particles from circulation and prevent damage to bearing or mating surfaces. The L.O. system shall include L.O. pressure sensing device which shall cut off fuel supply to the engine as soon as the pressure falls below a preset value and shall give audio visual alarm. L.O. system shall be provided with pressure gauges and temperature gauges at inlet and outlet of L.O. Cooler.

Exhaust System

Exhaust Piping: All M.S. Pipes for exhaust lines shall be conforming to relevant IS. The runs forming part of factory assembly on the engine flexible connections up to exhaust silencer shall be exclusive of exhaust piping item. The work include necessary cladding of exhaust pipe work using 50 mm thick Loosely bound resin (LBR) mattress/ mineral wool/ Rockwool, density not less than 120 kg/m³ and aluminium cladding (0.6 mm thick) for the complete portion.

The exhaust pipe work includes necessary supports, foundation etc. to avoid any load & stress on turbo charger / exhaust piping. The exhaust pipe shall be *run along the existing wall of the building duly clamped/*supported on independent structure for which, the design and Drawing for such structure shall be got approved from the Engineer-in-charge.

Exhaust system should create minimum back pressure. Number of bends should be kept minimum and smooth bends should be used to minimize back pressure. Pipe sleeve of larger dia. should be used while passing the pipe through concrete wall & gap should be filled with felt lining. Schedule B' MS pipes and long bend/elbows should be used

The constituents of exhaust gas should be well within permissible limit as per the local authorities like corporation, traffic police, state pollution board etc. No set shall be accepted without the CPCB Certificate of authorized agencies.

Governing System

The governing shall be standard mechanical type with adjustable droop mechanism. An over speed trip mechanism shall be provided to automatically shut off the fuel and to stop the engine in case the set speed reaches about 110% of the rated speed with audio alarm indication.

Frequency Variation

The engine speed shall be so maintained that frequency variation at constant load including no load shall remain within a band of 1% of rated frequency.

Diesel Engine

The engine shall be of standard design of the original manufacturers. It should be 4 stroke cycles, water cooled, naturally aspirated/ turbo charged (as per manufacturer standard), diesel engine developing suitable BHP for giving a power rating of 160kVA/128kW as per ISO 8528- Part-1 in at the load terminals of alternator at 1500 rpm at actual site conditions.

The engine shall be capable for delivering specified Prime Power rating at variable loads for PF of 0.8 lag with 10% overload available in excess of specified output for one hour in every 12 hours. The average load factor of the engine over period of 24 hours shall be 0.85 (85%) for prime power output.

The engine shall conform to IS:10000/ ISO 3046/ BS:649/ BS 5514 amended up to date.

The engine shall be fitted with following accessories subject to the design of the manufacturer:

- I. Dynamically balanced Fly wheel
- II. Necessary flexible coupling and guard for alternator and engine.
- III. Air cleaner (dry/ oil bath type) as per manufacturer standard,
- IV. Electronic governor to maintain engine speed at all conditions of load.
- V. Daily fuel service tank of minimum 285 litre capacity as per specifications.
- VI. Dry exhaust manifold with suitable exhaust residential grade silencer to reduce the noise level.
- VII. Suitable self-starter for 12 V DC.
- VIII. Battery charging alternator unit and voltage regulator, suitable for starting.
- IX. Batteries, battery racks with interconnecting leads and terminals.
- X. Necessary gear driven oil pump for lubricating oil, priming of engine bearing as well as fuel systems as per manufacturer recommendations.
- XI. Turbo charger (as per manufacturer standard).
- XII. Lubrication oil cooler.
- XIII. Lubrication oil filters with replaceable elements.
- XIV. Crank case heater as per manufacturer recommendation.
- XV. Fuel injection: Engine should have suitable fuel injection system in order to achieve low fuel consumption
- XVI. Fuel control solenoid
- XVII. Fuel pump with engine speed adjustment
- XVIII. Engine Control Panel: fitted and having digital display not limited to the following:
 - (a) Start/stop key switch.
 - (b) kWh indication
 - (b) Lube oil pressure indication
 - (c) Water temp. indication

- (d) RPM indication
 - (e) Engine Hours indications
 - (f) Battery charging indication
 - (g) Low lub. Oil trip indication
 - (h) High water temp. indication
 - (i) Over speed indication.
- XIX. All moving parts of the engine shall be mechanically guarded in such a manner that a human finger cannot touch any moving part.
- XX. Radiator
- XXI. Any other item not included/ specified but is a standard design of the manufacturer

Alternator

Alternator shall conform to BS:5000/ IS:4722 with standard design with IP 23 Protection, suitably rated at 128 KW / 160kVA at 0.8pf, 415 Volts, 3 phase, 4 Wires, 50 Hz., 1500 RPM, self excited (brushless excitation) and self regulated, Voltage Regulation +/-1.5% of rated voltage (from no load to full load), frequency variation limited to +/-1% and Class "H" Insulation. Alternator should be mounted on a common single base frame and coupled directly to the engine..

The excitation system shall be provided with high speed, solid state automatic voltage regulator.

Annunciation

Annunciation shall be given for the following:

- Lub oil low pressure
- Engine over speed
- High water temperature
- Control source failure
- Fuel level low
- Engine starting failure
- Battery charge low
- Earth leakage trip

STATIC BATTERY CHARGER:

The inbuilt 12V static battery charger (in addition to the battery charging alternator associated with the engine) shall be of silicon controlled rectifier (SCR) type with automatic trickle and boost charging facility, current and voltage limiting circuits to avoid over charging, short circuit, reverse polarity protection and auto cut off facility when Gen-set is ON. DC voltmeter and ammeter of approved make, SP DC MCB on DC side and SP MCB on AC side shall also be provided. DC wiring of the battery charger shall be with 2.5 sq. mm multi strand flexible copper conductor cable in heat resistant conduit/armoured cable. The battery charging current in Amps shall be 10 hours rating current as per battery AH capacity.

ACOUSTIC ENCLOSURE

The acoustic enclosure shall be of suitable size as per norms prescribed by Central Pollution Control Board (CPCB). The guaranteed noise level shall be of 75 decibels at a

distance of 1 meter from the DG Set or a lesser value stipulated by CPCB. Necessary certificate to this effect from CPCB agencies is to be obtained and produced.

The enclosure shall be of totally weather, vermin and dust proof to enable the generator to operate at an ambient temperature of 48 degree Celsius . The outer casing of the container shall be of sheet steel of suitable thickness. The total enclosure shall be of powder coated. The overall dimensions of the acoustic enclosure (l x b x h) may please be indicated.

CABLING

Power cable from alternator to existing Main LT panel at the Substation viz 1 x 3.5 core 240 Sq.mm. PVC insulated aluminum armored cable shall be provided as per BOQ. All control cables between DG set and control panel are also in the scope of the DG set supplier. All end terminations to be carried out by crimping type aluminum / copper sockets of approved make. The Cable shall be routed through cable trays provided in BOQ with proper clamping with MS clamps.

EARTHING

The complete D.G set has to be earthed with 25 x 5 mm copper flat as per BOQ with duplicate earth connection separately for alternator and control panel.
2 Nos. of earth electrodes for body earth (GI pipe earthing) and 2 Nos. earth electrode(CI plate earthing) for neutral earth shall be provided as per IS-3043 . Interconnection of earth electrode, earthing of fuel oil tank, base frame etc. shall also be carried out as per relevant standards. Gland earthing to be done at all ends.

TRAINING

Training in Operation & Maintenance of DG set shall be imparted to the Concerned personnel of HLL Lifecare at the site.

SPARE PARTS

The contractor shall supply the original/manufacturer recommended spare parts required during periodic preventive maintenance work like oil filter, fuel filter, air filter, rocker cover gaskets, exhaust inlet/gaskets, water separators, fuel pipes, water hose sets, diesel hose pipes, etc.

TEST CERTIFICATES:

The firm shall submit the following test certificates on supply of the material at site:
(i) Manufacturer test certificates for Engine, Alternator, E/A set, Control panel
(ii) Routine test certificates for individual items, noise and pollution control type test certificate from designated test house as per specification.

TRIAL RUN

Supplier shall perform all standard tests (factory tests) on Engine and alternator and the test reports pertaining to the engine and alternator should be submitted.

The D.G. Set shall be run on no-load and on-load conditions continuously for total 6 hours. All D.G. set parameters shall be assessed and recorded during this trial run. The D.G. set shall deliver satisfactory performance during the trial run for acceptance and taking-over. Any defects or shortcomings noted during the trial run shall be rectified by the Contractor with no extra cost.

