OIL INDIA LIMITED
DULIAJAN
(A Government of India Enterprise)
P.O. DULIAJAN – 786602, ASSAM

OIL INDIA LIMITED (OIL) invites Bids under Single Stage Two Bid System from established Civil Engineering firms / contractors through its E-Procurement portal "https://etender.srm.oilindia.in/irj /portal" for works 1) **IFB No. CDI8806P16** for "Construction of Perimeter RCC framed brick boundary wall of approx. 5596.00m length as per standard drawing, 2 no's Gate office, 2 no's Permanent Morcha, 6 no's Security watch tower as per standard drawing, Security patrolling track approx 6000.00 mtr. length by the side of boundary wall at Moran Oil Township (Industrial & Housing area), Moran under Sivsagar district including supply of all materials except Cement",(2**) IFB No. CDI8807P16** for "Construction of Pucca Road (Dust Free Road) by providing 20 mm thick Premix carpeting with Seal Coat over two coat of WBM (of thickness 75 mm each) over a coat of 100mm thick Granular sub base and construction of 1.50 m wide earthen shoulder including supply of all materials except Bitumen at approach road to Well No KLN#38, 10,28,24,25 & SKL#3 at Kathaloni Area for a total of length 7.10KM", (3) **IFB No. CDI8808P16** for "Development of road From Nalinipothar to NHK # 220 via NHK # 129 with 150 MM GSB, 150 MM WBM (2 layers of 75 MM) & 40 MM SDBC including supply of all materials. (Total approximate Length =2.30 KM, Width= 3.66 Meters)", (4) **IFB No. CDI8809P16** for "Construction of pucca road(Dust free road)leading to Well no BPR#12 (500m), BPR#17, 18, 19 (300m), BPR#2 (200m), BPR#10 (50m), BPR#7(50m) & BPR#15(1500mtr) at Bhogpara Field area ,under Dibrugarh District.(Total =2.60 KM)by providing 100mm GSB,150mm WBM,20mm thick pre-mix carpeting with seal coat including supply of all materials except Bitumen", (5) **IFB No. CDI8777P16** for "Construction of Bituminous Concrete Road (Length 2.00Km) leading to Location BGB (DSJ-1) in Daisajan under Baghjan area" (6) **IFB No. CDI8869P16** for "Construction of Three Storied CSR Activity Complex Building adjacent to HTPC Complex, Duliajan including supply of all materials except Cement".

Vendors having user ID & password can purchase bid documents on-line through OIL's electronic Payment Gateway. New Vendors shall obtain User ID & password through online vendor registration system in e-portal and can purchase bid documents subsequently in the similar manner. Alternatively, parties can write to Head-Contracts, Contracts Department, Oil India Limited, P.O. Duliajan, Assam-786602 along with cost of bid document (non-refundable) in the form of Demand Draft / Banker's Cheque from any Scheduled Bank in favour of OIL INDIA LIMITED and payable at Duliajan, which must reach Head-Contracts' office on or before the last date of sale of Bid Document. **No physical Bid documents will be issued.** The details of IFB can be viewed using "Guest Login" provided in the E-Procurement portal and also in OIL's web site www.oil-india.com. The link to OIL's E-Procurement portal has also been provided through OIL's web site www.oil-india.com. All corrigenda, addenda, amendments, time extension, clarifications etc. to the tender will be hosted on the website and in the e-tender portal only and no separate notification shall be issued in the press. Prospective bidders are requested to regularly visit the website and e-portal to keep themselves updated.

(A. Das)
Head-Contracts (Civil)
For Resident Chief Executive

Date: 15.10.2015

IFB NO.:CDI8869P16

OIL INDIA LIMITED
DULIAJAN
(A Government of India Enterprise)
P.O. DULIAJAN – 786602, ASSAM

OIL INDIA LIMITED (OIL) invites Bids under Single Stage Two Bid System from established Civil Engineering firms / contractors through its E-Procurement portal **"https://etender.srm.oilindia.in/irj /portal"** for the following works.

IFB No.	SHORT DESCRIPTION OF SERVICE	BID SECURITY (₹)	COST OF BID DOCUMENT (₹)
CDI8869P16	Construction of Three Storied CSR Activity Complex Bulding adjacent to HTPC Complex, Duliajan including supply of all materials except Cement.	3,34,000/-	5000/-
Period of Sale of Bid Doc. for all the above works: 19.10.2015 to 12.11.2015			
Bid Closing / Opening Date & Time for all the above works: 19.11.2015 11.00/14.00 Hrs.			
Vendors having user ID & password can purchase bid documents on-line through OIL's electronic Payment Gateway. New Vendors shall obtain User ID & password through online vendor registration system in e-portal and can purchased bid documents subsequently in the similar manner. Alternatively, parties can write to Head-Contracts, Contracts Department, Oil India Limited, P.O. Duliajan, Assam-786602 along with cost of bid document (non-refundable) in the form of Demand Draft / Banker's Cheque from any Scheduled Bank in favour of OIL INDIA LIMITED and payable at Duliajan, which must reach Head-Contracts office on or before the last date of sale of Bid Document.			
No physical Bid documents will be issued. The details of IFB can be viewed using "Guest Login" provided in the E-Procurement portal and also in OIL's web site www.oil-india.com. The link to OIL's E-Procurement portal has also been provided through OIL's web site www.oil-india.com.			
All corrigenda, addenda, amendments, time extension, clarifications etc. to the tender will be hosted on the website and in the e-tender portal only and no separate notification shall be issued in the press. Prospective bidders are requested to regularly visit the website and e-portal to keep themselves updated.			

Date: 16.10.2015

Head Contracts -Civil
for RESIDENT CHIEF EXECUTIVE

COVERING LETTER

OIL INDIA LIMITED
(A Govt. of India Enterprise)
Contracts Department, Duliajan

OIL INDIA LIMITED a premier Public Sector Enterprise of Govt. of India engaged in drilling and exploration activities for hydrocarbon invites ON-LINE BIDS from experienced and established firms / contractors meeting the requisite criteria for the following mentioned work under **SINGLE STAGE TWO BID System** through its e-Procurement site:

DESCRIPTION OF WORK/ SERVICE: Construction of Three Storied CSR Activity Complex Balding adjacent to HTPC Complex, Duliajan including supply of all materials except Cement.

LOCATION OF WORK: Near HTPC Complex, Duliajan

CONTRACT PERIOD: 102 (One Hundred & Two) weeks.

BID CLOSING/ OPENING DATE: 19.11.2015

BID SECURITY DEPOSIT: **₹ 3, 34,000/-(Rupees three lakhs thirty four thousand only)**

a) Bid Security deposited vide Demand Draft / Banker's Cheque / Money Receipt/Bank Guarantee

No._____ dated_____ of_____

(Original hard copy of (a) should reach the office of HEAD-CONTRACTS before Bid opening date and time, otherwise Bid will be rejected. A scanned copy of this document should also be uploaded along with the Un-priced bid documents.

b) Bidders to confirm that in the event of the award of Contract he/she/they will submit Performance Security Deposit @ 2.5% of the total contract price within two weeks of issue of LOI/LOA and this will not earn any interest. Immediately after deposit of Performance security, successful bidder shall have to sign the formal contract Agreement.

2.0 SEALED ENVELOPES containing the Bid Security Deposit (EMD) shall be marked with the above Tender Number and description of work and addressed to

HEAD-CONTRACTS
CONTRACTS DEPARTMENT
OIL INDIA LIMITED
Duliajan – 786602
Assam.

2.1 All bidders shall deposit the requisite BID SECURITY in the form of Demand Draft/Banker's Cheque/ Money Receipt/Bank Guarantee from a Nationalized / Scheduled Bank in favour of M/s Oil India Limited and payable at DULIAJAN. Alternatively, applicants already having User ID & Password for OIL's e-portal can pay the requisite Bid security against the individual IFBs through the online payment gateway. This Bid Security shall be refunded to all unsuccessful bidders, but is liable to be forfeited in full or part, at Company's discretion, as per Clause No. 6 below. **Bids without Bid Security in the manner specified**

above will be summarily rejected. Bid should be submitted on-line through OIL's e-Tendering Portal up to 11:00 hrs (IST) (Server Time) on the date as mentioned and will be opened on the same day at 14:00 hrs (IST) at Office of the Head-Contracts in presence of authorized representative of the bidder. **THE BID SECURITY SHOULD BE DROPPED IN THE TENDER BOX PLACED AT THE OFFICE OF THE HEAD CONTRACTS ON OR BEFORE 1.30P.M. OF THE SCHEDULE DATE OF OPENING OF TENDER**. **ALTERNATIVELY, APPLICANTS ALREADY HAVING USER ID & PASSWORD FOR OIL'S E-PORTAL CAN PAY THE REQUISITE BID SECURITY AGAINST THE INDIVIDUAL IFBS THROUGH THE ONLINE PAYMENT GATEWAY**

2.2 THE PHYSICAL BID SECURITY IS TO BE SUBMITTED ALONGWITH A COVERING LETTER MENTIONING THE e-TENDER NO AND THE BIDDER'S NAME AND ADDRESS IN A DULY SEALED ENVELOPE ADDRESSED TO – HEAD – CONTRACTS, OIL INDIA LIMITED, CONTRACTS DEPARTMENT, DULIAJAN – 786602

2.3 If the bidders deposit the requisite Bid security in the form of Bank Guarantee, then the Bank Guarantee should be valid for 30 days beyond the required bid validity period.

3.0 However, if the above mentioned closing / opening day of the tender happens to be non-working day due to Bandh / Strike or any other reason, the bids will be received and opened on the following working day at the same time except on Saturdays.

4.0 The rates shall be quoted per unit as specified in the "Price Bidding Format" attached just below the "Tendering text". Bidder should note that no pricing information is furnished in the "c-Folder" (Technical Bid) otherwise the bid will be rejected.

4.1 All other techno-commercial documents other than price details to be submitted with un-priced bid as per tender requirement placed in the 'un-priced' bid folder.

4.2 The bid and all uploaded documents must be Digitally signed using "Class 3" digital certificate [e-commerce application (Certificate with personal verification and Organization name)] as per Indian IT Act obtained from the licensed Certifying Authorities operating under the Root Certifying Authority of India (RCAI), Controller of Certifying Authorities (CCA) of India.

4.3 The authenticity of above digital signature shall be verified through authorized CA after bid opening. If the digital signature used for signing is not of "Class -3" with Organization's name, the bid will be rejected.

4.4 Bidder is responsible for ensuring the validity of digital signature and its proper usage by their employee.

4.5 The bid including all uploaded documents shall be digitally signed by duly authorized representative of the bidding company.

5.0 The Company reserves the right to reject any or all the tenders or accept any tender without assigning any reason.

6.0 (a) No Bidder can withdraw his bid within the validity or extended validity of the bid. Withdrawal of any bid within validity period will lead to forfeiture of his/her/their Bid Security in full and debarment from participation in future tenders, at the sole discretion of the Company and the period of debarment will not be less than 2 (two) years.

(b) Once a withdrawal letter is received from any bidder, the offer will be treated as withdrawn and no further claim / correspondence will be entertained in this regard.

7.0 (a) The Bid must be valid for 180 (One hundred & eighty) days from the date of opening of the tender.

(b)In case of extension of Bid Opening Date, Bid validity must be extended suitably by the bidder, as and when advised by OIL.

(c)The amount of Bid Security shall be as specified in the NIT.

(d) In case the Bidder submits Bid security in the form of Bank Guarantee (BG), the BG must be valid for minimum 210 days from the date of Technical bid opening.

(e) In case of extension of Bid Opening Date, Bid Security validity must be extended suitably by the bidder, as and when advised by OIL.

(f)The bidders must upload the Integrity Pact, digitally signed by the authorized signatory (who is authorized to sign the bid) along with the Technical Bid

8.0 Conditional bids are liable to be rejected at the discretion of the Company.

9.0 The work may be split up amongst more than one contractor at the sole discretion of the Company.

10.0 Before submission of bids, the bidder is advised to inspect the work site with permission from Head (Civil) or his representative, to assess the nature and extent of work and the conditions under which it will be carried out. He may also seek such clarification from this office as are deemed necessary.

11.0 The bidders should quote their rates against individual items. The rates shall be quoted within (+/-) 10% on the internal estimate against individual items as specified in Schedule of Works (Part-II) subject to the limit of overall percentage from at par to (+10%) of the internal estimated contract cost. However the bids with overall percentage quoted below at par and above (+10%) of the internal estimated cost will be rejected outright. The rates shall be in figures and up to two decimal places only. In case of any identical situation, the L-1 bidder will be decided through draw of lots.

12.0 The bidders are required to furnish the composition and status of ownership of the firm in whose name bid documents have been purchased/issued along with one or more of the following documentary evidences (which are applicable to the bidder) in support of the same and scanned copies of the same should be uploaded along with the Un priced bid documents.

12.1 In case of Sole Proprietorship Firm, Copies of Telephone/Electricity/Mobile Bill, PAN card, latest Income Tax Return form indicating therein the name, business and residential address, E-mail and telephone numbers of the owner and copies of Service Tax and Central Excise Registration Certificate.

12.2 In case of HUF, Copies of Telephone/Electricity/Mobile Bill, PAN card, latest Income Tax Return form, Family Arrangement indicating therein the name, residential address, E-mail and telephone numbers of the owners in general and Karta in particular and copies of Service Tax and Central Excise Registration Certificate.

12.3 In case of Partnership Firm, Copies of Telephone/Electricity/Mobile Bill, PAN card, latest Income Tax Return form indicating therein the name, residential address, E-mail and telephone numbers of all the partners(including the Managing Partner), registered partnership agreement/deed and copies of Service Tax and Central Excise Registration Certificate.

12.4 In case of Co-Operative Societies, Copies of Telephone/Electricity/Mobile Bill, PAN card, latest Income Tax Return form indicating therein the name, residential address, E-mail and telephone numbers of all the Directors or persons who are at the helm of affairs, registration certificate from Registrar of Co-Operative Societies and copies of Service Tax and Central Excise Registration Certificate.

12.5 In case of Societies registered under the Societies Registration Act, Copies of Telephone/Electricity/Mobile Bill, PAN card, latest Income Tax Return form indicating therein the name, residential address, E-mail and telephone numbers of all the Directors or persons who are at the helm of affairs, registration certificate from the Registrar of the state and copies Service Tax and Central Excise Registration Certificate.

12.6 In case of Joint Stock Companies registered under the Indian Companies Act, Copies of Telephone/Electricity/Mobile Bill, PAN card, latest Income Tax Return form indicating therein the name, residential address, E-mail and telephone numbers of all the Directors or persons who are at the helm of affairs, Certificate of Incorporation from the Registrar of Companies, Memorandum and Articles and copies of Service Tax and Central Excise Registration Certificate.

12.7 In case of Trusts registered under the Indian Trust Act, Copies of Telephone/Electricity/Mobile Bill, PAN card, latest Income Tax Return form indicating therein the name, residential address, E-mail and telephone numbers of all the Trustee or persons who are at the helm of affairs, registration certificate from the Registrar of the state, Trust Deed and copies Service Tax and Central Excise Registration Certificate.

NOTE: Point no. 12.1 to 12.7 are not applicable for contractor who are already registered with OIL INDIA LIMITED.

13.0 The selected bidder will be required to enter into a formal contract, which will be based on their bid, i.e. O.I.L's Standard Form of Contract.

14.0 SECURITY DEPOSIT:

The successful bidder shall furnish a Performance Security Deposit in the form of Demand Draft / Banker's Cheque / Bank Guarantee as specified above before signing the formal contract. The Security Deposit will be refunded to the Contractor after satisfactory completion of the work, but a part or whole of which shall be used by the Company in realization of liquidated damages or claims, if any or for adjustment of compensation or loss due to the Company for any reason. This Security Money shall not earn any interest.

15.0 OIL INDIA LIMITED reserves the right to curtail / enhance the scope of the work stated above or cancel, if required.

16.0 The amount of retention money shall be released after 6 (six) months from the date of completion certified by the concerned department.

17.0 The work shall have to be started within seven days from the date of work order.

18.0 Time Schedule

The time allowed for completing the work will be reckoned from the date of issue of work order. Time is the essence of the Contract and failure on part of the contractor to complete the work within the stipulated time, shall entitle the Company to impose liquidated damages and / or penalty from the contractor as per terms of the Contract.

19.0 The contractor will be required to allow OIL officials to inspect the work site and documents in respect of the workers payment.

20.0 BACKING OUT BY BIDDER: In case any bidder withdraws their bid within the bid validity period, The Bid security will be forfeited and the party will be debarred for a period of 2(two) years from the date of withdrawal of bid.

21.0 BACKING OUT BY L-1 BIDDER AFTER ISSUE OF LOA: In case LOA issued is not accepted by the L1 bidder or the Performance Security is not submitted as per the terms of the contract within the time specified in the Bid Document, the bid security shall be forfeited and the bidder shall be debarred for 2 (two) years from the date of default.

22.0 FURNISHING FRAUDULENT INFORMATION/DOCUMENT: If it is found at any time that, a Bidder / Contractor has / had furnished fraudulent documents / information, the Bid Security / Performance Security shall be forfeited and the bidder / contractor shall be debarred for a period of three (03) years from the date of detection of such fraudulent act, besides legal action.

23.0 <u>Bidder(s) must also furnish the followings:</u>

a) NAME OF FIRM :

b) DETAIL POSTAL ADDRESS :

c) MOBILE / TELEPHONE NO :

d) E-MAIL ADDRESS :

e) FAX NO (If available) :

f) CONTACT PERSON :

g) VENDOR CODE (If available) :

24.0 <u>The tender will be governed by</u>:

a) Covering Letter.
b) Part - I - General Terms and Conditions for Works Contract. (GCC)
c) Part - II - Schedule of Work, Unit and Quantity (SOQ)
d) Part - III -Particular Specification, Special Terms, Conditions & Instructions of Contract (SCC)
e) Part- IV - SCPME
f) Part- V-Safety Measures
g) Part- VI –Integrity Pact
h) Bid Rejection Criteria & Bid Evaluation Criteria (BRC/BEC).

i) Special Note:

Please note that all tender forms and supporting documents are to be submitted on-line through OIL's E-Procurement site only except following documents which are to be submitted manually in sealed envelope super scribed with tender no. and due date at following address:

The Head Contracts,
Contracts Department,
Oil India Limited,
Duliajan- 786602, Assam

Bidders are requested to examine all instructions, forms, terms and specifications in the bid. Failure to furnish all information required as per the bid or submission of offers not substantially responsive to the bid in every respect will be at the bidders risk and may result in the rejection of its offer without seeking any clarifications. Offers sent without the requisite value of prescribed Bid Security (if called for in the bid) in original will be ignored straightway.

25.0 The tender is invited under SINGLE STAGE-TWO BID SYSTEM. The bidder has to submit both the "TECHNICAL" and "PRICED" bid through electronic form in the OIL's e-Tender portal within the Bid Closing Date and Time stipulated in the e-Tender. The Technical Bid is to be submitted as per Scope of Work & Technical Specification of the tender. The Price Bid rates shall be quoted per unit as specified in the "Price Bidding Format" attached just below the "Tendering text" in the main bidding engine of OIL's e-Tender Portal. The price quoted in the "Price Bidding Format" will only be considered for evaluation.

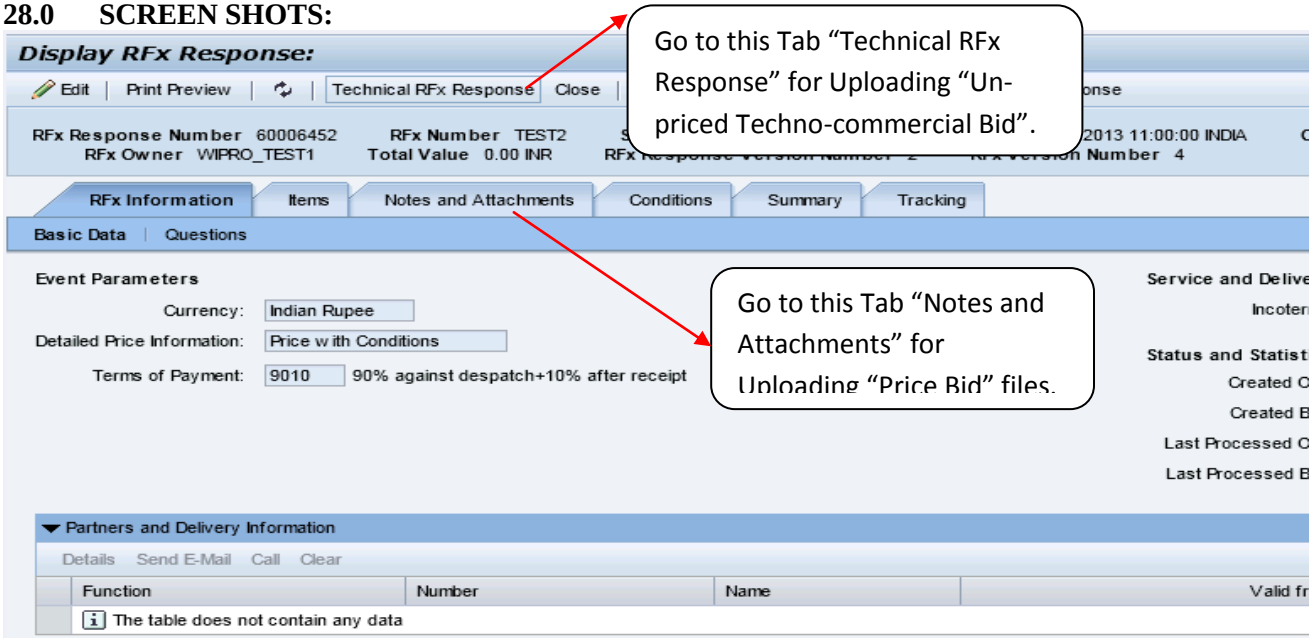
26.0 In Technical Bid opening, only Technical RFX (Technical-Folder) will be opened. Therefore, the bidder should ensure that Technical bid is uploaded in the Technical - Folder link (Technical RFX link) under Un-priced Bid Tab Page only. *No price should be given in above* Technical RFX *, otherwise the offer will be rejected.* Please go through the help document provided in OIL's e-Portal, in detail before uploading the document.

NB: All the Bids must be Digitally Signed using "Class 3" digital signature certificate with Organization's Name *(e-commerce application)* as per Indian IT Act obtained from the licensed Certifying Authorities operating under the Root Certifying Authority of India (RCAI), Controller of Certifying Authorities (CCA) of India.

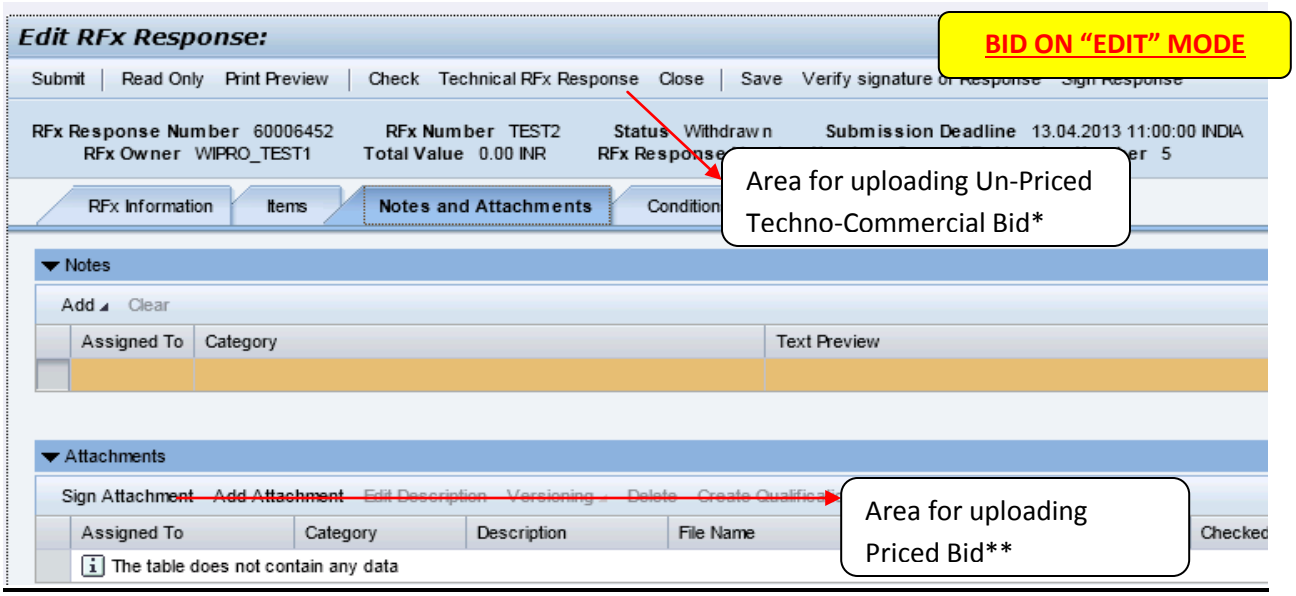
27.0 The Integrity Pact is applicable against this tender:
OIL shall be entering into an Integrity Pact with the bidders as per format enclosed vide "Part-VI Integrity Pact" of the tender document. This Integrity Pact proforma has been duly signed digitally by OIL's competent signatory. The proforma has to be returned by the bidder (along with the technical bid) duly signed (digitally) by the same signatory who sign the bid, i.e., who is duly authorized to sign the bid. Any bid not accompanied by Integrity Pact Proforma duly signed (digitally) by the bidder shall be rejected straightway. Uploading the Integrity Pact with digital signature will be construed that all pages of the Integrity Pact has been signed by the bidder's authorized signatory who sign the Bid.

(**Note:** Shri Rajiv Mathur, IPS (Retd.), Former Director, IB, Govt. of India, E-Mail ID: rajivmathur23@gmail.com have been appointed as Independent External Monitors).

28.0 SCREEN SHOTS:



On "EDIT" Mode- The following screen will appear. Bidders are advised to Upload "Un-priced Techno-Commercial Bid" and "Priced Bid" in the places as indicated below:



Note :

* The "Techno-Commercial Unpriced Bid" shall contain all techno-commercial details **except the prices**.

** The "Price bid" must contain the price schedule and the bidder's commercial terms and conditions. For uploading Price Bid, first click on Sign Attachment, a browser window will open, select the file from the PC and click on Sign to sign the Price Bid. On Signing a new file with extension .SSIG will be created. Close that window. Next click on Add Atachment, a browser window will open, select the .SSIG signed file from the PC and name the file under Description, Assigned to General Data and click on OK to save the File.

29.0 OIL now looks forward to your active participation in the IFB.

HEAD-CONTRACTS
For RESIDENT CHIEF EXECUTIVE

PART-I GCC

OIL INDIA LIMITED
(A Govt. of India Enterprise)
Contracts Department,
Duliajan, DISTRICT: DIBRUGARH
ASSAM, PIN: 786602

Works Contract

DESCRIPTION OF WORK/SERVICES: -Construction of Three Storied CSR Activity Complex Building adjacent to HTPC Complex, Duliajan including supply of all materials except Cement.

GENERAL CONDITIONS OF CONTRACT (GCC)

MEMORANDUM OF AGREEMENT made this_____ day of _____ Between OIL INDIA LIMITED a Company incorporated under the Companies Act 1956 and having its Registered Office at Duliajan in the District of Dibrugarh, Assam (hereinafter called Company) of the one part and Shri/Smti _____and Shri/Smti _____ carrying on business as partners /proprietor under the firm name and style of M/s._____ with the main Office at _____in the District of _____ aforesaid (hereinafter called 'Contractor') on the other part.

WITNESSETH:

1. a) The contractor hereby agrees to carry out the work set down in the Schedule of work which forms part-II of this Contract in accordance with the 1968 General Conditions of Contract of Oil India Limited and General Specifications read in conjunction with any drawings and Particular Specifications & instructions which forms Part-III of the contract utilizing any materials/services as offered by the Company as per Part-IV of the contract at_____ .

b) In this Contract all words and expressions shall have the same meaning as are respectively assigned to them in the 1968 General Conditions of Contract of Oil India Limited which the Contractor has perused and is fully conversant with before entering into this Contract.

c) The clauses of this contract and of the specifications set out hereunder shall be paramount and in the event of anything herein contained being inconsistent with any term or terms of the 1968 General Conditions of Contract of Oil India Limited, the said term or terms of the 1968 General conditions of Contract to the extent of such inconsistency, and no further, shall not be binding on the parties hereto.

2. The contractor shall provide all labour, supervision and transport and such specified materials described in part-II of the Contract including tools and plants as necessary for the work and shall be responsible for all royalties and other levies and his rates shall include for these. The work executed and materials supplied shall be to the satisfaction of the Company's Engineer and Contractor's rates shall include for all incidental and contingent work which although not specifically mentioned in this contract are necessary for its completion in a sound and workman like manner.

3. The Company's Engineer shall have power to:

a) Reduce the rates at which payments shall be made if the quality of work although acceptable is not up to the required standard set forth in the OIL Standard Specifications which have been perused and fully understood by the Contractor.

b) Order the Contractor to remove any inferior material from the site and to demolish or rectify any work of inferior workmanship, failing which the Company's Engineer may arrange for any such work to be demolished or rectified by any other means at the Contractor's expenses.

c) Order the Contractor to remove or replace any workman who he (The Engineer) considers incompetent or unsuitable; the Engineer's opinion as to the competence and suitability of any workman engaged by the Contractor shall be final and binding on the Contractor.

d) Issue to the Contractor from time to time during the progress of the work such further drawings and instructions as shall be necessary for the purpose of proper and adequate execution and maintenance of the works and the Contractor shall carry out and be bound by the same.

e) Order deviations in Part II and III of this Contract. All such deviation orders shall be in writing and shall show the financial effect, if any, of such deviation and whether any extra time is to be allowed. The rates to be applied for such Deviation Order shall be the same for those appearing in Company's Schedule of Rate in force on the date of issue of such Deviation Order, to which the contractor has no objection.

4. The Contractor shall have no claim against the company in respect of any work which may be withdrawn but only for work actually completed under this contract. The contractor shall have no objection to carry out work in excess of the quantities stipulated in Part-II. During the actual execution of the contract, if any, additional items (deviation items) are required, which are not covered in the tender, payment of such items shall be made at the current OIL schedule of rate. In case of positive variation in quantity of any items for the quantity mentioned in the schedule of work during the actual execution of work, the contractor will have to carry out the positive varied quantity at the contract rate, or internally estimated rate whichever is lower.

5. The Company reserves the right to cancel this Contract at any time upon full payment of work done and the value of the materials collected by the contractor for permanent incorporation in the work under this contract particularly for execution of this contract up to the date of cancellation of the Contract. The valuation of the work done and the materials collected shall be estimated by the company's Engineer in presence of the contractor. The Contractor shall have no claim to any further payment whatsoever. The valuation would be carried out exparte if Contractor fails to turn up despite reasonable notice which will be binding on the Contractor.

6. The Contractor hereby undertakes to indemnify the Company against all claims which may arise under the under noted Acts:-

i) The Mines Act.
ii) The Minimum Wages Act, 1948.
iii) The Workman's Compensation Act, 1923.
iv) The Payment of wages Act, 1963.
v) The Payment of Bonus Act, 1965.
vi) The Contract Labour (Regulation & Abolition) Act, 1970 and the rules framed there under.
vii) Employees Pension Scheme, 1995.
viii) Inter-State Migrant (Regulation of Employment and Condition of Service) Act. 1979.
ix) The Employees Provident Fund and Miscellaneous Provisions Act, 1952.
x) AGST Act.
xi) Service Tax Act.

or any other Acts or Statute not here in above specifically mentioned having bearing over engagement of workers directly or indirectly for execution of work. The Contractor shall not make the Company liable to

reimburse the Contractor for the statutory increase in the wage rates of the Contract Labour appointed by the Contractor. Such Statutory increase in the wage rates of Contract Labour shall be borne by the contractor.

7. The Contractor shall clear away all rubbish and surplus material from the site on completion of work and shall leave the site clean and tidy.

8. The Contractor must complete the work within 102 weeks of the written order to commence work. During the currency of the job, the work progress must be commensurate with the time elapsed. In the event of any delay on the contractor's part, he/she will be liable to pay to the company liquidated damages at the rate of 1/2% (Half p.c) per week of the contract price of the item(s) delayed in completion and the maximum value of the liquidated damage will be 7.5% of the contract price of the item(s) delayed provided the item(s) delayed are not critical for commissioning and final utilization of the work. If, however, the item(s) delayed in completion are critical for commissioning and final utilisation of the work then the contractor will be liable to pay liquidated damages by way of penalty at the rate of 1/2% (Half percent) per week of delay of the total contract cost subject to a maximum of 7.5% of total contract cost.

The Chief Engineer's certificate as to the criticality or otherwise of an item shall be final.
The payment of liquidated damages/penalty may be reduced or waived at the sole discretion of the Company whose decision in this regard will be final.
In the event of there being undue delay in execution of the Contract, the Company reserves the right to cancel the Contract and / or levy such additional damages as it deems fit based on the actual loss suffered by the company attributable to such delay. The company's decision in this regard shall be final.

9. In order to promote, safeguard and facilitate the general operational economic in the interest of the Company during the continuance of this contract the Contractor hereby agrees and undertakes not to take any direct or indirect interest and or support, assist, maintain or help any person or persons engaged in antisocial activities, demonstration, riots , or in any agitation prejudicial to the Company's interest and any such even taking shape or form at any place of the Company's works or and its neighbourhood.

10. The tendered all-inclusive Price (i.e. the Contract price) is ` _____ ***(Not to be filled up by bidder while submitting the offer in c-Folder. This figure will be filled up by OIL at the time of award of the contract to the successful bidder.)*** (` _____ only.)
but the Company shall pay the Contract or only for actual work done at the all inclusive rates set down in the Schedule of work part II of this Contract.

On account payment may be made, not oftener than monthly, up to the amount of 92.5% of the value of work done. Final payment will be made only after satisfactory completion of the work . Such final payment shall be based on the work actually done allowing for deviations and any deductions and the measurement shall be checked and certified correct by the Company's Engineer before any such final payment is made.

11. The contractor employing 20 (twenty) or more workmen on any day preceding 12 months shall be required to obtain requisite licence at his cost from the appropriate Licensing Officer before undertaking any Contract work. The Contractor shall also observe the rules & regulations framed under the Contract Labour (Regulation & Abolition) Act.

12. Wages shall be paid by the Contractor to the workmen directly without any intervention of any Jamadars or Thekaders and that the Contractor shall ensure that no amount by way of commission or otherwise be deducted/ recovered by the Jamadar from the wages of the workmen.

13. The Company for any reason whatsoever and of which the company shall be sole judge may terminate this Contract with a 24 hours notice in writing to the Contractor and in the event of Company's so doing the clause 5 here of shall prevail and the accounts between the parties will be in accordance therewith finalised.

14. The Contractor will not be allowed to construct any structure (for storage / housing purpose) with thatch, bamboo or any other inflammable materials within any company's fenced area.

15. The Contractor shall ensure that all men engaged by him/her are provided with appropriate protective clothing and safety wear in accordance with regulation 89(a) and 89(b) in the Oil mines Regulations 1984. The Company's representative shall not allow/accept those men who are not provided with the same.

16. All Statutory taxes levied by the Central and State Government or any other competent authority from time to time will be borne by Contractor and the amount of the contract specified in the contract is inclusive of all tax liabilities.

17. The Contractor shall deploy local persons in all works.

18. The Contractor shall not engage minor labour below 18(eighteen) years of age under any circumstances.

19. The Contractor and his/her workmen shall strictly observe the rules and regulations as per Mines Act. (latest editions).

20. **Special Conditions**

a) The amount of retention money shall be released after 6(six) months from the date of issue of completion certificate from concerned department.

b) The contractor will be required to allow OIL Officials to inspect the work site and documents in respect of the workers' payment.

c) Contractor(s) whosoever is liable to be covered under the P.F. Act and contract cost is inclusive of P.F., must ensure strict compliance of provisions of Provident Fund and Miscellaneous Provisions Act, 1952 in addition to the various Acts mentioned elsewhere in this contract. Any contractor found violating these provisions will render themselves disqualified from any future tendering. As per terms of the contract, if applicable, the Contractor must deposit Provident Fund Contribution (covering Employee's & Employer's share) with the competent authority monthly under their direct code. The Contractor shall be required to submit documentary evidence of deposit of P.F. Contribution to the Company. In case of failure to provide such documentary evidence, the Company reserves the right to withhold the amount equivalent to applicable P.F. Contribution.

d) In case P.F. is not included in the contract cost and later on required to be deposited by the Contractor, the same will be reimbursed on production of documentary evidence of depositing the same to the authority concerned. 12% P.F. will be applicable on the wage component of the contract cost The following points are incorporated in the contract based on Contractor's declaration at the time of submission of offer against this contract.

(i) 12% P.F. is included / not included in the contract cost.
(ii) Wage component of the contract cost is _____ %.

e) As per Service Tax Act, the contractors are required to furnish service Tax Invoices Containing the following details:

(i) Name, address and registration No of the contractor

(ii)Name and address of the service recipient i.e. OIL

(iii)Description and value of taxable services and the service Tax payable thereon

Note: In absence of Service Tax invoices, Service Tax will not be reimbursed and the consequences of the same shall entirely rest upon the Contractors

The Contractor shall have to submit Invoice of Service Tax as per the following Format:

Format of Invoice (As per Rule 4A (1) of the Service Tax Rule's 1994)

TAX INVOICE

Name of the Service Provider.....