The satisfactory performance during the trial run of the D.G. Set shall not relieve the Contactor from any of their liabilities during defects liability period or for any period thereon.

NAME PLATE MARKING AND INSTRUCTION MANUALS

A nameplate showing rating, connection diagram, year of manufacture etc., should be provided on engine and alternator; all the important major parts should bear their catalogue number, name of the parts etc. All the control wiring shall be provided with letter/number ferrules at both ends. Three sets of manuals giving the details about design specifications, special features of the equipment, schematic and wiring diagram, instructions regarding installation, maintenance /operation etc., should be supplied.

The Electrical control wiring diagram, operation and maintenance instructions shall be framed and displayed in the enclosure. The important name plate details of Engine & Alternator, date of commissioning etc shall be displayed in the enclosure.

DRAWINGS AND MANUALS

The successful bidder shall submit the following GA drawings in three copies for approval by client.

- a. General arrangement of each equipment showing fixing dimensions, static weight
- b. Foundation drawing for DG set, if required
- c. Schematic control diagram for DG control panel
- d. TB wiring diagram
- e. After approval of above drawings and after completing of erection, the contractor shall submit „As-Built“ drawings in two copies with one set of reproducible to Owner
- f. Two sets of operation and maintenance manuals for the DG sets and auxiliaries shall also be submitted to owner.

APPROVALS

It is the responsibility of the contractor to get the approval from relevant authorities like CEIG/CEA, other statutory authorities, Pollution Control Board, etc. The contractor shall prepare necessary drawings for approval by Chief Electrical Inspector to Government, obtain approval for the same, arrange for the inspection by the Electrical Inspectorate Officials and obtain safety certificate from them for commissioning the installation (This building is fed by HT power supply).

The statutory fees payable to CEIG/CEA shall be initially borne by the contractor. The same shall be reimbursed on submission of original receipts/challan.

LIST OF APPROVED MAKE OF MATERIALS FOR DG SET

1. Alternator	Kirloskar Electric / Stamford / Leroysoner/ Crompton Greaves/Leypower /Jyothi /CAT
2. Engine	Cummins/ Greaves/ Caterpillar/ KOEL/ Ashok Leyland/ Volvo/ CAT
3. ACB	ABB / Siemens / C&S / L & T
4. Contactors & Relays	ABB / Siemens / L & T
5. Control Wires, etc.	Polycab / Havells/ Finolex/ RR Kabel/ V-Guard
6. Meters	L&T /Cadal / Rishiba
7. Push Button / Selector Switches	Essen / Vaishnav
8. Armoured Cables	Polycab / Havells/ Finolex/ RR Kabel
9. Batteries	Amara Raja / AMCO / Farukawa / Hitachi / Exide/ Prestolite / Standard/ Amron

PROFORMA OF TECHNICAL SPECIFICATION
(Details to be furnished by the tenderer along with the Bid)

Sl. No.	Description	Specification
1.	Generator KVA Rating / Model No.	160 kVA /
<u>Engine</u>		
2.	Make	
3.	Model No.	
4.	BHP Output	
5.	Cooling	
6.	Aspiration	
7.	No. of Cylinders	
8.	RPM	
9.	Compression ratio	
10.	Displacement (ltrs.)	
11.	Fuel oil	
12.	Fuel consumption at no load	
13.	Fuel consumption at 25% load	
14.	Fuel consumption at 50% load	

15.	Fuel consumption at 75% load	
16.	Fuel consumption at full load	
17.	Capacity of fuel tank (litres)	
18.	Governor	
19.	Starting system	
20.	Lub oil specification	
21.	Battery rating	

Alternator

22.	Make and Model No.	
23.	Type	
24.	Voltage	
25.	Frequency	
26.	Phase	
27.	Rated current	
28.	Power factor	
29.	Enclosure	
30.	Voltage regulation	
31.	Class of Insulation	
32.	<u>Generator set</u>	
33.	Noise level	
34.	Overall dimensions of the DG set	
35.	Approx. Total weight (Dry)	

CCTV

The executor shall be a reputed system integrator / authorized agent of reputed CCTV Camera, DVR manufacturer.

The functions intended from the proposed CCTV systems shall be as follows but not limited to the following:

1. To provide continuous & real time surveillance of the intended areas during daytime as well as night.
2. To monitor entry and exit of all persons/materials/anyothers at the entrances/exits and keep recording of the same for the stipulated period.
3. There shall be provision for retrieving the recorded videos vide external means for archiving/proof of evidence and for any other purpose when necessary.
4. The bidder can quote for superior/higher end versions of the items specified in the BOQ due to continuous up-gradation of the products in market.

FIRE DETECTION AND ALARM SYSTEM

The proposed fire detection & alarm system is intended to provide adequate safety measures in the areas susceptible to fire in compliance with the statutory requirements. Any equipment / item not specifically mentioned in the technical specification but are found necessary to meet the statutory requirements shall include in scope of supply.

Note : The scope of work includes obtaining all necessary statutory approvals from the Fire Authorities , other statutory agencies as deemed necessary.

SCHEDULE – IV

RECOMMENDED MAKES OF MATERIALS

L NO	ITEM DESCRIPTION	RECOMMENDED MAKE
1	ACB	Schneider/ ABB/L&T/Siemens/GE
2	MPP (H) Capacitor	Schneider/L&T
3	Magnetic Contactor for APFC panel	Schneider/ABB
4	Energy Meter	Schneider-Conzerve/L&T
5	HT XLPE Aluminium Armoured cables upto 11000V	Finolex, NICCO, RR Kabel, Ralison, Gloster/INCAB/ Polycab/National
6	LT XLPE (Aluminium/copper) Armoured cables upto 1100v	Finolex, NICCO, RR Kabel, Ralison, Gloster, VGuard/ Havells
7	LT Isolators	L&T, Schneider, ABB
8	PVC Conduit & Accessories	Avon Plast, Balco, Konseal
9	MCB's, MCCBs, RCCBs, ELCB's & MCB/DBs	Legrand / L&T /Siemens / Havells / C&S / Schneider / GE / Hagger / Standard
10	PVC insulated 1.1KV grade copper wires	RR Kabel/ National/ Ralison/ RKG/ Finolex/ Polycab/ Havells
11	Contactors	L&T, Schneider, ABB
12	Push buttons	L&T, Schneider, ABB
13	Indication Lamps (LED Type)	Tecnic, Vinay, Schneider, ABB, L &T, Siemens
14	Protective Relays (Microprocessor based)	L&T, Schneider, ABB
15	Current transformer (LT)	Intrans, Kappa, PGR, AE
16	Selector switches	Essen, Kaycee, L&T Salzer
17	Cable gland	Dowells, Jainson, Sigma, Gripwell, Comet
18	Al/Cu Lugs	Jainson, Dowells, Maxwell
19	Relays	Omron
20	Voltmeter/Ammeter (digital) (all meters shall be digital type)	Schneider- Conzerve, L&T, AE, IMP, MECO
21	Switch Fuse Unit (HRC Type)	Schnider/GE/L&T/Siemens/C&S/Havells

HLL LIFECARE LIMITED

22	Terminals	Elmex /Technoplast
23	Power factor correction relay	Syntron/ Avomec/Sigma/
24	Change over switches	HH Elecon/HPL
25	USS/ Transformers/ HT Switch gear	Intrans/ Voltamp/ Kirloskar
26	RMU	CG Lucy, ABB
27	HT Jointing Kits	Raychem/ Mahindra/Denson/Cabseal
28	LT Panels	CPRI tested & approved
29	Power Capacitors	Crompton/Siemens Apcos/Khatou
30	Metal Pipes	Jindal, Zenith, Tata, Surya
31	Lighting Fittings & Luminaries	Crompton/Philips/Wipro/BAJAJ/Havell's
32	Piano/Modular Type Sockets & Switches	Roma(Anchor)/Legrand/MK/Crabtree/
33	AC Condensing Outdoor Units/Ductable Units /Split AC	Blue Star/ Voltas/ Carrier/ Hitachi/ Samsung
34	Stabilizer	V Guard/VOLTAS/Everest
35	GI/Al Sheets	SAIL/TATA/JINDAL/HINDALCO/NACL
36	Exhaust/ Duct Fans	Almonard/ Havells/CG/Orient
37	Paints	ASIAN/ICI/Nerolac/Berger/MRF
38	PVC pipe	Supreme/Any ISI marked

Note:- List of Approved makes for the works is given above or in Schedule of Work. Other equivalent manufacturers may be considered with prior approval; however the decision of the Engineer-in-charge shall be final.

SCHEDULE V

SPECIAL CONDITIONS

1. The bidder shall visit the site before quoting for the work and also take their own assessments before quoting of bids.
2. Contractor has to prepare all necessary drawings and submit to the Central/State Electrical Inspectorate for clearance within 20 days of award of work. Owner shall give basic drawings of all installation. Necessary follow up action shall be taken by the Contractor to obtain the clearance from the Electrical Inspectorate and Electricity Board.
3. On completing the installation, the completion certificate shall be issued to the Electrical Inspectorate for approval. The observations/comments issued by the Electrical Inspector has to be rectified at no extra cost.
4. The contractor by himself has to get the energy meter and CT's tested by Approved agency and test certificate produced.
5. Owner shall pay all statutory fee for the above works. All other cost shall be included in the offer.
6. The test certificate of all equipment has to be submitted to Owner on completion of work.
7. The contractor shall be paying all testing charges required for testing of materials and samples as and when taken by Owner/ The Contractor shall arrange necessary labour and transportation to facilitate testing of samples/materials. Frequency of testing materials/samples shall be as per related I.S. codes.
8. The contractor is expected to visit the site and study the probable routes of transportation of material to the site before quoting.
9. All the items of the work are to be executed as per relevant IS specifications.
10. The Contractor has to agree and strictly abide to all the conditions stipulated in the tender and any offers with deviation or request for deviation are liable to be rejected.
11. The guarantee shall be 12 months from the date of handing over the installation duly energized.
12. The contractor has to prepare a time schedule for the complete work in detail and submit to Owner in triplicate within 10 days from the day of Work Order/ Letter Of Intent
13. The contractor shall comply with by-laws and regulation of local and statutory authorities having jurisdiction over the work and shall be responsible for payment of

all fees and other charges and the giving and receiving of all necessary notices and the Owner shall be kept informed of the said compliances with by-laws, payment made, notices issued and received

14. The quantities set out in the bill of quantities are the estimated quantities of the work. They are not to be taken as the actual and correct quantities of the works to be executed by the contractor in fulfillment of his obligations under the contract.
15. The work should be carried out without causing any inconvenience to the public and shall ensure that no damages are caused to the existing site premises.
16. During the execution of work, the contractor or authorized representative/s at least one person having technical qualification should be present at site.
17. All Materials, Equipment's/ Tools required for the work should be arranged by the contractor and brought to site for the timely completion of the work.
18. All materials to be used in execution of project shall be of **first class quality, recommended make; I.S.I. marked and shall be approved by Owner** before its application.
19. The Contractor has to arrange necessary insurance coverage for the machine, workmen etc. deployed by him. He shall arrange all safety measures to protect his workmen and also the properties of HLL/MCG Office Building. The work site safety of all employees, their ESI, PF etc will have to be borne by the contractor.
20. The work should be carried out in truly professional manner, neatly finished with proper line, level and plumb. Cleanliness and finishing of the job is of utmost importance. Hence the job should be done most carefully with best workmanship. For all finishing jobs samples should be approved from the Purchaser/Owner before completely executing the work.
21. The Purchaser/Owner should be immediately informed for any discrepancy in drawings, specifications and instructions in the execution of job before actual execution of particular item having discrepancy.
22. Any item found to be having been executed with poor workmanship then the Contractor shall have to rectify /reconstruct the work as specified by Purchaser/Owner. No extra charge will be admissible in such case. If CONTRACTORS fails to do so, the Purchaser/Owner reserved the right to rectify/reconstruct the work through some other agency at the expenses of Contractor.
23. The schedule of activities as submitted by the Contractor shall have to be strictly adhered to. Regular progress reports shall have to be submitted by the Contractor giving all details for monitoring of the schedule.
24. The Contractor shall make initial drawings/layouts (as per site conditions) and get it approved by HLL before execution.

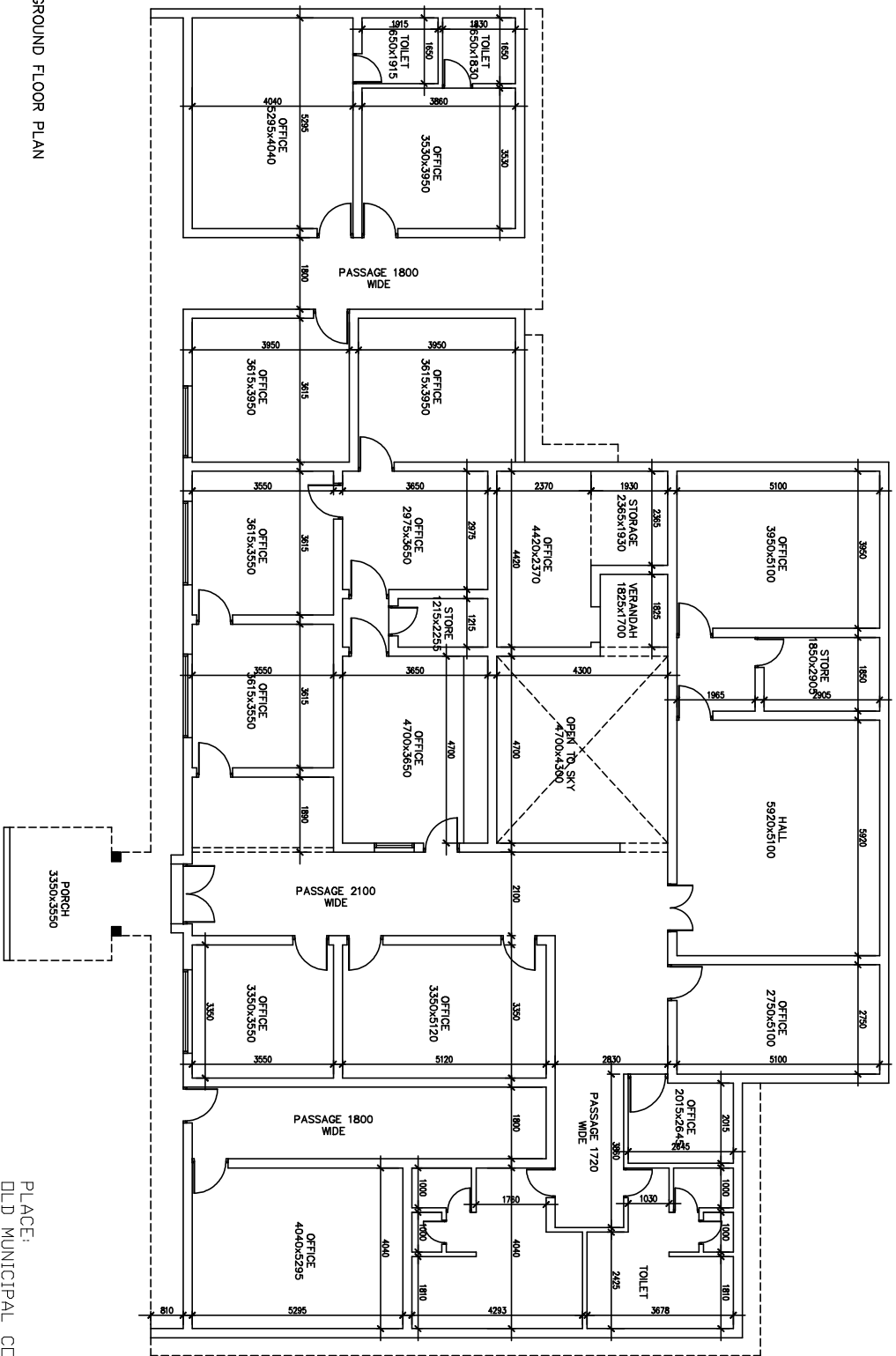
25. Special care is to be taken for cleanliness of the site. After the end of day's work, the site should be cleaned immediately.
26. The Contractor shall have to co-operate with the agencies executing other works in the same area.
27. While executing the work, the Contractor shall ensure safety and security of the property of the Purchaser/Owner so as to avoid theft etc.
28. Measurement & Payment terms:
The method of measurement of completed work shall be in accordance with the standard measurement. Payment will be made on satisfactory completion of work as per the order. Interim or running account bills shall be submitted by the contractor for the work executed on the basis of such recorded measurements in the format of HLL. All such interim payments shall be regarded as payment by way of advances against final payment only, and shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be rejected, removed, taken away and reconstructed or re erected. Any certificate given by the officer relating to the work done or materials delivered forming part of such payment, may be modified, or corrected by any subsequent such certificate(s) or by the final certificate and shall not by itself be conclusive evidence that any work or material so which it relates is /are in accordance with the contract and certificate. Any such interim payment,/any part there of shall not in any respect conclude, determine or affect in any way powers of the engineer in charge under the contract or any of such payment s be treated as final settlement and adjustment of accounts or in any way vary or affect the contract.
29. The Quantity shown in the schedule is an approximate estimated quantity. No rate revision will be entertained if the quantity increases/decreases due to the site condition while executing the work.
30. Water and Electricity: The contractor shall make his own arrangement for water and electricity required for the works. HLL will not be responsible for the supply of either electricity or water.
31. The contractor shall comply with by-laws and regulation of local and statutory authorities having jurisdiction over the work and shall be responsible for payment of all statutory fees and other charges and the giving and receiving of all necessary notices and the Owner shall be kept informed of the said compliances with by-laws, payment made, notices issued and received. All statutory payments shall be made by the Contractor and the same will be reimbursed by HLL on producing original challans/receipts.
32. Electrical
The work shall be carried out by a contractor holding valid licence issued by the State Government/Competent Authority for carrying out installation work of all voltage classes involved, under direct supervision of the persons holding valid certificates issued or recognized by the state government/competent authority.
33. Final payment shall be paid only after clearing the site as per direction of Engineer-in-charge/ Officer in charge.