Address of the Service Provider.....

Service Tax Regn. No of the service provider.....

Name & address of the Service Receiver
Oil India Limited, Duliajan, Assam

Invoice Serial No.....
Invoice Date.....

Particulars	Amount (Rs)
Description of the service provided or agreed to be provided (e.g. AMC Bill against Contract No.....for the period.....)	A
Add service Tax 14 % on (A) above(In case of taxable value of service is not 100%, than specify the value of taxable service and apply 14 % of the qualifying amount) (e.g. if the value of service is only 40%, than service tax should be calculated at 14% on 40% of the value declared at (A) above.)	B
Total amount (Including service Tax) (A + B)	C
Less: Service Tax Payable by Oil India Limited under reverse charge	D
Net Bill Amount	E

Signature of Proprietor/partner

21. ARBITRATION:

Any dispute under this contract will be settled through Arbitration as per Indian Arbitration and Conciliation Act, 1996.

Place of Arbitration:

22. FORCE MAJEURE:

Force Majeure (exemption) Clause of the International Chamber of Commerce (ICC Publication No. 421) is hereby incorporated in this contract.

23. I.B. VERIFICATION REPORT AND SECURITY REVIEW:

Contractor will be required to submit the verification report to ascertain character and antecedents from the Civil Administration towards the persons engaged under this contract to the Head of the user Department before engagement.

24. In case of any doubt or dispute as to the interpretation of any clause herein contained, the decision of the Company's Engineer shall be final and binding on the contractor.

25. SET OFF CLAUSE:-

"Any sum of money due and payable to the contractor (including Security Deposit refundable to them) under this or any other contract may be appropriated by Oil India Limited and set off against any claim of Oil India Limited (or such other person or persons contracting through Oil India Limited) for payment of a sum of money arising out of this contract or under any other contract made by the contractor with Oil India Limited (or such other person or persons contracting through Oil India Limited)."

26.0 FURNISHING FRAUDULENT INFORMATION/DOCUMENT:

If it is found that a Bidder/Contractor has furnished fraudulent document/information, the Bid Security/ Performance Security shall be forfeited and the party shall be debarred for period of 3(three) years from date of detection of such fraudulent act, besides the legal action.

27.0 LIQUIDATED DAMAGES FOR DELAY IN MOBILISATION AND/ OR COMPLETION OF WORKS AND SERVICES

27.1 In normal case of works /service contracts, liquidated damages will be applicable @ 0.5% of the contract value per week or part thereof, for delay in contract mobilization /completion date subject to a maximum ceiling of 7.5% of contract value .

IN WITNESS whereof the parties hereunto set their hands seals the day and year first written above:-

SIGNED & DELIVERED FOR AND
ON BEHALF OF
By the hand of

It's Partner/Legal Attorney

And in presence of

Date: _____

(Signature of Contractor or his legal Attorney)
(Full Name of Signatory)

(Seal of Contractor's Firm)

(Signature of witness)

(Full Name of Signatory)
Address:

(Signature of Acceptor)

SIGNED & DELIVERED FOR & ON
BEHALF OF OIL INDIA LIMITED
Date_____

Designation _____

Part-II SOQ

OIL INDIA LIMITED
(A Govt. of India Enterprise)
Duliajan, Assam
WORKS CONTRACT

E-Tender No.: CDI8869P16

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
	Group A SEC-A				
10	:Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50m and lift upto 1.5m, disposed earth to be levelled and neatly dressed. All kinds of soil	337.60	M3	INR	144.96
20	:Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	337.60	M3	INR	93.91
30	Supplying and filling in plinth with sand under floors including, watering, ramming consolidating and dressing complete(cost of sand will be paid separately). (Ref From CPWD SOR 2012 Item No. 2.27)	1142.79	M3	INR	897.21
40	Supplying chemical emulsion in sealed containers including delivery as specified.Chlorpyriphos/ Lindane emulsifiable concentrate of 20% (Ref From CPWD SOR 2012 Item No. 2.34.1)	250.00	L	INR	208.39
50	:Diluting and injecting chemical emulsion for POST-CONSTRUCTIONAL anti-termite treatment (excluding the cost of chemical emulsion) :Along external wall where the apron is not provided using chemical emulsion @ 7.5 litres / sqm of the vertical surface of the substructure to a depth of 300 mm including excavation channel along the wall & rodding etc. complete With Chlorpyriphos/ Lindane E.C. 20% with 1% concentration.	339.00	M	INR	13.24
60	:Diluting and injecting chemical emulsion for POST-CONSTRUCTIONAL anti-termite treatment (excluding the cost of chemical emulsion) :Along the external wall below concrete or masonry apron using chemical emulsion @ 2.25 litres per linear metre including drilling and plugging holes etc.With Chlorpyriphos/ Lindane E.C. 20% with 1% concentration.	542.40	M	INR	19.83

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
70	Treatment at points of contact of wood work by chemical emulsion Chlorpyriphos/ Lindane (in oil or kerosene based solution) @ 0.5 litres per hole by drilling 6 mm dia holes at downward angle of 45 degree at 150 mm centre to centre and sealing the same. (Ref From CPWD SOR 2012 Item No. 2.35.5)	312.00	M	INR	143.17
80	Providing & laying in position cement concrete of specified grade excluding the cost of centring and shuttering - All work upto plinth level: 1:3:6 (1 Cement: 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) (Ref From CPWD SOR 2012 Item No. 4.1.5)	28.03	M3	INR	3708.41
90	Providing & laying damp-proof course 40mm thick with cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone aggregate 12.5mm nominal size). (Ref From CPWD SOR 2012 Item No. 4.10)	174.14	M2	INR	173.19
100	Extra for providing and mixing water proofing material in cement concrete work in doses by weight of cement as per manufacturer's specification(Rate:Per bag i.e. 50 kg of cement) (Ref From CPWD SOR 2012 Item No. 4.12)	8.00	KG	INR	39.62
110	Making plinth protection 50mm thick of cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) over 75mm bed of dry brick ballast 40mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth.	339.00	M2	INR	367.46
120	Providing & laying in position specified grade of reinforced cement concrete excluding the cost of centring, shuttering, finishing and reinforcement - All work upto plinth level : 1:1.5:3 (1 cement: 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size) (Ref From CPWD SOR 2012 Item No. 5.1.2	167.67	M3	INR	3676.59
130	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts etc. upto floor five level excluding cost of centring, shuttering, finishing and reinforcement: 1:1.5:3 (1 cement: 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size) (Ref From CPWD SOR 2012 Item No. 5.2.2)	179.31	M3	INR	4394.86

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
140	Reinforced cement concrete work in beams, suspended floors, roofs having slope upto 15° landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases upto floor five level excluding the cost of centring, shuttering, finishing and reinforcement with 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size). (Ref From CPWD SOR 2012 Item No. 5.3)	829.21	M3	INR	4672.05
150	Centring and shuttering including strutting, propping etc. and removal of form for : Foundations, footings, bases of columns, etc. for mass concrete. (Ref From CPWD SOR 2012 Item No. 5.9.1)	617.97	M2	INR	187.04
160	Centring and shuttering including strutting, propping etc. and removal of form for: Suspended floors, roofs, landings, balconies and access platform. (Ref From CPWD SOR 2012 Item No. 5.9.3)	2695.21	M2	INR	348.76
170	Centring and shuttering including strutting, propping etc. and remova of form for: Lintels, beams, plinth beams, girders, bressumers and cantilevers. (Ref From CPWD SOR 2012 Item No. 5.9.5)	2122.22	M2	INR	293.90
180	Centring and shuttering including strutting, propping etc. and removal of form for: Columns, Pillars, Piers, Abutments, Posts and Struts.(Ref From CPWD SOR 2012 Item No. 5.9.6)	1044.43	M2	INR	409.73
190	:Centring and shuttering including strutting, propping etc and removal or form tor: Stairs, (excluding landings) except spiral-staircases. (Ref From CPWD SOR 2012 Item No. 5.9.7)	201.85	M2	INR	365.68
200	Centring and shuttering including strutting, propping etc. and removal of form for : Vertical and horizontal fins individually or forming box louvers band, facias and eaves boards. (Ref From CPWD SOR 2012 Item No. 5.9.13)	118.80	M2	INR	526.84
210	Centring and shuttering including strutting, propping etc. and removal of form for : Edges of slabs and breaks in floors and walls. Under 20 cm wide(Ref From CPWD SOR 2012 Item No. 5.9.16.1)	59.96	M	INR	111.45
220	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. Thermo-Mechanically Treated bars. (Ref From CPWD SOR 2012 Item No. 5.22.6)	160027.74	KG	INR	69.76

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
230	Providing & filling in position, blown bitumen in expansion joints.(per cm depth per cm width per 100m) (Ref From CPWD SOR 2012 Item No. 5.26)	65.50	PCD	INR	585.73
240	Brick work with F.P.S. bricks of class designation 75 in foundation and plinth in: Cement mortar 1:4 (1 cement : 4 coarse sand) (Ref From CPWD SOR 2012 Item No. 6.1.1)	42.55	M3	INR	5145.42
250	Half brick masonry with F.P.S. bricks of class designation 75 in superstructure above plinth level up to floor V level. Cement mortar 1:4 (1 cement :4 coarse sand) (Ref From CPWD SOR 2012 Item No. 6.13.2)	5637.34	M2	INR	675.58
260	Wood work in frames of doors, windows, clerestory windows and other frames, wrought framed and fixed in position :Second class teak wood (Ref From CPWD SOR 2012 Item No. 9.1.1	5.09	M3	INR	96170.63
270	Providing & fixing ISI marked flush door shutters conforming to IS : 2202 (Part I) decorative type, core of block board construction with frame of 1 st class hard wood and well matched teak 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters.35mm thick including ISI marked Stainless Steel butt hinges with necessary screws. (Ref From CPWD SOR 2012 Item No. 9.20.1)	48.12	M2	INR	2419.65
280	Providing & fixing ISI marked flush door shutters conforming to IS : 2202 (Part I) non-decorative type, core of block board construction with frame of 1 st class hard wood and well matched commercial 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters:35mm thick including ISI marked Stainless Steel butt hinges with necessary screws. (Ref From CPWD SOR 2012 Item No. 9.21.1)	24.04	M2	INR	1768.80

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
290	Providing & fixing to existing door frames. :25mm thick PVC flush door shutters made out of a one piece Multi chamber extruded PVC section of the size of 762mm X 25mm or less as per requirement with an average wall thickness of 1mm ± 0.3mm. PVC foam end cap of size 23x10mm are provided on both vertical edges to ensure the overall thickness of 25mm. An M.S. tube having dimensions 19mm x 19mm is inserted along the hinge side of the door. Core of the door shutter should be filled with High Density Polyurethane foam. The Top & Bottom edges of the shutter are covered with an end-cap of the size 25mm x 11mm. Door shutter shall be reinforced with special polymeric reinforcements as per manufactures' specification and direction of Engineer-in-Charge to take up necessary hardware and fixtures. Stickers indicating the locations of hardware will be pasted at appropriate places (Ref From CPWD SOR 2012 Item No. 9.118.3)	84.20	M2	INR	2801.92
300	Providing & fixing IS : 12817 marked stainless steel butt hinges with stainless steel screws etc. complete: 125x64x1.90mm (Ref From CPWD SOR 2012 Item No. 9.70.1)	96.00	EA	INR	64.61
310	Providing & fixing IS : 12817 marked stainless steel butt hinges with stainless steel screws etc. complete: 100X58X1.90mm (Ref From CPWD SOR 2012 Item No. 9.70.2)	6.00	EA	INR	56.71
320	Providing & fixing IS : 12817 marked stainless steel butt hinges with stainless steel screws etc. complete: 75x47x1.80mm (Ref From CPWD SOR 2012 Item No. 9.70.3)	159.00	EA	INR	38.44
330	Providing & fixing bright finished brass tower bolts (barrel type) with necessary screws etc. complete: 200x10mm (Ref From CPWD SOR 2012 Item No. 9.74.2)	34.00	EA	INR	245.77
340	:Providing & fixing bright finished brass tower bolts (barrel type) with necessary screws etc. complete: 100x10mm (Ref From CPWD SOR 2012 Item No. 9.74.4)	140.00	EA	INR	131.74
350	Providing & fixing bright finished brass 100mm mortice latch and lock with 6 levers and a pair of lever handles with necessary screws etc. complete (best make of approved quality). (Ref From CPWD SOR 2012 Item No. 9.76)	37.00	EA	INR	529.25

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
360	Providing & fixing bright finished brass handles with screws etc. complete: 100mm (Ref From CPWD SOR 2012 Item No. 9.81.2)	106.00	EA	INR	170.18
370	Providing & fixing bright finished brass hanging type floor door stopper with necessary screws, etc. complete. (Ref From CPWD SOR 2012 Item No. 9.82)	34.00	EA	INR	82.26
380	Providing & fixing in position collapsible steel shutters with vertical channels 20x10x2mm and braced with flat iron diagonals 20x5mm size with top and bottom rail of T-iron 40x40x6mm with 40mm dia, steel pulleys complete with bolts, nuts, locking arrangement, stoppers, handles, including applying a priming coat of approved steel primer. (Ref From CPWD SOR 2012 Item No. 10.3)	25.45	M2	INR	4745.32
390	Steel work in built up tubular trusses including cutting, hoisting fixing in position and applying a priming coat of approved steel primer, welded and bolted including special shaped washers etc. complete.Hot finished welded type tubes. (Ref From CPWD SOR 2012 Item No. 10.16.1)	25831.60	KG	INR	95.37
400	Providing & fixing M.S. fan clamp type l or ll of 16mm dia M.S. bar bent to shape with hooked ends in R.C.C. slabs, beams during laying including painting the exposed portion of loop, all as per standard design complete. (Ref From CPWD SOR 2012 Item No. 10.17)	150.00	EA	INR	119.13
410	Providing & fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing and stair case railing including applying a priming coat of approved steel primer.E.R.W. tubes. (Ref From CPWD SOR 2012 Item No. 10.26.2)	4216.70	KG	INR	123.22
420	Providing & fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing and stair case railing including applying a priming coat of approved steel primer.G.I. pipes. (Ref From CPWD SOR 2012 Item No. 10.26.3)	1250.00	KG	INR	104.56

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
430	52mm thick cement concrete flooring with concrete hardener topping under layer 40mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) and top layer 12mm thick cement hardener consisting of mix 1:2 (1 cement hardener mix : 2 graded stone aggregate 6mm nominal size) by volume. Hardening compound is mixed @ 2 litre per 50kg of cement or as per manufacturers specifications. This includes cost of cement slurry, but excluding the cost of nosing of steps etc. complete. (Ref From CPWD SOR 2012 Item No. 11.4)	1144.00	M2	INR	345.61
440	Cement plaster skirting (up to 30cm height) with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement.18mm thick. (Ref From CPWD SOR 2012 Item No. 11.6.1)	686.43	M2	INR	179.20
450	Kota stone slab flooring over 20mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab including rubbing and polishing complete with base of cement mortar 1: 4 (1 cement : 4 coarse sand) :25mm thick. (Ref From CPWD SOR 2012 Item No. 11.26.1)	807.50	M2	INR	939.68
460	Kota stone slabs 25mm thick in risers of steps, skirting, dado and pillars laid on 12mm (average) thick cement mortar 1:3 (1 cement 3 coarse sand) and jointed with grey cement slurry mixed with pigment to match the shade of the slabs, including rubbing and polishing complete (Ref From CPWD SOR 2012 Item No. 11.27)	188.59	M2	INR	964.68
470	:Providing & fixing 1st quality ceramic glazed wall tiles conforming to IS : 15622 (thickness to be specified by the manufacturer) of approved make in all colours, shades except burgundy, bottle green, black of any size as approved by Engineer-in-Charge in skirting, risers of steps and dados over 12mm thick bed of cement Mortar 1:3 (1 cement : 3 coarse sand) and jointing with grey cement slurry @ 3.3kg per sqm including pointing in white cement mixed with pigment of matching shade complete. (Ref From CPWD SOR 2012 Item No. 11.36)	747.36	M2	INR	732.51

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
480	:Providing & laying Ceramic glazed floor tiles 300x300mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in colours such as White, Ivory, Grey, Fume Red Brown, laid on 20mm thick cement Mortar 1:4 (1 cement : 4 Coarse sand) including pointing the joints with white cement and matching pigment etc., complete. (Ref From CPWD SOR 2012 Item No. 11.37)	176.71	M2	INR	757.02
490	Providing & laying vitrified floor tiles in different sizes (thickness to be specified by the manufacturer) with water absorption's less than 0.08% and conforming to IS : 15622 of approved make in all colours and shades, laid on 20mm thick cement mortar 1:4 (1 cement : 4 coarse sand) including grouting the joints with white cement and matching pigments etc., complete.Size of Tile 60x60cm (Ref From CPWD SOR 2012 Item No. 11.41.2)	940.21	M2	INR	1397.86
500	12mm cement plaster of mix:1:4 (1 cement : 4 fine sand) (Ref From CPWD SOR 2012 Item No. 13.1.1)	6369.21	M2	INR	100.89
510	15mm cement plaster on the rough side of single or half brick wall of mix:1:4 (1 cement : 4 fine sand) (Ref From CPWD SOR 2012 Item No. 13.2.1)	7488.02	M2	INR	115.83
520	12mm thick plain cement mortar bands in cement mortar 1:4 (1 cement : 4 fine sand) :Flush Band (Rate:cm per metre) (Ref From CPWD SOR 2012 Item No. 13.28.1)	3500.00	M	INR	2.25
530	12mm thick plain cement mortar bands in cement mortar 1:4 (1 cement : 4 fine sand) :Sunk Band (cm per metre) (Ref From CPWD SOR 2012 Item No. 13.28.2)	4500.00	M	INR	2.47
540	12mm thick plain cement mortar bands in cement mortar 1:4 (1 cement : 4 fine sand) :Raised Band (cm per metre) (Ref From CPWD SOR 2012 Item No. 13.28.3)	3525.00	M	INR	2.83
550	12mm thick plain cement mortar bands in cement mortar 1:4 (1 cement : 4 fine sand) :Moulded Band (cm per metre) (Ref From CPWD SOR 2012 Item No. 13.28.4)	3500.00	M	INR	3.93

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
560	:For shutters of doors, windows & ventilators , fixing hinges / pivots and making provision for fixing of fittings wherever required including the cost of PVC / neoprene gasket required (Fittings shall be paid for separately).Anodised aluminium (anodised transparent or dyed to required shade according to IS: 1868, Minimum anodic coating of grade AC 15) (Ref From CPWD SOR 2012 Item No. 21.1.2.1)	4537.51	KG	INR	347.92
570	Providing & fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with PVC / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer-in-Charge. (Cost of aluminium snap beading shall be paid in basic item):With float glass panes of 5.50mm thickness (Ref From CPWD SOR 2012 Item No. 21.3.2)	502.25	M2	INR	1015.07
580	Providing & fixing glazing in aluminium door, window, ventilator shutters and partitions etc. with PVC / neoprene gasket etc. complete as per the architectural drawings and the directions of Engineer-in-Charge. (Cost of aluminium snap beading shall be paid in basic item):With float glass panes of 8mm thickness (Ref From CPWD SOR 2012 Item No. 21.3.3)	5.57	M2	INR	1376.00
590	Providing & fixing double action hydraulic floor spring of approved brand and manufacture IS : 6315 marked, for doors including cost of cutting floors as required, embedding in floors and cover plates with brass pivot and single piece M.S. sheet outer box with slide plate etc. complete as per the direction of Engineer-in-Charge.With stainless steel cover plate (Ref From CPWD SOR 2012 Item No. 21.4.1)	4.00	EA	INR	2188.84
600	Providing & Applying of white cement based putty of average thickness 1 mm, of approved brand and manufacturer, over the plastered wall surface to prepare the surface even and smooth complete (Ref From CPWD SOR 2012 Item No. 13.80)	15538.90	M2	INR	85.23
610	Providing & applying one coat of cement primer of approved brand and manufacture on wall surface:Cement primer (Ref From CPWD SOR 2012 Item No. 13.43.1)	15538.90	M2	INR	30.88

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
620	Wall painting with acrylic emulsion paint, having VOC (Volatile Organic Compound)content less than 50 grams/ litre, of approved brand and manufacture, including applying additional coats wherever required, to achieve even shade and colour: Two Coats (Ref From CPWD SOR 2012 Item No. 13.82.2)	12540.14	M2	INR	63.43
630	Providing & finishing walls with Acrylic Smooth exterior paint of required shade: New work (Two or more coat applied @ 1.67 ltr/10 sqm over and including base coat of water proofing cement paint applied @ 2.20 kg/10 sqm). (Ref From CPWD SOR 2012 Item No. 13.46.1)	2998.76	M2	INR	75.65
640	Painting wood work with Deluxe Multi Surface Paint of required shade. Two or more coat applied @ 0.90 ltr/10 sqm over an under coat of primer applied @ 0.75 ltr/ 10 sqm of approved brand or manufacture (Ref From CPWD SOR 2012 Item No. 13.48.2)	481.95	M2	INR	75.87
650	Painting Steel work with Deluxe Multi Surface Paint to give an even shade. Two or more coat applied @ 0.90 ltr/10 sqm over an under coat of primer applied @ 0.80 ltr/ 10 sqm of approved brand or manufacture (Ref From CPWD SOR 2012 Item No. 13.48.3)	2424.75	M2	INR	78.90
660	Providing & applying priming coat: With ready mixed pink or Grey primer of approved brand and manufacture on wood work (hard and soft wood) (Ref From CPWD SOR 2012 Item No. 13.50.1)	481.95	M2	INR	28.97
670	Painting (two or more coats) on rain water, soil, waste and vent pipes and fittings with synthetic enamel paint over a priming coat of steel primer on new work.100mm diameter pipes (Ref From CPWD SOR 2012 Item No. 13.56.1)	995.00	M	INR	32.39

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
680	Prov.& fixing precoated galvanized iron profile sheets 0.50mm (+0.05%) TCT Zinc coating 120gsm as per IS: 277 in 240mpa steel grade, 5-7 mic. epoxy primer and polyester top coat 15-18 mic. Sheet shall be fixed using self drilling/tapping screws with EPDM seal complete upto any pitch in any surfaces excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required and directed by Engineer-in-chrge. (Ref. from CPWD SOR 2012 Item No. 12.50).	1937.37	M2	INR	674.38
690	Prov.& fixing PGSS roofing accessories 0.50 mm + 5% TCT, Zinc coating 120gsm as per IS:277 in 240mpa steel grade, 5-7 mic. epoxy primer on both side of the sheet and polyester top coat 15-18 microns using self drilling/ self tapping screws or with polymer coated J or L hooks, bolts and nuts and or G.I. seam bolts and nuts, G.I. plain and bitumen washers complete : Ridges plain (500 - 600mm). (Ref From CPWD SOR 2012 Item No. 12.51.1)	283.00	M	INR	695.67
700	Providing & fixing precoated galvanised steel sheet roofing accessories 0.50 mm + 5% total coated thickness (TCT), Zinc coating 120gsm as per IS: 277 in 240mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns using self drilling/ self tapping screws or with polymer coated J or L hooks, bolts and nuts and or G.I. seam bolts and nuts, G.I. plain and bitumen washers complete : Barge board (Upto 300 mm). (Ref From CPWD SOR 2012 Item No. 12.51.4)	277.50	M	INR	635.49
710	Providing & fixing insulating board ceiling of approved quality with necessary nails etc. complete (framework to be paid separately):White face insulating board- 12 mm thick.(Ref From CPWD SOR 2012 Item No. 12.24.2.1)	1265.00	M2	INR	698.42

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
720	Providing & fixing powder coated aluminium work (minimum thickness of powder coating 50 micron) consisting of tee / angle sections, of approved make conforming to IS : 733 in frames of false ceiling including aluminium angle cleats with necessary C.P. brass / stainless steel sunk screws, aluminium perimeter angles fixed to wall with rawl plugs @ 450mm centre to centre and fixing the frame work to G.I. level adjusting hangers 6mm dia. with necessary cadmium plated machine screws all complete as per approved architectural drawings and direction of the Engineer-in-Charge (level adjusting hangers, ceiling cleats and expansion hold fasteners to be paid for separately). (Ref From CPWD SOR 2012 Item No. 12.5)	1375.00	KG	INR	521.63
730	Providing & fixing 18mm thick gang saw cut (mirror polished premoulded and prepolished) machine cut for kitchen platforms, vanity counters, window sills , facias and similar locations of required size of approved shade, colour and texture laid over 20mm thick base cement mortar 1:4 (1 cement : 4 coarse sand) with joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edge to give high gloss finish etc. complete at all levels.Granite of any colour and shadeArea of slab over 0.50 sqm Ref From CPWD SOR 2012 Item No. 8.2.2.2)	95.00	M2	INR	3371.43
740	Extra for stone work for wall lining on exterior walls of height more than 10m from ground level for every additional height of 3 m or part there of. (Ref From CPWD SOR 2012 Item No. 7.39)	260.00	M2	INR	73.80

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
750	Providing & laying water proofing treatment on roofs of slabs by applying cement slurry mixed with water proofing cement compound consisting of applying: a) after surface preparation, first layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. b) laying second layer of fibre glass cloth when the first layer is still green. Overlaps of joints of fibre cloth should not be less than 10cm. c) third layer of 1.5mm thickness consisting of slurry of cement @ 1.289 kg/sqm mixed with water proofing cement compound @ 0.670 kg/sqm and coarse sand @ 1.289 kg/sqm. This will be allowed to air cure for 4 hours followed by water curing for 48 hours. The entire treatment will be taken upto 30cm on parapet wall and tucked into groove in parapet all around. d) fourth and final layer of brick tiling with cement mortar (which will be paid for separately. For the purpose of measurement the entire treated surface will be measured). (Ref From CPWD SOR 2012 Item No. 22.6)	52.00	M2	INR	349.10
760	Providing & fixing G.I. pipes complete with G.I. fittings and clamps, including cutting and making good the walls etc. 15mm dia. nominal bore. (Ref From CPWD SOR 2012 Item No. 18.10.1)	260.00	M	INR	181.11
770	:Providing & fixing G.I. pipes complete with G.I. fittings and clamps, including cutting and making good the walls etc. 25mm dia. nominal bore (Ref From CPWD SOR 2012 Item No. 18.10.3)	24.00	M	INR	272.5
780	:Providing & fixing G.I. pipes complete with G.I. fittings and clamps, including cutting and making good the walls etc. 50mm dia. nominal bore.(Ref From CPWD SOR 2012 Item No. 18.10.6)	424.00	M	INR	508.41
790	:Concealed pipe including painting with anti corrosive bitumastic paint, cutting chases and making good the wall:15mm dia. nominal bore.(Ref From CPWD SOR 2012 Item No. 18.11.1)	1430.00	M	INR	256.75
800	:Providing & fixing G.I. pipes complete with G.I. fittings including trenching and refilling etc. :15mm dia. nominal bore. (Ref From CPWD SOR 2012 Item No. 18.12.1)	75.00	M	INR	159.42

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
810	:Providing & fixing G.I. pipes complete with G.I. fittings including trenching and refilling etc. :50mm dia. nominal bore.(Ref From CPWD SOR 2012 Item No. 18.12.6)	64.00	M	INR	398.91
820	Providing & fixing C.P. brass long nose bib cock of approved quality conforming to IS standards and weighing not less than 810 gms. 15mm nominal bore. (Ref From CPWD SOR 2012 Item No. 18.50.1)	55.00	EA	INR	461.06
830	Providing & fixing C.P. brass stop cock (concealed) of standard design and of approved make conforming to IS:8931.15mm nominal bore. (Ref From CPWD SOR 2012 Item No. 18.52.1)	60.00	EA	INR	478.03
840	Providing and fixing C.P. brass angle valve for basin mixer and geyser points of approved quality conforming to IS:893115mm nominal bore (Ref From CPWD SOR 2012 Item No. 18.53.1)	30.00	EA	INR	503.59
850	Providing & fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :25mm nominal bore (Ref From CPWD SOR 2012 Item No. 18.17.1)	15.00	EA	INR	417.97
860	Providing & fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :50mm nominal bore (Ref From CPWD SOR 2012 Item No. 18.17.4)	15.00	EA	INR	874.82
870	Providing & fixing ball valve (brass) of approved quality, High or low pressure, with plastic floats complete: 15mm nominal bore. (Ref From CPWD SOR 2012 Item No. 18.18.1)	15.00	EA	INR	289.20
880	Providing & fixing gun metal non-return valve of approved quality (screwed end) : 25mm nominal boreHorizontal (Ref From CPWD SOR 2012 Item No. 18.19.1.1)	10.00	EA	INR	429.73
890	Providing & fixing gun metal non-return valve of approved quality (screwed end) : 25mm nominal boreVertical (Ref From CPWD SOR 2012 Item No. 18.19.1.2)	8.00	EA	INR	442.73
900	Providing & fixing gun metal non-return valve of approved quality (screwed end) : 40mm nominal bore Horizontal. (Ref From CPWD SOR 2012 Item No. 18.19.3.1)	10.00	EA	INR	695.11

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
910	Providing & fixing gun metal non-return valve of approved quality (screwed end) : 40mm nominal bore Vertical. (Ref From CPWD SOR 2012 Item No. 18.19.3.2)	10.00	EA	INR	916.40
920	Providing & fixing gun metal non-return valve of approved quality (screwed end) : 50mm nominal bore Horizontal . (Ref From CPWD SOR 2012 Item No. 18.19.4.1)	4.00	EA	INR	1049.37
930	Providing & fixing gun metal non-return valve of approved quality (screwed end) : 50mm nominal bore Vertical. (Ref From CPWD SOR 2012 Item No. 18.19.4.2)	4.00	EA	INR	1244.59
940	:Providing & fixing brass ferrule with C.I. mouth cover including boring and tapping the main: 15mm nominal bore. (Ref From CPWD SOR 2012 Item No. 18.20.1)	75.00	EA	INR	227.84
950	:Providing & fixing G.I. Union in G.I. pipe including cutting and threading the pipe and making long screws etc. complete (New work) 15mm nominal bore Ref From CPWD SOR 2012 Item No. 18.46.1)	360.00	EA	INR	134.04
960	Constructing masonry chamber 30x30x50cm, inside with 75 class designation brick work in cement mortar 1:4 (1 cement :4 coarse sand) for stop cock, with C.I. surface box 100x100x75mm (inside) with hinged cover fixed in cement concrete slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) necessary excavation foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12mm thick finished with a floating coat of neat cement complete as per standard design:With F.P.S. bricks (Ref From CPWD SOR 2012 Item No. 18.32.1)	24.00	EA	INR	1018.66
970	Boring with 100mm diameter casing pipe for hand pump / tube well in all soils except ordinary hard rocks requiring blasting including removing the casing pipe after the hand pipe/tube well is lowered and tested:Beyond 12 m and up to 18 m depth. (Ref From CPWD SOR 2012 Item No. 18.42.3)	18.00	EA	INR	402.50
980	Providing & placing in position filters of 40mm diameter G.I. pipe with brass strainer of approved quality. (Ref From CPWD SOR 2012 Item No. 18.43)	9.60	M	INR	537.10

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
990	Providing & fixing to filter and lowering to proper levels 40mm G.I. pipe for tube well including cleaning and priming the tube well. (Ref From CPWD SOR 2012 Item No. 18.44)	21.60	M	INR	308.36
1000	Providing & placing in position hand pump of approved quality for 40mm diameter G.I. pipe complete with all accessories. (Ref From CPWD SOR 2012 Item No. 18.45)	2.00	EA	INR	822.09
1010	Providing & placing on terrace (at all floor levels) polyethylene water storage tank ISI : 12701 marked with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank (Ref From CPWD SOR 2012 Item No. 18.48)	10000.00	L	INR	6.84
1020	Providing & fixing PTMT swivelling shower, 15mm nominal bore, weighing not less than 40gms. (Ref From CPWD SOR 2012 Item No. 18.64)	46.00	EA	INR	126.36
1030	Providing & fixing PTMT Soap Dish Holder having length of 138mm, breadth 102mm, height of 75mm with concealed fitting arrangements, weighing not less than 106 gms. (Ref From CPWD SOR 2012 Item No. 18.65)	55.00	EA	INR	169.34
1040	Providing & fixing PTMT pillar cock of approved quality and colour. 15mm nominal bore, 107mm long, weighing not less than 110 gms.(Ref From CPWD SOR 2012 Item No. 18.56.1)	9.00	EA	INR	226.66
1050	Providing & fixing PTMT grating of approved quality and colour. Circular type. 100mm nominal dia. (Ref From CPWD SOR 2012 Item No. 18.58.1.1)	50.00	EA	INR	48.41
1060	Cutting holes up to 15x15cm in R.C.C. floors and roofs for passing drain pipe etc. and repairing the hole after insertion of drain pipe etc. with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) including finishing complete so as to make it leak proof.(Ref From CPWD SOR 2012 Item No. 18.77)	44.00	EA	INR	161.32

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
1070	Providing & fixing P.V.C. waste pipe for sink or wash basin including PVC. waste fittings complete. Flexible pipe: 40mm dia. (Ref From CPWD SOR 2012 Item No. 18.28.2.2)	10.00	EA	INR	75.76
1080	:Providing & fixing mirror of superior glass (of approved quality) and of required shape and size with plastic moulded frame of approved make and shade with 6mm thick hard board backing:Circular shape 450mm dia. (Ref From CPWD SOR 2012 Item No. 17.32.1)	15.00	EA	INR	819.57
1090	Providing & fixing toilet paper holder: C.P. brass (Ref From CPWD SOR 2012 Item No. 17.34.1)	24.00	EA	INR	281.24
1100	Providing & fixing water closet squatting pan (Indian type W.C. pan) with 100mm Sand Cast Iron P or S trap, 10 litre low level white P.V.C. flushing cistern with manually controlled device (handle lever) conforming to IS : 7231, with all fittings and fixtures complete including cutting and making good the walls and floors wherever required: White Vitreous china Orissa pattern W.C. pan of size 580x440mm with integral type foot rests. (Ref From CPWD SOR 2012 Item No. 17.1.1)	10.00	EA	INR	3321.87
1110	Providing & fixing white vitreous china pedestal type water closet (European type W.C. pan) with seat and lid, 10 litre low level white P.V.C. flushing cistern with manually controlled device (handle lever), conforming to IS : 7231, with all fittings and fixtures complete including cutting and making good the walls and floors wherever required:W.C. pan with ISI marked white solid plastic seat and lid (Ref From CPWD SOR 2012 Item No. 17.2.1)	18.00	EA	INR	3233.33
1120	Providing & fixing wash basin with C.I. brackets, 15mm C.P. brass pillar taps,32mm C.P. brass waste of standard pattern, including painting of fittings and brackets, cutting and making good the walls wherever require:White Vitreous China Wash basin size 630x450mm with a pair of 15mm C. P. brass pillar taps. (Ref From CPWD SOR 2012 Item No. 17.7.1)	22.00	EA	INR	2071.45
1130	Providing & fixing white vitreous china pedestal for wash basin completely recessed at the back for the reception of pipes and fittings. (Ref From CPWD SOR 2012 Item No. 17.8)	8.00	EA	INR	1002.69

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
1140	Providing & fixing kitchen sink with C.I. brackets, C.P. brass chain with rubber plug, 40mm C.P. brass waste complete, including painting the fittings and brackets, cutting and making good the walls wherever required:White glazed fire clay kitchen sink of size 600x450x250mm. (Ref From CPWD SOR 2012 Item No. 17.9.1)	4.00	EA	INR	2473.33
1150	Providing & fixing Stainless Steel A ISI 304 (18/8) kitchen sink as per IS 13983 with C.I. brackets and stainless steel plug 40mm including painting of fittings and brackets, cutting and making good the walls wherever required:Kitchen sink with drain board :510x1040mm bowl depth 250mm.(Ref From CPWD SOR 2012 Item No. 17.10.1.1)	2.00	EA	INR	7557.50
1160	Providing & fixing 600x120x5mm glass shelf with edges round of supported on anodised aluminium angle frame with C.P. brass brackets and guard rail complete fixed with 40mm long screws, rawl plugs etc., complete. (Ref From CPWD SOR 2012 Item No. 17.33)	6.00	EA	INR	382.44
1170	Providing & fixing soil, waste and vent pipes: 100mm dia.Sand cast iron S&S pipe as per IS: 1729. (Ref From CPWD SOR 2012 Item No. 17.35.1.1)	564.00	M	INR	822.93
1180	Providing & filling the joints with spun yarn cement slurry and cement mortar 1:2 (1 cement : 2 fine sand) in S.C.I. / C.I. Pipes:100mm dia pipe. (Ref From CPWD SOR 2012 Item No. 17.36.2)	244.00	EA	INR	62.76
1190	Providing & fixing bend of required degree with access door, insertion rubber washer 3mm thick, bolts and nuts complete100mm:Sand cast iron S&S as per IS - 1729 (Ref From CPWD SOR 2012 Item No. 17.38.1.1)	36.00	EA	INR	347.75
1200	Providing & fixing plain bend of required degree. 100mm:Sand cast iron S&S as per IS - 1729 (Ref From CPWD SOR 2012 Item No. 17.39.1.1)	44.00	EA	INR	299.56
1210	Providing & fixing heel rest sanitary bend 100mm dia:Sand cast iron S&S as per IS - 1729 . (Ref From CPWD SOR 2012 Item No. 17.40.1.1)	24.00	EA	INR	337.33

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
1220	Providing & fixing double equal junction of required degree with access door, insertion rubber washer 3mm thick, bolts and nuts complete:100x100x100x100mm :Sand cast iron S&S as per IS - 1729. (Ref From CPWD SOR 2012 Item No. 17.41.1.1)	28.00	EA	INR	734.11
1230	Providing & fixing double equal plain junction of required degree. 100x100x100x100mm:Sand cast iron S&S as per IS - 1729.(Ref From CPWD SOR 2012 Item No. 17.42.1.1)	24.00	EA	INR	664.07
1240	Providing & fixing door piece, insertion rubber washer 3mm thick, bolts & nuts complete: 100mm:Sand cast iron S&S as per IS - 1729. (Ref From CPWD SOR 2012 Item No. 17.55.1.1)	24.00	EA	INR	500.06
1250	Providing & fixing terminal guard: 100mm:Sand cast iron S&S as per IS - 1729 (Ref From CPWD SOR 2012 Item No. 17.56.1.1)	34.00	EA	INR	269.64
1260	:Providing & fixing collar: 100mm:Sand cast iron S&S as per IS - 1729 (Ref From CPWD SOR 2012 Item No. 17.57.1.1)	60.00	EA	INR	199.32
1270	Lead caulked joints to sand cast iron/centrifugally cast (spun) iron pipes and fittings of diameter: 100mm (Ref From CPWD SOR 2012 Item No. 17.58.1)	48.00	EA	INR	232.94
1280	Providing & fixing M.S. stays and clamps for sand cast iron/centrifugally cast (spun) iron pipes of diameter: 100mm. (Ref From CPWD SOR 2012 Item No. 17.59.1)	120.00	EA	INR	69.15
1290	Painting sand cast iron / centrifugally cast (spun) iron soil, waste vent pipes and fittings with paint of any colour such as chocolate grey, or buff etc. over a coat of primer (of approved quality) for new work: 100mm diameter pipe (Ref From CPWD SOR 2012 Item No. 17.65.1)	745.00	M	INR	32.22
1300	Providing & fixing PTMT towel ring trapezoidal shape 215mm long, 200mm wide with a minimum distances of 37mm from wall face with concealed fittings arrangement of approved quality and colour, weighing not less than 88 gms. (Ref From CPWD SOR 2012 Item No. 17.72)	52.00	EA	INR	190.35
1310	Providing & fixing 100 mm diameter and 60 cm long rain water spout in cement mortar 1:4 (1 cement: 4 fine sand) (Ref From CPWD SOR 2012 Item No. 12.37.1)	24.00	EA	INR	76.32

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
1320	Providing & fixing M.S. holder bat clamps of approved design to C.I. or S.C.I, rain water pipes embedded in and including cement concrete blocks 10x10x 10cm of 1:2:4 mix (1 cement: 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) and cost of cutting holes and making good the walls etc. :100 mm dia (Ref From CPWD SOR 2012 Item No. 12.38.1)	180.00	EA	INR	126.08
1330	Providing & fixing on wall face unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A including jointing with seal ring conforming to IS :5382 leaving 10 mm gap for thermal expansion, (i) Single socketed pipes-110 mm dia. (Ref From CPWD SOR 2012 Item No. 12.41.2)	340.00	M	INR	231.87
1340	Providing & fixing on wall face unplasticised - PVC moulded fittings/ accessories for unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A including jointing with seal ring conforming to IS : 5382 leaving 10 mm gap for thermal expansion.-coupler 110 mm- (Ref From CPWD SOR 2012 Item No. 12.42.1.2)	42.00	EA	INR	145.97
1350	Providing & fixing on wall face unplasticised - PVC moulded fittings/ accessories for unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A including jointing with seal ring conforming to IS : 5382 leaving 10 mm gap for thermal expansion.Single push fit Coupler-110 mm.(Ref From CPWD SOR 2012 Item No. 12.42.2.2)	44.00	EA	INR	183.74
1360	Providing & fixing on wall face unplasticised - PVC moulded fittings/ accessories for unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A including jointing with seal ring conforming to IS : 5382 leaving 10 mm gap for thermal expansion.Single tee with door-110x110x110 mm.(Ref From CPWD SOR 2012 Item No. 12.42.3.2)	46.00	EA	INR	338.51
1370	Providing & fixing on wall face unplasticised - PVC moulded fittings/ accessories for unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A including jointing with seal ring conforming to IS : 5382 leaving 10 mm gap for thermal expansion.Single tee without door-75 mm X 75 mmX 75 mm. (Ref From CPWD SOR 2012 Item No. 12.42.4.1)	24.00	EA	INR	206.99

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
1380	Providing& fixing on wall face unplasticised - PVC moulded fittings/ accessories for unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A including jointing with seal ring conforming to IS : 5382 leaving 10 mm gap for thermal expansion.-Bend 87.5°-110 mm Bend (Ref From CPWD SOR 2012 Item No. 12.42.5.2)	146.00	EA	INR	175.89
1390	:Providing & fixing on wall face unplasticised - PVC moulded fittings/ accessories for unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A including jointing with seal ring conforming to IS : 5382 leaving 10 mm gap for thermal expansion.-Shoe (Plain)-110 mm Shoe (Ref From CPWD SOR 2012 Item No. 12.42.6.2)	23.00	EA	INR	321.70
1400	Constructing brick masonry chamber for underground C.I. inspection chamber and bends with 75 class designation bricks in cement mortar 1:4 (1 cement : 4 coarse sand) C.I. cover with frame (light duty) 455x610mm internal dimensions, total weight of cover with frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg) R.C.C. top slab with 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40mm nominal size), inside plastering 12mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished smooth with a floating coat of neat cement on walls and bed concrete etc. complete as per standard design:Inside dimensions 455x610mm and 45cm deep for single pipe line:With F.P.S. bricks (Ref From CPWD SOR 2012 Item No. 19.30.1.1)	16.00	EA	INR	4390.51
1410	:Making soak pit 2.5 m diameter 3.0 metre deep with 45 x 45cm dry brick honey comb shaft with bricks of class designation 75 and S.W. drain pipe 100mm diameter, 1.8 m long complete as per standard design.:With F.P.S. bricks (Ref From CPWD SOR 2012 Item No. 19.32.1)	2.00	EA	INR	17066.19
1420	Cutting chases in brick masonry walls for following diameter sand cast iron / centrifugally cast (spun) iron pipes and making good the same with cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 12.5mm nominal size) including necessary plaster and pointing in cement mortar 1:4 (1 cement : 4 coarse sand) :100mm dia. (Ref From CPWD SOR 2012 Item No. 17.61.1)	44.00	M	INR	282.53

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
	GROUP A SECTION B				
10	:Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50m and lift upto 1.5m, disposed earth to be levelled and neatly dressed. All kinds of soil	472.50	M3	INR	144.96
20	:Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	307.13	M3	INR	93.91
30	Providing & laying in position cement concrete of specified grade excluding the cost of centring and shuttering - All work upto plinth level: 1:2:4 (1 Cement: 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) (Ref SOR CPWD 2012 Item No. 4.1.3)	15.12	M3	INR	3573.18
40	Providing & laying in position specified grade of reinforced cement concrete excluding the cost of centring, shuttering, finishing and reinforcement - All work upto plinth level : 1:1.5:3 (1 cement: 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size) (Ref SOR CPWD 2012 Item No. 5.1.2)	65.18	M3	INR	3676.59
50	:Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts etc. upto floor five level excluding cost of centring, shuttering, finishing and reinforcement: 1:1.5:3 (1 cement: 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size). (Ref SOR CPWD 2012 Item No. 5.2.2)	6.30	M3	INR	4394.86
60	Centring and shuttering including strutting, propping etc. and removal of form for : Foundations, footings, bases of columns, etc. for mass concrete. (Ref SOR CPWD 2012 Item No. 5.9.1)	126.00	M2	INR	187.04

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
70	Centring and shuttering including strutting, propping etc. and remova of form for: Lintels, beams, plinth beams, girders, bressumers and cantilevers. (Ref SOR CPWD 2012 Item No. 5.9.5)	264.60	M2	INR	293.90
80	Centring and shuttering including strutting, propping etc. and removal of form for: Columns, Pillars, Piers, Abutments, Posts and Struts.(Ref SOR CPWD 2012 Item No. 5.9.6)	168.00	M2	INR	409.73
90	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. Thermo-Mechanically Treated bars. (Ref SOR CPWD 2012 Item No. 5.22.6)	7040.29	KG	INR	69.76
100	Brick work with F.P.S. bricks of class designation 75 in foundation and plinth in: Cement mortar 1:4 (1 cement : 4 coarse sand). (Ref SOR CPWD 2012 Item No. 6.1.1)	169.16	M3	INR	5145.42
110	Half brick masonry with F.P.S. bricks of class designation 75 in superstructure above plinth level up to floor V level. Cement mortar 1:4 (1 cement :4 coarse sand) (Ref SOR CPWD 2012 Item No. 6.13.2)	793.80	M2	INR	675.58
120	Steel work welded in built up sections / framed work including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer using structural steel etc. as required.In gratings, frames, guard bar, ladder, railings, brackets, gates and similar works. (Ref SOR CPWD 2012 Item No. 10.25.2)	865.00	KG	INR	87.30
130	15mm cement plaster on the rough side of single or half brick wall of mix:1:4 (1 cement : 4 fine sand). (Ref SOR CPWD 2012 Item No. 13.2.1)	970.20	M2	INR	115.83
140	15mm cement plaster on rough side of single or halfbrick wall finished with a floating coat of neat cement of mix :1:4 (1 cement : 4 fine sand). (Ref SOR CPWD 2012 Item No. 13.8.2)	970.20	M2	INR	136.36
150	Providing & applying one coat of cement primer of approved brand and manufacture on wall surface:Cement primer. (Ref SOR CPWD 2012 Item No. 13.43.1)	1940.40	M2	INR	30.88

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
160	Providing & finishing walls with water proofing cement paint of required shade: New work (Two or more coats applied @ 3.84 kg/10 sqm). (Ref SOR CPWD 2012 Item No. 13.44.1)	1940.40	M2	INR	50.38
170	Painting Steel work with Deluxe Multi Surface Paint to give an even shade. Two or more coat applied @ 0.90 ltr/10 sqm over an under coat of primer applied @ 0.80 ltr/ 10 sqm of approved brand or manufacture (Ref SOR CPWD 2012 Item No. 13.48.3)	250.00	M2	INR	78.90
180	Providing & applying priming coat: With ready mixed aluminium primer of approved brand and manufacture on resinous wood and plywood (Ref SOR CPWD 2012 Item No. 13.50.2)	250.00	M2	INR	27.68
190	:Erection of barbed wire fencing including digging holes, fixing posts, stringing and fixing barbed wire with posts, including concrete work on post base. Fencing with 5 to 6 lines of barbed wire fixed on post @ 2.50M intervals. Height upto 2.50 M .	2976.75	M2	INR	26.38
200	Galvanised steel barbed wire	4.00	QTL	INR	5799.62
	GROUP A SECTION C				
10	CONSTRUCTION OF 150 MM (CONSOLIDATED) GRANULAR SUB-BASE consolidated by dry rolling to proper grade including providing well compacted berms with earth on either side 1.2m wide levelled with finished road surface, dressing sub-grade including cutting surface upto 75mm deep to required level and as per clause 401(Road roller supplied by company}.	1460.00	M2	INR	58.51
20	CONSTRUCTION OF WATER BOUND MACADAM base course 100mm thick (Wearing course) and Surfacing Course (sealing coat) with loose hand broken metal of size 63mm and graded down to 45mm rolled dry to proper compaction, grade and camber and wet rolling after placing bindage of loamy earth and finally sealing the compacted surface with a 25mm thick layer of sand shingles (Ref. to MoRTH Spec.404) and as directed as applied over new consolidated surface. (Road roller supplied by contractor).	1460.00	M2	INR	68.89

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
30	LABOUR FOR PRE-MIX CARPETING OF 20 mm THICK WITH CHIPS or pea-gravels and bitumen over a tack-coat after cleaning the road surface with wire brush, brush broom and fanning with gunny bag etc., heating the bitumen to proper temperature, mixing 12mm and 10mm size chips or pea gravels in the ratio 2:1 by volume, heating the aggregates suitably adding bitumen at 9.50Kg per 10 sq. m or 52Kg per cubic metre of 12mm chips or pea gravels and 5.10Kg per 10 sq. m or 56 Kg per cu. m of 10mm chips or pea gravels preferably by other mixer of approved type until the chippings or pea gravels are thoroughly coated with binder, spreading the pre-mix with rakes to the desired thickness and camber immediately after applying the tack coat over the existing bituminous surface(Tack coat will be paid seperately), checking the camber by templates, evening out irregularities and rolling the surface with a roller of 8 to 10 ton capacity, wetting the wheels of the roller to prevent premix from sticking and continuing rolling till the pre-mix is compacted. High and low spots observed are to be corrected by adding or removing pre-mix chippings or pea gravels, excess rolling to be avoided, including carriage of bitumen from company#s store or yard to the site of work, (T& P& Roadroller by Contractor &Bitumen supplied by company).i)Using other mixerofapprovedtype on Water Bound Macadam surface.	1460.00	M2	INR	39.40
40	Providing and applying primer coat with bitumen emulsion on prepared surface of granular Base including clearing of road surface and spraying primer at the rate of 0.60 kg/sqm using mechanical means including supply of bitumen emulsion by Contractor of approved quality.(For TENDER ITEM)	1460.00	M2	INR	27.90
50	Providing and applying tack coat with bitumen emulsion/bitumen using emulsion pressure distributor at the rate of 0.20 kg per sqm on the prepared bituminous/granular surface cleaned with mechanical broom including supply of bitumen emulsion/bitumen by Contractor of approved quality.(For TENDER ITEM).	1460.00	M2	INR	12.26
60	Providing and laying seal coat sealing the voids in a bituminous surface laid to the specified levels, grade and cross fall using Type A seal coats.(Road roller provided by Contractor).	1460.00	M2	INR	4.23

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
70	Supply of Local bricks- First Class	15706.00	NO	INR	8.20
80	Supply of approved quality granular materials from approved quarry, free from organic matter including stacking in measurable stacks as directed.	251.00	M3	INR	1227.14
90	Supply of Hand broken hard stone metal from river boulder fairly cubical in shape, free from dust/dirt disingrated pieces, organic and other foreign matters(63mm to 45mm graded)	183.00	M3	INR	1928.31
100	Supply of Broken stone(Boulder broken)(6mm graded down to 2mm), hard and clean .	20.00	M3	INR	1601.10
	GROUP A SECTION D				
10	:Trenching in ordinary soil up to a depth of 60cm including removal and stacking of serviceable materials and then disposing of by spreading and neatly levelling within a lead of 50m and making up the trenched area to proper levels by filling with earth or earth mixed with sludge or / and manure before and after flooding trench with water (excluding cost of imported earth, sludge or manure).	372.00	M3	INR	34.61
20	Supplying and stacking of good earth at site including royalty and carriage up to 1 km (earth measured in stacks will be reduced by 20% for payment). (Ref CPWD SOR 2012 Item No. 23.2)	310.00	M3	INR	292.17
30	:Rough dressing the trenched ground including breaking clods.	29575.00	M2	INR	0.67
40	:Fine dressing the ground.	29575.00	M2	INR	1.64
50	:Spreading of sludge, dump manure or/and good earth in required thickness (Cost of sludge, dump manure or / and good earth to be paid separately).	555.80	M3	INR	23.51
60	:Mixing earth and sludge or manure in proportion specified or directed.	666.25	M3	INR	16.08
70	:Grassing with 'Doob' grass including watering and maintenance of the lawn for 30 days or more till the grass forms a thick lawn free from weeds and fit for mowing including supplying good earth if needed (the good earth shall be paid for separately). In rows 15cm apart in either direction.	31000.00	M2	INR	7.85

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
80	:Preparation of beds for hedging and shrubbery by excavating 60cm deep and trenching the excavated base to a further depth of 30cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20% : one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50m lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately).	783.00	M3	INR	98.06
	GROUP A SECTION E				
10	:Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 50m and lift upto 1.5m, disposed earth to be levelled and neatly dressed. All kinds of soil	83.26	M3	INR	144.96
20	:Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	83.26	M3	INR	93.91
30	Supplying and filling in plinth with sand under floors including, watering, ramming consolidating and dressing complete(cost of sand will be paid separately). (Ref From CPWD 2012 SOR Item No.2.27)	49.50	M3	INR	897.21
40	Supplying chemical emulsion in sealed containers including delivery as specified.Chlorpyriphos/ Lindane emulsifiable concentrate of 20% (Ref From CPWD 2012 SOR Item No.2.34.1)	94.00	L	INR	208.39
50	:Diluting and injecting chemical emulsion for POST-CONSTRUCTIONAL anti-termite treatment (excluding the cost of chemical emulsion) :Along external wall where the apron is not provided using chemical emulsion @ 7.5 litres / sqm of the vertical surface of the substructure to a depth of 300 mm including excavation channel along the wall & rodding etc. complete With Chlorpyriphos/ Lindane E.C. 20% with 1% concentration.(Ref from CPWD 2012 SOR 2.35.1.1)	94.00	M	INR	19.84

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
60	Treatment at points of contact of wood work by chemical emulsion Chlorpyriphos/ Lindane (in oil or kerosene based solution) @ 0.5 litres per hole by drilling 6 mm dia holes at downward angle of 45 degree at 150 mm centre to centre and sealing the same. (Ref From CPWD 2012 SOR Item No.2.35.5)	44.00	M	INR	143.17
70	Providing & laying in position cement concrete of specified grade excluding the cost of centring and shuttering - All work upto plinth level: 1:2:4 (1 Cement: 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) (Ref From CPWD 2012 SOR Item No.4.1.3)	5.37	M3	INR	3573.18
80	Providing & laying damp-proof course 40mm thick with cement concrete 1:2:4 (1 cement: 2 coarse sand : 4 graded stone aggregate 12.5mm nominal size). Ref From CPWD 2012 SOR Item No.4.10)	11.25	M2	INR	173.19
90	Extra for providing and mixing water proofing material in cement concrete work in doses by weight of cement as per manufacturer's specification(Rate:Per bag i.e. 50 kg of cement). (Ref From CPWD 2012 SOR Item No.4.12)	5.50	KG	INR	39.62
100	Making plinth protection 50mm thick of cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) over 75mm bed of dry brick ballast 40mm nominal size well rammed and consolidated and grouted with fine sand including finishing the top smooth. (Ref From CPWD 2012 SOR Item No.4.17)	26.40	M2	INR	367.46
110	Providing & laying in position specified grade of reinforced cement concrete excluding the cost of centring, shuttering, finishing and reinforcement - All work upto plinth level : 1:1.5:3 (1 cement: 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size). (Ref From CPWD 2012 SOR Item No.5.1.2)	42.43	M3	INR	3676.59
120	Reinforced cement concrete work in walls (any thickness), including attached pilasters, buttresses, plinth and string courses, fillets, columns, pillars, piers, abutments, posts and struts etc. upto floor five level excluding cost of centring, shuttering, finishing and reinforcement: 1:1.5:3 (1 cement: 1.5 coarse sand : 3 graded stone aggregate 20 mm nominal size). (Ref From CPWD 2012 SOR Item No.5.2.2)	42.43	M3	INR	4394.86

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
130	Reinforced cement concrete work in beams, suspended floors, roofs having slope upto 15° landings, balconies, shelves, chajjas, lintels, bands, plain window sills, staircases and spiral stair cases upto floor five level excluding the cost of centring, shuttering, finishing and reinforcement with 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size). (Ref From CPWD 2012 SOR Item No.5.3)	18.51	M3	INR	4672.05
140	Centring and shuttering including strutting, propping etc. and removal of form for : Foundations, footings, bases of columns, etc. for mass concrete. (Ref From CPWD 2012 SOR Item No.5.9.1)	53.10	M2	INR	187.04
150	Centring and shuttering including strutting, propping etc. and removal of form for: Suspended floors, roofs, landings, balconies and access platform. (Ref From CPWD 2012 SOR Item No.5.9.3)	224.41	M2	INR	348.76
160	Centring and shuttering including strutting, propping etc. and remova of form for: Lintels, beams, plinth beams, girders, bressumers and cantilevers. (Ref From CPWD 2012 SOR Item No.5.9.5)	37.55	M2	INR	294.35
170	Centring and shuttering including strutting, propping etc. and removal of form for: Columns, Pillars, Piers, Abutments, Posts and Struts.(Ref From CPWD 2012 SOR Item No.5.9.6)	31.29	M2	INR	409.73
180	Centring and shuttering including strutting, propping etc. and removal of form for : Edges of slabs and breaks in floors and walls. Under 20 cm wide(Ref From CPWD 2012 SOR Item No.5.9.16.1)	4.55	M	INR	111.45
190	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. Thermo-Mechanically Treated bars. (Ref From CPWD 2012 SOR Item No.5.22.6)	8133.23	KG	INR	69.76
200	Brick work with F.P.S. bricks of class designation 75 in foundation and plinth in: Cement mortar 1:4 (1 cement : 4 coarse sand). (Ref From CPWD 2012 SOR Item No.6.1.1)	14.21	M3	INR	5145.42

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
210	Brick work with F.P.S. bricks of class designation 75 in superstructure above plinth level up to floor V level in all shapes and sizes in : Cement mortar 1:4 (1 cement : 4 coarse sand)(Ref From CPWD 2012 SOR Item No.6.4.1)	9.45	M3	INR	5772.55
220	Half brick masonry with F.P.S. bricks of class designation 75 in superstructure above plinth level up to floor V level. Cement mortar 1:4 (1 cement :4 coarse sand) (Ref From CPWD 2012 SOR Item No.6.13.2)	104.60	M2	INR	675.58
230	Wood work in frames of doors, windows, clerestory windows and other frames, wrought framed and fixed in position :Second class teak wood. (Ref From CPWD 2012 SOR Item No.9.1.1)	0.08	M3	INR	96170.97
240	Providing & fixing ISI marked flush door shutters conforming to IS : 2202 (Part I) decorative type, core of block board construction with frame of 1 st class hard wood and well matched teak 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters.35mm thick including ISI marked Stainless Steel butt hinges with necessary screws. (Ref From CPWD 2012 SOR Item No.9.20.1)	4.41	M2	INR	2419.65
250	Providing & fixing ISI marked oxidised M.S. sliding door bolts with nuts and screws etc. complete : 300x16mm (Ref From CPWD 2012 SOR Item No.9.62.1)	3.00	EA	INR	159.53
260	Providing & fixing bright finished brass door latch with necessary screws etc. complete:300x16x5mm (Ref From CPWD 2012 SOR Item No.9.75.1)	3.00	EA	INR	101.70
270	Providing & fixing bright finished brass hanging type floor door stopper with necessary screws, etc. complete. (Ref From CPWD 2012 SOR Item No.9.82)	1.00	EA	INR	82.26
280	Providing & fixing M.S. fan clamp type l or ll of 16mm dia M.S. bar bent to shape with hooked ends in R.C.C. slabs, beams during laying including painting the exposed portion of loop, all as per standard design complete. (Ref From CPWD 2012 SOR Item No.10.17)	2.00	EA	INR	119.13

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
290	Providing & fixing 1mm thick M.S. sheet door with frame of 40x40x6mm angle iron and 3mm M.S. gusset plates at the junctions and corners, all necessary fittings complete, including applying a priming coat of approved steel primer. Using M.S. angels 40x40x6mm for diagonal braces. (Ref From CPWD 2012 SOR Item No.10.5.1)	11.52	M2	INR	2859.41
300	Providing & fixing standard steel glazed doors, windows and ventilators in walls with 15x3mm lugs 10cm long embedded in cement concrete blocks 15x10x10cm of 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20mm nominal size) or with wooden plugs and screws or rawl plugs and screws or with fixing clips or with bolts and nuts as required, including fixing of float glass panes with glazing clips and special metal-sash putty of approved make, or metal beading with screws (only steel windows with lugs, glass panes cut to size and glazing clips or metal beading with screws, shall be supplied by department free of cost.) (Ref From CPWD 2012 SOR Item No.10.10.1)	115.20	KG	INR	30.88
310	52mm thick cement concrete flooring with concrete hardener topping under layer 40mm thick cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) and top layer 12mm thick cement hardener consisting of mix 1:2 (1 cement hardener mix : 2 graded stone aggregate 6mm nominal size) by volume. Hardening compound is mixed @ 2 litre per 50kg of cement or as per manufacturers specifications. This includes cost of cement slurry, but excluding the cost of nosing of steps etc. complete. (Ref From CPWD 2012 SOR Item No.11.4)	70.80	M2	INR	345.61
320	:Cement plaster skirting (up to 30cm height) with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement.18mm thick. (Ref From CPWD 2012 SOR Item No.11.6)	8.00	M2	INR	179.20
330	Providing & laying Ceramic glazed floor tiles 300x300mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in colours such as White, Ivory, Grey, Fume Red Brown, laid on 20mm thick cement Mortar 1:4 (1 cement : 4 Coarse sand) including pointing the joints with white cement and matching pigment etc., complete. (Ref From CPWD 2012 SOR Item No.11.37)	16.38	M2	INR	757.02

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
340	12mm cement plaster of mix:1:4 (1 cement : 4 fine sand) (Ref From CPWD 2012 SOR Item No.13.1.1)	230.12	M2	INR	100.89
350	15mm cement plaster on the rough side of single or half brick wall of mix:1:4 (1 cement : 4 fine sand) (Ref From CPWD 2012 SOR Item No.13.2.1)	329.98	M2	INR	115.83
360	:Distempering with oil bound washable distemper of approved brand and manufacture to give an even shade:New work (two or more coats) over and including priming coat with cement primer. (Ref From CPWD 2012 SOR Item No.13.41.1)	253.13	M2	INR	74.75
370	Providing & applying one coat of cement primer of approved brand and manufacture on wall surface:Cement primer. (Ref From CPWD 2012 SOR Item No.13.43.1)	88.00	M2	INR	30.88
380	Providing & finishing walls with water proofing cement paint of required shade: New work (Two or more coats applied @ 3.84 kg/10 sqm). (Ref From CPWD 2012 SOR Item No.13.44.1)	88.00	M2	INR	50.38
390	:Providing & finishing walls with Acrylic Smooth exterior paint of required shade: New work (Two or more coat applied @ 1.67 ltr/10 sqm over and including base coat of water proofing cement paint applied @ 2.20 kg/10 sqm). (Ref From CPWD 2012 SOR Item No.13.46.1)	88.00	M2	INR	75.65
400	Providing & painting wood work with Deluxe Multi Surface Paint of required shade. Two or more coat applied @ 0.90 ltr/10 sqm over an under coat of primer applied @ 0.75 ltr/ 10 sqm of approved brand or manufacture. (Ref From CPWD 2012 SOR Item No.13.48.2)	13.23	M2	INR	75.87
410	Providing & applying priming coat: With ready mixed pink or Grey primer of approved brand and manufacture on wood work (hard and soft wood). (Ref From CPWD 2012 SOR Item No.13.50.1)	13.23	M2	INR	28.97

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
420	Providing & fixing for shutters of doors, windows & ventilators , fixing hinges / pivots and making provision for fixing of fittings wherever required including the cost of PVC / neoprene gasket required (Fittings shall be paid for separately).Anodised aluminium (anodised transparent or dyed to required shade according to IS: 1868, Minimum anodic coating of grade AC 15) (Ref From CPWD 2012 SOR Item No.21.1.2.1)	55.00	KG	INR	455.56
430	Providing & laying water proofing treatment on roofs of slabs by applying cement slurry mixed with water proofing cement compound consisting of applying: a) after surface preparation, first layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/sqm. b) laying second layer of fibre glass cloth when the first layer is still green. Overlaps of joints of fibre cloth should not be less than 10cm. c) third layer of 1.5mm thickness consisting of slurry of cement @ 1.289 kg/sqm mixed with water proofing cement compound @ 0.670 kg/sqm and coarse sand @ 1.289 kg/sqm. This will be allowed to air cure for 4 hours followed by water curing for 48 hours. The entire treatment will be taken upto 30cm on parapet wall and tucked into groove in parapet all around. d) fourth and final layer of brick tiling with cement mortar (which will be paid for separately. For the purpose of measurement the entire treated surface will be measured).(Ref From CPWD 2012 SOR Item No.22.6)	26.40	M2	INR	349.10
	GROUP B SECTION A				
10	Wiring for light point /fan point / exhaust fan point /call bell point with 3 x 1.5 sq.mm FRLS PVC insulated copper conductor Single core cable in surface / recessed medium duty 20 mm PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm FR PVC insulated copper conductor single core cable etc as required.Concealed Point wiring includes laying of PVC conduit in the roof/Wall also. Make of cable: Finolex/Havell's/L&T/Polycab. Make of conduit: AKG/Plaza/Richa(BIS approved). Modular item: Legrand/Crabtree/L&T or approved by Dept	660.00	NO	INR	1285.00

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
20	Wiring for twin control light point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in sutface /recessed medium duty 20 mm PVC conduit , 2 way modular switch , modular plate , suitable GI Boxand earthing the point with 3 x 1.5 sq mm FRLS PVC insulated copper conductor single core cable etc as required.Concealed Point wiring includes laying of PVC conduit in the roof/Wall also. Make of cable: Finolex/Havell's/L&T/Polycab. Make of conduit: AKG/Plaza/Richa.(BIS approved) Modular item: Legrand/Crabtree/L&Tor approved by Dept.	10.00	NO	INR	1315.00
30	Power plug wiring in PVC conduit Wiring for light / power plug with 2x4 sq. mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium duty 25 mm PVC conduit alongwith 1 No 4 sq. mm FRLS PVC insulated copper conductor single core cable for loop earthing as required.Concealed Wiring includes laying of PVC conduit in the roof/Wall also. Make of cable: Finolex/Havell's/L&T/Polycab. Make of conduit: AKG/Plaza/Richa.(BIS approved)or approved by Dept.	1200.00	M	INR	315.00
40	Wiring for circuit / submain wiring alongwith earth wire with the 2x2.5 sq mm + 1x2.5 sq mm earth wire of FRLS PVC insulated copper conductor, single core cable in surface / recessed medium duty 25mm PVC conduit as required.Concealed wiring includes laying of PVC conduit in the roof/Wall also. Make of cable: Finolex/Havell's/L&T. Make of conduit: AKG/Plaza/Richa(BIS approved).or approved by Dept.	1310.00	M	INR	254.00
50	Wiring for circuit / submain wiring along with earth wire with the 4x4 sq mm + 2x4 sq mm earth wire of FRLS PVC insulated copper conductor, single core cable in surface / recessed medium duty FR PVC conduit as required.Concealed wiring includes laying of 25 mm PVC conduit in the roof/Wall also. Make of cable: Finolex/Havell's/L&T. Make of conduit: AKG/Plaza/Richa(BIS approved) .or approved by Dept.	1895.00	M	INR	514.00

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
60	Circuit/submain wiring in PVC conduit : Wiring for circuit/submain wiring alongwith earth wire with the 4x10 sq mm + 2x10 sq mm earth wire of FRLS PVC insulated copper conductor, single core cable in surface/recessed medium duty 40 mm PVC conduit as required.Concealed wiring includeslaying of PVC conduit in the roof/Wall also.Make of cable: Finolex/Havell's/L&T. Make of conduit: AKG/Plaza/Richa(BIS approved).or approved by Dept.	864.00	M	INR	1121.00
70	Wiring for circuit / submain wiring alongwith earth wire with 4x16 sq mm + 2x16 sq mm earth wire of FRLS PVC insulated copper conductor, single core cable in surface / recessed medium duty 50 mm PVC conduit as required.Concealed wiring includes laying of PVC conduit in the roof/Wall also.Make of cable: Finolex/Havell's/L&T. Make of conduit: AKG/Plaza/Richa(BIS approved) or approved by Dept.	1000.00	M	INR	1685.00
80	Supplying and drawing co-axial TV cable RG-6 grade, 0.7 mm solid copper conductor PE insulated, shielded with fine tinned copper braid and protected with PVC sheath in the existing surface/ recessed medium duty 25mm PVC conduit approved by BIS as required.	2160.00	M	INR	28.00
90	Supplying and fixing of 25mm medium duty 25 mm PVC conduit alongwith accessories in surface / recess including painting in case of surface conduit, or cutting the wall and making good the same in case of recessed conduit as required. Make of conduit: AKG/Plaza/Richa(BIS approved).or approved by Dept.	2850.00	M	INR	122.00
100	Supplying and fixing metal box of 100 mm x100 mm x 60 mm deep size (nominal size) on surface or in recess with suitable size of phenolic laminated sheet cover in front including painting etc as required. Make of Box: Legrand/MK/Havell's/Richa/Anchor or approved by Dept.	664.00	EA	INR	109.00
110	Supplying and fixing metal box of following 180 mm x 100mm x 60 mm deep (nominal size) on surface or in recess with suitable size of phenolic laminated sheet cover in front including painting etc as required. Make of Box: Legrand/MK/Havell's/Richa/Anchor.or approved by Dept.	28.00	EA	INR	119.00

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
120	Supplying and fixing metal box of following 200mm x 150mm x 60mm deep (nominal size) on surface or in recess with suitable size of phenolic laminated sheet cover in front including painting etc as required. Make of Box: Legrand/MK/Havell's/Richa or approved by Dept.	78.00	EA	INR	161.00
130	Supplying and fixing following modular 6 A modular switch on the existing modular plate & switch box including connections but excluding modular plate etc. as required. Modular item: Legrand/Crabtree/L&T/Schneider or approved by Dept.	700.00	EA	INR	208.00
140	Supplying and fixing 0f 6 amps 3 pin modular socket on the Existing modular plate & switch box including connections but excluding modular plate etc. as required. Modular item: Legrand/Crabtree/L&T/Schneider or approved by Dept.	80.00	EA	INR	317.00
150	Supplying and fixing stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required.Modular item: Legrand/Crabtree/L &T/Schneider or approved by Dept.	141.00	EA	INR	798.00
160	Supplying and fixing modular blanking plate on the existing modular plate & switch box excluding modular plate as required. Modular item: Legrand/Crabtree/L&T/Schneider.or approved by Dept.	184.00	EA	INR	53.00
170	Supplying and fixing of 1 or 2 Module GI box along with modular base & cover plate for modular switches in recess etc as required. Modular item: Legrand/Crabtree/L&T/Schneider or approved by Dept.	14.00	EA	INR	414.00
180	Supplying and fixing of 4 Module , GI box along with modular base & cover plate for modular switches in recess etc as required. Modular item: Legrand/Crabtree/L&T/Schneider or approved by Dept.	50.00	EA	INR	347.00
190	Suppling & fixing of 8 Module, GI boxalong with modular base & cover plate for modular switches in recess etc as required. Modular item: Legrand/Crabtree/L&T/Schneider.or approved by Dept.	82.00	EA	INR	584.00

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
200	Supplying and fixing of 1 or 2 Module base & cover plate on existing modular metal boxes etc. as required. Modular item: Legrand/Crabtree/L&T/Schneider or approved by Dept.	16.00	EA	INR	152.00
210	Supplying and fixing of 4 module Modular base & cover plate on existing modular metal boxes etc. as required. Modular item: Legrand/Crabtree/L&T/Schneider or approved by Dept.	50.00	EA	INR	175.00
220	Supplying and fixing of 8 module Modular base & cover plate on existing modular metal boxes etc. as required.Modular item:Legrand/Crabtree/L&T/Schneider or approved by Dept.	82.00	EA	INR	315.00
230	Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 5 pin 16 & 6 amps modular socket outlet and 16 amps modular switch, connection, painting etc. as required. Modular item:Legrand/ Crabtree/L&T/ Schneider or approved by Dept.	68.00	EA	INR	867.00
240	Supplying and fixing 3 pin, 5 amp.Ceiling rose on the existing junction box / wooden block including connection etc as required. Make of Ceiling rose: presto plast/Richa/AKG or equivalent or approved by Dept.	650.00	EA	INR	54.00
250	Supplying and fixing brass batten / angle holder including connection etc. as required.Make: Anchor/Richa or equivalent or approved by Dept.	206.00	EA	INR	65.00
260	Supplying and fixing call bell/buzzer suitable for D.C/A.C. single phse, 230 volts, complete as required.Make:Legrands/Richa/Anchor or equivalent or approved by Dept.	16.00	EA	INR	97.00
270	Installation, testing and commissioning of pre-wired,fluorescent fitting/compact fluorescent fitting of all types, complete with allaccessories and tube etc. directly on ceiling/wall,including connection with 1.5 sqmm FRLS PVC insulated, copper conductor, single core cable and earthing etc. as required.	248.00	EA	INR	93.00