SCHEDULE – VI

DRAWINGS

1. EXISTING LAYOUT OF MCG BUILDING, SECTOR-39, GURGAON
2. PROPOSED LAYOUT OF DIAGNOSTIC LAB FACILITY AT THE MCG BUILDING, SECTOR-39, GURGAON
3. ELECTRICAL SINGLE LINE DIAGRAM

GROUND FLOOR PLAN



PLACE:
 OLD MUNICIPAL CORPORATION OF
 GURGAON (MCG) OFFICE BUILDING,
 SECTOR 39, GURGAON

PLACE:	
DRAWN BY:	
CHECKED BY:	
APPROVED BY:	
DATE:	08-11-2017
SCALE:	NTS
DRG NO.:	
SHEET NO.:	01 OF 02
REV.:	00
DATE:	08112017

HLL Lifecare Limited
Thiruvananthapuram
 DIAGNOSTIC LAB FACILITY AT
 SECTOR 39, GURGAON -
 EXISTING LAYOUT



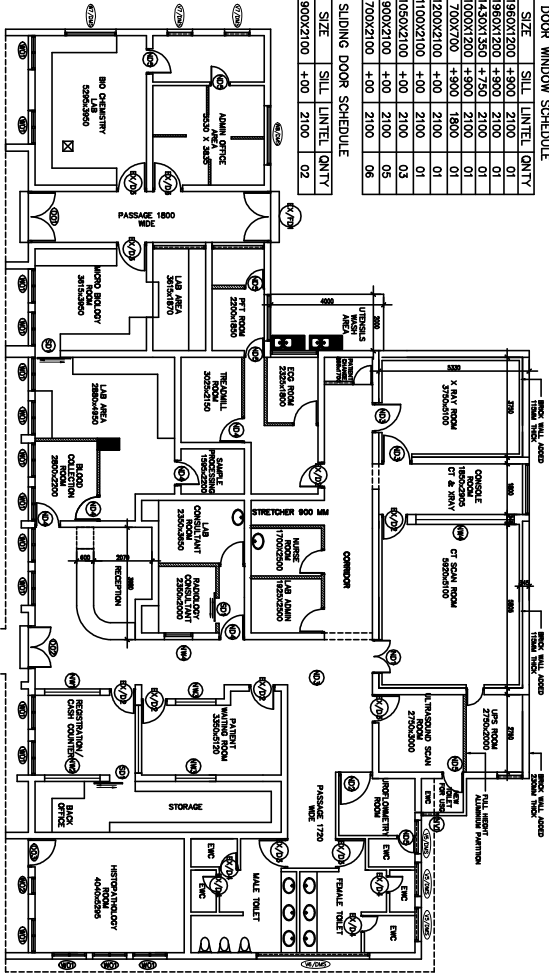
HLL-PRO-HCS-MCG-DLF-001

NEW PROPOSED DOOR WINDOW SCHEDULE

SNO	NAME	SIZE	SILL	UNTEL	QNTY
02	NW1	1960X1200	+800	2100	01
03	NW2	1960X1200	+800	2100	01
04	NW3	1430X1350	+750	2100	01
05	NW4	1000X1200	+800	2100	01
06	NW5	700X700	+800	1800	01
07	ND1	1200X2100	+400	2100	01
08	ND2	1100X2100	+400	2100	01
09	ND3	1050X2100	+400	2100	03
10	ND4	900X2100	+400	2100	05
11	ND5	1200X2100	+400	2100	06

NEW PROPOSED SLIDING DOOR SCHEDULE

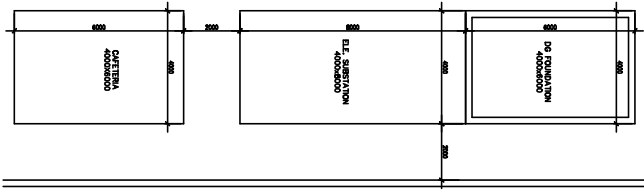
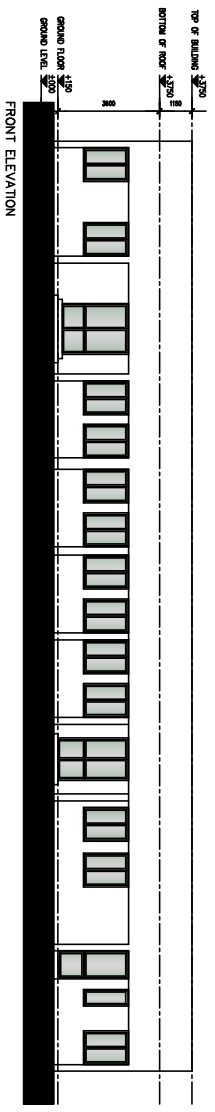
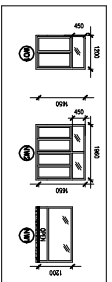
SNO	NAME	SIZE	SILL	UNTEL	QNTY
01	SD1	900X2100	+400	2100	02



PROPOSED PLAN FOR LAB
NOTE :-
FINISH FLOOR TO BOTTOM OF SLAB CLEAR HEIGHT IS 3600 MM

NEW PROPOSED FRONT DOOR/WINDOWS SCHEDULE

SNO	NAME	SIZE	SILL	UNTEL	QNTY
01	WD1	2000X1600	+800	2500	13
02	WD2	800X1600	+800	2500	01
03	DD1	800X2500	00	2500	01
04	DD2	800X2500	00	2500	01
05	DD3	800X2500	00	2500	01