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
280	Installation, testing and commissioning of ceiling fan including wiring the down rods of standard length upto 30cm) with 1.5 sqmm FRLS PVC insulated, copper conductor, single core cable etc. as required.	141.00	EA	INR	103.00
290	Installation of exhaust fan upto 450 mm sweep in the existing opening, including making the hole to suit the size of the above fan, making good the damage, connection, testing, commissioning etc. as required.	22.00	EA	INR	221.00
300	Supplying of ITC exhaust fan 300 mm sweep.(Three numbers Exhaust fan for Sub station) Make:Havells/Bajaj/Orient/GE/Khaitan or approved by Dept.	22.00	EA	INR	3615.00
310	Single door Supplying and fixing of 6 way outgoing , single pole and neutral, sheet steel, MCB distribution board, 240 volts, on surface / recess, complete with tinned copper busbar, neutral busbar, earth bar, din bar, detachable gland plate, interconnections, phosphatized and powder painted including earthing etc. as required. (But without MCB / RCCB / isolator). Make of DB: Legrands/Siemens/Schneider or approved by Dept.	8.00	EA	INR	1685.00
320	Supplying and fixing of 16 way outgoing , single pole and neutral, sheet steel, MCB distribution board, 240 volts, on surface / recess, complete with tinned copper busbar, neutral busbar, earth bar, din bar, detachable gland plate, interconnections, phosphatized and powder painted including earthing etc. as required. (But without MCB / RCCB / isolator). Make of DB: Legrands/Siemens/Schneider/ or approved by Dept.	22.00	EA	INR	3290.00
330	Supplying and fixing 6 amps to 32 amps rating, 240 volts, 'C' series, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required. Make of MCB:Legrands/Siemens/Schneider or approved byDept.	280.00	EA	INR	330.00
340	Earthing with G.I. earth pipe 3 mtr. long, 100 mm dia including accessories,and providing masonary enclosure with cover plate having locking arrangement and watering pipe etc. (but without charcoal or coke and salt) as required. Make of Pipe: Jindal/Tata/Biscon	4.00	EA	INR	4730.00

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
350	Earthing with G.I. earth pipe 3 mtr. long, 100 mm dia including accessories, and providing masonary enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal and salt as required.Make of Pipe: Jindal/Tata/Biscon	8.00	EA	INR	5649.00
360	Providing and fixing of lightning conductor finial, made of 25 mm dia 300 mm long, copper tube, having single prong at top, with 85 mm dia 3 m thick copper base plate including holes etc. complete as required.	4.00	EA	INR	764.00
370	Supplying including fitting & fixing high speed A.C. ceiling fan complete with accessories , down rod, canopy etc of following sweeps with making necessary connections etc as reqd complete and directed by the deptt. of 1400 mm sweeps & making necessary connections etc. as reqd. complete as directed by the deptt.Make: Bajaj/Havells/Orient/Khaitan. or approved by Dept.	141.00	EA	INR	2505.00
380	Supplying 15 Watt CFL lamp (Philips/GE/Bajaj make)	70.00	EA	INR	150.00
390	Supplying & fixingCompact energy saving channel suitable for FTL (T5) Lamps. 1x28 Watt FTL (T5)(Suspended type) with all accessories like down rod for suspending from roof.(Philips/Bajaj make) or approved by Dept. Fittings Similar to Philips make TMS122 M 1xTL5-28W EBT	240.00	EA	INR	1587.00
400	.Supply and fixing of 70 W Downlighter Supplying Downlighters.DL23-70W MH DE (Philips /Havels/bajaj make, 5800 lumen per lamp)or approved by Dept.	48.00	EA	INR	1432.00
410	Supplying , & fixing Aesthetic suspended range of luminaires for up- down lighting suitable forenergy efficent T5 lamps, Luminaires is suspended with 2 point suspension system . Suspension are part of luminaire .TPS814 2xTL5-28W EBP D8, 2X TL5 -28W (Philips /Havels/bajaj make, 5800 lumen per lamp).or approved by Dept.	90.00	EA	INR	7397.00

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
420	Supplying including fitting of water supply motor pump set centrifugal type complete with all accessories C.C. foundation of proportion 1:2:4 jammed with M.S. nuts and bolts including D.O.L. starter and making necessary connection etc. as reqd complete : a) 2 H.P. 415 V Three Phase WITH BE PUMP 2120 K or equivalent. Make of Starter:L&T/BCH/GE. Make of Pump:kirloskar/KSB/Amrut	1.00	SET	INR	20998.00
430	Supply, installation, testing & commissioning of Power Control Centre(PCC) panel: PCC panel shall have Sheet steel enclosure, dust and vermin proof, self standing floor mounted, M.S. Cubicle cabinet made out of 2 mm thick C.R. sheet with hinge type door in both front and rear, detachable gland plate (3 mm thick) etc. with powder coated epoxy paint and must be from CPRI approved panel builder. Bus Bar : A Set of high quality electrical grade Aluminium bus bar rated for 1600A and rigidly supported to withstand short circuit fault current up to 50 KA.Main Incomer 1 & 2 : 800 A 4 Pole, 50 kA EDO Air circuit breaker with microprocessor based protection with Overload, Short circuit and earth fault protection -- 2 set. Circuit breaker Electronic trip unit settings as follows: Overload protection: 0.4 to 1 In, Over load Time delay : 5 to 30 s, Short time delayed short circuit protection : 1.5 to 10 Ir, Short circuit time delay : 0.01 to 0.3 s (Instantaneous short circuit protection shall be in built with the trip unit), Earth fault protection: 0.1 to 1 Ig, Earth fault time delay : 0.1 to 1 s. . The ACBs shall conform to IEC60947-2/IS 13947-2, tropicalized to Class-II (high humidity). Outgoing Feeders: 1) 400 A 4 -Pole MCCB with earth leakage module - 2 nos. 2) 250 A - 4 Pole MCCB with electronic earth leakage module -4 nos. 3) 160 A - 4 Pole MCCB with electronic earth leakage module -4 nos. 4) 100 A- 4 Pole MCCB with electronic earth leakage module- 2 nos. The MCCBs shall conform to IEC60947-2/IS 13947-2, tropicalized to Class-II (high humidity). All MCCBs shall be 415V(Ue), 600V(Ui), min. 36 kA breaking capacity, four pole, fitted with inbuilt electronic (microprocessor based) overload, short-circuit releases with adjustable settings for current and time. MCCB adjustable settings: Long delay (0.4-1.0 In)/short delay (1.5-10 long delay setting) with individual time settings, with separate earth leakage detection module, either as an add-on module to the MCCB or separate CBCT/Earth leakage relay combination. Earth leakage module shall have range of 0.03-3.0 Amps and 0- 3 seconds, both current and time in adjustable steps. MCCBs shall be provided with Rotary Handle operating mechanism. The MCCBs shall be operated from outside the panel. The MCCB handles shall also project outside the panel doors enabling breaker operation from outside the panel. All MCCB used shall be suitable for isolation as per IEC 947-2.	1.00	EA	INR	1104000.00

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
	Control supply of individual starters shall be tapped from its own line; the starter shall be in-operative if the MCCB is off. Metering/ Instrumentation for the Incomer (two sets, one set for each incomer): 1) 01 no.- Digital multifunction meter indicating Voltage, Current, Frequency, Power factor, Power and KW/KVA/KVAR with RS-485 capability; make-i. Schneider Power logic PM200 series, HPL -Socomec (Diris A41), Siemens PAC3200. 2) 03 nos.- Current transformers, wire wound, 1000/5, 15 VA, Class 1 to IS: 2705; make- AE/Kappa/Siemens 3) LED indication lamps for indication of 'Supply ON' (for R/Y/B phases), 'CB Off/CB On/CB-Trip'; make-Teknik/Siemens/Telemecanique/ABB As required- Moulded HRC fuse holders with suitably rated fuse links for control circuit and instrument circuit protection; make-GE/Telemecanique/Bussman Name of Panel builder: Assam Electricals/Lotus powergear/ Righill Electrics /Siemens/Schneider/Legrand/Electrokings. Make of ACB: Siemens/Legrands/Schneider/L&T/Alsthom; Make of MCCB: Siemens/Legrands/Schneider/L&T/ABB;				
440	Distribution Panel Supply, installation, testing & commissioning of sub distribution panel board: Distribution panel shall be made of Sheet steel enclosure, dust and vermin proof, wall mounted M.S. cubicle cabinet, made out of 2mm thick C.R. sheet with hinged type door in front and bolted type in rear, 3 mm thick detachable gland plate at bottom duly painted with powder coated epoxy paint. Incomer feeder: 400 A 4 -Pole MCCB with earth leakage module - 2 no. Outgoing Feeder: 1) 160 A 4 Pole MCCB with electronic earth leakage module-2 no. 2) 100 A -4 Pole MCCB with electronic earth leakage module -4 no. 3) 63 A - 4 Pole MCCB with electronic earth leakage module -4 no 4) 16 A 4 Pole RCBO 100mA sensitivity - 4 no. 5) 16 A 2 pole MCB ,C curve - 2 nos The MCCBs shall conform to IEC60947-2/IS 13947-2, tropicalized to Class-II (high humidity). All MCCBs shall be 415V(Ue), 600V(Ui), min. 36 kA breaking capacity, four pole, fitted with inbuilt electronic (microprocessor based) overload, short-circuit releases with adjustable settings for current and time. MCCB adjustable settings: Long delay (0.4-1.0 In)/short delay	1.00	EA	INR	836480.00

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
	(1.5-10 long delay setting) with individual time settings, with separate earth leakage detection module, either as an add-on module to the MCCB or separate CBCT/Earth leakage relay combination. Earth leakage module shall have range of 0.03-3.0 Amps and 0- 3 seconds, both current and time in adjustable steps. MCCBs shall be provided with Rotary Handle operating mechanism. The MCCBs shall be operated from outside the panel. The MCCB handles shall also project outside the panel doors enabling breaker operation from outside the panel. All MCCB used shall be suitable for isolation as per IEC 947-2. Control supply of individual starters shall be tapped from its own line; the starter shall be in-operative if the MCCB is off. Metering/ Instrumentation for the Incomer (two sets, one set for each incomer): 1) 01 no.- Digital multifunction meter indicating Voltage, Current, Frequency, Power factor, Power andKW/ KVA/KVAR with RS-485 capability; make- i. Schneider Power logic PM200 series, HPL -Socomec (Diris A41), Siemens PAC3200. 2) 03 nos.- Current transformers, wire wound, 1000/5, 15 VA, Class 1 to IS: 2705; make- AE/Kappa/Siemens 3) LED indication lamps for indication of 'Supply ON' (for R/Y/B phases), MCCB Off/MCCB On/MCCB-Trip'; make- Teknik/Siemens/Telemecanique/ABB As required- Moulded HRC fuse holders with suitably rated fuse links for control circuit and instrument circuit protection; make- GE/Telemecanique/Bussman Name of Panel builder: Assam Electricals/Lotus powergear/ Righill Electrics /Siemens/Schneider/Legrand/Electrokings. Make of MCCB: Siemens/Legrands/Schneider/L&T/ABB;				
450	:Supply Installation, Commissioning of Transformer: Supply, installation, testing & commissioning of 400 KVA Dual core, 11-3.3/0.433 KV, vector group Dyn -11 copper wound VPI resin encapsulated transformer i) 400 KVA ,11.0 - 3.3/0.433 KV, vector group Dyn -11 double copper wound cast resin dry type transformer. Transformer Make: Crompton Greaves/ Raychem RPG/ Volt Amp/Kirloskar/PETE Hammond. For details refer Special terms and condition. The transformer compartment shall house a 400 kVA, 11kV/3.3 kV/415V, 3 Phase, 50 Hz, copper conductor, Dry type, VPI resin encapsulated, natural air cooled distribution transformer for indoor use & as per following data sheet:	1.00	EA	INR	1853600.00

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
	a) Voltage ratio: 11kV/3.3 kV/415V, three phase, 50 Hz b) Capacity: 400 kVA c) Vector group: Dyn 11 d) Tap changer: HT side, off circuit type with tap ratings from + 5% to -5% @ 2.5% e) Winding material: Copper f) Insulation: Dry type, Resin encapsulated (VPI), Class F g) Enclosure protection: IP 23 minimum h) Platinum RTD's with marshalling box- 2 nos. for each winding Features: a) Transformer shall be provided standard fittings as follows: i) HV bushings: 3 nos. ii) LV bushings: 4 nos. iii) Winding temperature scanner shall be provided with six nos. RTDs, two each for each LV winding. The scanner should provide indication, alarm & trip contacts. The RTDs should be properly wired up to the scanner terminals. Scanner alarm/ trip contacts shall be ready for wiring up to HT Breaker/RMU. iv) Lifting lugs v) Body earthing terminals/studs: 2 nos. vi) Jacking lugs vii) Inspection covers viii) Base channels with bi-directional rollers ix) Any other accessories essential & required for operation and maintenance as per IS may also be included. Make of transformer: PETE/Siemens/RPG Raychem /Kirloskar/ Crompton Greaves/Alstom/ Bharat Bijlee				
460	Supply XLPE cable: 3 core x 240.00 sq mm XLPE Insulated and PVC Sheathed 11 KV grade XLPE HT armoured UG cable .Make of XLPE cable:NICCO/CCI/CRYSTAL/POLYCAB/ASI AN/HAVELLS The cable must bear voltage grade, size, manufacture name & IS marking/monogram embossed on the outer surface.	1000.00	M	INR	1117.00
470	Supply PVC / XLPE cable: 1 x 120 mmsq Cable, Single Core, PVC 660 Volts grade for earth wire Size in Aluminium - 19/2.24 Nominal Area - 120 sq.mm The cable must bear voltage grade, size, manufacture name & IS marking/monogram embossed on the outer surface. Make of cable:NICCO/CCI/CRYSTAL/POLYCAB/ASI AN/HAVELLS	1000.00	M	INR	95.00

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
480	Supplying including installation, testing and commissioning of Hi wall 3 star rating,Non ducted split type Air Conditioner of 2.00 Ton capacity with cordless remote complete with indoor and outdoor unit, copper, copper pipe and electrical connection upto 5 m between the room unit and outdoor unit as appreved by the depttt and as directed by the department.Model similar to Blue star make model 3HW24SVB1 or equivalent(Blue Star/Voltas/LG/Carrier/Hitachi/Daikon Make)	10.00	EA	INR	54161.00
490	Supplying with fitting and fixing Single Phase D.O.L. Starter of the following specification complete including making necessary connection as approved, specified and directed by the deptt .A) Over load Relay Range 3.8-6.0 Amps for 2.2 KW.	10.00	EA	INR	2340.00
500	Supply, fixing and Installation of 3 PHASE 12 WAY outgoing vertical TPN MCCB DB.SIMILAR TO LEGRAND MAKE CAT NO 6079 18 on wall with following specifications. DB shall be fitted with the following incoming & outgoing devices. (a)Incomer : One no. 4 pole,400 v AC, 160 amp,16KA MCCB with electronic earth leakage module similar to Legrand cat no 4200 37, shall be approved by ISI or IEC, as incomer(Earth leakage module setting: Adjustable sensitivity: 0.03 - 0.3 - 1 - 3 A) Adjustable tripping: 0 - 0.3 - 1 -3s (with 0.03 A possible only 0s) .(b) Outgoings: 1) four (4) nos, 63 amp 'C' curve TP MCB as outgoing 2) twelve(12) nos 63 amp 'C' curve SP MCB as outgoing 3) twelve 12 nos 32 amp 'C' curve SP MCB as outgoing, suitable for class-II tropicalisation (as per IEC) & approved by ISI or IEC. All outgoing MCBs should be 'C' curve, 240v AC rated, 10kA rated breaking capacity, with DMC housing, suitable for class-II tropicalisation (as per IEC) & approved by ISI or IEC. MCBs should have integrated label holder, biconnect upper & lower terminals & air channels for low temp. rise. DB should be as per IS-8623 with latest amendment. DB should have external earth terminal & mounting holes. Cable ties & wire leads for wiring incomer MCCB to respective phase & neutral buses should be supplied and wired with single core 35 sqmm stranded copper cable with tinned copper lugs. 250 amp tinned copper busbar should be provided for phase & neutral. Neutral & Earth bar should	6.00	EA	INR	90375.00

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
	be 12 way each & suitable for termination of wires with pin type cable lugs. Enclosure type- IP-54 with double door. DB shall have cable entry box on top side for keeping spare length of cables. All wires inside DB shall have ferrules for identification of circuit no. All unused openings should be fitted with Blanking Plates.Allougoing MCBs shall bemarked with paint for identification of area being fed. MAKE OF DB and components: Legrand / Merlin Gerin/ Siemens or as approved Dept. These VTPN DB will be used to distribute power to SPN DB placed in the floor.				
510	Supplying & fixing following rating, double pole,(Single phase and neutral), 240 volts, RCBO, having a sensitivity current upto 30 mA in the existing MCB DB complete with connections, testing and commissioning etc. as required. Make: Legrands/Siemens/Schneider or approved by Concern Engineer in charge.	22.00	EA	INR	5664.00
520	SErection of GI pole of following length in brick ballast and ramming the foundation , finishing with 150mm thick cement concrete (1:3:6) layer on top with including excavation and refilling etc as required above 6.5 meter and upto 11 meter.	2.00	EA	INR	3493.00

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
530	Supplying of Channel iron 75mmx40mmx6mm (7.14 kg per metre) cross arm for two 11 KV over head line conductors complete with 50mm x50mmx6mm (angle iron bracket welded to the Channel iron and complete with 50mm x6mm M.S. flat iron clamps , bolts and nuts including drilling holes for insulator pins , bolts, nuts and washers etc (as per drawing) and painting with primer and finish paint as required.	4.00	EA	INR	1540.00
540	Erection of double pole 3 wire cross arm 11 KV/22KV/33KV over head lines as required.	4.00	EA	INR	558.00
550	Supplying,erection 11 KV pin insulator Supplying and erection of 11 KV pin insulator complete with large Steel head G.I. pin , nuts , washers etc. as required.	4.00	SET	INR	382.00
560	Erection of double pole 3 wire cross arm 11 KV/22KV/33KV over head lines as required.(DSR 13.9)	4.00	SET	INR	73.00
570	Supplying and erection of three piece nonlinear resistor type Lightning arrestor suitable for 3 wire , 11 KV overhead lines with rated voltage 9 KV (rms) with a nominal discharge current rating of 5 KA and completewith galvanised clamping arrangement, G.I. Bolts, nuts,washers wtc as required.	3.00	SET	INR	5436.00
580	Supplying & fixing 40 A ,double pole,(Single phase and neutral) 240 volts, RCBO, having a sensitivity current upto 30 mA in the existing MCB DB complete with connections, testing and commissioning etc. as required.Make:Legrands/Siemens/Schneider or approved by Dept.	8.00	EA	INR	4783.00

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
590	Supplying with fitting & fixing of the following integral type street light luminaries complete and consisting of single piece integral epoxy gray powder coated dia cast aluminium housing gasket, pot optic reflector, cast aluminium frame from heat resistance toughened clear glass cover and accessories such as Condenser, lamp Holder, Ballast, lamp etc. in the existing pole including making necessary connection as approved by the Deptt.)with 2×2.50 sq.mm F.R. multistrand and P.V.C. insulated single core copper cable as specified and directed by the department. Philips make) Cat No.SRX051 1xSON250W For Lamp 1xSON/SONT250W/ Wipro make) Cat ref: WST 50250, For Lamp 1x250W HPSV (/ Crompton Greaves make) SSSGUN15H/GF or lamp 1x250W HPSV (T) .	6.00	EA	INR	8669.00
600	Supply with fitting & fixing 60 mm dia 3050 mm height double arm DECORATIVE tubular Pole suitable for mounting pelican luminaries .The pole is made of GI tube ,integral with built in cylindrical GI control box, service door and a circular base plate . The single arm pelican bracket is fabricated with 38 mm dia GI tube and held on to 60 mm tube with spacers . The pole is swaged at the top to accommodate the bracket assembly secured on to the top by means of 2 annular rings with Allen grub screws . The pole and the bracket are coated with epoxy zinc phosphate primer and finished with polyurethane based paint . The control gear tray is pre-cabled with MCB, terminal connection as approved by the Deptt.)for loop in loop out and suitable for 2 nos20 W CFL lamp for operation on 240 V, 50 HZ single phase AC Supply . The pole is to be fitted on 1:3:6 PCC pole foundation of size 300 mmx300mmx1200 mm with grouting nuts & bolts as specified & directed by the deptt .(Metal Coats make).COLOMBIA-PELICAN-2 model or equivalent.	6.00	EA	INR	29664.00

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
610	Supply with fitting & fixing 60 mm dia 1830 mm height integrated with acrylic diffuser, translucent top, bottom clear , black powder painted finish tubular pole .The pole is made of GI tube with GI cylindrical control box with service door and a circular base plate, pre-cabled with control gear, 36 W CFL lamp and suitable for operation on 240 V 50 Hz single phase AC supply . The pole is to be fitted on 1:3:6 PCC pole foundation of size 300 mmx300 mmx1200 mm with grouting nuts & bolts as specified & directed by the deptt .(Metal Coats make). COBRA model or equivalent.	8.00	EA	INR	20170.00
620	Supplying and fixing of Jaquar or equivalent Philips/ Wipro LED Outdoor light fittings complete with all accessories including connection cable, as approved by the Deptt.s etc. as required.	2.00	EA	INR	6683.00
630	Supply, Fixing and installation of Street light Distribution board: Board shall consist of 63 A Power Contactor (AC3) with 80 A MCCB, Digital timer for auto on/off street light, Control fuse and all other accessories for giving power to street light.. Switch on & Off street lights on time scheduling basis by incorporting a Digital time switch and contactor. A 4 A HRC NS fuse shall be placed in the circuit of Timer for its protection. Selector switch for selecting Auto mode and Manual mode. When selecting auto mode,Timer will switch on/off the contactor on time. When selecting manual mode, a intregrated push button fixed on the door of DB will use to switch on/off the Contactor. Coil voltage shall be 230 A. Approximate size of box: 400mm(L) x 280mm(B) x 150mm(W).Box shall have minumum four numbers of mounting hole arrangement for fixing the board on the wall.	1.00	EA	INR	32000.00
640	Cutting trench / Pit and laying cable of size up to 4 core x 25 sq. mm and earth wires including supply of first class local bricks and sand and refilling the trench etc as required.	400.00	M	INR	195.00
650	: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 with first class brick and refilling the trench etc as required. a) Above 120 sq. mm and upto 400 sq. mm	1000.00	M	INR	278.00

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
660	Laying of one number additional PVC insulated and PVC sheathed / XLPE power cable direct in ground in the same trench in one tier horizontal formation including excavation, sand cushioning, protective covering with first class brick and refilling the trench etc as required for cable size upto 400 msq.	1000.00	M	INR	197.00
670	Cable with Stranded aluminium conductor, 3 x 6 Sq.mm. 1100 volts, PVC insulated,covered with inner sheath of either extruded regenerated rubber or plastic tapes, galvd. tape/wire armoured with PVC outer sheath overall, conforming to IS: 1554-1976 (Part-I). The cable must bear voltage grade, size, manufacture name & IS marking/monogram embossed on the outer surface.For Street light and Garden light.Make of cable:NICCO/CCI/CRYSTAL/POLYCAB/ASI AN/HAVELLS"	500.00	M	INR	62.00
680	Supplying and installation of Surface/reccess type 20A metallic plug/socket DB complete with 20A Plug and Socket and 20 A DP RCBO,30mA sensitivity for AC. Make: Merlin Gerin/Legrand/Siemens/Havells or Approved by Dept.	10.00	EA	INR	5799.00
690	Supply of 3.5 x 240 sqmm PVCA. Cable shall be pvc insulated and PVC Sheathed 1.1 KV gd aluminium conductor LT armoured UG cable .PCC panel to Distribution panel at HTPC Building.The cable must bear voltage grade, size, manufacture name & IS marking/monogram embossed on the outer surface. Make of cable:NICCO/CCI/CRYSTAL/POLYCAB/HAVELLS	500.00	M	INR	715.00
700	(A) APPLICATION :The Insulating mat shall be suitable for use in Electrical substations, switch rooms, transformer rooms,electrical control rooms, LT &HT labs etc. up to 11 KV voltage level. (B) FEATURES OF THE INSULATING MAT The Insulating mat shall have the following features: (1) It shall be manufactured as per IS: 15652-2006 with latest amendments, by manufacturers having valid BIS license for this item and shall be ISI marked. (2) It shall be suitable for 11 KV Voltage grade, Class B category as per referred IS 15652-2006 standard with latest amendment/revision. (3) It shall be Moisture proof, fire retardant, resistant to mineral oil, salty water, transformer oil, alkalis, acids, diesel, petrol, kerosene, crude oil. (4) It shall be long lasting, permanently fixable/pastable	15.00	M2	INR	1435.00

Sl. no	Description of Work	Quantity	UOM	Currency	Rate
	type for easy installation. (5) It shall have good mechanical properties to with Stand Load and Movement of Breaker Trolleys and Associated Electrical Equipment including heavy foot traffic. (C) SIZE & COLOUR OF THE INSULATING MAT : The Insulating mat shall be supplied in roll and each roll of the Insulating mat shall be 2.5 mm thick (±10% tolerance) x 5000 mm long x 1000 mm width. Color:Blue,Black,Red,Green. TESTS AND TEST CERTIFICATE : (1) Routine Test: Routine test certificate for the supply lot certifying the referred technical data shall be submitted along with the supply of the material."				
710	Supply,erection and commissioning of of 12.00 mtr long pole. seamless steel tubular 12.00 mtr length seamless steel tubular pole type 410 SP43 as per IS2713 (part III) (weight = 170 kg)=2 nos	2.00	EA	INR	28794.00
720	11KV Drop Out Fuse Unit, Expulsion Type with Polymeric Silicon Rubber Insulator (3 phase, 3 poles)set. For details refer Special terms andcondition.	1.00	SET	INR	22521.00
730	Supplying and laying 25 mm X 5 mm G.I strip at 0.50 metre below ground as strip earth electrode, including connection/ terminating with G.I. nut, bolt, spring, washer etc. as required.(Jointing shall be done by overlapping and with 2 sets of G.I. nut bolt & spring washer spaced at 50mm)	100.00	M	INR	109.00
740	Wiring for light plug point with 3X1.5 sq. mm FRLS PVC insulated copper conductor single core cable in surface/ recessed medium grade ISI approved PVC conduit alongwith FRLS PVC insulated copper conductor single core cable for loop earthing as required(identical size phase ,neutral and earth wires ,colour coded red ,black and green respectively).Concealed Plug point wiring includes laying of PVC conduit in the roof/Wall also.Make of cable :Havells/Finolex/L&T/Polycab, BIS approved make of PVC conduit : AKG/PLaza/Richa(BIS approved)or Approved by Dept.	200.00	M	INR	200.00

Bidder must include all liabilities including statutory liabilities in their quoted rates.

Note: The Company's Internal Estimated Rates, as indicated in Part-II, are exclusive of P.F.

PART-III SCC

OIL INDIA LIMITED
(A Govt. of India Enterprise)
DULIAJAN (ASSAM)
WORKS CONTRACT

Particular Specifications and Instructions:

DESCRIPTION OF WORK/SERVICES: Construction of Three Storied CSR Activity Complex Building adjacent to HTPC Complex, Duliajan including supply of all materials except Cement.

Special Terms and Condition:

GENERAL CONDITION AND SCOPE OF WORKS (CIVIL)

PART = A: SCOPE OF CIVIL WORK

1.00 GENERAL:
All materials used in the work shall conform to the latest revision of the relevant Indian Standard Specifications to the extent practicable. Where no such specifications exist they shall be of the best quality available in the market. Wherever ISI certified materials and products are available these alone shall be used. All materials shall be stored at site in accordance with IS-4082-1996.

Unless specially provided for in the contract the tendered rates shall include the cost of carriage, transport, loading, unloading and stacking as directed for all materials required on the work. Where a tender provides a rate for transport of materials, it includes for all loading, unloading and stacking on the site in such position and manner as directed. Any materials found not conforming to specification must be removed from site within 48 hours.

2.00 SITE CLEARANCE:
Before the earthwork is started, the area coming under cutting and/refilling shall be cleared of shrubs, vegetation, grass, uprooting of tree stumps and such others, and rubbish removed upto a distance of 50 metres outside the periphery of the area under clearance. The rate of such site clearance is included in the rate of earthwork.

3.00 STORAGE:
Materials shall be transported, handled and stored at site carefully to the approval of Engineer so as to prevent any damage of any kind to be kept at his own risk and cost.

Cement shall be stored in a weather proof shed, the floor of which shall be raised 300 mm clear from the ground and 600 mm away from the wall all round in order to protect from rain and moisture. Empty cement bag shall be returned to the Company in good condition.

4.00 CEMENT CONCRETE/ REINFRCED CEMENT CONCRETE WORK:
All C.C. work in 1:3:6 proportions shall be done with 18 mm graded down broken stone. Broken stone shall be properly screened before use. All reinforced cement concrete work to be done in prop. 1:1.5:3

unless otherwise specified -- 18mm down to 12mm graded down broken stone as per related drawings and instructions of site Engineer to be followed in case of any discrepancies. Proper vibration to be done as per IS recommendation. Floor panelling to be done in the line of expansion joint as directed by Engineer In-charge.

Fine Aggregate - Fine aggregate shall be hard, durable, clean and free from adherent coating and organic matter. It shall not contain harmful impurities such as pyrites, coal, lignite, mica, shale or similar laminated material, clay, alkali, soft fragments, sea shells and organic impurities in such quality as to affect the strength or durability of the concrete. Fine aggregate to be used for reinforced concrete shall not contain any material liable to attack the steel reinforcement. Fine aggregate which is chemically reactive with alkalis of cement is harmful as cracking of concrete may take place.

Coarse Aggregate - Coarse aggregate shall be obtained from natural sources such as stone, gravel, etc. crushed or un-crushed or a continuation thereof from approved quarries. This shall consist of coarse material most of which is retained on 4.75mm sieve. Aggregate shall be hard, strong, dense, durable, clean and free from veins and adherent coatings. It shall be free from soft, feeble, thin, elongated or laminated pieces and shall be roughly cubical in shape. It shall be clear and free from dirt and any other deleterious matter.

Reinforcement bars - The following types of steel for reinforcement shall be used in reinforced concrete construction and these shall conform to Indian Standards or as revised from time to time mentioned against each

- Mild steel and medium tensile steel bars and hard drawn steel wire - IS: 432.
- HYSD bars - IS: 1786.

Bending & Placing steel reinforcement in position-Bending shall be carried out as per relevant IS specification and direction of the Engineer-in-charge. All reinforcement bars shall be accurately placed in position with spacing and cover as shown in the drawing or as specified and firmly held so during the placing and vibrating and setting of concrete. Bars shall be thoroughly cleared of rust, seals, grease, oil and any other foreign matter before placing them in position. The overlap jointing shall be staggered. The bars shall be fixed with 22G binding wire. Precast cover blocks 1:2 (1 cement: 2sand) cement mortar 40 mm square and necessary thickness shall be used to keep the reinforcement bars in proper position. For this block, no extra payment to be made. Wire required for binding shall not be measured separately. Tack welding shall also be permitted in lieu of building with steel wire.

Proportioning of mix - Proportioning shall be done by volume. Boxes of suitable size shall be used for measuring sand and aggregates. The size of the boxes (internal) shall be 35 x 25cm and 40cm deep. The unit of measurement for cement shall be a bag of cement weighting 50 Kg and this shall be taken as 0.035 cubic meter. While measuring the aggregate and sand the boxes shall be filled without shaking, ramming or hammering. The proportioning of sand shall be on the basis of its dry volume and in case of damp sand; allowances for bulkage shall be made.

Mixing - Mixing of reinforced cement concrete shall, as a rule be done in a mechanical mixer. However, the Engineer-in-charge may permit hand mixing in specific cases where in his opinion it is not practicable to resort to mechanical mixing, either on account of the quality of cement concrete required is small or for

any other reason. In such cases, it should be ensured that the inferior quality of concrete produced by hand mixing will not adversely affect the structure.

Consistency - The quantity of water to be used for each batch containing 50 Kg of cement, to give the required consistency shall not be more than 34 litres for 1:3:6, mix 32 litres for 1:2:4 mix, 30 litres for 1:1.5:3 mix and 27 litres for 1:1:2 mix. In case of vibrated concrete, the above quantity shall be suitably reduced. The quantity of water shall be regulated by carrying out regular Slump Test.

Placing of concrete - Before placing the concrete the sub-base/form work shall be cleared of all injurious or foreign matter, watered and well consolidated. Formwork shall be clean and free from all foreign material. It is necessary that the time between mixing and placing of concrete does not exceed the initial setting process. Mixed concrete that has been left standing shall not be used after the initial set has commenced the addition of water (or cement) to make such a mixture more workable shall not be allowed. In foundation trenches or such other situations, the entire concrete used in the work shall be laid gently (not thrown) in layers not exceeding 15cm. The concrete so deposited shall be thoroughly vibrated by means of mechanical vibrators till dense concrete is obtained.

Curing - Concrete shall be carefully protected during first stage of hardening from harmful effects or excessive heat, drying winds, rain or running water and shock. After the concrete has begun to harden i.e. about 1 to 2 hours after its laying it shall be protected from quick drying with moist gunny bags or any other material approved by the Engineer-in-charge. After 24 hours of laying of concrete the surface shall be cured by flooding water upto 25mm depth or by covering with wet adsorbent materials. The curing shall be done for a minimum period of 7 days from the date of pouring of concrete, unless otherwise specified.

Finishing - In case of roof slabs the top surface shall be finished even and smooth with wooden trowel, before the concrete beings to set. The surface of RCC slab on which the cement concrete or mosaic floor is to be laid shall be roughened with brushes while the concrete is green. This shall be done carefully without disturbing the concrete. Before laying the floor, the laitance shall be removed, the surface of slab hacked and a coat of cement slurry at 2.75 Kg of cement per square metre shall be applied, so as to get a good bond between RCC and concrete floor. The exposed surface which is to receive plaster or where it is to be joined with brick masonry wall, shall be properly roughened immediately after the removal of form work, taking care to remove the laitance completely without disturbing the concrete. Before the surface is plastered, it shall be cleaned and wetted so as to give good bond between concrete and plaster.

5.00 FORM WORK:

The formwork shall be rigid and so corrected as to retain the shape and dimensions of the member being cast. Form work for concrete shall be seasoned timber/steel or other approved materials as per directions of the Engineer. It shall be sufficiently tightened to prevent loss of cement slurry and all holes and joints shall be chaulked with putty. It shall have sufficient strength and rigidity to withstand the load of concrete, and vibrations, movement of men, materials and plants and any other incidental loads without excessive deflection beyond permissible limits. The formwork shall be so constructed as to be removable in sections by inscribing or otherwise loosing - them without hammering or levering with force. Only wedges, clamps bolts or screws etc shall be used in preference to nails or spikes. All side pieces shall be easily removable without disturbing the bottom pieces. Where however, use of nails and spikes become unavoidable, these shall be left projecting so that they can easily be withdrawn.

Surface treatment for shuttering - Forms shall be cleaned of all dust, wood shavings, dirt and other matter by washing with water. This process is facilitated by providing draining holes in the shuttering. The surface shall then be coated with soap solution applied before concreting is done. Soap solution for the purpose shall be prepared by dissolving yellow soap in water to get consistency of paint. Alternatively a coat of raw linseed oil/refined pale paraffin mineral oil or form oil of approved manufacture may be applied. In case steel shuttering is used, soap solution or row linseed oil shall be applied after thoroughly cleaning the surface. Care shall be taken that such approved composition is kept out of contact with the reinforcement.

In normal circumstances (temperature not below15 degree C) and where ordinary Portland cement is used form may generally be removed after the expiry of the following periods.
a) Vertical form work to columns, walls, beams = (16-24) hours
b) Slabs side (props left under): 3 days
c) Beam soffits (props. left under):7 days
d) Removal of props under slabs
i) Spanning up to 4.5 m: 7 days
ii) Spanning over 4.5 m: 14 days
e) Removal of props under beams and arches:
i) Spanning up to 6 m: 14 days
ii) Spanning above 6 m: 21 days

In no circumstances shall forms be struck until the concrete reaches strength of at least twice the stress to which concrete may be subjected at the time of removal of form work. All form works shall be removed without such shock or vibration as would damage the concrete. Form work for long span deep beams to be supported by MS props or Bhaluka Bamboo props as required based on the design for the formwork to take care the massive load of the green concrete.

6.00 BRICKWORK:

a. All bricks shall be of 75 class designation quality locally available as approved by the Site Engineer.
b. Bricks shall be of size as specified in the item of work or of nominal size where no particular size is mentioned.
c. Bricks shall be well burnt, sound, hard with sharp edges of uniform size and shape free from cracks, stones or particles of lime and other defects, shall be kiln burnt and satisfy the following requirement:

i) They shall give a clear metallic sound when struck
ii) They shall be of uniform colour and size
iii) They shall not be cracked, stratified or under or over burnt
iv) The tolerance in dimensions shall be +/- 12mm in length, 6mm in width and 3mm in height.
v) Keys or frogs shall be formed on one of the larger size, except in the case of machine extruded bricks where no frogs are required
vi) The increase in weight when soaked in water for 24 hours shall not be more than 20% of the dry weight of the bricks.

d. If required by the Site Engineer, necessary test shall be conducted at the contractor's expense to ensure quality. In general, the bricks shall be the best quality locally available.

Bricks used for masonry in cement mortar or composite mortar shall be thoroughly soaked in clean water for at least an hour immediately before use (The absence of bubbling when the soaked brick is immersed in water is the test for thorough soaking). The soaked bricks shall be kept on a platform free from dirt, mud or any foreign element. Bricks shall be laid in English bond unless otherwise specified. Care must be taken that the bricks are perfectly clean and free from lime, moss or dirt of any kind. If necessary they must be scrubbed before use. Half or cut bricks shall be not used except for closures which may be required to complete the bond. It shall be ensured that all horizontal and vertical joints are completely filled with mortars without any void in brickwork. Brickwork shall be raised truly plum (or true to required better whereso specified). All courses shall be laid truly horizontal. Vertical joints shall be truly vertical and those in alternate courses shall be in the same vertical line. The thickness of brick courses shall be uniform. Great care must be taken to masonry in progress of construction damp. When work is left off for the day troughs shall be formed, by means of fillets of mortar 51mm high all round the unfinished work and shall be kept filled with water. Vertical or inclined surfaces must be frequently watered from a rose headed can. Water should not be dashed with violence against new work as this washes out the mortar. Should the work be delayed owing to holidays or for other reason, the contractor must make adequate arrangements for keeping the work wetted, and shall continue to do so for at least ten days or such longer time as directed, after the brickwork has been completed.

a) Brick work in cement mortar with 75 designation brick including racking out joints and curing complete as directed, in sub structure and superstructure in mortar of specified proportion.
b) 115mm thick 75 designation brick nogged wall in cement mortar embedded with protruding M.S. rod 6mm dia in column including racking out joint and curing complete as directed in super structure above plinth in proportion as specified.

7.00 CEMENT MORTAR:

i) Must be freshly mixed: Cement mortar will only be mixed in such quantities as can be used up on the work within half an hour of mixing. Mortar which has been mixed longer or which has taken its initial set will on no account be used on the work or remixed with fresh mortar. It must be immediately removed from the site or work.
ii) Method of mixing: The cement and sand will be mixed dry in the specified proportions, by turning over atleast three times on the mixing platform. Only sufficient water will then be added, thorough a rose of a watering can, to produce a workable mixture. The wet mortar will be thoroughly worked or mixed by repeatedly turning over, not less than three times on the mixing board.
iii) Size of mixing platform and precaution against list : All mixing of mortar must be done on platforms of angle size and workman bringing the material to and from the platform must not be permitted to walk about on it, thereby bringing mud or dirt to the place, where the mortar is being mixed. The platform must be clean and level and all joints closed or filled so that the cement is not washed out.
iv) Proportion of cement and sand: Where not otherwise specified, cement mortar for plaster will consist of one part of cement to two parts of sand. For mortar for brick or stone masonry work the proportion unless otherwise specified, will be one part of cement to three parts sand

8.00 WOOD WORK:
The work shall be carried out as per detailed drawings and/or as directed by the Engineer-in-charge. The wooden members of the frame shall be planed smooth and accurate to the full dimensions. Rebates,

rounding, moldings etc. as shown in the drawing shall be done before the members are joined into frames. Timber will be 1st class seasoned as approved by the Engineer-in-charge.

Jointing - Jointing in timber frames must be made carefully and accurately. They shall be strong, neat and shall fit without wedging or filling. The joints shall be pinned with hard wood 10 to 15mm dia after the members of the frame are pressed together in a suitable vice-mechanism.

Surface treatment - Woodwork shall be painted, oiled, polished or otherwise treated as specified. All portions of timber abutting against masonry or concrete portion of building shall be coated with boiling coat tar or other type of approved wood preservative or primer, before placing them in final position.
Hold fasts - Hold fasts used for fixing doors and window frame shall be made of 40 x 3mm flat iron long. It shall have a hole on one end for fixing to frame with 10mm dia bolt, at the other end the flat iron shall be split and bent at right angles in the opposite direction. The hold fast shall be tightly fixed to the frame by means of bolts, the bolt hole in frame being plugged suitably and finished neat. The hole fast shall be embedded into masonry by concrete block as described in the item of work.

9.00 DOORS:
i) The flush door shutters (solid core type) decorative and non-decorative type shall conform to IS: 202 (Part I). The door should be fixed using 4 nos. of hinges 125mm long ensuring that the hinges are not fixed less than 150mm from the edges with 8 nos. parallel sunk fully threaded screws 38mm long, should be used for fixing the hinges to the flush door after drilling a pilot hole 2.50mm dia 40mm long. Screws should not be hammered. Lock, tower bolts etc. necessary, if any to be paid separately.
ii) Door frame (Chowkaths) of door, windows, other similar works wrought, framed and fixed in position in contact with C.C. or brick masonry walls including supplying, fitting and fixing with M.S. flat hold fast (40mm x 3mm x 250mm) as per design and embedded in cement concrete block in prop 1:2:4 and with two coats of kiricide oiling to the timber faces in contact with C.C. and masonry as directed and specified.

10.00 STEEL DOORS, WINDOWS AND VENTILATORS:
The type, over all sizes, side opening position of steel doors, windows and ventilators shall be specified as per details given in IS: 1038, specification for steel doors, windows and ventilators. Both the fixed and opening frames shall be constructed of sections, which have been cut to length and mitred. The corners of fixed and opening frames shall be electrically flash butt welded to form a solid and true right angle and all frames shall be square and flat.

Side-hung shutter windows - Window shutters shall be hung on projecting type hinges (not less than 65mm and not more than 75mm wide). One leaf of the hinge shall be welded into a slot in the outer frame and the other leaf of the hinge riveted to the opening shutters. Friction hinges may be provided for side-hung shutter windows in which case peg-stay may not be required. In cases where non-friction type hinges are provided, the windows shall be fitted with peg-stays, which shall be either of hot pressed brass, cast brass, aluminium or steel protected against rusting and shall be 300mm long with steel peg and locking bracket. The peg stay shall have three holes to open the side hung casements in three different angles.

Top Hung Ventilators - The steel butt hinges for top hung ventilators shall be riveted to the fixed frame or welded to it after cutting a slot in it. Hinges to the opening frame shall be riveted or welded and cleaned off. Top hung casements shall be provided with a peg stay three holes which when closed shall be held

tightly by the locking bracket. The locking bracket shall either be fitted to the fixed frames or to the window.

Glazing of metal doors, windows and ventilators - Doors and windows shall normally be glazed with glazing putty on unless otherwise specified. Putty shall be applied between glass panes and glazing bars. Putty shall be applied over the glass panes, which shall stop 2 to 3mm from the sight line of the back rebate to enable the painting to be done upto the sight line, to seal the edge of the putty to the glass. The oozed out back putty shall be cleaned and cut to straight line.

11.00 PLASTER WORK:

i) Preparation of surface: All putlog holes in brick work and junction between concrete and brick work shall be properly filled in advance. Joints in brick work shall be raked about 10mm and concrete surface hacked to provide grip to the plaster. Projecting burrs of mortar formed due to gaps at joints in shuttering shall be removed. The surface shall be scrubbed clean with wire brush/coil brush to remove dirt, dust etc. and the surface thoroughly washed with clean water to remove efflorescence, grease and oil etc. and shall be kept wet for a minimum of six hours before application of plaster.

ii) Proportion: The cement plaster shall be in specified proportion of cement and sand.

iii) Mixing: The cement and sand should be thoroughly mixed in dry condition. After dry mixing the materials shall be wetted with just sufficient water to bring the mortar to proper consistency of thick paste. Mortar should be used immediately after mixing and arrangements shall be made so that not more than 30 minutes elapse between the cement first coming in contact with the moisture and laying. In all exterior plaster works waterproofing compound to be added to the mortar as per the specification of the manufacturer, if not indicated in the item rate quoted should be inclusive of the same.

iv) Placing: Plaster shall be laid over the prepared surface in one coat to the specified thickness and rubbed with "PATAS" and trowel and shall be smooth, free from waviness and trowel marks.

v) Sequence of operations: For external plaster, the plastering operations shall be started from the top floor and carried downwards. For internal plaster, the plastering operations may be started wherever the building frame and cladding work are ready and the temporary supports of the ceiling resting on the wall or the floor have been removed.

vi) Curing: Each coat shall be kept damp continuously till the next coat is applied or for a minimum period of 7 days. Moistening shall commence as soon as plaster is hardened sufficiently. Soaking of walls shall be avoided and only as much water as can be readily absorbed shall be used.

12.00 DAMP PROOFING COURSE:

It shall consist of 1:1.5:3plain cement concrete with approved water proofing materials such as Cico, Impermo etc. of specified thickness. Edges of DPC shall be straight, even and vertical side shuttering shall consist of wooden or steel forms and shall be strong and properly fixed so that it is not disturbed during compaction and mortar or cement slurry does not leak through. When forms are struck the surface should

be smooth without any honeycombing. The surface shall be kept wet for seven days. Before commencing the superstructure work, the top of concrete course shall be dried and cleaned of all materials. Blown type bitumen shall then be applied uniformly on the surface and the side of the concrete coming in contract with flooring on the inside shall also be painted with bitumen.

13.00 WASHABLE DISTEMPER/OIL BOUND DISTEMPER/PLASTIC EMULSION PAINTING

Preparation of surfaces: The surface shall be thoroughly brushed free from dust, dirt, grease, mortar droppings and other foreign matter and sand papered smooth. Thereafter a smooth surface shall be prepared by applying putty, made of plaster of paris mixed with water on the entire surface including filling up the undulation and then sand papering the same after it is dry.

Primer coat: The primer where used as on undecorated surfaces shall be alkali resistance primer or acrylic based cement primer as specified in the item. These shall be of the same manufacture as oil bound distemper/ plastic emulsion paint. If the wall surface plaster has not dried completely alkali resistance primer shall be applied before distempering the walls. But if the distempering is done after the wall surface is dried completely, cement primer shall be applied.

Application of distemper/plastic paint coat: For undecorated surfaces, after the primer coat has dried for at least 48 hours, the surface shall be lightly sand papered to make it smooth for receiving the distemper/plastic paint taking care not to rub out the priming coat. All loose particles shall be dusted off after rubbing. Minimum two coats of distemper/plastic paint shall be applied with brushes in horizontal strokes followed immediately by vertical, which together shall constitute one coat. The subsequent coats shall be applied after a time interval of at least 24 hours between consecutive coats to permit of the proper drying of the preceding coat. For decorated surfaces, the distemper/plastic paint shall be applied in two coats or more over the prepared surface in the same manner as for undecorated surfaces.

Purchase of paint, varnish or oil: Only the best brands obtainable will be used and should the contract permit the contractor to supply any paint, oil or varnish he shall purchase only such brands as the Site Engineer shall approve of in writing. All purchases must be made direct from the manufacturers or through an agent approved of in writing by the Site Engineer. Should the Site Engineer so direct copies of all indents and receipts for purchase must be submitted for inspection. Paint etc. to be purchased in sealed containers. All paints, oil or varnishes supplied by the contractor must be produced for the inspection of the Site Engineer of the work in the manufacturers sealed and unopened containers. All containers from which the contents have been removed and are not required on the work must be destroyed and no extra payment will be granted for such destruction. Only ready mixed or varnished of the make or brand specified will be permitted to be used exactly as received from the manufacturer without any admixture what so ever unless previously authorised, in writing, by the Site Engineer.

14.00 SYNTHETIC ENAMEL PAINT:

Preparation of surface: The surfaces before painting shall be cleaned of all rust, scale, dirt and other foreign matter sticking to it with wire brushes, steel wool in case of steel surfaces and sand papering in case of wooden surfaces. Thereafter, one coat approved primer paint will be applied on the surface. Synthetic enamel paint (Superior quality as approved) shall be applied - two or more coats to give an even shade.

15.00 FILLING EXCAVATED EARTH IN FOUNDATION TRENCHES AND PLINTH OR UNDER FLOORS:

As soon as the work in foundation has been completed and measured, the sides of foundations shall be cleared of all debris, bricks bats, mortar dropping etc, and filled with earth in layers not exceeding 30cms, each layer shall be adequately watered, rammed and consolidated before the succeeding one is laid. Earth shall be rammed with iron rammers where feasible, and with the butt ends crowbars where rammer cannot be use.

The plinth shall be similarly filled with earth in layers not exceeding 30cms, adequately watered and consolidated by ramming with iron or wooden rammers. When filling reaches the finished level, the surface shall be flooded with water for at least 24 hours, allowed to dry and then rammed and consolidated, in order to avoid any settlement at a later stage.

Sand filling in plinth: Sand shall be clean and free from dust, organic and other foreign matter. Sand filling shall be done in a manner similar to earth filling in plinth. Concreting of floor shall not be started till the Engineer-in-charge has inspected and approved the filling.

16.00 CERAMIC TILE FLOORING/SKIRTING:

a) Preparing of Plinth Filling: All plinth fillings shall be properly consolidated in layers, watered, rammed and allowed to consolidate to the Site Engineer's satisfaction before any flooring is laid. When the flooring is to be laid over a foundation of sand, broken stone, brick or a combination of sand and broken stone or brick the filling shall be removed to a depth equal to the thickness of the flooring plus such foundation layers.

b) Foundations:

i) Sub-layer of sand : After the plinth filling has been prepared as detailed in specification above a sublayer of sand 300mm deep shall be laid watered and brought to an even surface.

ii) Layer of broken stone or brick : Over the sand a foundation course of bricks shall be laid and the interstices filled in with sand. The bricks shall be tightly packed and laid so as to break joint.

c) Tile floors:

i) Foundation and cement floating under tiles: Over the foundation as in (b) above 2 coats of cement plaster, 1part of cement to 1 part of sand, prepared in a very liquid condition will be floated over it and allowed to set.

ii)Laying: After the tiles have been soaked in water for at least two hours and the cement foundation sprinkled with water, laying work may commence and shall start from the centre of the room or area to be tiled, work being continued in both directions so that borders are laid last. A layer of 20mm thick (average) cement mortar: 1:4 (1 cement: 4 sand) (unless otherwise specified) shall be provided as bedding for the tiles. Each tile will be laid in and drawn up in neat cement of honey like consistency at 4.40 Kg of cement per sqm, care being taken to exclude air bubbles. Threads shall be stretched cross the surface, at intervals, parallel to the short sides of the area to be tiled to serve as guide lines. Each tile being gently tapped with a wooden mallet till it is properly bedded. The joints shall be grouted with white cement and matching pigment complete. The surface of the flooring shall be checked frequently with a straight edge so as to obtain a true surface with slope, if required. At position where full tiles cannot be fixed, the tiles shall be cut to size and smoothened to give straight and true joints.

iii) Cleaning: After a small area has been laid all superfluous cement will be wiped off the surface. Stains shall be removed by moistening with hydrochloric acid and rubbing with pumice stone and afterwards washing with warm water.

iv) Curing: The floor shall be kept wet for a minimum of 7 days so that bedding and joints set properly.

17.00 Marble stone floor:

Each stone slab be cut to the required size, the overall dimension of each slab to be laid on floors shall not be less than 1.00 sqm and fine chisel dressed to give a smooth and even surface on all sides. A layer of 20mm thick (average) cement mortar 1:4 shall be provided as bedding for the marble slab.

Laying - Sub grade shall be cleaned, wetted and mopped. Mortar of the specified mix and thickness shall then be spread on an area sufficient to receive one marble slab. The slab shall be washed clean before laying. It shall be laid on top, pressed, tapped gently to bring it in level with the other slabs. It shall then be lifted and laid aside. Top surface of the mortar shall then be corrected by adding fresh mortar at hollows or depressions. The mortar is then allowed to harden a bit. Over this surface, cement slurry of honey like consistency at 4.4 Kg of cement per square metre. The edges of the slabs already paved shall be buttered with grey or white cement with or without pigment to match the shade of the marble slabs as given in the description of item. The slab shall then be gently placed in position and tapped with wooden mallet till it is properly bedded in level with and close to the adjoining slab. The joint shall be as fine as possible. Surplus cement on the surface of the slab shall be removed.

Curing - The floor shall be cured for a minimum of 7 days.

Polishing - The marble stone slab shall be grinned by hand or machine to a fine polish.

18.00 Plinth protection and storm water drain:

Plinth protection and storm water drain shall be provided along the outer periphery of the building as per drawing and with PCC (1:3:6) over bricks flat laid in CM 1:4 and finished with 15mm thick cement plaster in prop. 1:2 with floating coat of neat cement finish.

19.00 SANITARY, PLUMBING WORKS AND WATER SUPPLY FITTINGS & FIXTURES:

All sanitary, plumbing and water supply fittings and fixtures shall conform to the specifications and particular make specified in the items of work and direction of Engineer-in- charge. All waste and soil pipes and fixtures shall conform to IS specifications and shall be jointed as specified.

i) Indian/European W.C. with PVC flushing cistern as per drawing & specification.

ii) Wash basin and urinal pan at toilet as per drawing & specification. Wash basins to be provided with C.I. brackets.

iii)Providing soap tray in the toilet.

iv)Rain water pipe as per drawing & specification

v) Gully trap

vi)Inspection chambers, manholes, septic tanks,drainage pipes etc. as per drawings.

vii) Medium class GI pipes with all GI fittings clamps and specials etc. for water supply lines 25mm, 20mm & 15mm.

viii) Concealed PE-AL-PE pipes for water supply.

20.00 P/F PRE PAINTED GALVALUME/GALVANISED SHEET ROOFING

Pre Painted Galvalume Sheet at all levels shall be fitted and fixed with self-drilling, self-tapping screws complete (roof trusses, purlins to be measured and paid separately) of make Dyna roof/sathyam/century wells and of thickness 0.50mm thick. Preferably it shall be carried out by a reputed party.

21.00 ANODISED ALUMINIUM WORKS:

Aluminium sections used for fixed/openable windows, ventilators, partitions, frame work & doors etc. shall be suitable for use to meet architectural designs to relevant works and shall be subject to approval of the Engineer-in-Charge for technical, structural, functional and visual considerations. The aluminium extruded sections shall conform to IS 733 and IS 1285 for chemical composition and mechanical properties. The stainless steel screws shall be of grade AISI 304.

The permissible dimensional tolerances of the extruded sections shall be as per IS 6477 and shall be such as not to impair the proper and smooth functioning/operation and appearance of door and windows. Aluminium glazed doors, windows etc. shall be of sizes, sections and details as shown in the drawings. The details shown in the drawings may be varied slightly to suit the standards adopted by the manufacturers of the aluminium work, with the approval of Engineer-in-Charge. Before proceeding with any fabrication work, the contractor shall prepare and submit, complete fabrication and installation drawings for each type of glazing doors, windows, ventilators and partition etc. for the approval of the Engineer-in-Charge. If the sections are varied, the contractor shall obtain prior approval of Engineer-in-Charge and nothing extra shall be paid on this account.

22.00 ALUMINIUM CLADDING WORKS:

Aluminium cladding work shall comprise of designing, providing and fixing composite panel 4 mm thick 35 microns DFT, PVDF coated Aluminium cladding of Alucobond / Alucomat or equivalent make of approved shade and colour for external wall either segmental curved or straight in plan, around corners and wherever else specified fixed to masonery / concrete with extruded alunimum " U " sections, angle cleats Silicon weather sealants, rivets, brackets, plastic board for the cladding to either masonry or concrete as required, including all necessary accessories etc and as directed by the Engineer-in-charge. complete as per detiled fabrication drawings to be approved by Engineer-In-Charge.

Pre-laminated Particle Board

A particles board laminated on both surfaces by synthetic resin impregnated base papers under heat and pressure. Pre-laminated particle boards shall be of two grades, namely, Grade I and II corresponding to IS 3087 & 12823.

EPDM- GASKETS: The EPDM Gaskets shall be of size and profile as shown in drawings and as called for, to render the glazing, doors, windows, ventilators etc. air and water tight. Samples of gaskets shall be submitted for approval and the EPDM gasket approved by Engineer-in-Charge shall only be used.

SEALANT: The sealants of approved grade and colour shall only be used. The silicone for perimeter joints (between Aluminum section and RCC/Stone masonry) shall be of make approved by the Engineer in Charge.

PE-AL-PE PIPES: The PE-AL-PE pipes are bonded, multilayer pipes consisting of metal aluminium and polyethylene i.e. metallic pipe bonded with adhesive both internally and externally by polyethylene coating. The layers of PE-AL-PE pipes are:-

(i) The interior layer of polyethylene
(ii) The adhesive layer
(iii) Aluminium tube
(iv) The adhesive layer

(v) The external layer of polyethylene

Polyethylene composite pressure pipes have welded aluminium tube reinforcement between inner and outer polyethylene layers, inner and outer polyethylene layer being bonded to aluminium tube by melt adhesive and are manufactured as per IS 15450 The specially manufactured compression joints fittings should be used for PE-AL-PE pipes which are available in 3 types i.e. brass, composite and composite external sealing. Either of these fittings should be used.

Jointing:

While jointing PE-AL-PE pipes, following steps are required to be taken to ensure a leak proof and strong pipe joint:-
(a) Cut the pipe square by cutter to the required and proper length.
(b) Select the fitting to be used and dismantle its nuts and split rings.
(c) Place the nut and split ring over the pipe. Ensure that 'O' rings are in proper position of insert.
(d) Prepare the end of pipe to be jointed for roundness and chamfer by using beveling tool. Push the pipe over the insert and inside the support groove fully.
(e) Push the split ring and nut towards connector till split ring touches the support groove.
(f) Tighten the nut over connector with spanner.

If the joints are required to be dismantled for any reason, the 'O' ring and split ring should be inspected before reassembling the joint for any damage. If any ring is found damaged, the same should be replaced. All other components can be reused. The joint sealing with fittings is done by silicone rubber ring. No thread sealing is involved. Tightening of the nuts is required only for compressing the spilt ring over the pipe, hence excessive tightening of the nuts is to be avoided. In case threading is required for fixing valves. Only Teflon Tape should be used on threads. While for fittings, specially designed rubber "Seal" should be used. For pressure testing the pipeline system, specially designed test plugs are to be used in female thread elbows instead of ordinary GI nipples with MS plugs before covering the pipes in chases.

23.00 ANTITERMITE TREATMENT (IS 6313):
Injecting chemical emulsion of Chlorpyriphosemulsificable concentrates 20% with 1% concentration for pre-construction anti-termite treatment and creating a continuous chemical barrier under and all-round the column pits, trenches, top surface of plinth filling, junction of walls and floor along the external perimeter of building expansion joints, surroundings of pipes and conduits etc. complete as per specification (plinth area of the building at ground floor only shall be measured for payment) and to be executed by reputed party.

24.00 MANDATORY TESTS:
The various mandatory tests shall be carried out by the contractor and no separate payment shall be made unless otherwise specified in the schedule of rates. Following tests /test certificate to be produced by the contractor at his own cost as and when directed by the Engineer-in-charge.
i) Water for construction and curing to be tested before use ('PH' value should not be less than 6.)
ii) Cube test for RCC to be done as per relevant is code of practice IS 456-2000.
iii) Test certificate for steel materials, M.S. rod, Tor steel should be produced.
iv) T.P. challan/procurement challan for timber and forest produce used shall be produced.
v) Brick test as per BIS 1077 and BIS 3495 (part 1 and 2)

vi) Any other tests as per the direction of Engineer-in-charge.

25.00 MEASUREMENT & PAYMENT: Payment for all works done shall be made on the basis of actual work done as per the schedule of rates. For all extra work done on the advise of the Company's Engineer and which is not included in the schedule of rates, deviation order for the same shall be made on the rates as decided by the Company's Engineer.

26.00 SAFETY MEASURE: Safety measure as per OIL regulations shall be strictly adhered to by the Contractor. Safety belts and other measure taken by the Contractors shall be borne by the Contractor. If any loss or damage caused to life during the erection and execution, the contractor shall be fully responsible for the loss.

27.00 RECORD KEEPING:

i) A site order book will be maintained at site which will be in the custody of the Engineer-in-charge or his representative and all instructions given to the Contractor will be recorded in the site order book and the same has to be signed by the contractor to comply with the instruction given therein.

ii) A register to be maintained at site which will be in the custody of the Engineer-in-charge or his representative to maintain the records of cement the same has to be signed by the contractor

iii) A separate register to be maintained at site by the contractor to record the works executed and remarks columns to be added in this to record the hindrance.

28.00 In case of any ambiguity/conflict among various documents the decision of Engineer-in-charge will be final and binding.

29.0 CONTRACTOR'S GODOWN:

The contractor must make adequate arrangement as directed by the Engineer-in-Charge, for the storage in suitable godown of all perishable materials such as cement. On no account may cement be stacked on the ground either in or outside godown. The contractor shall also construct a temporary office at site, before start the execution of work at site, as directed by the Engineer- in charge.

30.0 SPECIAL INSTRUCTION TO THE CONTRACTOR

a. Contractor must use mixture machine and vibrator for the RCC works. The Contractor shall use pump if needed for dewatering for excavation job for which no extra payment will be made.
b. Watch and ward, loss or damage to Company's property, theft and other incidental charges shall be Contractor's responsibility.
c. Efficient workmen to be engaged by the Contractor.
d. The Contractor's representative should report to Engineer-in charge on all working day's at 7.00AM for instruction.
e. Materials if rejected should be removed from site within 48(forty eight) hours of rejection, failing which the company reserves the right to get the rejected materials removed at the risk and cost of the contractor.
f. The Company reserves the right to get the part or whole work completed through other agency at the risk and cost of the contractor if he fails to complete the work within the stipulated time without any valid reasons. The Company's decision shall be final and binding on the Contractor.

g. The Contractor shall obtain labour clearance within seven day's of signing the contract.
h. Water that may accumulate on the site during progress of the works or in trenches and excavation from other than accepted risks shall be removed from the site to the satisfaction of the Engineer-in-charge and at the Contractor's expense.
i. If needed water and electricity will have to be arranged by the Contractor at his own cost. However, if felt, the same may be provided by Co. on Chargeable basis depending on its availability & approved by the Competent authority.
j. The Contractor and his workmen have to strictly observe the safety precautionary rules as per Mines Act.(Latest edition) while executing the work.
k. No road closure will be allowed during execution of work and necessary traffic signal/road boards to be displayed at proper place by the Contractor at his own cost. The Contractor shall be wholly responsible for any accident arising out of non-fulfillment of this condition.
l. The Contractor will be required to work expeditiously at the site and must visit the site before tendering.
m. Welding and cutting sets with fuel & operator, welder, fitter etc. shall be arranged by the Contractor at his cost at site for fabrication and erection work.
n. Hot and Cold permit, Gas leakage testing certificate issued by the Concerned Department to be submitted by the contractor (wherever applicable) to Engineer-in-Charge before starting of dismantling or the other execution of job.
o. The contractor must submit a work plan in bar chart for the overall job to complete it within 14 days of issuing of work order.

PART-B (ELECTRICAL)

SPECIAL CONDITION OF CONTRACT FOR INTERNAL ELECTRIFICATION AND SUBSTATION WORKS FOR CSR ACTIVITY COMPLEX AT HTPC

1.0 GENERAL

1.1 Special conditions of contract shall be read in conjunction with the General Conditions of Contract, Schedule of Quantities specifications of work, drawings and any other document forming part of this contract wherever the context so requires.

1.2 Notwithstanding the sub-division of the documents into these separate sections and volumes, every part of each shall be deemed to be supplementary of every other part and shall be read with and into the contract so far as it may be practicable to do so.

1.3 Where any portion of the General Conditions of contract is repugnant to or at variance with any provisions of the Special conditions of Contract, then unless different intention appears, the provisions of

the Special Conditions of Contract shall be deemed to override the provision(s) of General Conditions of Contract only to the extent that such repugnance or variance cannot be reconciled with the tender conditions of contract and shall be to the extent of such repugnance of variations, prevail; it being understood that the provisions of General Conditions of Contract shall otherwise prevail.

1.4 Wherever it is stated anywhere in this tender document that such and such a supply is to be effected or such and such a work is to be carried out, if shall be understood that the same shall be effected/carried out by the contractor at his own cost, unless a different intention if specifically and expressly stated herein or otherwise explicit from the context.

1.5 The materials, design and workmanship shall satisfy the relevant Indian Standards, the job specifications contained herein & codes referred to. Where the job specifications stipulate requirements in addition to those contained in the standard codes and specifications, these additional requirements shall also be satisfied. In the absence of any Standard/Specifications/Codes of practice for detailed specifications covering any part of the work covered in this tender, the instructions/directions of Company will be binding on the Contractor.

1.6 The items given under Bill of Quantity shall be read in conjunction with scope of work, scope of supply (by Company as well as by Contractor) and job specifications and in case of any irreconcilable conflict between them the provision in the item under "Bill of Quantity" will override the corresponding provision only if the scope of work, scope of supply and job specifications, which cannot be reconciled in such cases the decision of Company shall be final and binding on the contractor.

1.7 In case of contradiction between Indian Standards, General Conditions of Contract, Special Conditions of contract, Specifications Drawings, Bill of Quantity, the following shall prevail in order of precedence.

(i) Letter of intent / Detailed Letter of intent along with statement of Agreed Variations and its enclosures.
(ii) Bill of Quantity.
(iii) Special Conditions of Contract.
(iv) Job specifications/
(v) Drawings
(vi) General Condition of contract
(vii) Indian Standard/Technical/Material Specifications.

2.0 LOCATION OF SITE AND SITE PARTICULAS

2.1 The site of work is located at HTPC Complex, OIL INDIA LIMITED, DULIAJAN

2.2 The intending Bidder shall be deemed to have visited the site and familiarized himself thoroughly with the site conditions job details before submitting the tender. Non familiarity with the site conditions will not be considered a reason either for extra claims or for not carrying out the work in strict conformity with the drawings and specifications.

3.0 STATUTORY REQUIREMENT FOR WORK

3.1 The contractor shall employ work persons with valid electrical electrician/wireman permits/license issued or recognised by Licensing Board, Govt. of Assam to carry out all electrical jobs. In case license

expires during contract period the same shall be renewed by the contractor. The contract shall be terminated if the license is not renewed.

3.2 Contractor shall employ work persons with valid wireman/electrician license issued or recognized by appropriate Govt. authorities to carry out all electrical jobs and shall employ one supervisor holding valid supervisor's competency certificate recognized by State Licensing Board, Govt. of Assam for supervision of electrical jobs.

3.3 Quality of jobs carryout by the Contractor shall be very high standard and should be as per the norms of BIS, NEC or other electrical standards recognized by the company.

4.0 Submission of Documents after award of Contract

4.1 The contractor shall submit following documents related to transformer, panel within one month of award of contract

i) Copy of type test certificate of similar dry type transformer of 400 KVA from the manufacture

ii) Copy of routine test certificate of similar dry type transformer from the manufacturer

iii) Dimensional drawing of the transformer

iv) Documentary evidence that the manufacturer of LT Panels that the contractor will supply of is OEM/ authorize dealer/distributor/ channel partner/stokist of switchgear manufacturer of 415 VAC switchboards/PCC panels/PMCC panel.

v) Documentary evidence that the panel manufacturer/ authorized dealer/ channel partner/ authorized stockist have experience of successfully executing similar order (i. e., supplying and commissioning of at least 1 (one) no. of switchboard /PCC panel/PMCC panel to Central Govt./State Govt./ PSU in the last 7 (seven) years as on the bid closing date.

vi) Documentary evidence that the panel manufacturer/ authorized dealer/ channel partner/ authorized stockist have type test certificates for the following tests for their designed and supplied switchboard/ PCC/ PMCC panels (fitted with air circuit breaker) as per IS: 8623 (with latest amendments) from a test house/ laboratory accredited by National Accreditation Board for testing and calibration Laboratories (NABL), India.

(a) Short time current withstand test

(b) Temperature rise test

(c) Ingress protection -IP-54

Vii) General arrangement or location drawing of the equipment complete with dimensions and clearances.

viii) General arrangement drawing of Drop Out Unit, Transformers, LT panels, Earthing, Cable route etc. including details of grouting of channels / bolts of various equipments.

ix) All panels' schematics & wiring diagram including control wiring.

x) Bar chart indicating general programme for supply, installation, testing and commissioning and handing over.

xi) Any other drawing or data that may be necessary for the job.

4.2 The contractor shall submit following documents related to internal electrification of the building within one month of award of contract:

A set of tentative electrical Drawing prepared by consultant will be issued to the successful bidders / Contractor.

Contractor has to prepare all working drawings mentioned below and obtain approval from the engineer in charge (Electrical) before starting the Civil work starts so that piping works for wiring job does not suffer due to non-approval of the working drawings:

a) Layout diagram of complete conduit job for concealed wiring showing route for wiring from DB to sub-DB, sub-DB to Switch Board, Light and ceiling positions etc.
b) Schematic diagram for complete electrical work.

The contractor shall keep at least one copy each of drawings, conditions of contract, specifications, instructions and schedule of quantities at the site of works available for reference by any authorized representative Engineer-in-charge(Electrical), at all times during the progress of the works

5.0 Approval:
The company will take minimum of one month for approving any drawing / document submitted by the contractor subjected to fulfillment of all clarifications. If clarifications are not met during scheduled time , the company may take more time.

6.0 POWER:
Electricity required for the construction work shall be arranged by the Contractor. However electricity required for use of drilling machine or any other portable tools required for wiring purposes may be provided subjected to availability at the nearest source. The party has to take approval from the Electrical Engineer in Charge. The party will have to arrange for required switch board with proper safety device like RCBO, MCCB / MCBs to take power from the existing source.

7.0 **SCOPE OF SUPPLY:**
Company does not envisage supplying any material for this work & contractor has to arrange all materials at his own & the rates quoted shall deem to include the same.

8.0 **SCOPE OF WORK:**
Brief details of work to be carried out by the contractor are as described below. This will include supply, storage, laying, installation, jointing and testing, obtaining approvals, testing and commissioning and completion of different works. The work shall be carried out as described in Bill of Quantities (BOQ), specifications, and drawings, BIS / NEC guidelines and as per the instructions by Engineer-in-charge (electrical), of the Company.
The scope of work shall cover complete internal electrification and substation works of the Complex.

8.1 The broad items/activities covered under internal electrification works shall include the followings:
i) Point wiring of all lights points. Ceiling fan points exhaust fan points, light plug points, general power points, metal clad plug & socked outlet points etc. including light and power accessories etc. complete in all respects.
ii) All concealed wiring shall be through ISI marled Medium duty PVC conduit through beams, columns roof, floors etc. and all surface wiring, if required, shall be through ISI marked casing-capping.
iii) Cables from Main Distribution Panel to Sub Distribution Board, sub main wiring from main/sub distribution boards to various final distribution boards.
iv) HDPE/GI pipes for cables and other items required to complete with electrification work in all respects.
v) Main Distribution Panel, Sub-Main Distribution Boards and Sub Distribution Boards.

vi) Energy efficient light fixtures, ceiling fans and exhaust fans, wherever applicable.
vii) Earthing of all Main MCCB, Main DBs and SUB DBs etc. complete in all respects.
viii) Supply and installation of energy efficient air conditioners of minimum BEE 3 star rated.
ix) Area illumination

8.2 The broad items /activities covered under Substation Works
i) Supply , installation and commissioning of Drop out units with all accessories.
ii) Supply, laying and termination of HT cables connecting Drop Out unit and transformer
iii) Supply , laying and termination of cables connecting transformer, LT panel inside the substation, cables connecting LT panel and substation and LT distribution panel inside the proposed building . Cables are to be terminated using standard practices and the materials like gland , lugs, nuts bolts etc.
iv) Supply and installation and commissioning of transformer with all accessories.
v) Supply and installation and commissioning of LT panels.
vi) Supply of all materials like GI Earth electrode ,GI strap, nuts bolts etc. for earthing of transformer , panels and the building as per relevant IS and submission of Earth Resistance Report.
vii) Arranging inspection of transformer and LT panels at manufacture's works.
viii) To prepare layout and working drawings submission drawings and completion drawings for all systems to be executed.
ix) To obtain clearances, approvals etc. form Electrical Inspector of State Govt., Electricity Supply Company, Pollution Control Department and or any other statutory authority as may be applicable/required.
x) Submission of manufacture’s test certificate of transformer and all electrical panels.
xi) Submission of installation and commissioning report of the whole electrical system in the standard format provided by the company.
xii) Submission of guarantee certificate for all the electrical items. All the electrical item shall be guaranteed for one year from the date of successful commissioning.

9.0 SCHEDULE OF QUANTITIES/RATE

9.1 The quantities shown against the various items are only approximate and may vary to any extent individually subject to relevant clause of General Conditions of Contract. Any increase or decrease in the quantities shall not form the basis for alteration of rates quoted and accepted including where low/high rates have been quoted by the successful Tenderer.

9.2 In case any activity though specifically not covered in Bill of Quantity description but the same of covered under scope of work/spec./drawing etc. no extra claim on this account shall be entertained.

10.0 COMPLETION DOCUMENTS:

The contractor shall submit 4 copies of as built layout drawings to OIL after completion of the work. These complete drawings shall give the following information:

a) Layout of all equipment, switch boards, DB's etc.
b) Operation & Maintenance Manuals for all equipments.
c) Manufacturers test report & data sheets for equipment's if any.
d) Layout of lighting & power wiring, etc.
e) Location of DB's, Sub-mains, cables & earthing.

f) Junction boxes.
g) Cable schedule, DB Charts
h) Schematic diagram for overall electrical distribution duly laminated
i) GA & schematic and Single line diagram of LT panel Distribution Boards etc.
j) Testing and commissioning report of Transformer, LT Panels at substation and inside the proposed building etc. in the standard format prescribed the OIL.
k) Drawing of earthing system and test reports.

11.0 TECHNICALSPECIFICATIONS

CHAPTER -1

TECHNICAL REQUIREMENTS & MEASUREMENT SYSTEM FOR INTERNAL ELECTRIFICATION WORKS

11.0 SCOPE

This chapter covers the general technical requirements and measurement system of the various components in Internal Electrical Installation works.

11.1 The definition of terms shall be in accordance with 18:732-1989 (Indian Standard Code of Practice for Electrical Wiring), except for the definitions of point, circuit, and sub-main wiring, which are defined in below mentioned clauses.

11.2 POINT WIRING

11.2.1 Definition

A point (other than socket outlet point) shall include all work necessary in complete wiring to the following outlets from the controlling switch or MCB.
(a) Ceiling rore or connector(in the case of points for ceiling/exhaust fan points, prewired light fittings, and call bells).
(b) Ceiling rose (in case of pendents except stiff pendents)
(c) Back plate(in case of stiff pendent)
(d) Lamp holder(in case of goose neck type wall brackets, batten holders and fittings which are not prewired).