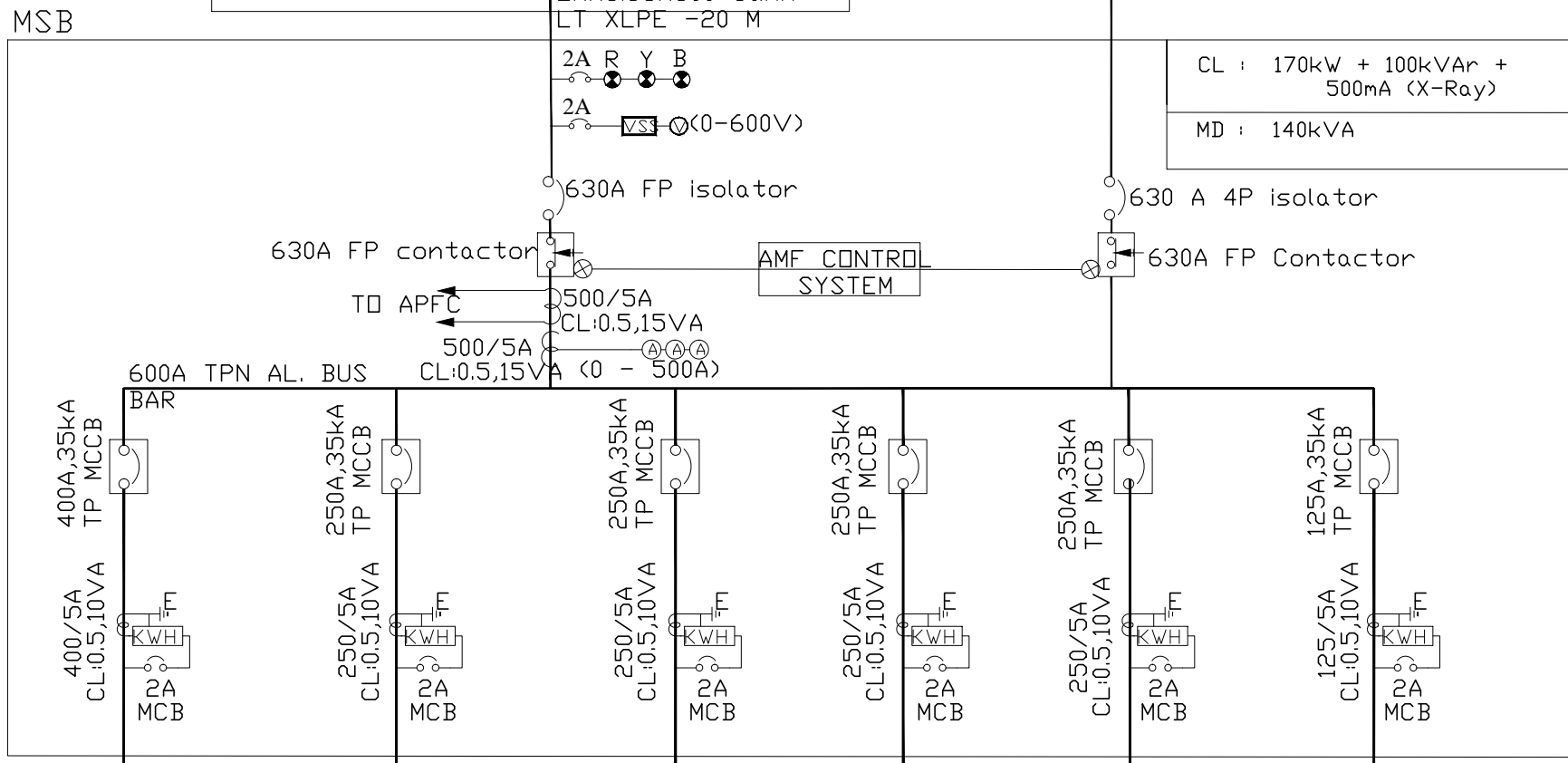
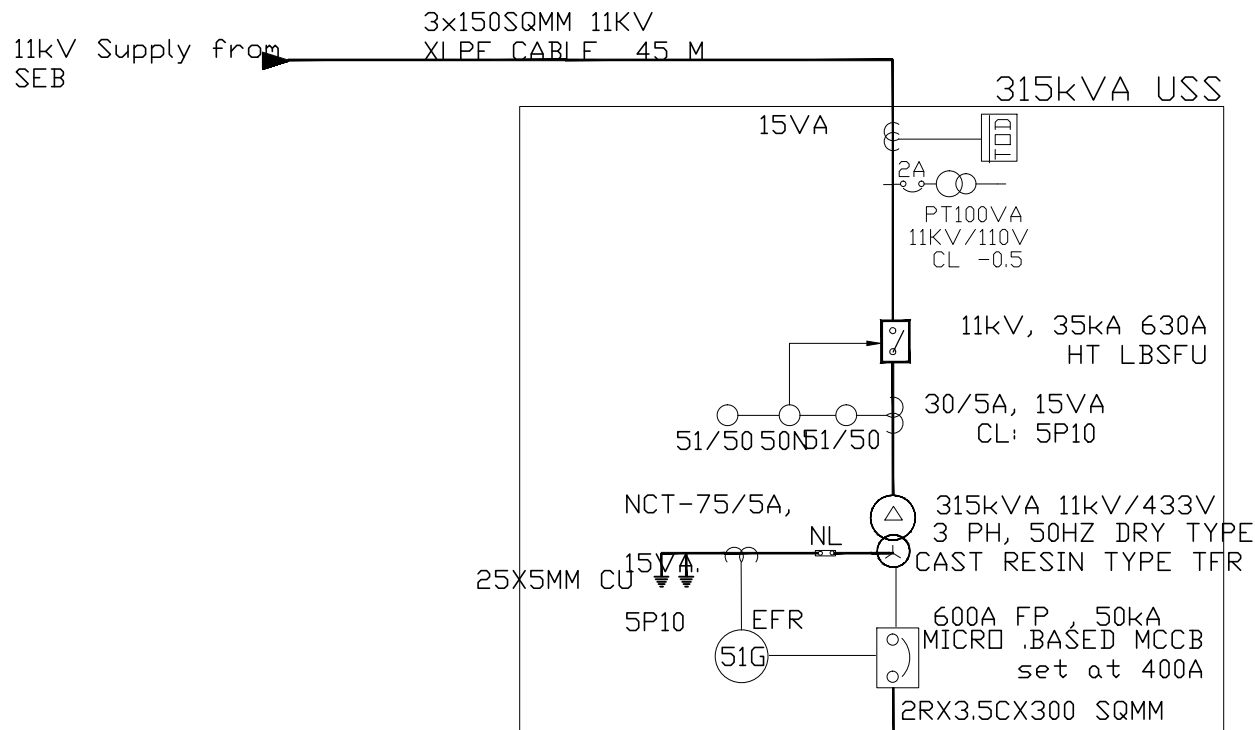
PLACE:
 DLD MUNICIPAL CORPORATION OF
 GURGAON (MCG) OFFICE BUILDING,
 SECTOR 39, GURGAON

HLL Lifecare Limited
Thiruvananthapuram

PROJECT TITLE:-
 DIAGNOSTIC LAB FACILITY AT
 SECTOR 39, GURGAON -
 PROPOSED LAYOUT

DRAWN BY:
 CHECKED BY:
 APPROVED BY:
 DATE: 08-11-2017
 SCALE: NTS
 ALL DIMENSIONS ARE IN MILLIMETER

DRG NO: HLL-PRO-HCS-MCG-DLF-001
 SHEET NO: 02 OF 02
 REV: 00
 DATE: 08112017



ITEM	LEGEND
51/50	IDMT O/C RELAY WITH HIGH SET INSTANTANEOUS ELEMENT
50N	INSTANTANEOUS EARTH FAULT RELAY
51G	EARTH FAULT RELAY

NOTES:-

HLL LIFECARE Ltd.,
PROJECTS DIVISION
Corporate Head Office, Poojappura,
Thiruvananthapuram, Kerala

TITLE: DIAGNOSTIC LAB AND SCAN CENTRE
AT SECTOR-39, GURGAON, HARYANA

EQUIPMENT DESCRIPTION	SPARE	CT SCAN	APFC	500mA X-RAY	SSB	SPARE
VOLTAGE IN VOLTS	415	415	415	415	415	415
CONNECTED LOAD IN kW	.....	110 kW	100 kVAr	500mA	60 kW	.....
RATED CURRENT IN AMPS	.....	170	140	98	93	.....
LT XLPE AL CABLE	SIZE IN SQMM	.....	240	240	120	120
	RUNS/CORE	.....	1Rx3.5	1Rx3.5	1Rx3.5	1Rx3.5
	LENGTH IN MTRS	.....	55	15	75	25
MCCB SETTING IN AMPS	.....	160	160	125	125	.....
EARTH COND.SIZE MM CU/SWG	.....	25x5	25x5	25x5	25x5	.....

TITLE	MAIN SCHEMATIC DIAGRAM		
DWG.No.	HLL/CHO/PROJ/GUR/SLD-1	DATE	30-12-2016
REV.No.	-	DATE	---
SCALE	NTS		

FOR TENDERING PURPOSE

DRAWN	ARUN	CHECKED	ARUN
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SCHEDULE VII

SCHEDULE OF WORK

SCHEDULE VII

SCHEDULE OF WORK

Sub. :	Supply, Installation, Testing and Commissioning of HT & LT Electrification and other MEP works for setting up of Diagnostic Lab Facility at Old Municipal Corporation of Gurgaon (MCG) Building at Sector-39, Gurgaon, Haryana - reg.				
SL NO	WORK DESCRIPTION	UNIT	QUANTITY	RATE IN RS	AMOUNT IN RS
PART-1	ELECTRICAL WORKS				
1	MSB - MAIN SWITCH BOARD				
	Supply all materials, Designing, fabricating, transporting, erecting, testing and commissioning of following cubicle type fully compartmentalised, free standing switch boards, dust and vermin proof, Fabricated out of 14 Gauge CRCA Sheet and providing necessary cut- outs for mounting meters, relays, indication The panel should comprise of the following items: 600A TPN Aluminium Bus bars with heat shrinkable insulation sleeves - 1 set. with Necessary interconnections. Incomer : 630 A 4Pole Isolator With 630A 4P Contactor- 2 nos. RYB indication lamps and controlling MCBs - 2 set Digital Multifunction meter for V,A,F,PF with CTs CL:1 for EB incoming feeders- 1 Set AMF Control Sysytem - set Outgoing : 400 A, 35kA, TPN MCCB With Thermal magnetic Release - 1 set 250 A, 35kA, TPN MCCB With Thermal magnetic Release - 4 set 125 A, 35kA, TPN MCCB With thermal magnetic release - 2 set Panel Board as per above specification - 1 No.	Job	1		
2	APFC				
	Incomer : 200A,TPN ISOLATOR Digital Multifunction meter for V,A,F,PF With CTs CL:1 with RYB indication lamps - 1 Set 200A Aluminum bus bar with heat shrinkable insulation sleeves - 1 set Intelligent power factor controller with control MCB including providing control cable and connections form MSB to Capacitor panels, etc. complete Out Going : 40 A TP MCB - 3 Nos. 32 A TP MCB -1 No. 25A TP MCB -2 Nos. 16A TP MCB -1 Nos. ON-OFF DUTY Contactor Capacitor (AC 6B duty) - 7 set ON-OFF Push buttons-6 Set. 20kVAr Capacitor bank - 3 Nos.	Job	1		
3	SSB-1				
	Incomer : 250A,TPN ISOLATOR Digital Multifunction meter for V,A,F,PF With CTs CL:1 with RYB indication lamps - 1 Set 200A Aluminum bus bar with heat shrinkable insulation sleeves - 1 Out Going : 125 A MCCB 35kA TPN with Thermal Magnetic release - 2 set 63 A MCCB 25kA TPN with OC and SC releases - 5 set 40 A MCCB 25kA TPN with OC and SC releases - 5 set Panel Board as per above specification - 1 No.	Job	1		
4	315 kVA INDOOR UNITISED SUBSTATION				
	SITC (Supply, Installation, Testing and Commissioning) of 315 KVA INDOOR UNITISED SUBSTATION comprising 315 kVA Copper wound 11KV /433 V Dry type cast resin type Transformer . 3 Phase ,vector DYN -11 with off load tappings from +5% to -10 % in steps of 2.5%,operatable on off-circuit by tap links provided, with HV Terminals connecting to HT 11KV, 35KA 630 A 50 Hz, LB-SFU with two nos epoxy resin cast CT 30/5 A,CL- 0.5, 15VA burden,and 1 No epoxy resin cast PT 11KV/110 V , CL-0.5,100VA burden with shunt trip coil ,(230 V AC-) LED type. on-off indication, Space heater with thermostat - 1 set Incoming cable entry suitable for 3X150 sqmm XLPE cable. with provision for fixing TOD meter with glass cover in front of the meter test terminal box etc. complete (CT,PT, TOD Meter , chamber shall have suitable sealing facility.LV side should consist of 1 No. 600 A 4Pole 50kA micro processor MCCB, SC &Earth fault release with shunt trip coil, Standby low set E/F relay with CR 5P10 CTs of suitable burden - 1 set, cable box suitable for two runs of 3.5X 400 sq.mm XLPE Cable , winding temp. indicator and all other standard fittings and accessories conforming to IS:2026/77 & IS : 11171/85 .Etc. complete.	Job	1		

SCHEDULE VII

SCHEDULE OF WORK

Sub. :	Supply, Installation, Testing and Commissioning of HT & LT Electrification and other MEP works for setting up of Diagnostic Lab Facility at Old Municipal Corporation of Gurgaon (MCG) Building at Sector-39, Gurgaon, Haryana - reg.				
SL NO	WORK DESCRIPTION	UNIT	QUANTITY	RATE IN RS	AMOUNT IN RS
5	160 kVA DG SET				
	Supply, Installation, Testing and Commissioning of 160kVA, silent type, water cooled, radiator type, four stroke, electric start D.G Set with acoustic enclosure and standard control panel. The engine shall be capable of taking 10% overload for one hour after 12 hours of continuous operation. The DG shall be suitable for AMF operation. The alternator shall be brushless, self excited, self regulated, SPDP enclosure, class F/H insulation, suitable for continuous operation at 1500 rpm, generating 415 V +/- 5% at 0.8 p.f, 50Hz, 0.85 load factor, 3 phase, 4 wire system generally conforming to BS: 2613 & IS: 4722. The DG set control panel shall be provided with all engine protection equipments, indications etc The DG set shall be suitable for AMF operation including all necessary control cabling From DG set to AMF panel. The DG set control panel shall have 400A, 25kA TPN thermal magnetic type MCCB with OL, SC and EF protection, RYB, on/off indication lamp, voltmeter, ammeter, energymeter, frequency meter etc The Low set earth fault relay shall be provided in control panel with CT of 50/5A 10VA Cl. 5P10 at DG neutral. Both Engine and Alternator shall be mounted on common channel iron base Frame and with standard accessories such as antivibration pad, lead acid batteries (as specified by engine manufacturer) and engine driven battery charger along with leads, battery stand, fuel piping From fuel tank, standard governor assembly, Residential silencer, suitable size cable termination box, required. Danger boards, signage, lettering , external battery charger etc as required. Rate shall be inclusive of all lift, lead charges. The work should be as per Electrical Inspectorate / Pollution control board norms.	Job	1		
		Job	1		
6	OUTDOOR RING MAIN UNIT				
	Supply Installation Testing and Commissioning of 11kV, 630A, 20kA ,SF6 OUTDOOR RMU unit as per the technical specifications for extending the existing SEB's 11kV line. The rate shall include providing necessary foundations, fixing in position , coupling. The rates shall also include on-site testing by authorized agencies. Make : CG Lucy, ABB	Job	1		
7	Supplying and fixing 30 amps, 415 volts, TPN industrial type, socket outlet, with 4 pole and earth, metal enclosed plug top alongwith 30 amps "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.	Each	1		
8	Point wiring in PVC conduit, with Modular type switch: Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm. FRLS PVC insulated copper conductor single core cable etc as required (Group-C)	Point	190		
9	Power plug wiring in PVC conduit (2x4 sq mm) : Wiring for light/ power plug with 2x4 sq. mm FRLS PVC insulated copper conductor single core cable in surface/ recessed medium class PVC conduit along with 1 No 4 sq. mm FR PVC insulated copper conductor single core cable for loop earthing as required	m	850.00		
10	Circuit Sub main wiring in PVC Conduit : Wiring for circuit sub main wiring alongwith earthwire with the following sizes of FRLS PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required.				
10.1	2x1.5 sq mm +1x1.5 sq. mm earth wire	m	1138.00		
10.2	2x2.5 sq mm +1x 2.5 sq.mm earth wire	m	895.00		
10.3	2X 6 sq. mm + 1 X 6 sq. mm earth wire	m	465.00		
11	Telephone wiring in existing conduit : Supplying and drawing 2 pair 0.5 sq mm FRLS PVC insulated annealed copper conductor, unarmored telephone cable in the existing surface/ recessed steel/ PVC conduit as required.	m	450.00		

SCHEDULE VII

SCHEDULE OF WORK

Sub. :	Supply, Installation, Testing and Commissioning of HT & LT Electrification and other MEP works for setting up of Diagnostic Lab Facility at Old Municipal Corporation of Gurgaon (MCG) Building at Sector-39, Gurgaon, Haryana - reg.				
SL NO	WORK DESCRIPTION	UNIT	QUANTITY	RATE IN RS	AMOUNT IN RS
12	S/F PVC conduit : 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.				
	25 mm	m	150.00		
13	S/F Metal boxes : Supplying and fixing metal box of sizes 200 mm x300 mm x 100 mm deep (Nominal size) on surface or recess with suitable size of phenolic laminated sheet cover in front including painting etc as required.	Each	13.00		
14	S/F Modular type switch/ socket : Supplying and fixing following modular switch/ socket on the existing modular plate & switch box including connections but excluding modular plate etc as required.				
14.1	Telephone socket outlet	Each	27.00		
14.2	TV antenna socket outlet	Each	4.00		
14.3	RJ-45 Network Socket Outlet	Each	53.00		
15	S/F Modular type blanking plates : Supplying and fixing modular blanking plate on the existing modular plate & switch box excluding modular plate as required.	Each	15.00		
16	S/F Modular boxes, base & cover plate : Supplying and fixing 1 or 2 module (75 mmx75 mm),GI box along with modular base, cover plate for modular switches in recess etc as required.	Each	84.00		
17	S/F light plug point modular type accessories (1x5A) : Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 3 pin 5/6 amps modular socket outlet and 5/6 amps modular switch, connection,painting etc as required	Each	78.00		
18	S/F light plug point modular type accessories(2x5A) : Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 2 Nos. 3 pin 5/6 amps modular socket outlet and 2 Nos. 5/6 amps modular switch, connection,painting etc as required,	Each	63.00		
19	S/F Power plug point with modular type switch : Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 6 pin 15/16& 5/6 amps modular socket outlet and 15/16 amps modular switch, connection,painting etc as required.	Each	57.00		
20	ITC Exhaust fan up to 450 mm sweep : Installation of exhaust fan in the existing opening, including making good the damage, connection, testing, commissioning etc. as required.	Each	11.00		
21	Supplying and drawing of UTP 4 pair CAT 6 LAN Cable in the existing surface/ recessed steel/ PVC conduit as required.	m	1600.00		
22	Supplying and fixing following way, single pole and neutral, sheet steel, MCB distribution board, 240 volts, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)				
	2 + 8 way/ 10 way , Double door	Each	1		
23	Supplying and fixing following way, horizontal type three pole and neutral, sheet steel, MCB distribution board, 415 volts, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)				
	6 way (4 + 18), Double door	Each	13.00		