11.2.2 Scope

Following shall be deemed to be included in point wiring.

- Conduit /Casing -capping, accessories for the same and wiring cables between the switch box and the point outlet.
- All fixing accessories such as screws, rawl plug etc. as required.
- Metal switch boxes for control switches, regulators and sockets etc., surface/recessed in walls.
- Outlet boxes, junction boxes, pull-through boxes-etc., including metal boxes if any, provided with switch boards for loose wires/conduit terminations.

- Control switch or MCB, as specified.
- Ceiling rose or connector as required. (2 pin and 5 pin socket outlet shall not be used).
- Connections to ceiling rose, connector, socket outlet, lamp holder, switch etc.
- Interconnecting wiring between points on the same circuit, in the same switch box or from another.
- Protective (loop earthing) conductor from one metallic switch box to another in the distribution circuits, and for socket outlets. (The length of protective conductor run along with the circuits/ sub-mains is excluded item the scope of points).
- Bushed conduit or porcelain tubing where wiring cables pass through wall etc.

11.2.3 Measurement:

11.2.3.1 Point Wiring:

Unless and otherwise specified, there shall be no linear measurement for point wiring for light points, fan points, exhaust fan points and call bell points.

These shall be measured on basis by counting only.

No separate measurement will be made for interconnections between points in the same distribution circuit and for the circuit wiring including protective (loop earthing) conductors between metallic switch boxes.

11.2.3.2 Wiring for socket outlet points:

Power point5/15A or 6/16A, 20A metallic socket) wiring shall be measured as total length of wiring of total No. of power points as specified in BOQ and shall be measured on linear basis along the run of wiring depending on the actual number and sizes of wires run .

The power point outlet may be 15A/5 A or 16A /6 A six pin socket outlet, where so specified in the tender documents.

11.2.3.3 Group control points wiring:

In the case of points with more than one point controlled by the same switch, such points shall be measured in parts i.e. (a) from the switch to the first point outlet as one point and for the subsequent points. The distance from that outlet to the next one and so on shall be treated as separate point(s).

The switch for controlling four or more outlets shall be of 15/16 amp. Rating and no extra payment shall be made for the same.

No recovery shall be made for non-provision of more than one switch in such cases.

11.3 CIRCUIT AND SUBMAIN WIRING:

11.3.1 Circuit wiring:

Circuit wiring shall mean the wiring from the distribution board up to the tapping point for the nearest first point of that distribution circuit, viz. upto the nearest first switch box. No extra payment shall be made for circuit wiring.

11.3.2 Sub-main wiring: Sub-main wiring shall mean the wiring item one main/distribution switchboard to another.
11.3.3 Measurement of sub-main wiring: The sub main wiring shall be measured on linear basis and paid for separately.

11.4. OTHER WIRING WORKS: Except as specified above for point wiring, circuit wiring and sub-main wiring, other types of wiring 'shall be measured separately on linear basis along the run of wiring depending on the actual number and sizes of wires run.

11.5 SYSTEM OF DISTRIBUTION AND WIRING:

11.5.1. **Control at the point of entry of supply:** There shall be a circuit breaker on each live conductor of the supply mains at the point of entry.

11.5.2 Distribution: The wiring shall be done on a distribution system through main and/or branch distribution boards. The system design as well as the locations of boards shall be as indicated in BOQ/drawings or as specified by the OIL Engineer-in-charge.

Main distribution board shall be controlled by a circuit breaker. Each outgoing circuit shall also be controlled by a circuit breaker.

The branch distribution board shall be controlled by a circuit breaker. Each outgoing circuit shall be provided with a miniature circuit breaker (MCB) of specified rating on the phase or live conductor.

The loads of the circuits shall be divided, as far as possible, evenly between the number of ways of the distribution boards, leaving at least one spare circuit for future extension.

The neutral conductors (incoming and outgoing) shall be connected to a common link (multilayer connector) in the distribution board and be capable of being disconnected individually for testing purposes.

'Power' wiring shall be kept separate and distinct from 'Lighting' wiring, from the level of circuits i.e., beyond the branch distribution boards.

Wiring shall be separate for essential loads (i.e., those fed through standby supply) and non-essential loads throughout.

11.5.3. Balancing of Circuits:
The balancing of circuits in three wire or poly phase installations shall be arranged before hand to the satisfaction of the OIL Engineer-in-charge.

11.5.4 Wiring System:
Wiring shall be done only by the "Looping system" shall be looped at the switch boxes for both phase or live conductors and neutral conductors. Lights, fans and call bells shall be wired in the' lighting' circuits.
15A / 16A and 5A / 6A socket outlets and other power outlets shall be wired in the 'Power' circuits. The wiring throughout the system shall be such that there is no break in the neutral wire except in the form of linked MCCB's, MCB's. RCBO's etc.

11.5.5 Run of Wiring:
The wiring shall be in surface casing-capping. Due consideration shall be given for neatness, good appearance and safety.

11.5.6 Passing through walls or floors:
When wiring cables are to pass through a wall, these shall be taken through a protection (steel)pipe tube of suitable size such that they pass through in a straight line without twist or cross in them on either end of such holes. These pipes (approved make) shall be supplied by the contractor and price of the pipes are to be considered in the offered rate. The ends of metallic pipe shall be neatly bushed with porcelain, PVC or other approved material.

11.5.7 Run on the bottom floor:
When wiring cables are to run on the bottom floor, these shall be covered with protective steel cover of suitable available size in the BOQ.
The cover to be fixed with 6 SWG 12mm screw with the floor. The floor surface shall be cut for a depth of 1.5 mm to place the cover so that no sharp edge will be exposed. Finishing and mending good damages to the building shall be done after the job is over.

11.6 Joints in wiring:

- No bare conductor in phase and / or neutral or twisted joints in phase, neutral, and / or protective conductors in wiring shall be permitted.
- There shall be no joints in the through-runs of cables. If the length of final circuit or sub main is more than the length of a standard coil, thus necessitating a through joint, such joints shall be made by means of, approved mechanical connectors in suitable junction boxes.
- Termination of multi stranded conductors shall be done using suitable crimping type thimbles.

11.7 RATINGS OF OUTLETS:
Exhaust fan, fluorescent tubes, compact fluorescent tubes, shall be rated according to their capacity.
5A/6A and 15A/16A socket outlet points shall be rated at 100W and 1000W respectively, unless the actual values of loads are specified.

11.8 CAPACITY OF CIRCUITS:
'Lighting' circuit shall not have more than a total of 10 points of light, fan and socket outlets, or a total connected load of 800W, whichever is less.'Power' circuit shall have only one outlet per circuit.

11.9 CONFORMITY TO IE ACT, AND STANDARDS:
All electrical works shall be carried out in accordance with the provisions of Indian Electricity Act, 1910, BIS AND National Electric code, National Building Code with latest amendments. List of Rules of particular importance to building installations is given in Appendix for reference.

The works shall also conform to relevant Indian Standard Codes of Practice (COP) for the type of work involved. (**See Appendix B).**

In all electrical installation works, relevant safety codes of practice shall be followed. Guidelines on safety procedure outlined in **Appendix' C'** should be adopted.

11.10 GENERAL REQUIREMENTS OF COMPONENTS:

11.10.1 Quality of materials: All materials and equipments supplied by the contractor shall be new. They shall be of such design, size and material as to satisfactorily function under the rated conditions of operation and to withstand the environmental conditions at site.

11.10.2 Ratings of components: All components in a wiring installation, conductors, switches and accessories shall be of appropriate ratings of voltage, current, and frequency, as indicated in BOQ.

11.10.3 Conformity to Standards: All components shall conform to relevant Indian Standard Specification, as per board list given in Appendix' A' including amendments or revisions there of up to the date of tender acceptance, shall be applicable in the respective contracts.

11.10.4 Interchangeability: Similar parts of all switches, lamp holders, distribution boards, switchgears, ceiling roses, brackets, pendants, fans and all other fittings of the same type shall be interchangeable in each installation.

11.10.5 General Notes:

a. Items shall be procured from the manufacturer or their authorized dealers only. Bidder shall submit valid authorized dealership certificate for each item along with the offer, otherwise offer will not be considered for evaluation.
b. All the items shall be brand new. Regulators and light fittings shall bear ISI monogram for stringent quality.
c. Item shall be guaranteed for a period of one year from the date of receipt of materials against any manufacturing defect or workmanship.
d. Bidder shall confirm for energy efficiency of items wherever stipulated in the specifications.
e. Guarantee certificates properly stamped & signed and user's manual shall be sent along with the supply.
f. Technical leaflets/catalogues are to be supplied for each item along with the offer.
g. Packing should be adequate to avoid moisture ingress and transit damage.

11.11 CABLES:

1.11.1 Wiring cables:

Conductors of wiring cables shall be of copper. The smallest size of conductor for' lighting' circuits shall have a nominal cross sectional area of not less than 1.5 sq mm. The minimum size of conductor for 'power' wiring shall be 4 sq mm stranded cable. All wiring cables shall be FRLS, single core, PVC insulated, unsheathed, 1100V grade, FIA, TAC, IS-694 approved with flexible copper conductor.

11.12 PVC Conduits:

11.12.1 All rigid conduit pipes shall be of medium duty PVC conduit of standard quality and be ISI marked.

The maximum number of PVC insulated cables conforming to IS: 694-1990 that can be drawn in one conduit is given size wise in Table I, and the number of cables per conduit shall not be exceeded. Conduit sizes shall be selected accordingly in each run. No steel conduit less than 20mm in diameter shall be used.

11.12.2 The conduit wiring system shall be complete in all respects, including their accessories.

11.12.3 Outlets: The switch box or regulator box shall be made of sheet metal on all sides, except on the front. The wall thickness shall not be less than 1.2 mm (18 gauge) for boxes up to a size of 20 cm X 30 cm, and above this size 1.6 mm (16 gauge) thick MS boxes shall be used. The metallic boxes shall be duly painted with anticorrosive paint before erection as per chapter 10 of these Specifications.

Where a large number of control switches and/or fan regulators are required to be installed at one place, these shall be installed in more than one outlet box adjacent to each other for ease of maintenance.

An earth terminal with stud and 2 metal washers shall be provided in each MS box for termination of protective conductors and for connection to socket outlet/metallic body of fan regulator etc.

Clear depth of the box shall not be less than 60 mm, and this shall be increased suitably to accommodate mounting of fan regulators in flush pattern.

11.13 Additional requirements:

(i) Making chase:

The chase in the wall shall be neatly made, and of ample dimensions to permit the conduit to be fixed in the desired manner.

The conduits shall be buried in the wall before plastering, and shall be finished neatly after erection of conduit.

(ii) Fixing conduits in chase:

The conduit pipe shall be fixed by means of staples, J-hooks, or by means of saddles, not more than 60 cm apart.

An threaded joints of conduit pipes shall be treated with approved preservative compound- to secure protection against rust.

(iii)Fixing conduits in RCC work:

The conduit pipes shall be laid in position and fixed to the steel reinforcement bars by steel binding wires before the concreting is done. The conduit pipes shall be fixed firmly to the steel reinforcement bars to avoid their dislocation during pouring of cement concrete and subsequent tamping of the same.

Fixing of standard bends or elbows shall be avoided as far as practicable, and all curves shall be maintained by bending the conduit pipe itself with a long radius which will permit easy drawing in of conductors.

Location of inspection / junction boxes in RCC work should be identified by suitable means to avoid unnecessary chipping of the RCC slab subsequently to locate these boxes.

(iv) Fixing inspection boxes:

Suitable inspection boxes to the minimum requirement shall be provided to permit inspection, and to facilitate replacement of wires, if necessary.

These shall be mounted flush with the wall or ceiling concrete. Minimum 65 mm depth junction boxes shall be used in roof slabs and the depth of the boxes in other places shall be as per IS:2667-1977.

Suitable ventilating holes shall be provided in the inspection box covers,

(v) Fixing switch boxes and accessories:

Switch boxes shall be mounted flush with the wall. All outlets such as switches, socket outlets etc. shall be flush mounting type.

(vi) Fish wire:To facilitate subsequent drawing of wires in the conduit, GI fish wire of 1.2 mm (18 SWG) shall be provided along with the laying of the recessed conduit.

11.14 Bunching of cables:

Cables shall always be bunched so that the outgoing and return cables are drawn into the same conduit.

Where the distribution is for three phase loads only, conductors for all the three phases and neutral wire shall be drawn in one conduit.

11.15 Earthing requirements:

The entire system of metallic work, including the outlet boxes and other metallic accessories, shall be mechanically and electrically continuous by proper screwed joints, or by double check nuts at terminations. The conduit shall be continuous when passing through walls or floors.

Protective (loop earthing) conductor(s) shall be laid along the runs of the conduit between the metallic switch boxes and the distribution boards/ switch boards, terminated thereto. These conductors shall be of such size and material as specified. Depending upon their size and material, the protective earth conductors shall be either drawn inside the conduits along with the cables, or shall be laid external to the conduits. When laid external to the conduits, this shall be properly clamped with the conduit at regular intervals.

The protective conductors shall be terminated properly using earth studs/ earth terminal block etc. as required.

Gas or water pipe shall not be used as protective conductor (earth medium).

11.16 Maximum number of PVC insulated 650/1100 V grade copper conductor cable conforming to IS: 694-1990 which can be drawn through a conduit as per standard given in the CPWD Internal 2013 Manual (Electrical).

12.0 WIRING ACCESSORIES:

12.1 Control switches for points:

- Control switches (single pole switches) carrying not more than 16A shall be of Modular type complete with plate, as specified, and the switch shall be #ON# when the knob is down.
- The type and current rating of switch controlling a group of points, or discharge lamps, or a single large load, shall be specified in the tender documents.
- Control switch shall be placed only in the live conductor of the circuit. No single pole switch or fuse shall be inserted in the protective (earth) conductor, or earthed neutral conductor of the circuit.

12.2 Socket outlets:

- Socket outlets shall also be of Modular type complete with plate. These shall be rated either for 6A, or 16A. Combined 6A/16A six pin socket outlet shall be provided in 'power' circuits wherever specified.

- Socket outlets and plugs shall only be of 3 pin type; the third pin shall be connected to earth through protective (loop earthing) conductor. 2 pin or 5 pin sockets shall not be permitted to be used.
- The control switches for 6A and 16A socket outlets shall be kept along with the socket outlets.

12.3 Switch box covers: These shall be molded type of suitable size.

13.0 FITTINGS:

13.1 Indoor type fittings specification:
Mirror optic suspension mount T5 fluorescent tube light luminaire with all accessories and lamps, ready for installation as per the following description.

a) Optical system should provide all round glare and beam control. Glare shall be as per British Lighting guide-3, Cat 2.

b) Luminaire shall be supplied with:

I. 1/2x28 Watt T5 fluorescent lamp.
II. 11 Watt/18 W CFL lamp.
III. Downlighters.DL23-70W MH DE

c) Luminaires shall be pre-wired up to the terminal block and fitted with High Performance electronic ballast (THD<10%) as standard, PF> 0.95; ballast to conform to IS/IEC for safety/ performance.

d) Luminaires shall be supplied with all standard accessories (including chains etc.) for suspension mounting.
Power supply: 230/240v, 50 Hz, single phase
Make: Philips/Bajaj/Crompton Greaves/GE/Havells/Osram
Model:

i) Similar to Philips : Model no.TPS 643 2X TL5- 28WDIHFP 228 for 2x 28W T5 fluorescent lamp.
ii) Similar to WIPRO : Model no. 1x28 Watt FTL (T5) . (Wipro make).

The type of fittings shall be as specified in BOQ.

14.0 SWITCHGEAR AND CONTROLGEAR –

General aspects:
All items of switchgear and distribution boards (DB's) shall be metal clad type.

The types, ratings and/or categories of switchgear and protective gear shall be as specified in the BOQ.

RCCBs (ELCBs) where specified, shall conform to the requirements of current rating, fault rating, single phase or three phase configuration and sensitivity laid down in the BOQ.

While each outgoing way of distribution board (DB) shall be of miniature circuit breaker (MCB) as specified, and of suitable rating on the phase conductor, the corresponding earthed neutral conductor shall be connected to a common neutral terminal block and shall be capable of being disconnected individually for testing purposes.

Independent earth terminal block:
Every distribution board (single phase as well as 3 phase) shall have an earth terminal block identical to, but independent from neutral terminal block, to enable termination of protective (loop earthing) conductors (incoming as well as outgoings) individually by screwed connection and without twisting.
Earthing terminal (1 for single phase and 2 for 3 phases) shall be provided on the metal cladding of switches and DB's for body earthing. These shall be suitably marked.
Knock out holes, with or without end plates as per standard design of manufacturers, shall be provided in the metal cladding of switches and DBs for termination of conduits/cables.

15.0 PRE-WIRED MCB DISTRIBUTION BOARDS:

- Pre wired MCB DB's shall be provided only where specified.
- The complete board shall be factory fabricated and shall be duly pre wired in the works, ready for installation at site.
- The board shall be of wall mounted, cubical type construction, fabricated out of 1.6mm thick sheet steel, with stove enameled paint finish.
- The board shall also be provided with a loose wire box as a compartment for the complete width and, depth of the board, and of minimum height of 125mm in case of TPN DB's, and 100mm in case of SPN DB's.
- The board shall be provided with a hinged cover of 1.6mm thick sheet steel in the front. Only the knobs of the MCB's shall protrude out of the front covers through openings neatly machine made for the purpose.
- Knock out holes at the bottom, and detachable plate with knock out holes at the top of the board shall be provided.
- Each distribution board shall be provided with a circuit list giving details of each circuit which it controls and the current rating of the circuit, and the size of the MCB.
- The board shall be complete with the following accessories:

(a) 200 A copper bus bar(s).
(b) Neutral link.
(c) Common earth bar.
(d) DIN bar for mounting MCB's
(e) Screw type terminal connectors suitable for incoming and outgoing cables.
(f) Earthing stud(s).

- The board shall be fully prewired with single core PVC insulated copper conductors/insulated solid copper links, and terminated on to extended type terminal connectors, suitable for connections to the sizes of the respective conductors. '
- All incoming and outgoing wiring to the pre wired MCB DB's shall be terminated only in the Elemex type extended terminal connectors to be provided within the DB. The terminal connectors shall, therefore, be so provided as to facilitate easy cable connections and subsequent maintenance.

- A common copper earth bar shall be provided within the loose wire box. The common neutral bar as well as the terminal connectors shall, however, be provided within the main compartment just below the loose wire box.

16.0 MINIATURE CIRCUIT BREAKERS (MCB's):

'C' series MCB's shall be invariably used for all loads. Ratings (A), number of poles, type as MCB or isolator, etc. shall be as specified in the BOQ. The MCB's shall be of minimum 10KA rupturing capacity.

17.0 SWITCH BOARD LOCATIONS:

17.1 General aspects: Switch boards shall be located as indicated on the drawings. However exact location will be as per suitable available spaces.

17.2 SWITCH BOARD INSTALLATION:

A switch board shall not be installed so that its bottom is within 1.25 m above the floor.

Where it is required to terminate a number of conduits on a board, it may be convenient to provide a suitable PVC adopter box for the purpose. Such boxes shall be provided with the prior approval of the Engineer-in-charge (Electrical) and this will not be paid for separately. No apparatus shall project beyond any edge of the panel.

17.3 WIRING OF SWITCH BOARDS AND DISTRIBUTION BOARDS:

- All connections between pieces of apparatus, or between apparatus and terminals on a board shall be neatly arranged in a definite sequence, following the arrangement of the apparatus mounted thereon, avoiding unnecessary crossings.
- Cables shall be connected to terminals either by crimped or soldered lugs, unless the terminals are of such a form that they can be securely clamped without cutting away of cable strands.
- All bare conductors shall be rigidly fixed in such a way that a clearance of at least 2.5 cm is maintained between conductors of opposite polarity or phase, and between the conductors and any material other than insulating material.
- The incoming and outgoing cables shall be neatly bunched and shall be fixed in such a way that the door shall be capable of swinging through an angle of not less than 90 degrees.

18.0 MARKING OF APPARATUS:

(i) Marking of earthed neutral conductor:

On the switchgear, the earthed conductor of a two wire system, or an earthed neutral conductor of a multi-wire system, an indication of a permanent nature shall be provided to identify the earthed neutral conductor. In this connection Rule 32(1) of Indian Electricity Rules 1956 (see Appendix C) shall be referred to. The neutral conductor shall be black in colour.

(ii) Main earthing terminal:

The main earthing terminal in the main switch board shall be permanently marked as "SAFETY EARTH - DO NOT REMOVE".

All distribution boards shall be marked 'L' for lighting or 'P for power and 'E' for essential as the case may be.

When a board is connected to a voltage higher than 250V, all the terminals or leads of the apparatus mounted on it shall be marked in the following colours to indicate the different poles or phases to which the apparatus or its different terminals may have been connected:

Where a four wire, three phase wiring is done, the neutral shall preferably be in one colour, and the other three wires in another colour.
Three phases - Red, Blue & Yellow AND Neutral - Black
All marking required under this rule shall be clear and permanent.

19.0 FANS, REGULATORS AND CLAMPS:

19.1 Exhaust fans:

Exhaust fans shall conform to relevant Indian Standards. Exhaust fans shall be erected at the places indicated on the drawings. For fixing an exhaust fan, a circular hole shall be provided in the wall to suit the size of the frame, which shall be fixed by means of rag bolts embedded in the wall. The hole shall be neatly plastered to the original finish of the wall. The exhaust fan shall be connected to the exhaust fan point, which shall be wired as near to the hole as possible, by means of a flexible cord, care being taken to see that the blades rotate in the proper direction.

19.2 Fan Regulators:

Electronic modular type fan regulator shall be from approved vendor. The regulators are to be procured from authorized dealer to ensure genuineness of the material.

20.0 Supply and installation of Split Air Conditioners

i. The Contractor shall submit following document within one month of award of contract.
ii. Make, model and details of split air conditioners
iii. Lay out/ installation plans for split air conditioners
iv. The contractor shall purchase air conditioners after getting approval from OIL
v. All the materials required for fixing outdoor and indoor units and other materials required for installation and commissioning of air conditioners are to supplied by the contractor
vi. The contractor shall have to submit installation and commissioning report.
vii. All the air conditioners are be guaranteed for one year after successful commissioning at site. The Guarantee certificate is to submitted to OIL.

21.0 TECHNICALSPECIFICATIONS

CHAPTER -2

TECHNICAL REQUIREMENTS & MEASUREMENT SYSTEM FOR SUBSTATION EQUIPMENT, LT PANELS, DROP OUT UNIT, CABLE ETC.

SECTION- 1

GENERAL

21.1 SCOPE:

These general specifications cover the details of Transformers, HT Drop out Unit, LT panels, cables and other related items to be supplied. The inspection as may be necessary before dispatch, delivery at site, installations, testing, commissioning, putting into operation and handing over in working condition of the equipment for working voltage of 11000/415 volts.

21.2 Related Documents:

These technical specification shall be read in conjunction with the standard conditions of the contract , as are relevant for commercial aspects, as well as schedules and drawing and requirements under these specifications.

In the event of any discrepancy between these specifications and inter connected documents, the technical requirements as per the contract specifications shall be followed and deemed to be having over -riding value.

21.3 SYSTEM ENGINEERING:

21.3.1 Items of Work: Installation work shall comprise of supply, installation, testing and commissioning of the following:

(a) 11 KV Drop Out unit with HT Cables for terminating with overhead line and transformer .
(b) Step down Transformers, complete with associated auxiliaries as specified.
(c) Power factor improvement capacitors/ Power Conditioner Savers- provision for future connection is to be kept.
(d) Earthing system.
(e) Miscellaneous items.

22.0 **CONFORMITY WITH STATUTORY ACTS, RULES, REGULATIONS, STANDARDS AND SAFETY CODES :**

22.1 Indian Electricity Act and Rules:
22.2 Indian Standards
22.3 Other Acts and Rules
22.4 The installation shall also comply with the following:-
(i) Factories Act wherever applicable.
(ii) Any other Act or Rules in force.

23.0 Safety Codes and Labour Regulations:
In respect of all labour employed directly or indirectly on the work, the contractor, at his own expense will arrange for the safety provision to comply with the statuary regulations, ISI recommendations and OILs practices.
The contractor shall provide necessary barriers warning signals and other safety measures to avoid accidents. Nothing in these specifications shall be construed to relieve the contractor of his responsibility for the design, manufacture and installation of the equipment with all accessories in accordance with applicable statutory regulations and safety codes in force from the safety angle.

24.0 Schedule of Work:
24.1 WORKS TO BE DONE BY THE CONTRACTOR:

In addition to supply, installation, testing and commissioning of all equipments as per schedule of work , following work shall be deemed to be included within the scope of work, to be executed by the contractor.
(i) All minor building works, such as equipments foundation if required cutting and making good holes, grouting of channels, belts as required.
(ii) Provision of supports / clamps for equipments, cables etc. wherever required.
(iii) Small wiring, inter-connection etc. inclusive of all materials and accessories, necessary to comply with the regulations as well as proper and trouble free operation of the equipment.
(iv) Closing of the cable entry points in sub-station against seepage of water, rodents etc.

(v) Tools and tackles required for handling and installation.
(vi) Necessary testing equipments for commissioning.
(vii) Watch and Ward of materials and/or installation and equipments till their handing over to OIL.

25.0 SITE CONDITIONS: All the equipments and their installation shall be suitable for the environmental conditions encountered at the location.

26.0 INSPECTION OF SITE AND COLLECTION OF DATA:
The contractor shall be deemed to have examined the tender documents, detailed specification, data etc. and to have visited the site or ascertained all relevant details for offering suitable equipments/installation.

27.0 INTER CHANGEABILITY:
All similar equipments, materials, removable parts of similar equipments etc. shall be inter-changeable with each other.

28.0 INTERFERENCE WITH COMMUNICATION EQUIPMENT:
Suppressors or other protection devices shall be provided, if required as per schedule of quantities, wherever the sub-station installation is likely to interfere during the operation with any other electric or electronic equipment.

29.0 EXTENT OF WORK:
The scope of work shall consist of cost of all materials, transportation, labour, supervision, installation, calibration, adjustments as required for commissioning of the sub-station and LT panel for distributing power to the proposed CSR Activity Building. The term complete installation shall mean, not only, major item of the plant and the equipments covered by these specifications, but also, incidental sundry components necessary for complete execution and satisfactory performance of installation with all labour charges, whether or not specifically mentioned in the tender documents, which shall be provided by the contractor at no extra cost.

29.1 COMPLETENESS OF TENDER:
All fittings, unit assemblies accessories, hardware foundation bolts, terminals blocks for connections, cable glands and miscellaneous materials and accessories of items of work which are useful and necessary for efficient assembly and working of the equipment shall be deemed to have been included within the scope of the work in the tender and within the overall details for complete item whether they have been specifically mentioned or not.

29.2 DATA MANUALS AND DRAWINGS TO BE FURNISHED BY CONTRACTOR:

29.3 After Award of Work the contractor shall submit the following drawing within a fortnight of the award of the work or as specified in tender document which shall prevail, for approval by the department.

(i) General arrangement or location drawing of the equipment complete with dimensions and clearances.
(ii) General arrangement drawing of Drop Out Unit, Transformers, LT panels, Earthing, Cable route etc. including details of grouting of channels / bolts of various equipments.
(iii) All panels' schematics & wiring diagram including control wiring.

(iv) Bar chart indicating general programme for supply, installation, testing and commissioning and handing over.
(v) Any other drawing or data that may be necessary for the job.

29.4 Before Commencement of Installation:
The contractor shall also furnish 3 copies of detailed installation, operation and maintenance manuals of manufacturers for all items of equipment together with all relevant data sheet, spare parts catalogues, repairs, assembly and adjustment procedure etc., in triplicate.

29.5 QUALITY OF MATERIALS AND WORKMANSHIP:
All parts of equipment shall be of such design, size and material so as to function satisfactorily under all rated conditions of loading and operation. All components of the equipment shall have adequate factors of safety. Materials/components which are not conforming to standards laid down by Bureau of Indian standards (BIS) shall be got approved from OIL before use on the work.

The entire work of fabrication, assembly and installation shall conform to sound engineering practice and on the basis of "fail safe" design. The mechanical parts subject to wear and tear shall be of easily replaceable type.

The construction shall be such as to facilitate ease of operation, inspection, maintenance and repairs. All apparatus shall also be designed to ensure satisfactory operation under working conditions as specified.

30.0 INSPECTION, TESTING AT MANUFACTURERS WORKS.
The contractor will be required to furnish such facilities as will be necessary for inspection of the equipment before dispatch at the manufacturer's works and also for witnessing such tests, at the works, if so required by OIL. The contractor shall furnish information for this purpose and will also give sufficient notice regarding the dates proposed for such test.

30.1 TEST CERTIFICATE
Copies of all documents for routine, acceptance and type test certificates of the equipment carried out at the manufacturers premise shall be furnished to OIL along with supply of the equipment.

30.2 DISPATCH OF MATERIALS AND STORAGE
The contractor shall commence work as soon as the drawings submitted by him are approved. The contractor should dispatch all materials to site in consultation with OIL' Electrical Engineer in Charge

30.3 CARE OF BUILDINGS
Care shall be taken, while handling/installing the equipment to avoid damage to the building. On completion of the installation, the contractor shall arrange to repair all damages to the building caused during plant installation so as to bring to the original condition. He shall also arrange to remove all unwanted waste materials from substation and building room and other areas used by him.

30.4 PAINTING AND PROTECTION
All damages to painting during transport and installation shall be set right to the satisfaction of the department before handing over. All structural frame work for support of various items of equipment shall be given the final coat of paint of approved shade at site after erection is complete.

Additional protection measures against corrosion shall be provided when installed in special environment.

31.0 TRAINING OF DEPARTMENTAL PERSONNEL

The operation and maintenance staff of the OIL shall be associated with the contractor's personnel during the installation, testing and commissioning of the equipments.

32.0 COMPLETION DRAWING

Three Sets of completion drawings comprising the following shall be submitted by the contractor while handing over the installation.

(a) Equipment layout drawing (s) giving complete details of the entire equipments.

(b) Electrical drawings for the entire electrical equipments showing cable sizes, equipment capacities, switch-gear's ratings, control components, control wiring etc.

(c) Schematic diagram of the entire sub-station installation.

33.0 FINAL INSPECTION AND TESTING

When the installation is complete, the contractor shall arrange for inspection and testing of the installation. Test results obtained shall be recorded. The installation shall not be accepted until it complies with the requirement of these Specifications. The Sub Station installation shall be got inspected by the contractor from local licensee and/or CEA if required and their clearance taken before energizing the Sub Station. All the observations/ deficiencies pointed out by the inspecting authorities shall be complied with by the contractor on priority.

The department shall render all help and pay mandatory charges to CEA and local licensee, if any, in this regard.

34.0 DATE OF ACCEPTANCE:

The contractor shall operate the substation for a period of fifteen days after it is energized. The date of taking over of the substation shall be reckoned after its trouble free operation during the running in period.

35.0 GUARANTEE:

The contractor shall guarantee the entire sub-station installation as per specifications. All equipments shall be guaranteed for one year from the date of acceptance against unsatisfactory performance or break down due to defective design, manufacture and installation. The installation shall be covered by the conditions that whole installation or any part there of found defective within one year from the date of taking over shall be replaced or repaired by the contractor free of charge as decided by the department. The warranty shall cover the followings:-

(a) Quality, strength and performance of materials used.

(b) Safe mechanical and Electrical stress on all parts under all specified conditions of operation.

(c) Satisfactory operation during the maintenance period.

(d) Performance figures and other particulars as specified by the tenderer under schedule of guaranteed technical particulars.

36.0 AFTER SALES SERVICES:

The contractor shall ensure adequate and prompt after sales services in the form of maintenance personnel and spares as and when required with a view to minimizing the break down period. Particular attention shall be given to ensure that all spares are easily available during the normal life of installation.

SECTION 2:

37.0 Specification of Drop out Unit: 11kV Drop Out Fuse Unit, Expulsion Type with Polymeric Silicon Rubber Insulator (3 phase, 3 poles)

37.1 **11kV**, 100A Polymeric DO Unit: 11kV, 100A, Polymeric Drop-Out Fuse Unit Expulsion Type suitable for Outdoor, open installation in 11kV distribution system for protection of HT lines and transformer. 11kV D.O. Fuse Unit will confirm in all respects to high standards of engineering design and workmanship and shall be capable of performing in continuous operation. The 11kV D.O. Fuse Unit offered shall be complete with all components necessary for its effective and trouble free operation along with associated equipment irrespective of whether these are brought out separately in the specification or not.

37.2 APPLICABLE STANDARD: Unless otherwise modified in this specification, the Drop out fuse shall conform to IS: 9385 (Part-I to III) as amended from time to time.

- IEC:61109
- IEC:60282-2

Documentary evidence to this effect shall be submitted with the offer.

37.3 Technical Specification

- Nominal Voltage : 11 kV
- Rated Voltage : 12 KV
- Rated Continuous Current : 100 Amp
- Max. Normal Curent Fuse Base : 200 Amp
- Max. Normal Current of Fuse Holder: 100 Amp.
- Frequency : 50 Hz
- Lightning Impulse Withstand Voltage

a) Across the Isolating Distance of Fuse Base: 85 kV (Peak)

b) To Earth between Poles : 75 kV(Peak)

- Breaking Current at 12 kV : 8 KA (Asymmetrical)
- Mounting Angle to Vertical Axis : 20º
- Total Creepage Distance : 290-320 mm
- Bending Withstand Load: 8 KN
- Insulation Level (BIL) : 125 kV
- Temperature Rise

a) Contact : less than 20ºC

b) Terminal: less than 20ºC

- Drop Out Units are to be type tested as per IEC 60282-2 at any NABL accredited Labs in India/country of origin for the following tests:

i) Dielectric Test.
ii) Temperature rise test.
iii) Time (t) / Current (I) characteristic.
iv) Mechanical Test.
v) Breaking Test.

Copy of all the above test certificates are to be enclosed with the offer.

38.0 General Requirements/Constructional Details:

- This is to be designed for outdoor, vertical, cross arm and pole mounting.
- An all copper current path is to be designed to ensure sufficient current transfer. All contacts are to be ETP grade and silver plated. The terminals are to bebrass plated in connector with copper and aluminum conductor.
- The fuse carrier tube can be easily replacable with a new one in any unlikely event of being damaged or burnt.
- The hinged mechanism is to be made up of brass and duly electroplated which shall ensure smooth operation in corrosive environment and produce low resistance current path.The spring loaded stainless steel flipper arranged toggle mechanism should be provided for ensuring wiping action during arc interruption and fast clearance of drop out sequence.
- Arc shortening rod should be incorporated, for achieving higher interruption capacity.

38.1 Fuse Carrier:

The fuse carrier is to be made of strong fibre glass filament wound tube with special ultra-violate resistant external coating. An inner liner of bone fibre is to be used as ablative material for arc quenching. The fuse carrier should be self-aligning into a spring loaded top socket contact. The socket should also prevent the closure of the fuse without the top cap. The trunnion- design using pressure die casting made from high tensile loaded brass should be adopted. The solid design should ensure that hinge cannot distract even if closing and opening of the carrier with stick operated at an angle to the fuse mount. The Fuse Carrier should conform to IS:9385 Part2.

38.2 Contacts: The top contact assembly and the bottom hinge are to be assembled to the insulator in a Jig so that misalignment cannot occur. All the current carrying parts are to be silver plated with minimum of 12 microns ensuring min electrical resistance even after many closing & opening operation.

Terminal palms:
The assembly is to be fitted with bright tin plated copper terminals palms fitted with stainless steel pressure pad, stud, nut & washer. The terminal palms shall accept copper or aluminium terminal lugs or
Stranded conductor for 16 sqmm to 120 sqmm cross section area.

38.3 Insulation: The insulator is to be designed to reduce the possibility of flash arc due to birds or animal life without the fuse of plastic or rubber coverings which may cause radio interference or need regular replacement.

38.4 Make:

- Cooper Power System

- Asiatic Electrical & Switchgear P. Ltd
- Raychem RPG
- ABB Ltd
- Jaipuria Brothers Electrical Ltd

NOTE:

- The unit to be tested at any of NABL accredited testing Labs in India/ Equivalent Labs of country of manufacture.
- The test certificates are to be submitted before installation of DO unit.

39.0 HT Cable Specifications:

11 KV (UE), heavy duty, 3 core power cable with stranded compact circular Aluminium conductor screened with non-metallic semi-conducting tape, cross linked polyethylene (XLPE) insulated, insulation screened with extruded semi conducting compound and copper tape screening; core identification tape, core laid up with Polymeric Fillers, inner PVC ST2 compound sheath (bedding) ; galvanized steel strip armoured and overall ST2 PVC sheathed conforming to IS:7098 (with latest amendment) suitable for 11KV unearthed system (11KV/ 11KV) having following specification and features :

i) Size: 3 core x 240 sq.mm.

ii) Marking:

a) Manufacture's name, voltage grade, size of cable, year of manufacture shall be embossed on the outer sheath of the cable at regular intervals throughout the length of the cable.

b) Cable drum shall be marked with manufacture's name, voltage grade, size of cable, cable code, year of manufacturing, length of cable, gross weight, ISI mark & OIL's purchase order number with suitable paint in permanent manner.

c) Cable length shall be painted in permanent manner with suitable paint at one meter interval.

iii) Construction: Cable shall be so constructed that its outer side is completely round in shape.