SCHEDULE VII

SCHEDULE OF WORK

Sub. :	Supply, Installation, Testing and Commissioning of HT & LT Electrification and other MEP works for setting up of Diagnostic Lab Facility at Old Municipal Corporation of Gurgaon (MCG) Building at Sector-39, Gurgaon, Haryana - reg.				
SL NO	WORK DESCRIPTION	UNIT	QUANTITY	RATE IN RS	AMOUNT IN RS
24	Supplying and fixing following rating, four pole, (three phase and neutral), 415 volts, residual current circuit breaker (RCCB), having a sensitivity current upto 300 milliamperes in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
24.1	63 amps	Each	7.00		
24.2	40 amps	Each	6.00		
25	S/F 'C' series, MCB : Supplying and fixing 5 amps to 32 amps rating, 240/415 volts, "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.				
	Single pole	Each	250		
26	Supplying and fixing following rating, double pole, (single phase and neutral), 240 volts, residual current circuit breaker (RCCB), having a sensitivity current upto 300 milliamperes in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
	40amps	Each	1		
27	S/F SP MCB blanking plate : Supplying and fixing single pole blanking plate in the existing MCB DB complete etc as required.	Each	6.00		
28	S/F FP MCB isolator : Supplying and fixing following rating, four pole,415 Volts, isolator in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
28.1	63 amps	Each	7.00		
28.2	40 amps	Each	7.00		
29	Supplying and fixing TP sheet steel enclosure on surface/ recess along with 16/25/32amps 415 volts "C" curve TP MCB complete with connections, testing and commissioning etc. as required.	Each	1.00		
30	S/F 20A SPN MCB industrial socket outlet : Supplying and fixing 20 amps, 240 Volts, SPN industril type, socket outlet, with 2 pole and earth, metal enclosed plug top along with 20 amps 'C' series, SP, MCB, in sheet steel enclosure, on surface or in recess, with chained metal cover for the socket outlet and complete with connections, testing and commissioning etc. as required.	Each	31.00		
	EARTHING				
31	Earthing with G.I. earth pipe 4.5 metre long, 40 mm dia including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal/coke and salt as required.	Each	12.00		
32	Earthing with G.I. earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.	Each	4.00		
33	Providing and fixing 25 mm X 5 mm copper strip on surface or in recess for connections etc. as required.	m	250.00		
34	Providing and fixing 4.00 mm dia copper wire on surface or in recess for loop earthing as required.	m	500.00		
35	Providing and fixing earth bus of 50 mm X 5 mm copper strip on surface for connections etc. as required.	m	1.00		
36	Supplying and fixing following rating, double pole, 240 volts, isolator in the existing MCB DB complete with connections, testing and commissioning etc. as required.				
	40 amps	Each	8.00		

SCHEDULE VII

SCHEDULE OF WORK

Sub. :	Supply, Installation, Testing and Commissioning of HT & LT Electrification and other MEP works for setting up of Diagnostic Lab Facility at Old Municipal Corporation of Gurgaon (MCG) Building at Sector-39, Gurgaon, Haryana - reg.				
SL NO	WORK DESCRIPTION	UNIT	QUANTITY	RATE IN RS	AMOUNT IN RS
	LIGHT FIXTURES AND FANS				
37	Exhaust Fan : Supply of 350mm ,Single Phase,heavy duty,1400rpm,exhaust fan in metal frame	Each	11.00		
38	Supply of 600mm sweep Ceiling fan with double bearing type and of approved make.	Each	2.00		
39	Installation, testing and commissioning of ceiling fan, including wiring the down rods of standard length (upto 30 cm) with 1.5 sq. mm FRLS PVC insulated, copper conductor, single core cable etc. as required.	Each	2.00		
40	LIGHT FIXTURES : Supply conveyance, installation, testing and commissioning the following types of light fittings with all accessories on false ceiling, true ceiling or wall as directed and giving connections with 16/0.20 mm 3 core PVC insulated and sheathed round copper conductor flex wire or extending the original wiring and giving connections as required. All recessed type fixtures are to be supported independently with chains or GI wire anchored to the ceiling with anchoring bolt of necessary size. All loose wires above the false ceiling are to be neatly concealed by flexible conduits.				
40.1	1x18W Square type(300x300mm) Recess mounting CFL low glare luminaires with louvres – Bajaj BMLA 01218CFL or equivalent	Nos.	5.00		
40.2	1 x 15 W round recessed type LED – Philips Green LEDi900 – 4000K or equivalent	Nos.	86.00		
40.3	1 x 36 W CFL fitting : surface mounting type CRCA precoated electronic box type luminaires with decorative end caps : Bajaj BCIR 136 or equivalent	Nos.	5		
	HT CABLE				
41	Supply of one number PVC insulated and PVC sheathed / XLPE power cable of 11 KV grade of 3C x 150 Sq.mm size	m	75		
42	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 KV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc. as required.				
	Above 120 sq. mm and upto 400 sq. Mm	m	75		
43	supplying and making indoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for 150 Sq.mm 3 core, XLPE aluminium conductor cable of 11 KV grade as required.	Each	3		
44	Supplying and making outdoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 11 KV grade as required.	Each	1		
	LT CABLE				
45	Laying and fixing of one number PVC insulated and PVC sheathed/XLPE power cable of 1.1 KV grade of following size on cable tray as required.				
45.1	Above 35 sq. mm and upto 95 sq. mm (clamped with 25x3mm MS flat clamp)	m	775.00		
45.2	Above 95 sq. mm and upto 185 sq. mm (clamped with 25/40x3mm MS flat clamp)	m	75.00		
45.3	Above 185 sq. mm and upto 400 sq. mm (clamped with 40x3mm MS flat clamp)	m	70.00		

SCHEDULE VII**SCHEDULE OF WORK**

Sub. :	Supply, Installation, Testing and Commissioning of HT & LT Electrification and other MEP works for setting up of Diagnostic Lab Facility at Old Municipal Corporation of Gurgaon (MCG) Building at Sector-39, Gurgaon, Haryana - reg.				
SL NO	WORK DESCRIPTION	UNIT	QUANTITY	RATE IN RS	AMOUNT IN RS
46	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.				
46.1	3.5 C x 300 sqmm	Each	4.00		
46.2	3.5 C x 240 sqmm	Each	2.00		
46.3	3.5C x 120 Sq.mm	Each	2.00		
46.4	4 C x 50 sqmm	Each	2.00		
46.5	4 C x 35 sqmm	Each	2.00		
46.6	4 C x 25 sqmm	Each	2.00		
46.7	4 C x 16 sqmm	Each	12.00		
46.8	4 C x 10 sqmm	Each	16.00		
47	Supply of following size 1.1 KV grade XLPE insulated, PVC sheathed, armoured Aluminium conductor power cable conforming to IS 7098 (Part 1) amended upto date.				
47.1	3.5 C x 300 sqmm	m	40.00		
47.2	3.5 C x 240 sqmm	m	30.00		
47.3	3.5C x 120 Sq.mm	m	75.00		
47.4	4 C x 50 sqmm	m	45.00		
47.5	4 C x 35 sqmm	m	20.00		
47.6	4 C x 25 sqmm	m	10.00		
47.7	4 C x 16 sqmm	m	350.00		
47.8	4 C x 10 sqmm	m	350.00		
	MISCELLANEOUS				
48	Supplying and installing following size of perforated pre-painted M.S. cable trays with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with M.S. suspenders including bolts & nuts, painting suspenders etc as required.				
	300 mm width X 62.5 mm depth X 2.0 mm thickness	m	100.00		
49	Supply and providing 6 mm thick & 1 m wide electrical grade chequered type rubber mat to withstand 3.3 KV dielectric strength conforming to IS 5429/ 1969	m	6		
50	Supply of ABC Type fire extinguisher of 5 Kgs Make SAFEX / MINIMAX / CEASEFIRE or equivalent	Nos.	3		
51	Supply, fabrication and fixing 3 nos MS Fire buckets on suitable fabricated MS angle iron stand with hook, painting with red paint & filled with dry sand as required with all required accessories.	Set	2		
52	Supply and providing First Aid Chart duly framed and placed in a conspicuous location for clear vision.	Each	2		
53	Supply, Installation, testing & commissioning of HT -TOD Meter for the above. The meter shall be of approved make prescribed by Electricity board/ Inspectorate and the same shall be tested as per statutory norms.	Set	1		
54	Excavation for cable trenches in soft soil, depth upto 1m including dressing of sides lift upto 1.5 m, including getting out the excavated soil, refilling with sand and or good soil after laying of cable/ pipe etc. in layers of 20 cm, ramming, watering and disposal of surplus excavated soil as directed, within a lead of 50 metres.	Cu.m	8		
55	Supply fabricate and erect cable support rack/ tray using MS Angle and flat including breaking and finishing of walls, supply of fastners, all accessories etc. complete and applying a coat of metal primer and two coats of enamel paint	Kg	800		