SECTION-3
TRANSFORMER

40.0 SCOPE

The specification of the transformer shall be as follows:

400kVA, 11Kv-3.3KV/415 Volts Dual Core , Resin Cast, 3 Phase, 50 Hz, double winding, copper conductor, Dry type, natural air cooled distribution transformer for indoor installation & as per following specifications:

A. GENERAL:

a. Applicable Indian Standard: IS: 11171 and IS: 2026 with latest amendments.
b. Service duty : Continuous.
c. Installation : Indoor.
d. Auxiliary power supply : 230V AC ± 10 %
e. Control Voltage : 230V AC ± 10 %

B. SITE CONDITION:

a. Maximum Ambient air temperature : 40ºC
b. Minimum Ambiant air température : 6.0ºC
c. Maximum humidity at site (at 40 º C) : 98 %
d. Surrounding atmospheric condition : Humid
e. Site altitude : 120 mtrs.
f. Seismic design co-efficient : As per IS: 1893.
g. Rainfall : 200 cm (annually.)

C. RATING AND GENERAL DATA:

a. Rating : 400kVA
b. No. of phases : 3.
c. Frequency : 50 ± 3 %
d. Type of Insulation: Class-F. Temp. rise-90 º C
e. Partial discharge: As per IS-11171, IS-6209.
f. Type of cooling : AN
g. Installation : Indoor
h. Vector group : Dyn 11
i. Percentage impedance: 5.0%. Tolerance as per IS-2026.
j. Nominal system voltage: 11kV-3.3KV / 415 Volts
k. Type of neutral earthing: Solidly grounded Neutral.
l. Symmetrical short circuit withstands capacity: As per IS-11171.
m. Rated short duration power frequency withstands voltage: As per IS 11171.
n. Rated lightning impulses withstand voltage: As per IS 11171
o. Transformer sound level should not exceed 60 db.
p. Water absorption (24hrs @25C): less than 0.05% (superior insulation, longer life)
q. Chemical Resistance: Painting must have excellent performance rating.
r. Dielectric Strength: Minimum of 3200 volts/mil dry (for superior stress, Over voltage tolerance)
s. Dissipation Factor: Max. 0.02 @25 degree C to reduce aging of insulation.

40.1 TAP CHANGER:

a) HT Tap Changer: Tap Changer for Voltage level shall be in HV Side. Voltage level 11KV and 3.3KV. There shall be locking arrangement. Tap changer shall be of OFF - Circuit.

b) LT Tap Changer:

Type : Off-Circuit Tap Links
Total tapping range : ± 5.0 %
Tapping steps : In steps of 2.5 %.
Markings shall be clear enough to indicate the tap position.

40.2 TERMINAL ARRAGEMENT:

HV winding line end : Cable box
LV winding line end : Cable box

One neutral bushing outside the cable box shall be provided for grounding.

41.0 BUSHING: Made from non-hygroscopic epoxy resin cast material suitable for site condition mention in Para- B & conforming to IS-2099

42.0 CABLE BOX:

a) HV cable box should be suitable for termination of 2 nos 3Cx120 sq. mm XLPE armoured, copper conductor cable with heat shrink type cable termination. The bottom plate shall be detachable type and 2 nos. heavy duty single compression cable glands suitable for 3Cx240 sq mm XLPE armoured cables shall be fitted. Cable Box standard should be as per IP-54.

b) LV cable box should have brought out electro-tinned copper bus bars of suitable rating & size for termination of 3 nos. of 3½x 240 sq. mm Copper cables. The cable box should have detachable cable gland plate fitted with suitable heavy duty single compression cable glands for the cables mentioned above. Support bar in LV cable box should be made up of fiber glass. Cable Box standard should be as per IP-54.

c) Terminals should be marked as per IS: 2026 -1977.

43.0 TRANSFORMER CORE:

a) Material : High grade cold rolled grain oriented silicon steel.
b) Structure : Grounded and sharp corners avoided.
c) Lamination : Treated and coated with suitable insulations. The core limbs & yokes are banded by means of resin glass tape to reduce vibration & noise.

44.0 TRANSFORMER WINDING:

The winding material should be high conductivity electrolytic grade copper. The insulation should be Cast Resin type, Class-F. Conductor should have thermally upgraded paper (Nomex) insulation reinforced with fiber glass. The coil assembly is to be impregnated & cast under vacuum with epoxy resin for achieving non-hygroscopic, acid & alkali resistant insulation. The complete winding should have smooth cylindrical finish after impregnation to ensure high mechanical strength. The thickness of resin should be uniform. The insulation should be self- extinguishing type. Mounting of the winding to the transformer case shall be of vibration resistance pad placed uniformly in all direction.

(i) The windings/connection of transformer shall be braced to withstand shocks, which may occur during transport or due to short circuit, repeated peak loads and other transient conditions during service.

(ii) Windings shall be subjected to a shrinkage treatment before final assembly so that no further shrinkage occurs during service.

(iii) The conductors shall be transposed at sufficient intervals in order to minimise eddy currents and equalise the distribution of currents and temperature along the windings.

(iv) Windings shall not have sharp bends which might damage insulation and /or produce high dielectric stresses.

(v) Coils shall be supported using dried and high pressure compressed wedge type insulation spacers at frequent intervals.

(vi) All threaded/bolted connections shall be locked. Leads from the winding to the terminal board and bushings shall be rigidly supported to prevent injury during short circuits/vibration.

(vii) Permanent current carrying joints in the windings and leads shall be welded or brazed.

45.0 ENCLOSURE:

Enclosure for transformer shall be fabricated of minimum 14 SWG gauge properly cleaned degreased and painted as per manufacturer's standard practice. The core & winding assembly should be housed inside a sheet steel enclosure with removable inspection & tap changer covers. The enclosure should offer IP-23 protection as per IS-2147 and should have suitably designed louvers for circulation of cooling air. All the gaskets should be of neoprene rubber. All non-energized metallic parts of the transformer shall be grounded.

46.0 Name plate:
Transformer shall be furnished with a non-corrosive diagrammatic name plate permanently attached with non-corrosive hardware with following information's:
(i)KVA rating
(ii)Primary and secondary voltage.
iii) HT Tap Voltage
(iv)Primary and secondary current.
(v)Frequency.
(vi)Nos. of phases.
(vii)Percentage of impedance.
(viii)Types of cooling.
(ix)Connection & symbol.
(x)Tap configuration.
(xi)Insulation system and rated maximum temperature rise.
(xii)Sound level.
(xiii) K- factor rating (if available)
(xiv)Year of manufacture.
(xv)Design impedance.
(xvi)Manufacturer's name.
(xvii)Net weight.
(xviii)IS standard.
(xix) OIL's P.O. no. and date.

47.0 Lifting hook: Suitable Lifting hook shall be provided on the top of the transformer for transportation/installation of transformer.

48.0 LIST OF FITTNGS AND ACCESSORIES:
a. HV bushings inside HV cable box: 3 nos. rated for 11kV.
b. LV bushings in side LV cable box : 4 nos.(3P+1N) rated 415 Volts
c. Outside LV cable box : 1 no. for grounding.
d. Digital Winding temperature scanner connected with three nos. RTDs, one each for each LV winding, should be provided in a metallic enclosure (Marshalling box) that is mounted on the main enclosure. The scanner shall have potential free NO contacts to provide indication, alarm & trip contacts. Winding temperature indicator should show maximum temperature attained. The RTDs should be properly wired up to the scanner terminals. Temperature setting of each contact shall be independently adjustable at site.
e. Earthing terminals - 2 nos for body earthing.
f. Jacking lugs.
g. Inspection cover - 2 nos placed in opposite site
h. Base channels with bi-directional rollers - 2 nos.

i. Any other accessories which bidders think essential may also be included as optional.

49.0 Earthing: Earthing shall be as per IS-3043.All metal parts of the transformer with the exception of individual core laminations core bolts and associated individual clamping plates shall be earthed internally. Suitable arrangement shall be made for earthing of neutral externally.

50.0 Wiring: All internal wiring shall be done with 1.1 kv grade fire retardant PVC insulated tinned copper multi stranded cable with proper lugs. Ring lugs shall be used at all connections such as CTs connection etc. All terminal strips shall have minimum 2 nos. spare terminals to accommodate any modification required during commissioning /operation. All terminals shall be accessible for testing and troubleshooting/ maintenance. All cable shall have ferules.

52. Transformer winding shall be specially braced to withstand to thermal and mechanical stresses of harmonic current and voltage.

53. Transformer Make: Crompton Greaves/ Raychem RPG/ Volt Amp/Kirloskar

54. **GENERAL TERMS AND CONDITIONS related to Transformer :**

a) The contractor shall submit following documents after LOA for approval

(i) Make and technical details as mentioned in Appendix #B of IS: 2026 #1977, Part-I.

(ii) Type test certificate of similar dry type 400KVA transformer

(iii) Dimensional details of the transformer

The contractor shall place order for transformer after getting approval from OIL

b) Inspection at Manufacturer's works

(i) All routine tests and special tests as per IS: 11171 are to be carried out in presence of OIL's Engineer at manufacturer's works. The contractor will give intimation to OIL 15 days advance prior to commencement of tests so that OIL can depute representative for witnessing tests on time.

(ii) The dispatch will be cleared only if the test results comply with the specifications and testing results are within the tolerance limits.

(iii) Materials / equipment failed to conform to the specifications/during testing, OIL's representative shall have the right to reject the materials and in that case, the contractor will either replace the rejected materials or make alterations necessary to meet specifications requirements free of costs.

c) The contractor must submit list of installation & commissioning checks recommended by the manufacturer required for the transformer before installation and commissioning of the transformer

d) The contractor must submit manufacture's test certificates for all the components & assemblies as required by IS-11171 with latest amendments to OIL before installation and commissioning at site .

e) The contractor must ensure the presence of manufacturer's representatives during installation and commissioning of the transformer

f) Tests at Site : In addition to tests at manufacturer's premises, all relevant pre- commissioning checks and tests conforming to IS code of practice No. 10028 (Part II & III) shall be done before energization. The following tests are to be particularly done before cable jointing.

(i) Insulation test between HV to earth and HV to MV with 5000 volts Megger.

(ii) Insulation test between MV to earth with 500 volts Megger.

g) Installation and Commissioning

i) The transformer shall be installed in accordance with IS 10028 (Part II & III)-Code of practice for Installation and maintenance of transformer. Necessary support channels shall be grouted in the flooring.
ii) The Transformer shall be moved to its location and shall be correctly positioned. Transformer wheels shall be either locked or provided with wheel stoppers.
iii) Wiring of devices shall be carried out as per drawings; Earthing of neutral and body of the transformer shall be done as per IS
iv) All devices shall be checked for satisfactory operation.
v)All installation and commissioning test shall be carried out by the contractor in the presence of OIL's Engineer free of cost.

SECTION 4 :
LT Panels
55.0 Scope:
This Section covers the detailed requirements of medium voltage switch Panel for 415V, 3 phase 50Hz , 4 wire system. These shall be branded and/or assembled/ fabricated from a factory of repute. All switchgears shall be fully rated at an ambient of 40 degree C.

55.1 Type of Panel
The medium voltage switch board panel shall comprise of following types of switchgears or combination thereof as specified.
(a) Air Circuit breakers draw out

(b) MCCBs of suitable ratings. MCCBs shall invariably be Current Limiting type. Features like Double Break, Positive Isolation functions shall be there.

General specification of Moulded Case Circuit Breakers :
MCCB, 415V (Ue), 690V (Ui), 36 kA or above breaking capacity rated four pole fixed type Moulded case circuit breaker, (electronic/microprocessor controlled) with adjustable settings [long delay (0.4-1.0 In)/short delay (1.5-10 long delay setting)/ground fault (0.1-1.0 In) with individual time settings] with separate earth leakage module. Earth leakage module shall have range of 0.03-3.0 Amps and 0- 3 seconds, both current and time in adjustable steps. The earth leakage protective device may be CBCT + EL module combined or a separate, but MCCB mountable EL module. The MCCBs shall conform to IEC60947-2/IS 13947-2, tropicalized to Class-II (high humidity). Make: Merlin-Gerin/ Legrand/ Siemens/ ABB /Indo-Asian.

The Panel shall be indoor type having incoming sectionalization and outgoing switchgears as specified in BOQ. The design shall be cubicle type. The degree of enclosure protection shall be IP 42 as per IS:13947 (Part-I).

55.2 LT Panel specs for PCC and Distribution panel:

55.2.1 General Construction
The switchboard shall be floor mounted free standing totally enclosed and extensible type. The switch board shall be dust & vermin proof and shall be suitable for the climate conditions as specified. The design

shall include all provisions for safety of operation and maintenance personnel. The general construction shall conform to IS: 8623/1993 for factory assembled switch board.

55.2.2. Cubicle type panels shall be fabricated out of sheet steel not less than 2.0 mm thick. Wherever necessary, such sheet steel members shall be stiffened by angle iron frame work. General construction shall employ the principle of compartmentalization and segregation for each circuit. Incomer and bus section panels or sections shall be separate and independent and shall not be mixed with sections required for feeders. Each section of the rear accessible type panel shall have hinged access doors at the rear. Overall height of the panel shall not exceed 2.4 meters. Operating levers, handle etc. of highest unit shall not be higher than 1.7 meters. Multi-tier mounting of feeder is permissible. The general arrangement for multi-tier construction shall be such that the horizontal tiers formed present a pleasing and aesthetic look. The general arrangement shall be approved before fabrication. Cable entries for various feeders shall be either from side or bottom. Through cable alleys located in between two circuit sections, either in the rear or in the front of the panel. All cable terminations shall be through gland plates. There shall be separate gland plate for each cable entry so that there will not be dislocation of already wired circuits when new feeders are added. Cable entry plates shall therefore be sectionalized. The construction shall include necessary cable supports for clamping the cable in the cable alley or rear cable chamber.

55.2.3 Bus Bar and Connections The bus bars shall be of aluminium of high conductivity electrolytic quality and of adequate section. The bus bar system may comprise of a system of main horizontal bus bars and ancillary vertical bus bars. All connections to individual circuits from the bus bar shall preferably be solid connections. All bus bars and connections shall be suitably sleeved / insulated in approved manner.

55.2.4 Incomer / Termination:
Incomer termination shall be suitable for receiving underground cables. Cable terminations shall invariably be through terminal blocks (Polyamide or superior) or brought out solid terminals.

55.2.5 Indicating Lamps and meters:
On all the incomers of LT panels, ON/OFF indicating LED lamps shall be provided and shall be suitable for operation on AC supply. Phase indicating LED lamps shall be associated with necessary ON/OFF toggle switch. Meters shall be digital and multifunctional with facility for selection.

55.2.6 Small Wiring:
All small wiring for Controls, Indication etc. shall be of with suitable FRLS/HFFR (halogen free fire retardant) copper conductor cables. Wiring shall be suitably protected within switch board. Runs of wires shall be neatly bunched, suitably supported and clamped. Means shall be provided for easy identifications of the wires. Identification ferrules shall be used at both ends of the wires. All control wiring meant for external connections are to be brought out of terminal board.

OPERATIONAL REQUIREMENTS
The indoor type LT panel shall conform to the following: -
(a) The panel shall comprise of incomers, outgoing feeders and bus coupler as specified. The incomer shall be either a double break / contact repulsion MCCB or an Air Circuit Breaker. The bus coupler shall be either a circuit breaker or a double break / contact repulsion MCCB as specified . The outgoing feeders shall be circuit breakers/MCCBs as specified.

b) All incoming AIRCIRCUIT BREAKER/MCCB shall have suitable adjustable tripping current and the time delay settings.
(c) The entire panel shall have a common earth bar of size as specified with two terminals for earth connections.

56.0 Rating and Requirements

56.1 Air Circuit Breaker:

All Air Circuit Breakers shall be 800 A 4 pole,EDO type with minimum 50 KA breaking capacity (35 MVA at 433V) conforming to IS: 13947 (Part-II). Rated current shall be as per capacities specified. The equipment shall be complete with the following: -
(a) Necessary circuit breaker carriage with 3 position (isolate, test, service) draw-out mechanism.
(b) Necessary isolating plugs and sockets.
(c) Necessary mechanism interlock and automatic safe shutters gear with arrangement for pad locking.
(d) Necessary independent manual spring mechanism with mechanical On/Off indication as well as electrical On/Off indication.
(e) Necessary bus bars with bolted type neutral links.
(f) ACB shall be provided with microprocessor based releases having built in over load, short circuit & earth fault protection. Microprocessor release shall be EMI (Electro Magnetic Induction)/EMC (Electro Magnetic Compatible) certified.
(g) Necessary set of auxiliary switches.
(h) Necessary set of CTs with ratios as specified.
(i) Necessary identification, metering requirements as specified i/c. ON/ OFF indication lamps, selector switches, fuses, ammeter, voltmeter etc.
(j) In case of 4 pole breaker neutral shall be fully rated with adjustable settings from 50% to 100% of In.
(k) ACB terminals shall be suitable/suitably brought out for direct aluminum termination as per IS 13947 Part-II.

56.2: MCCB:

All MCCBs shall be current limiting type with features of load line reversibility and suitable for Horizontal/Vertical mounting without any derating. The MCCBs shall invariably be used with terminal spreaders.

57.0 TESTS AT MANUFACTURERS WORK:

The LT panels shall be inspected at manufacture's works and all routine tests shall be carried out and test certificates produced to OIL. The contractor shall inform OIL 15 days before the date of inspection.

58.0 INSTALLATION:

The installation work shall cover assembly of various sections of the panels lining up, grouting the units etc. In the case of multiple panel switch boards after connecting up the bus bars etc., all joints shall be insulated with necessary insulation tape or approved insulation compound. A common earth bar shall be run inside at the back of switch panel connecting all the sections for connection to frame earth system. All protection and other small wirings for indication etc. shall be completed before calibration and commissioning checks are commenced. All relays, meters etc. shall be mounted and connected with appropriate wiring.

TESTING AND COMMISSIONING
Commissioning checks and tests shall include all wiring checks and checking up of connections. Relay adjustment/setting shall be done before commissioning in addition to routine Megger tests. Checks and tests shall include the following: -
(a) Operation checks and lubrication of all moving parts.
(b) Interlock function checks.
€ Continuity checks of wiring, fuses etc. as required.
(d) Insulation test: When measured with 500V Megger the insulation resistance shall not be less than 100 mega ohms.
€ Trip tests and protection gear test.

SECTION 5
CABLE WORKS
59.0 SCOPE
This section covers supply, laying and jointing as required and testing and energizing all cable work.

59.1 SPECIFICATION OF CABLE

59.1.1 11 KV grade XLPE insulated PVC sheathed armoured Aluminum cable shall be 3 core earthed of sizes as specified. The cable shall conform to IS-1554, Part II

59.1.2 1.1 KV grade PVCA armoured Aluminum cable shall be 3 ½ /4 core of sizes as specified. The cable shall conform to IS1554 Part I.

59.1.3 All control wires shall be 650V grade copper conductor Halogen free fire retardant or FRLS PVC insulated, conforming to IS: 1554 Part I. The minimum size of the control wires shall be 1.5 sq. mm.

60.0 INSTALLATION:
Cable shall be laid in ground, trenches, cable trays and on walls as specified. Installation shall include all supports and clamps as required.
Laying of cables in underground trench: The normal size of trench will be 45 cm width and 75 cm depth for LT cable and 90 cm depth for HT cable. The pit size will be 120 cm to 150 cm, diameter with same depth of trench. After levelling and dressing of the trench, cable shall be laid with a sand cushioning of 75mm below and above the laid cable. Bricks will be placed croswise above the sand cushioning and back fill the trench.

60.1 JOINTING FOR 11 KV GRADE CABLE GLANDS
Indoor and Outdoor cable jointing work shall be carried out only by licensed experienced cable jointer and shall be in accordance to the relevant IS.

SECTION 5
SAFETY REQUIREMENTS

61.0 SCOPE
This section covers the safety requirements of items to be provided in the sub-station for compliance with statutory regulations. Safety and operational needs.

61.1 REQUIREMENTS:

(A) Danger Plate: Danger Plates shall be provided on HV and MV equipments. MV danger notice plate shall be 200 mm x 150 mm made of mild steel at least 2mm thick vitreous enameled white on both sides and with the descriptions in signal red colour on front side as required. Notice plates of other suitable materials such as stainless steel, brass or such other permanent nature material shall also be accepted with the description engraved is signal red colour.
(B) Tool Box: A Standard tool box containing necessary tools required for operation and maintenance shall be provided in the sub-station.
(C) Caution Board: Necessary number of caution boards such as "Man on Line" 'Don't Switch on' etc. shall be provided by the Contractor.

62.0 WORKMANSHIP:
Good workmanship is an essential requirement to be complied with. The entire work of manufacture/fabrication, assembly and installation shall conform to sound Engineering practice.

The work shall be carried out under the direct supervision of a first class licensed foreman, or of a person holding a certificate of competency issued by the State Govt. for the type of work involved, employed by the contractor, who shall rectify then and there the defects pointed out by the Engineer-in-charge (Electrical) during the progress of work.

62.1 COMMISSIONING ON COMPLETION: Before the workman leaves the work finally, he must make sure that the installation is in commission, after due testing.

62.2 DRAWINGS: The work shall be carried out in accordance with the drawings enclosed with the tender documents and also in accordance with detailing to be receive from OIL Engineer-in-charge in charge immediately after award of contract also modification thereto from time to time as approved by the OIL Engineer-in-charge.

All circuits shall be indicated and numbered in the wiring diagram and all points shall be given the same number as the circuit to which they are electrically connected.

63.0 Following drawings & documents shall be supplied.

Sl No.	**Name of the Document**	**No. of Copies After Order**	**For Approval**	**Final**
i.	Specification Sheet	2	6	
ii.	Technical particulars	2	6	
iii.	Feeder Details	2	6	
iv.	General Arrangement Drag. and Foundation Plan	2	6	
v.	Schematic/wiring Diagrams	2	6	
vi.	Terminal Arrangement Drawing	2	6	
vii.	Illustrative and Descriptive Literature	-	4	
viii.	Installation and operation and maintenance manual	-	4	

ix.	Test Certificates		
	i) Switch Board, MCCB's	-	-
	ii) Routine	-	4
x.	Guaranty/Warranty Certificate	-	2
xi.	Spare Parts List if any	-	4

Note: All final drawings shall be submitted prior to despatch of equipment. These shall be made in sets and shall be supplied in fine plastic coated folder.

64.0 PRICE VARIATION: Owner require "FIRM PRICES" as indicated in General Conditions or Contract during Contract period and no material or labour escalation shall admissible on any account whatsoever. It is to be noted that no deviation on contract period requirements in this connection will be acceptable.

65.0 MEASUREMENTS, BILLING & TERMS OF PAYMENT: All works shall be measured in metric system based on actual work done as per the terms and conditions of the Tender documents. Running Accounts bills based on Bill of Quantity shall be prepared and submitted based on joint measurements.

66.0 FINAL BILL: The final bill shall be submitted by the Contractor within three months of physical completion of the work or within one month of the date of the final certificate of completion furnished by the Company whichever is earlier. No further claims shall be made by the Contractor after submission of the final bill and these shall be deemed to have been waived and extinguished.
Payments of those items of the bill in respect of which there is no dispute and of items in dispute, for quantities and rates as approved by Company, will as far as possible be made within 6 months, the period being reckoned from the date of receipt of the bill by the Company, complete with no claim and no dues by contractor, No Objection Certificate from labour officer and all completion documents including material consumption statement.

67.0 DEDUCTIONS FOR INCORRECT WORK: If, the Engineer-in-charge(Electrical) deems it expedient to correct work, damaged or not done in accordance with the contract, an equitable deduction from the contract price shall be made thereof and the decision of the OIL shall be final.

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APPENDIX-A

APPROVED MAKE OF MATERIAL

1 SINGLE CORE COPPER CABLES (STRANDED/FLEXIBLE) 1100 V GRADE, IS 694 COPPER CONDUCTOR FRLS INSULATED WIRES.
" FINOLEX
" HAVELL'S
" L&T
Polycab

2. Aluminium/COPPER LUGS
" DOWEL or EQUIVALENT

2. SWITCH SOCKET (MODULER TYPE)

" MK
" LEGRAND-
" CRABTREE
Anchor
L&T
4. PVC CASING CAPPING
" MODI
" AKG
" MK
" PPRESO PLUS
" PLAZA
5. METAL CLAD SWITCH SOCKET UNIT
" LEGRAND,
" MERLIN GERIN
" SIEMENS
" HAVELLS
" INDO ASIAN
6. CEILING FAN
" USHA
" KHAITAN
" HAVELLS
BAJAJ
7. EXHAUST FANS
" USHA
" KHAITAN
" CG
Havells
8. LIGHT FITTINGS
" PHILIPS
" CROMPTON
" GE
" HAVELLS
" BAJAJ
9. CFL LAMPS
" PHILIPS
" HAVELLS
" OSRAM
" GE
BAJAJ
10. MCCB
" SCHNEIDER
" SIEMENS
" LEGRAND
" HAVLLS

L&T
Indo asian

11. AIR CIRCUIT BREAKERS
" SIEMENS
" SCHNEIDER
" LERAND
" L&T
GE

12. MCB'S & MCB DBs (l0KA)
" SCHNEIDER
" SIEMENS
" LEGRANDS
" HAVELLS
Indo Asian
13. AIR CONDITIONESRS
" BLUE STAR
" VOLTAS
" CARRIER
" LG
" SAMSUNG

14. TRANSFORMER
" CROMPTON
" RAYCHEM RPG
" KIRLOSKAR
" PETE
" VOLTAMP
BHARAT BIJLI
15. LT PANELS
" LOTUS
" RIG HILL
" ASSAM ELECTRICALS
" ELECTROKINGS
L&T
Siemens

OTHER ITEMS: AS APPROVED BY THE ENGINEER-IN-CHARGE IN-CHARGE OR AS PER BOQ AND SPECS.

Appendix -I

LIST OF INDIAN STANDARDS

I : ELECTRO -TECHNICAL VOCABULARY:

(1) Fundamental definition IS: 1885 (Part-I) 1961
(2) Secondary cells and batteries (Superceding IS: 1885 (Part-VIII) 1986, IS: 1147-1957)
(3) Electrical power system protection IS: 1885 (Part-X) 1993
(4) Electrical Measurement IS: 1885 (Part-XI) 1966
(5) Switchgear and control gear (First revision) IS: 1885 (Part-XVII) 1979
(6) Overhead transmission and distribution of IS: 1885 (Part-XXX) 1971 electrical energy
(7) Cables, conductor and accessories for Electrical IS: 1885 (Part-XXXII) 1993 supply (Superseding IS : 1591-1960)
(8) Transformers (First revision) IS: 1885 (Part-XXXVIII) 1993

II : GRAPHICAL SYMBOLS USED IN ELECTRO TECHNOLOGY :
(1) Guide for preparation of diagrams, charts & IS: 8270 (Part-I) 1976 tables for electro technology. Defenitions and classification (Superceding IS: 2032 (Part-I) 1962
(2) Item designation IS: 8270 (Part-II) 1976
(3) General requirements for diagrams IS: 8270 (Part-III) 1977
(4) Circuit diagrams IS: 8270 (Part-IV) 1977
(5) Inter connection diagrams and table IS: 8270 (Part-V) 1976

III : CONDUCTOR AND POWER CABLES :
(1) PVC insulated cable for working voltages IS: 694/1990 upto and including 1100 volts (Second revision) (Superceding IS: 3035 Part I 1965)
(2) (i) PVC insulate (Heavy duty) working IS:1554 (Part-I)/ 1988 dielectric cables for voltage upto & i/c. 1100 volts (Second revision)
(ii) For working voltage from 3.3 KV upto IS: 1554 (Part II)/1988 and including 11KV
(3) (i) Recommended current ratings for cables: IS:3961 (Part I) 1967 Paper insulated lead sheathed cables.
(ii) PVC insulated and PVC sheathed heavy IS: 3961 (Part II) 1967 duty cables.
(4) Application guide for non linear resistor type IS: 15086 (Part-5).Surge arrester for alternating current system (First revision)
(5) Recommended short circuit ratings of high IS: 5819-1970 voltage PVC cable
(6) Conductors for insulated electric cables and IS: 8130/1984 flexible cords.
(7) Busbar trunking system (Air insulated & IS: 8623 Part I & II/ 1993, sand witch insulated type) IS: IEC 60439-Part I & II

IV : LEECTRICAL INSTALLATION CODE OF PRACTICES :
(1) Installation and maintenance of transformers IS: 10028 (Part-II & III)
(2) Insulation oil in service, maintenance and IS: 1866/2000, supervision code of practice for
(3) Earthing 1S : 3043/1987
(4) Guide for short circuit calculations IS: 13234
(5) Electrical wiring installation (system voltage IS: 732/1989 not exceeding 650 volts)
(6) Paper insulated power cables (Upto and IS: 1255/1983 including 33KV (first revision)

V : SWITHC GEAR AND CONTROL GEAR :
(1) Degree of protection provided by the IS: 13947 (Part-I) (enclosure for low voltage switchgear and

control gear)
(2) HRC cartridge fuse links upto 650 volts. IS: 9224 (Part-II)
(3) (i) Circuit breaker AC requirements & tests IS:13947 (Part -II) for voltages not exceeding 1000 Volts a.c or 1200 volts d.c.
(ii) General and definition. Section 2- IS: 13118-1991 Voltages above 1000 volt a.c.
(iii) Type tests & Routine test for voltage IS: 13118-1991 above 1000 Volt a.c.
(4) Heavy duty air break switches and composite IS: 4064 units of air break switches & fuses for voltages not exceeding 1000 volts.
(5) General requirements for switch gear, control IS: 13947 (Part-I) gear for voltage not exceeding 1000 volts.
(6) (i) Factory built assemblies of switch gear IS:1000 V AC or 8623/1993 and control gear for voltages upto & including 1200 V DC.
(ii) Particular requirements for bus bar IS: 8623 (Part II)/1993 trunking system (Bus ways)
(7) High Voltage alternating current circuit IS: 13118-1991 breakers IEC : 60056
(8) High Voltage Switches -Part I : Switches for IS: 9920-2002 Rated Voltages Above I Kv and Less Than 52Kv
(9) A.C Metal Enclosed Switchgear and Control IS : 3427-1997 gear for Rated Voltages Above I Kv and UP to and Including 52 Kv
(10) Electrical Measuring Instruments and their IS: 1248 Accessories

VI : TRANSFORMERS ANDF REACTORS :
(1) Dry type power transformer IS: 11171-1985
(i) Current transformers Part I to III IS: 2705/1992
(ii) Voltage transformers Part I to III IS: 3156/1992
(2) Outdoor type three- phase distribution IS: 2099/1986 transformers
(3) Insulating Mats IS: 15625/2006

APPENDIX - B

IMPORTANT INDIAN STANDARDS

(1) IS:732 - 1989 Code of practice for electrical wiring installations.
(2) IS:4648 – 1968 Guide for electrical layout in residential buildings.
(3) IS:8061 – 1976 Code of practice for design, installation and maintenance of service lines up to and including 650V.
(4) IS:8884 – 1978 Code of practice for installation of electric bells and call system.
(5) IS:5578 – 1985 Guide for conductor marking of insulated
(6) IS:11353- 1985 Guide for uniform system of marking and identification of conductors and apparatus terminals.
(7) IS:5728 - 1970 Guide for short-circuit calculations.
(8) IS:7752(part-l)-1975 Guide for improvement of power factor in consumer installation Low and medium supply voltages.
(9) IS:3 646(part-l)-1966 Code of practice for interior illumination. Principles for good lighting and aspects of design.
(10) IS:3646(part-2)-1966 Code of practice for illumination. Schedule of interior illumination and glare index.
(11) IS:3646(part-3)-1968 Code of practice for interior illumination. Calculation of coefficients of utilization by the BZ method lighting.

(12) IS:2672 – 1966 Code of practice for library lighting.
(13) IS:lOI18(part-l)-1982 Code of practice for selection, installation and maintenance switchgear and of control gear General.
(14) IS:lOI18(part-2)-1982 Code of practice for selection, installation and maintenance of switchgear and control gear .
(15) IS:l 0 118(part-3)-1982 Code of practice for selection, installation and maintenance of switchgear and control gear installation.
(16) IS:I0118(part-4)-1982 Code of practice for selection, installation and maintenance of switchgear and control gear Maintenance.
(17) IS:4146 - 1983 Application guide for voltage transformers.
(18) IS:4201 – 1983 Application guide for current transformers.
(19) IS:5547 – 1983 Application guide for capacitor voltage transformers
(20) IS:2309 – 1989 Code of practice for the protection and alliedstructures against lightning.
(21) IS:3043 - 1987 Code of practice for earthing.
(22) IS :5216(part-l)-1982 Guide for practices safety procedures and in electrical work General.
(23) IS:5216(part-2)-1982 Guide for safety procedures and practices in electrical work: Life saving techniques
(24) IS:3696(part-2)-1966 Safety code For scaffolds and ladders
(25) IS:374- 1979 Electric ceiling type fans and regulators.
(26) IS:2997 – 1964 Air circulator type electric fans and regulators.
(27) IS:11037- 1984 Electronic type fan regulators.
(28) IS:12155- 1987 General and safety requirements for fans and regulators for household and similar purposes.
(29) IS:4237 - 1983General requirements for switchgear and controlgear for voltages not exceeding 1000 V ac or 1200V DC.
(30) IS:6875(part-1)-1973 Control switches (switching Devices for control and auxiliary circuits including contactor relays) for voltages up to and including 1000 V AC and 1200VDC : General requirements and tests.
(31) IS:6875(part-2}.1973 Control switches (switching devices for control and auxiliary circuits including contactor relays) for voltages up toand including 1000 V AC and 1200V DC : Push- buttons and related control switches.
(32) IS:6875(part-3)-1980 Control switches (switching devices for control and auxiliary circuits including contactor relays) for voltages upto and including 1000 V AC and 1200VDC: Rotary control switches.
(33) IS:10027-1981 Composite units of air-break switches and rewireable type fuses for voltages not exceeding 650 V AC.
(34) IS:4064(part-1)-1978 Air break switches, air break disconnectors, air-break switch disconnectors and fuse-combination units for voltages not exceeding 1000 V AC or 1200 V DC : General requirements
(35) IS:2675 – 1983 Enclosed distribution fuse-boards and cutouts for voltage not exceeding 1000V
(36) IS:8828 – 1978 Miniature air break circuit breakers for voltages not exceeding 1000 volt.
(37) IS:13032- 1991 Miniature circuit breaker boards for voltages up to and including 1000 volts AC.
(38) IS:12640- 1988 Residual current operated circuit breakers.
(39) IS:2959 – 1985 Contactors for voltages not exceeding 1000 V AC or 1200 V DC
(40) IS:8623(part-1)-1977 Factory built assemblies of switchgear and controlgear for voltages up to and including 1000 V AC and 1200V DC : General requirements.

(41) IS':8623(Part-2)-1980 Factory built assemblies of switchgear and controlgear for voltages upto and including 1000 V AC and 1200V DC .Particular requirements for busbartrunking system (busways).
(42) IS:694 - 1990 PVC Insulated cables for working voltages upto and including 1100 V
(43) IS:l554(part-1)-1988 PVC insulated (heavy duty) electric cables: For working voltages upto and including 1100 V
(44) IS:3 961 (part-5) 1968 Recommended current ratings for cables: PVC insulated light duty cables.
(45) IS:4288 - 1988
PVC insulated (heavy duty) electric cables with solid aluminium conductors for voltages upto and including 1100 V
(46) IS:9537(part-1)-1980 Conduits For electrical installations :Generalrequirements.
(47) IS:9537(part-2)-1981 Conduits for electrical installations Rigid steel conduits
(48) IS:3480 – 1966 Flexible steel conduits for electrical wiring.
(49) IS:2667 – 1988 Fittings for rigid steel conduits for electrical wiring
(50) IS:3837 – 1976 Accessories for rigid steel conduits for electrical wiring
(51) IS:5133(part-l)-1969 Boxes for enclosure of electrical accessories: Steeland cast iron boxes.
(52) IS:2412 - 1975 Link clips for electrical wiring
(53) IS:371 - 1979 Ceiling roses
(54) IS:3854 – 1988 Switches for domestic and similar purposes
(55) IS:4615 - 1968 Switch socket outlets (non interlocking type).
(56) IS:4160 – 1967 Interlocking switch socket outlet.
(57) IS:1293 - -1988 Plugs and socket outlets of rated voltage up to and including 250volts and rated current upto and including 16 amperes
(58) IS:418- 1978 Tungsten filament general service electric lamps.
(59) IS:2418(part-l)-1977 Tubular fluorescent lamps for general lighting service:Requirements and tests.
(60) IS:1258 – 1987 Bayonet lamp holders
(61) IS:3323 – 1980 Bi-pin lamp holders for tubular fluorescent lamps
(62) IS:3324 - 1982 Holders for starters for tubular fluorescent lamps
(63) IS:2215 - 1984 Starters for fluorescent lamps
(64) IS:1534(part-l)-1977 Ballast for fluorescent lamps: For switch startcircuits.
(65) IS:1569 – 1976 Capacitors for use In tubular fluorescent high pressure mercury and low pressure sodium vapor discharge lamp circuits.
(66) IS:1913(part-l)-1978
General and safety requirements for luminaries: Tubular fluorescent lamps
(67) IS: 1 03 22(part-l)-1982 Luminaries: General requirements.
(68) IS:10322(part-2)-1982 Luminaires Constructional requirements
(69) IS:10322(part-5/Sec-l) Luminaries Particular requirements: Recessed luminaries.
(70) IS:1777 – 1978 Industrial reflectors luminaries with metal reflector
(71) IS:302- 1979 General and safety requirements for household and similar electrical appliances.
(72) IS:2268 – 1988 Electric call bells and buzzers for indoor use.
(73) IS:6236 – 1971 Direct recording electrical measuring instruments.
(74) IS:1248(part-l)-1983 Direct acting indicating analogue electrical measuring instruments and their accessories: General requirements.
(75) IS:1248(part-2)-1983 Direct acting indicating analogue electrical measuring instruments and their accessories .Ammeters and voltmeters.
(76) IS:722(part-l)-1988 AC electricity meters: General requirements and tests.
(78) IS:2551 -1982 Danger notice plates

(79) IS:2448(part-1)-1963 Adhesive insulating tapes for electrical purposes: Tapes with cotton textile substrates
(80) IS:1885(part-1)-1961 Electrotechnicalvocabulary : Fundamental definitions
(81) IS :1885(part-16/Sec-1) Electrotechnical vocabulary: Lighting: General -1968 aspects
(82) IS:1885(part-16/Sec-2) Electrotechnicalvocabulary:Lighting: General -1968 illumination, lighting fittings and lighting for traffic and signaling.
(83) IS:1885(part-17)-1979 Electrotechnicalvocabulary : Switchgear andcontrolgear
(84) IS:1885(part-32)-1971 Electrotechnical vocabulary: Cables, conductors and accessones for electricity supply.
(85) IS:2629 Recommended practice for hot dip galvanizing on iron and steel.
(86) IS: 4759 Hot dip zink coatings on structural steel and other allied products.