SCHEDULE VII

SCHEDULE OF WORK

Sub. :	Supply, Installation, Testing and Commissioning of HT & LT Electrification and other MEP works for setting up of Diagnostic Lab Facility at Old Municipal Corporation of Gurgaon (MCG) Building at Sector-39, Gurgaon, Haryana - reg.				
SL NO	WORK DESCRIPTION	UNIT	QUANTITY	RATE IN RS	AMOUNT IN RS
56	Supply fabricate and erect 6 mm Chequered plate as per instruction	Sq mtr	20		
57	Supply and providing HT Danger board	Nos	2		
58	Supply and providing LT Danger board	Nos	4		
59	Supply and providing HT Rubber glouse	Set	2		
60	Documentation & Approvals				
60.1	Preparation of all drawings, submit to Central/State power authority /Electrical Inspectorate, liasoning for getting approvals and sanction etc. complete. (All statutory fees shall be borne by HLL)	LS	1		
60.2	Supply and providing neatly framed schematic lay out as per requirement	Set	2		
61	SPLIT AIR CONDITIONERS :				
	Supply, installation, testing and commissioning of Air Cooled High Wall mounted Split Air Conditioner of following capacity consisting of high wall mounted type room unit (fan coil) with cordless remote control and one number outdoor condensing unit comprising of enegy efficient suitable rotary compressor for operation on single phase, 230 V, 50Hz supply, fixing the outdoor unit on a raised platform as per manufacturers recommendation and fixing of room (fan coil) unit on wall, standard 4 m distance refrigerant copper piping with 13mm nitrile rubber insulation, providing and making interconnection between room & condenser as per site conditions, comprising of 1" dia drain PVC pipe with insulation 4m, canvas connections, full electrical cabling from power plug near indoor unit and to outdoor unit, ODU MS stand, first charge refrigerant gas, suitable stabilizer etc complete as required.				
61.1	1 TR 5 star rated as per BEE	Nos	12		
61.2	1.5 TR 5 star rated as per BEE	Nos	16		
PART-2	FIRE DETECTION AND ALARM SYSTEM WORKS				
1	SITC (Supply, Installation, testing & commissioning) of Conventional 4 Zone Fire Alarm Panel , batteries etc. with 4 line auto dialer with recording message capacity . HONEYWELL/ RAVEL OR Equivalent (Model - HRZ-4e/REF-RE-150-4 OR Equivalent)	No.	1		
2	SITC (Supply, Installation, testing & commissioning) of Coneyntional photoelectric /Optical type smoke detectors with base. Make HONEYWELL /System Sensor OR Equivalent - (Model - 2351E OR equivalent)	No.	48		
3	SITC (Supply, Installation, testing & commissioning) of Coneyntional analog Heat detectors with base. Make HONEYWELL /System Sensor OR Equivalent - (Model -4351E OR Equivalent)	Nos.	5		
4	SITC of Manual call Points with base. Make Agni/PCD OR Equivalent - (Model - AD101/MC-AB-G)	Nos.	5		
5	SITC of Conventional Electronics Hooter cum Strobe Make HONEYWELL/System Sensor OR Equivalent - (Model - P2R OR Equivalent)	Nos.	5		
6	SITC of Response Indicator Make HONEYWELL/AGNI - (Model - AD301) or equivalent	Nos.	3		
7	Supply and installation of 2 core 1.5Sq.mm Armoured FRLS cable including clamping the cables, provding cable terminations with cable glands, etc. complete. make Finolex, Technoflex or equivalent	m	530		
8	Supply & installation of CO2 type fire extinguisher of 4.5 kgs. Make SAFEX / MINIMAX / CEASEFIRE or equivalent	Nos.	8		
9	Supply & installation of ABC Type fire extinguisher of 5 Kgs Make SAFEX / MINIMAX / CEASEFIRE or equivalent	Nos.	11		
10	Supply & installation of ABC Type fire extinguisher of 2 Kgs. Make SAFEX / MINIMAX / CEASEFIRE or equivalent	Nos.	18		

SCHEDULE VII**SCHEDULE OF WORK**

Sub. :	Supply, Installation, Testing and Commissioning of HT & LT Electrification and other MEP works for setting up of Diagnostic Lab Facility at Old Municipal Corporation of Gurgaon (MCG) Building at Sector-39, Gurgaon, Haryana - reg.				
SL NO	WORK DESCRIPTION	UNIT	QUANTITY	RATE IN RS	AMOUNT IN RS
PART - 3	EPABX SYSTEM				
1	SITC of EPBAX System capable of supporting 4/8/32 extensions, 04 nos. Trunk Lines/ 8 Nos. Digital Lines/32 analoge lines and future expandable. 01 no. PRI Line along with with Master Telephone (Operator) with features not limited to the following : Voice Messaging , Auto call attendant facility, Auto Welcome music / instruction facility, Call waiting module, Call Auto masking module, Support Microsoft OS, Mobile Phone Integration, (Mobile Extension), Room Monitoring, Call Conference, Caller identification on all Extensions, Call Return, Long Conservation cut off, Lightning Protection, Disconnection module, Alarm module, Separate billing module for each extension with system integeeration with Desktop PC along with licensed software.(MAke : Syntel Neos or equivalent)	Job	1		
2	SITC of Push Button Telephones with caller ID facility (Make : Beetel M51 or equivalent)	no.	25		
3	SITC Push Button Telephones without caller ID facility (Make : Beetel B11 or Equivalent)	no.	4		
PART - 4	CCTV SYSTEM				
	Supply ,Installation ,Testing & commissioning of the following items :				
1	Indoor IR Dome camera with Verifocal lens: 1/3" CCD or equivalent 1.0 lux,AWB / BLC / AGC , 2.8mm~10mm vari-focal lens, min 20m range, Built-in IR illumination, white color case, DC12V, PAL-CE/FCC approved., make Honeywell or equivalent	Nos.	22		
2	Outdoor IR Bullet camera with Verifocal lens: 1/3" CCD or equivalent 1.0 lux,AWB / BLC / AGC , 2.8mm~10mm vari-focal lens,min 20m range,Built-in IR illumination, white color case, DC12V, PAL-CE/FCC approved. make Honevwell or equivalent		5		
3	Power supply unit for above camera as specified by camera manufacturer -12VDC 10A	Nos.	1		
4	Digital Video Recorder : 32-Channel Hybrid HD DVR, 400fps, Real-time, with 8 TB HDD and expandable, English OSD, 230VAC, make Honeywell or equivalent	Nos.	1		
5	21" LED Color Monitors. make (LG/Samsung) with all mounting accessories complete	Set	1.00		
6	Supply and Laying of RG-6 Coaxial video cable with ISI marked PVC conduit including terminations, etc complete. Make Technoflex/Neolex/Finolex	m	600.00		
7	Supply and Laying of 3-core, 1.5 sq. mm. Shielded cable in ISI marked PVC Conduit including terminations with suitable connectors, etc., complete. Make Technoflex/Neolex/Finolex	m	445.00		
8	Supply and Fixing of BNC connectors of approved make	Nos.	27.00		
TOTAL AMOUNT IN RUPEES					
APPLICABLE TAXES					
TOTAL AMOUNT IN INR (INCLUSIVE OF APPLICABLE TAXES)					
TOTAL AMOUNT IN WORDS					
I AGREE TO EXECUTE THE WORKS AS PER THE SCHEDULE AND RATES QUOTED BY ME AS ABOVE					
SEAL & SIGNATURE OF CONTRACTOR					