Following Indian Standards are for LED lamp
1. 16101 : 2012 General Lighting - LEDs and LED modules - Terms and Definitions
2. 16102(Part 1) :2012 Self- Ballasted LED-Lamps for General Lighting Services Part 1 Safety Requirements
3 16102(Part 2): 2012 Self-Ballasted LED-Lamps for General Lighting Services Part 2 Performance Requirements
4 16103(Part 1) : 2012 Led Modules for General Lighting- Safety Requirements
5 15885(Part 2/Sec 13) :2012 Lamp Control Gear Part 2 Particular Requirements Section 13 d.c. or a.c. Supplied Electronic Controlgear for Led Modules
6 16104 :2012 d.c. or a.c. Supplied Electronic Control Gear for LED Modules Performance requirements
7 16105 :2012 Method of Measurement of Lumen Maintenance of Solid -State Light (LED) Sources
8 16106 :2012 Method of Electrical and Photometric Measurements of Solid-State Lighting (Led) Products
9 16108 :2012 Photobiological Safety of Lamps and Lamp Systems

10. Relevant IEC standards for LED lighting Lamp and luminaires.

APPENDIX-C

SAFETY PROCEDURE

1. The National Electricity Code and National Building Code as amended up to date, are to be followed in their entirety. Any installation or portion of installation which does not comply with these codes should be got rectified immediately.

2. The detailed instructions on safety procedures given in B.I.S. Code No. 5216-1969-"Code of Safety Procedures and Practices in Electrical Works" shall be strictly followed.

3. No inflammable materials shall be stored in places other than the rooms specially constructed for this purpose in accordance with the provisions of Indian Explosives Act. If such storage is unavoidable, it should be allowed only for a short period and in addition, special precautions, such as cutting off the supply to such places at normal times, storing materials away from wiring and switch boards, giving electric supply for a temporary period with the permission of consultants shall be taken.
4. The electrical switchgears and distribution boards should be clearly marked to indicate the areas being controlled by them.

5. Before energizing on an installation after the work is completed, it should be ensured that all tools have been removed and counted, no person is present inside any enclosure of the switch board etc. any earthing connection made for doing the work has been removed.

APPENDIX

CLAUSES GENERAL HEALTH, SAFETY AND ENVIRONMENTAL (HSE) ASPECTS

1.It will be solely the Contractor's responsibility to fulfill all the legal formalities with respect to the Health, Safety and Environmental aspects of the entire job (namely; the person employed by him, the equipment, the environment, etc.) under the jurisdiction of the district of that state where it is operating. Ensure that all sub-contractors hired by him comply with the same requirement as the Contractor himself and shall be liable for ensuring compliance all HSE laws by the sub or sub-sub contractors.

2.Every person deployed by the Contractor in a mine must wear safety gadgets to be provided by the Contractor. The Contractor shall provide proper Personnel Protective Equipment as per the hazard identified and risk assessed for the job and conforming to statutory requirement and Company PPE schedule. Safety appliances like protective footwear, Safety Helmet and Full Body harness has to be DGMS approved. Necessary supportive document shall have to be submitted as proof. If the Contractor fails to provide the safety items as mentioned above to the working personnel, the Contractor may apply to the Company for providing the same. Company will provide the safety items, if available. But in turn, Company will recover the actual cost of the items by deducting from Contractor's Bill. . However, it will be the Contractor's sole responsibility to ensure that the persons engaged by him in the mines use the proper PPE while at work. All the safety gears mentioned above are to be provided to the working personnel before commencement of the work.

3.The Contractor shall prepare written Safe Operating Procedure (SOP) for the work to be carried out, including an assessment of risk, wherever possible and safe methods to deal with it/them. The SOP should clearly state the risk arising to men, machineries & material from the mining operation / operations to be done by the Contractor and how it is to be managed.

4.The Contractor shall provide a copy of the SOP to the person designated by the mine owner who shall be supervising the Contractor's work.

5.Keep an up to date SOP and provide a copy of changes to a person designated by the Mine Owner/Agent/Manager.

6.Contractor has to ensure that all work is carried out in accordance with the Statute and SOP and for the purpose he may deploy adequate qualified and competent personnel for the purpose of carrying out the job in a safe manner. For work of a specified scope/nature, he should develop and provide to the mine owner a site-specific code of practice in line.

7.All persons deployed by the Contractor for working in a mine must undergo Mines Vocational Training, initial medical examination, PME. They should be issued cards stating the name of the Contractor and the work and its validity period, indicating status of MVT, IME & PME.

8. The Contractors hall submit to DGMS returns indicating - Name of his firm, Registration number, Name and address of person heading the firm, Nature of work, type of deployment of work persons, Number of work persons deployed, how many work persons hold VT Certificate, how many work persons undergone IME and type of medical coverage given to the work persons

9.The return shall be submitted quarterly (by 10th of April, July, October & January) for contracts of more than one year. However, for contracts of less than one year, returns shall be submitted monthly.

10. It will be entirely the responsibility of the Contractor/his Supervisor/representative to ensure strict adherence to all HSE measures and statutory rules during operation in Company's installations and safety of workers engaged by him. The crew members will not refuse to follow any instruction given by company's Installation Manager / Safety Officer / Engineer-in-charge / Official / Supervisor/Junior Engineer-in-charge for safe operation.
11.Any compensation arising out of the job carried out by the Contractor whether related to pollution, Safety or Health will be paid by the Contractor only.
12.Any compensation arising due to accident of the Contractor's personnel while carrying out the job, will be payable by the Contractor.
13. The Contractor shall have to report all incidents including near miss to Installation Manager / departmental representative of the concerned department of Company.

14.The Contractor has to keep a register of the persons employed by him/her. The Contractor's supervisor shall take and maintain attendance of his men every day for the work, punctually.
15.If the Company arranges any safety class / training for the working personnel at site (company employee, Contractor worker, etc) the Contractor will not have any objection to any such training.
16. The health checkup of Contractor's personnel is to be done by the Contractor in authorized Health Centers as per Company's requirement & proof of such test(s) is to be submitted to Company. The frequency of periodic medical examinations should be every five years for the employees below 45 years of age and every three years for employees of 45 years of age and above.
17. To arrange daily tool box meeting and regular site safety meetings and maintain records.
18. Records of daily attendance, accident report etc. are to be maintained in Form B, E, J (as per Mines Rules 1955) by the Contractor.

19. A Contractor employee must, while at work, take reasonable care for the health and safety of people who are at the employee's place of work and who may be affected by the employee's act or omissions at work.
20.A Contractor employee must, while at work, cooperate with his or her employer or other persons so far as is necessary to enable compliance with any requirement under the act or the regulations that is imposed in the interest of health, safety and welfare of the employee or any other person.
22. Contractor's arrangements for health and safety management shall be consistent with those for the mine owner.
23. In case Contractor is found non-compliant of HSE laws as required company will have the right for directing the Contractor to take action to comply with the requirements, and for further non-compliance, the Contractor will be penalized prevailing relevant Acts/Rules/Regulations.

24. When there is a significant risk to health, environment or safety of a person or place arising because of a non-compliance of HSE measures Company will have the right to direct the Contractor to cease work until the non-compliance is corrected.
25. The Contractor should prevent the frequent change of his contractual employees as far as practicable.
26. The Contractor should frame a mutually agreed bridging document between Company & the Contractor with roles and responsibilities clearly defined.
27. For any HSE matters not specified in the contract document, the Contractor will abide the relevant and prevailing Acts/rules/regulations/ pertaining to Health, Safety and Environment.

PART-C

1.0 "The bidders should note that, if three (3) or more bidders are found to be technically eligible, no clarification / deficit documents will be sought from the bidders under any circumstances, once the bids are opened and the bids will be evaluated on the basis of documents submitted by the bidders along with the bid".

2.0 The bidder shall also furnish following information / documents along with the bid. Company reserves the right to reject the bid in the event of non-submission of such information / documents.

- Wherever applicable, the bidder shall have itself registered under Employees' Provident Fund and Miscellaneous Provisions Act, 1952 and follow the relevant statutory provisions including Rules made there-under concerning contractual workers to be engaged by such bidder. The bidder shall furnish the Provident Fund code number issued by the appropriate Govt. Authority, with supporting documents, or a declaration / undertaking in stamped paper in the **Format Annexure-I.**

3.0 The bidder shall furnish following information / documents on issuance of LOI within 15 (fifteen) days from the date of issuance. Company reserves the right to cancel the contract / LOI if these documents are not submitted within the stipulated period, besides taking action under **Part-C clause 5.0 (C)** of Part-III SCC of tender document.

(a) PAN, VAT Registration number (Not required for OIL registered contractors)

(b) Service Tax Registration number issued by the appropriate Govt. Authority or exemption certificate from the concerned authority or a declaration / undertaking in stamped paper in the prescribed Format to the extent that provisions of the Service Tax are not applicable to him / her / them and in the event of any claim from the Service Tax Authority upon Company at a later date with respect to the services provided under the contract, the bidder shall deposit such amount to the Company, as per the rules applicable from time to time.

4.0 The bidder must provide the following minimum numbers of equipments in operational condition capable of providing uninterrupted services under the contract as and when required.

LIST OF MATERIALS & EQUIPMENTS TO BE SUPPLIED BY CONTRACTOR:

i) Concrete Mixture Machine-4 Nos.
ii) Concrete Vibrator (Needle Type)-08 Nos.
iii) Sump Pump-2 No.
iv) Welding set-1 No.
v) Excavator-2Nos.
vi) Truck/ Dumper-5 Nos.
vii) RoadRoller-2 No. (Capacity= 8 tonne)
viii) Level machine- 1 No.

ix) Cube mould (150mm x 150mm x 150mm) – 9 Nos.

5.0 (A) The following check list, duly endorsed by the bidder, to be enclosed with the bid document:

CHECK LIST

SL NO	DESCRIPTION	
1	Location /construction site visited & assessed.	YES
2	Item descriptions clearly understood and availability of materials verified.	YES
3	Understood that Mandatory Material tests to be performed (wherever applicable)	YES
4	PF code No./ Annexure-I as per **Part C clause no. 2.0** of Part-III SCC have been submitted by me /us	YES
5	Bid validity from the date of technical bid opening is 180 days	YES
6	I / We shall provide the following minimum numbers of equipments in operational condition capable of providing uninterrupted services under the contract as and when required, failing which company shall have the right to terminate the contract, besides taking action as per **Part C clause 5(C)** hereunder. **List of equipment's:** i) Concrete Mixture Machine-4 Nos. ii) Concrete Vibrator (Needle Type)-08 Nos. iii) Sump Pump-2 No. iv) Welding set-1 No. v) Excavator-2Nos. vi) Truck/Dumper-5 Nos. vii) RoadRoller-2 No. (Capacity= 8 tonne) viii) Level machine- 1 No. ix) Cube mould (150mm x 150mm x 150mm) – 9 Nos.	YES

Bidder(s) should clearly understand these criteria before submission of the bid and in case of any doubt he / she / they may seek clarification from Engineer – in charge / Head-Civil Engineering department, before submitting the bid.

(B) Information / List of other Civil works contract, if any, being executed by the bidder(s) in his / her / their firm's name in OIL and expected to continue beyond 6 months time from date of opening of bid document to be furnished to Head-Civil by all bidders before issuance of work order.

(C) Company reserves the right to debar the bidder / contractor during processing of tender and / or during continuation of the contract on commission or omission on the part of the bidder / contractor as under:

a) Has indulged in malpractices, bribery, fraud, pilferage.

b) Is bankrupt or is being dissolved or resolved to be wound up or proceedings for winding up or dissolution have been instituted.

c) Has furnished false information /statement / declaration and / or forged document / certificate.

d) Has substituted materials in lieu of materials supplied by OIL or has not returned or has short returned or has unauthorizedly disposed-off materials / documents / drawings / tools or plants or equipments supplied by OIL.

e) Has obtained official Company information or copies of documents in relation to the tender / contract by dubious methods / means.

f) Has deliberately violated and circumvented the provisions of labour laws / regulations / rules, safety norms or other statutory requirements.

g) Has indulged in construction and erection of defective works or supply of defective materials/services and not made good of the defects within reasonable time in spite of follow-up by Company.

h) Has not cleared OIL's previous dues.

i) Has committed Breach of Contract or has failed to perform a contract or has abandoned the contract.

j) Has refused to accept LOA / LOI / Purchase Order / Signing of the Contract after accepting LOA / Work Order after the same is issued by OIL within the period of Bid validity and as per agreed terms & conditions.

k) After bid opening, withdraws / revises its bid within the period of bid validity for no valid reasons. However, reduction of quoted rate(s) / Bid price by L1 Bidder after the bid opening date shall not constitute ground for banning.

l) Has parted with, leaked or provided confidential / proprietary information of OIL given to the party only for its use (in discharging its obligations against an order / contract) to any third party without prior consent of OIL.

m) Use intimidation / threatening or brings undue outside pressure on the Company or its Official(s) for acceptance of its bid or acceptance of materials supplied or performance of the job under the contract / purchase order.

n) If the Director / Owner / Proprietor / Partner of a party is convicted by a court of law for offences involving moral turpitude in relation to its business dealings during last five years.

o) Poor performance of the supplier / contractor /service provider in one or several contracts / supplies affecting Company's operations.

p) Any other ground for which, in the opinion of the Company makes it undesirable to deal with the party.

Part- IV SCPME

OIL INDIA LIMITED
(A Govt. of India Enterprise)
Contracts, Duliajan
WORKS CONTRACT
Schedule of company's Plants, Materials and Equipments
E-Tender No.CDI8869P16

a) **SCHEDULE OF MATERIALS AVAILABLE AT THE COMPANY'S STORES / STOCK PILES for permanent incorporation in works and**

b) SCHEDULE OF COMPANY'S PLANTS AND EQUIPMENTS for use in the execution of work

Materials: Cement will be supplied by company.

Note: All empty Cement bags must be returned to material's Godown, Duliajan failing which a sum of Rs.8.00 (Rupees Eight) only per bag will be recovered from Contractor's bill.

Plant & Equipment: Nil

NOTE:-

1. The Contractor is to arrange transport of the above materials to site of work with proper safety.

2. If the materials listed above are not available suitable substitute will be provided by the Company and Contractor shall incorporate the same in the works without extra cost.
3. Containers must be returned to Company in good condition.
4. Plants and equipment if issued to Contractor must be under proper watch so that no part is pilfered. These must be handled only by Company's operators. Contractor shall be responsible for any loss or damage to these plants and equipment while these are under his/their custody.
5. Materials issued to Contractor must be under proper watch & ward so that no part is pilfered. If any pilferation takes place the matter will be referred to appropriate Govt. authorities for legal action as well as realization of the materials issued.
6. Cement issued to Contractor by the Company is meant only for the specific Company work relating to the Contract. However, if any quantity of Cement is left over from the quantities issued for any reason whatsoever, on the completion / cancellation / termination of the Contract the same shall have to be returned to the Company in full within one week of completion/cancellation of the work failing which the matter will be referred to appropriate Govt. authorities for legal action as well as realization of the Cement.
7. Bitumen issued to Contractor by the Company is meant only for the specific Company work relating to the Contract. However, if any quantity of Bitumen is left over from the quantities issued for any reason whatsoever, on the completion / cancellation / termination of the Contract the same shall have to be returned to the Company in full within one week of completion/cancellation of the work failing which the matter will be referred to appropriate Govt. authorities for legal action as well as realization of the bitumen
8. All other materials issue to the Contractor by the Company if subsequently found to be in excess of the actual requirement will have to be returned by the Contractor within two weeks of completion of the work failing which the cost of all such materials will be recovered from the Contactor at double the value of materials without any reference to him.

PART-V SAFETY MEASURES

To,

HEAD-CONTRACT
Oil India Limited
DULIAJAN-786602

SUB: SAFETY MEASURES

Description of work/service: Construction of Three Storied CSR Activity Complex Building adjacent to HTPC Complex, Duliajan including supply of all materials except Cement.

Sir,

We hereby confirm that we have fully understood the safety measures to be adopted during execution of the above contract and that the same have been explained to us by the concerned authorities. We also give the following assurances.

a) Only experienced and competent persons shall be engaged by us for carrying out work under the said contract.

b) The names of the authorized persons who would be supervising the jobs on day to day basis from our end are the following:

i) _____
ii) _____
iii) _____

The above personnel are fully familiar with the nature of jobs assigned and safety precautions required.

c) Due notice would be given for any change of personnel under item(b) above.

d) We hereby accept the responsibility for the safety of all the personnel engaged by us and for the safety of the Company's personnel and property involved during the course of our working under this contract. We would ensure that all the provisions under the Oil Mines Regulations, 1984 and other safety rules related to execution of our work would be strictly followed by our personnel. Any violation pointed out by the Company's Engineers would be rectified forthwith or the work suspended till such time the rectification is completed by us and all expenditure towards this would be on our account.

e) We confirm that all persons engaged by us would be provided with the necessary Safety Gears at our cost.

f) All losses caused due to inadequate safety measures or lack of supervision on our part would be fully compensated by us and the Company will not be responsible for any lapses on our part in this regard.

h) We shall abide by the following HSE (Health Safety & Environment) POINTS:

GENERAL HEALTH, SAFETY & ENVIRONMENT (HSE) POINTS:

1. It will be solely the Contractor's responsibility to fulfill all the legal formalities with respect to the Health, Safety and Environmental aspects of the entire job (namely; the person employed by him, the equipment, the environment, etc.) under the jurisdiction of the district of that state where it is operating. . Ensure that all sub-contractors hired by him comply with the same requirement as the contractor himself and shall be liable for ensuring compliance all HSE laws by the sub or sub-sub contractors.

2. Every person deployed by the contractor in a mine must wear safety gadgets to be provided by the contractor. The Contractor shall provide proper Personnel Protective Equipment as per the hazard identified and risk assessed for the job and conforming to statutory requirement and company PPE schedule. Safety appliances like protective footwear, Safety Helmet and Full Body harness has to be DGMS approved. Necessary supportive document shall have to be submitted as proof. If the Contractor fails to provide the safety items as mentioned above to the working personnel, the Contractor may apply to the Company (OIL) for providing the same. OIL will provide the safety items, if available. But in turn, OIL will recover the actual cost of the items by deducting from Contractor's Bill. . However, it will be the Contractor's sole responsibility to ensure that the persons engaged by him in the mines use the proper PPE while at work. All the safety gears mentioned above are to be provided to the working personnel before commencement of the work.

3. The Contractor shall prepare written Safe Operating Procedure (SOP) for the work to be carried out, including an assessment of risk, wherever possible and safe methods to deal with it/them. The SOP should clearly state the risk arising to men, machineries & material from the mining operation / operations to be done by the contractor and how it is to be managed.

4. The contractor shall provide a copy of the SOP to the person designated by the mine owner who shall be supervising the contractor's work.

5. Keep an up to date SOP and provide a copy of changes to a person designated by the Mine Owner /Agent /Manager.

6. Contractor has to ensure that all work is carried out in accordance with the Statute and SOP and for the purpose he may deploy adequate qualified and competent personnel for the purpose of carrying out the job in a Contractor 1 Company SCC safe manner. For work of a specified scope/nature, he should develop and provide to the mine owner a site specific code of practice in line.

7. All persons deployed by the contractor for working in a mine must undergo Mines Vocational Training, initial medical examination, PME. They should be issued cards stating the name of the contractor and the work and its validity period, indicating status of MVT, IME & PME.

8. The contractor shall submit to DGMS returns indicating - Name of his firm, Registration number, Name and address of person heading the firm, Nature of work, type of deployment of work persons,

Number of work persons deployed, how many work persons hold VT Certificate, how many work persons undergone IME and type of medical coverage given to the work persons.

9. The return shall be submitted quarterly (by 10th of April, July, October & January) for contracts of more than one year. However, for contracts of less than one year, returns shall be submitted monthly.

10. It will be entirely the responsibility of the Contractor/his Supervisor/representative to ensure strict adherence to all HSE measures and statutory rules during operation in OIL's installations and safety of workers engaged by him. The crew members will not refuse to follow any instruction given by company's Installation Manager / Safety Officer / Engineer / Official / Supervisor/Junior Engineer for safe operation.

11. Any compensation arising out of the job carried out by the Contractor whether related to pollution, Safety or Health will be paid by the contractor only.

12. Any compensation arising due to accident of the Contractor's personnel while carrying out the job, will be payable by the contractor.

13. The contractor shall have to report all incidents including near miss to Installation Manager / departmental representative of the concerned department of OIL.

14. The contractor has to keep a register of the persons employed by him/her. The contractor's supervisor shall take and maintain attendance of his men every day for the work, punctually.

15. If the company arranges any safety class / training for the working personnel at site (company employee, contractor worker, etc) the contractor will not have any objection to any such training.

16. The health check up of contractor's personnel is to be done by the contractor in authorized Health Centers as per OIL's requirement & proof of such test(s) is to be submitted to OIL. The frequency of periodic medical examinations should be every five years for the employees below 45 years of age and every three years for employees of 45 years of age and above.

17. To arrange daily tool box meeting and regular site safety meetings and maintain records.

18. Records of daily attendance, accident report etc. are to be maintained in Form B, E, J (as per Mines Rules 1955) by the contractor.

19. A contractor employee must, while at work, take reasonable care for the health and safety of people who are at the employee's place of work and who may be affected by the employee's act or omissions at work.

20. A contractor employee must, while at work, cooperate with his or her employer or other persons so far as is necessary to enable compliance with any requirement under the act or the regulations that is imposed in the interest of health, safety and welfare of the employee or any other person.

21. Contractor's arrangements for health and safety management shall be consistent with those for the mine owner.

22. In case Contractor is found non-compliant of HSE laws as required company will have the right for directing the contractor to take action to comply with the requirements, and for further non-compliance, the contractor will be penalized prevailing relevant Acts/Rules/Regulations.

23. When there is a significant risk to health, environment or safety of a person or place arising because of a non-compliance of HSE Measures Company will have the right to direct the contractor to cease work until the non-compliance is corrected.

24. The contractor should prevent the frequent change of his contractual employees as far as practicable.

25. The contractor should frame a mutually agreed bridging document between OIL & the contractor with roles and responsibilities clearly defined.

26. For any HSE matters not specified in the contract document, the contractor will abide the relevant and prevailing Acts/rules/regulations/ pertaining to Health, Safety and Environment.

(Seal)

Yours Faithfully

Date_____

M/s_____

FOR & ON BEHALF OFCONTRACTOR

PART-VI INTEGRITY PACTY

INTEGRITY PACT

Between
Oil India Limited (OIL) hereinafter referred to as "The Principal"
And
(Name of the bidder).....hereinafter referred to as "The Bidder/Contractor"

Preamble:

The Principal intends to award, under laid down organizational procedures, contract/s for Construction of Three Storied CSR Activity Complex Building adjacent to HTPC Complex, Duliajan including supply of all materials except Cement. The Principal values full compliance with all relevant laws and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder/s and Contractor/s.

In order to achieve these goals, the Principal cooperates with the renowned international Non-Governmental Organisation "Transparency International" (TI). Following TI's national and international experience, the Principal will appoint an external independent Monitor who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1 - Commitments of the Principal

(1) The Principal commits itself to take all measures necessary to prevent Corruption and to observe the following principles:-

i). No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for him/herself or third person, any material or immaterial benefit which he/she is not legally entitled to.

ii). The Principal will, during the tender process treat all Bidders with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidders the same information and will not provide to any Bidder confidential/additional information through which the Bidder could obtain an advantage in relation to the tender process or the contract execution.

iii). The Principal will exclude from the process all known prejudiced persons.

(2) If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the relevant Anti-Corruption Laws of India, or if there be a substantive suspicions in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

Section 2 - Commitments of the Bidder/Contractor

(1) The Bidder/Contractor commits itself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.

i) The Bidder/Contractor will not, directly or through any other person or firm, offer, promise or give to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material or immaterial benefit which h e/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

ii) The Bidder/Contractor will not enter with other Bidders into any Undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, Subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelisation in the bidding process.

iii) The Bidder/Contractor will not commit any offence under the relevant Anticorruption Laws of India; further the Bidder/Contractor will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

iV) The Bidder/Contractor will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

(2) The Bidder/Contractor will not instigate third persons to commit offences outlined above or be an accessory to such offences.

Section 3 - Disqualification from tender process and exclusion from future Contracts

If the Bidder, before contract award has committed a transgression through a violation of Section 2 or in any other form such as to put his reliability or risibility as Bidder into question, the Principal is entitled to disqualify the Bidder from the tender process or to terminate the contract, if already signed, for such reason.

1. If the Bidder/Contractor has committed a transgression through a violation of Section 2 such as to put his reliability or credibility into question, the Principal is entitled also to exclude the Bidder/Contractor from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of the transgression. The severity will be determined by the circumstances of the case, in particular the number of transgressions, the position of the transgressions within the company hierarchy of the Bidder and the amount of the damage. The exclusion will be imposed for a minimum of 6 months and maximum of 3 years.

2. The Bidder accepts and undertakes to respect and uphold the Principal's Absolute right to resort to and impose such exclusion and further accepts and undertakes not to challenge or question such exclusion on any ground, including the lack of any hearing before the decision to resort to such exclusion is taken. This undertaking is given freely and after obtaining independent legal advice.

3. If the Bidder/Contractor can prove that he has restored/recouped the Damage caused by him and has installed a suitable corruption prevention system, the Principal may revoke the exclusion prematurely.

4. A transgression is considered to have occurred if in light of available evidence no reasonable doubt is possible.

Section 4 - Compensation for Damages

1. If the Principal has disqualified the Bidder from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover from the Bidder liquidated damages equivalent to 3 % of the value of the offer or the amount equivalent to Earnest Money Deposit/Bid Security, whichever is higher.

2. If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages equivalent to 5% of the contract value or the amount equivalent to Security Deposit/Performance Bank Guarantee, whichever is higher.

3. The bidder agrees and undertakes to pay the said amounts without protest or demur subject only to condition that if the Bidder/Contractor can prove and establish that the exclusion of the Bidder from the tender process or the termination of the contract after the contract award has caused no damage or less damage than the amount or the liquidated damages, the Bidder/Contractor shall compensate the Principal only to the extent of the damage in the amount proved.

Section 5 - Previous transgression

1. The Bidder declares that no previous transgression occurred in the last 3 years with any other Company in any country conforming to the TI approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.

2. If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

Section 6 - Equal treatment of all Bidders/Contractor/Subcontractors

1. The Bidder/Contractor undertakes to demand form all subcontractors a commitment in conformity with this Integrity Pact, and to submit it to the Principal before contract signing.

2. The Principal will enter into agreements with identical conditions as this one with all Bidders, Contractors and Subcontractors.

3. The Principal will disqualify from the tender process all bidders who do not sign this Pact or violate its provisions.

Section 7 - Criminal charges against violating Bidders/Contractors/ Subcontractors

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor, which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

Section 8 - External Independent Monitor/Monitors (three in number depending on the size of the contract) (to be decided by the Chairperson of the Principal)

1. The Principal appoints competent and credible external independent Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.

2. The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the Chairperson of the Board of the Principal.

3. The Contractor accepts that the Monitor has the right to access without restriction to all Project documentation of the Principal including that provided by the Contractor. The Contractor will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his project documentation. The same is applicable to Subcontractors. The Monitor is under contractual obligation to treat the information and documents of the Bidder/Contractor/Subcontractor with confidentiality.

4. The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

5. As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or heal the violation, or to take other relevant action. The monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.

6. The Monitor will submit a written report to the Chairperson of the Board of the Principal within 8 to 10 weeks from the date of reference or intimation to him by the 'Principal' and, should the occasion arise, submit proposals for correcting problematic situations.

7. If the Monitor has reported to the Chairperson of the Board a substantiated suspicion of an offence under relevant Anti-Corruption Laws of India, and the Chairperson has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

8. The word 'Monitor' would include both singular and plural.

Section 9 - Pact Duration

This Pact begins when both parties have legally signed it. It expires for the Contractor 12 months after the last payment under the respective contract, and for all other Bidders 6 months after the contract has been awarded.

If any claim is made/ lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/determined by Chairperson of the Principal.

Section 10 - Other provisions

1. This agreement is subject to Indian Law. Place of performance and jurisdiction is the Registered Office of the Principal, i.e. New Delhi.

2. Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.

3. If the Contractor is a partnership or a consortium, this agreement must be, signed by all partners or consortium members.

4. Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intensions.

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For the Principal For the Bidder/Contractor

Place. Duliajan. Witness 1: .....

Date . . Witness 2: .....

BID REJECTION CRITERIA (BRC) / BID EVALUATION CRITERIA (BEC)

(A). BID REJECTION CRITERIA (BRC):

1.0 The bid shall conform generally to the specifications and terms and conditions given in the Tender Documents. Bids will be rejected in case services offered do not conform to the required parameters stipulated in the technical specifications. Not-withstanding the general conformity of the bid to the stipulated specifications, the following mandatory requirements will have to be particularly met by the Bidders without which the same will be considered as non-responsive and rejected. All the documents related to BRC must be submitted along with the Techno-Commercial Bid.

2.1 Interested bidders shall have to submit the following documents to qualify for opening of the Price Bid:

2.1.1 Experience of having successfully completed similar works with CPWD, Railways, APWD, MES, NRL, ONGCL, OIL or any other Government Organization / Public Sector Undertaking. The minimum value of contract work completed successfully during the last seven (07) years ending last day of the month previous to the one in which applications are invited should be either of the following

One single completed work of value = ₹ 534, 32,000 /-

OR

Two numbers completed works of value= ₹ 333, 95,000/-each

OR

Three numbers completed works of value = ₹ 267, 16,000/-each

2.1.1.1 The bidder must possess valid electrical license from the appropriate Govt. authority or else have tie up with an Electrical Firm having the electrical license. The bidder or their collaborators must have experience in internal electrification works in Office / Residential Building during the last 7(seven) years ending last day of month previous to the one in which applications are invited in any organizations as listed in Civil Experience. In case of collaboration with any Electrical firm as mentioned above, the bidder must furnish a MoU entered into with the collaborator towards providing the requisite service as per the terms of the contract.

2.1.1.1.1. The bidder shall give an undertaking for following:

a) They will purchase transformer and LT Panels from Original Equipment Manufacturer or their Authorised Dealers/Channel Partners/ Stockist.
b) They shall employ work persons with valid electrical supervisor/ electrician/ wireman permits/ license issued or recognised by State Licensing Board, Govt. of Assam to carry out all electrical jobs

2.1.1.2 The bidder must have technical site supervisor having minimum educational qualification of three years diploma in Civil Engineering.

2.1.2 Average Annual Financial Turnover of the bidder during the last three (03) years, ending 31st March 2015 should be at least ₹ **200, 37,000/-.**The proof of Annual Turnover should be either in the form of Audited Balance Sheet along with Profit and Loss account or Certification from Chartered / Cost Accountant firm along with Profit and Loss account indicating their membership / code number.

2.1.3 Bids must be valid for minimum 180 (one hundred eighty) days from the date of Technical Bid opening.

Note: In case of extension of Bid Opening Date, Bid validity must be extended suitably by the bidder, as and when advised by OIL.

2.1.4 Bid Security must be furnished (except those exempted) as a part of the Technical Bid. The Bid Security (in original) must reach the Office of Head-Contracts, OIL, Duliajan on or before 1:30 p.m. on the bid closing date. *Alternatively*, a*pplicants already having User ID & Password for OIL's e-portal can pay the requisite Bid Document cost & Bid security against the individual IFBs through the online payment gateway.*

The amount of Bid Security shall be as specified in the NIT.
Note:
(a) In case the Bidder submits Bid security in the form of Bank Guarantee (BG), the BG must be valid for minimum 210 days from the date of Technical bid opening.
(b) In case of extension of Bid Opening Date, Bid Security validity must be extended suitably by the bidder, as and when advised by OIL.

2.1.5 The bidders must upload the Integrity Pact, digitally signed by the authorized signatory (who is authorized to sign the bid) along with the Technical Bid.

2.1.6 The bidders must submit documentary evidence for BRC clause numbers 2.1.1, 2.1.1.1, 2.1.1.2 and 2.1.2 and undertaking as per clause number 2.1.1.1.1. All the documents should be legible and must be duly NOTORISED by the Notary. The bidders must upload the documents with digital signature.

3.0 (a) **"Similar work"** mentioned in Paragraph 2.1.1 above means the following:

Definition of similar work: RCC Building.

(b) Non-submission of the documents as specified in all the paragraphs above will result in rejection of bids. `

4.0 SUBMISSION OF FORGED DOCUMENTS:

Bidders should note that Company may verify authenticity of all the documents /certificates / information submitted by the bidder(s) against the tender. In case at any stage of tendering process or Contract execution etc., if it is established that bidder has submitted forged documents / certificates / information towards fulfillment of any of the tender / contract conditions, Company shall immediately reject the bid of such bidder(s) or cancel / terminate the contract and forfeit EMD / SD submitted by the bidder(s), besides liable for action as per Part-C clause no. 5(C) of Part-III SCC of tender document.

(B) BID EVALUATION CRITERIA (BEC):

The bids conforming to the specifications, terms and conditions stipulated in the tender documents and considered to be responsive after subjecting to Bid Rejection Criteria will be considered for further evaluation as per the Bid Evaluation Criteria given below:

1.0 To ascertain the inter-se-ranking, the comparison of the responsive bids will be made including loading for deviation if any.

2.0 In case of identical lowest offered rate by more than 1 (one) bidder, the selection will be made by draw of lot amongst the parties offering the same lowest price.

Note: The Company's Internal Estimated Rates, as indicated in Part-II, are exclusive of P.F. & Service Tax.

NOTE: Apart from BEC/BRC as detailed above bidders are also advised to kindly note that Documents/ Annexure/Declaration as per Part-C clause no. 2.0 & 5.0 (A) of part –III SCC of tender document should be furnished along with the bid. However, this will not be a part of BEC / BRC.

Annexure-I

(ON THE NJSP OF RS.100/-)

TO BE NOTORISED

To
HEAD-CONTRACTS
OIL INDIA LIMITED
DULIAJAN

Dear Sirs,

Sub: UNDERTAKING/DECLARATION BY THE BIDDER (S) IN RESPECT OF TENDER NO. CDI8869P16.

(To be submitted by the Bidders who are not covered under EPF&MP Act, 1952)

This is in connection with the Bid submitted by …….(Name of the Bidder) against Tender …….for ……..(subject of the Tender). As per the conditions stipulated in Clause no…….(Name of the Provision/SCC etc.), we/I ,being authorized on behalf of …….(Name of the Contractor) hereby confirm and undertake as follows;

- That our Firm/Company shall be responsible to comply with all the applicable labour laws in respect of the present Contract.

- That we are fully conversant with the applicable laws and confirm that our Firm/Company is not covered under the Employees Provident Funds and Misc. Provisions Act, 1952 and applicable Rules there under, and therefore I we have not obtained any registration or Provident Fund Code under the Act.

- That if, during the period of the present Contract, we/our Firm /Company comes within the coverage of the aforesaid Acts or any other statutes; we shall comply with the same and submit the necessary documents to OIL. We further confirm that we will indemnify OIL towards any future statutory compliances/claims raised from any corner including statutory authorities against the Labour engaged by our Firm/Company in the Contract.

- That in the event of any contravention towards the applicable laws found on our part in respect of the present Contract, we undertake to indemnify OIL and deposit the claims, if any.

- That we shall fulfill all the obligations arising from under the labour laws in force from time to time and keep OIL indemnified against any loss/liability arising out of failure of our avoiding the laws.

We, further agree and undertake that in case of any violation of the above undertaking, OIL shall be at liberty to take appropriate action against us in terms of the Tender including but not limited to termination of contract and debarment from future business with OIL.

I/We declare that the information given above is true and any misstatement or misrepresentation or suppression of facts in connection with the above undertaking may entail rejection of the bid and cancellation of contract, if awarded.

Yours faithfully,

1. Authorized Signatory _____
(**BIDDER.)**

Place:-

Date:-